School of Education

Investigating Teachers' Experiences of Professional Development within a Major Education Reform in the Emirate of Abu Dhabi

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DECLARATION

To the best of my knowledge and belief, this thesis contains no material previously published by any other person except where due acknowledgement has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

Katrina Ruth McChesney

8 August 2017

ABSTRACT

Education systems across the globe rely heavily on teacher professional development as a key lever for improving educational quality. Past research has identified characteristics of effective professional development that can guide professional development practice. Evaluations of professional development activities, however, frequently highlight that even theoretically well-designed professional development can be ineffective in terms of improving teaching and learning. As such, ongoing evaluation of professional development, as well as investigations of the factors that contribute to the effectiveness of professional development, are important.

This study investigated Arab and Western teachers' perceptions of professional development in Abu Dhabi, United Arab Emirates, where a large-scale public education reform effort involving extensive teacher professional development has been underway since the early 2000s. Within an interpretivist paradigm and informed by a social constructivist epistemology, this study aimed to: examine teachers' perceptions of the design and impact of professional development in Abu Dhabi public schools; investigate relationships between the design and impact of professional development; investigate non-design-related factors that affected teachers' perceptions of the impact of professional development; and compare Arab and Western teachers' perceptions of professional development.

The study involved a mixed-methods design. First, a questionnaire was developed to capture teachers' perceptions of the impact of professional development activities; the new questionnaire was validated with a sample of 393 Arab and Western teachers. This impact questionnaire was then used with additional items related to the design of professional development to collect finer-grained quantitative data from a purposive sample of 35 teachers. The same 35 teachers also participated in semi-structured interviews.

Teachers' perceptions of the design of professional development were examined in terms of subject-specific content focus, active learning, coherence, duration, and collective participation. Of the 11 professional development categories examined, teachers indicated that formal, within-school subject department activities were the

most aligned with the five literature-based design features. School-wide professional development activities were least aligned with the literature-based design features.

Teachers' perceptions of the impact of professional development were examined in terms of teachers' affective reactions, teacher learning, changes in teachers' classroom practice or student outcomes, and the organisational response to professional development. Of the 11 categories examined, teachers indicated that participating in study or research was the category that had the greatest impact, whereas compulsory, system-wide, generic professional development was the category that had the least impact. Qualitative data provided explanations for the trends identified in the quantitative scores in relation to both the design and the impact of the 11 categories of professional development.

Relationships between the design and impact of professional development were then examined. Positive and statistically significant correlations ($p < .05$) were identified between all combinations of specific design features and forms of impact, indicating that the design features contributed to the impact of professional development in the Abu Dhabi context. Multiple regression analyses indicated that three design features (content focus, coherence, and duration) independently predicted teachers' affective reactions to professional development ($p < .05$), teacher learning ($p < .01$), and classroom changes or student outcomes ($p < .01$). Three design features (active learning, coherence, and duration) independently predicted the organisational response to professional development ($p < .05$).

Qualitative data were analysed to investigate other non-design-related factors that may have affected the impact of professional development. Using constructivist grounded theory techniques, a conceptual model was developed that depicted the ways in which various non-design-related factors influenced the impact of professional development. Within this model, the trajectory from professional development provision to teaching and learning impacts was depicted as comprising *intended* professional development, *received* professional development, *accepted* professional development, *applied* professional development, and, finally, *student impacts*. The non-design-related factors that were identified by the teachers in this study were interpreted as forming filters that controlled the first two transitions in

this trajectory. First, *structural* barriers (in relation to the language used in professional development and several school-based factors that affected teachers' access to professional development) determined whether the intended professional development became received professional development. Second, three types of *acceptance* barriers influenced whether the received professional development became accepted professional development: teachers' cognitive access to professional development (in terms of their prior knowledge and cultural capital related to Western educational approaches); teachers' perceptions of the 'fit' of the professional development for the contexts in which they worked; and the extent to which professional development acknowledged teacher agency.

Differences between Arab and Western teachers' perceptions of the design and the impact of professional development and the non-design-related factors were identified. In the Abu Dhabi public school context, it appeared that whereas Western teachers were cultural, linguistic, and geographical outsiders, Arab teachers were outsiders in terms of the educational approaches involved in professional development.

This study contributes to the emerging literatures on teacher professional development in non-Western contexts and education in the United Arab Emirates. The primary contribution of this study lies in its demonstration of the importance of culture and context in influencing teachers' experiences of professional development. The study indicates that future professional development practice needs to be informed by careful attention to the culture and cultural capital of the teachers involved as well as to the surrounding culture and context. The study makes a methodological contribution through the development and validation of a questionnaire for capturing teachers' perceptions of the impact of professional development. Finally, the study contributes to teachers in Abu Dhabi by offering them a voice in relation to their professional development experiences, which, to date, have been largely controlled at a system level.

KEYWORDS: Teacher professional development; professional development evaluation; education reform; culture; cultural differences; policy and practice; Abu Dhabi; United Arab Emirates; mixed-methods research; interpretivist research.

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It takes a village to get a PhD. Although my name is on the front page of this thesis, it would not be there at all were it not for the many members of my 'village' who have encouraged, guided, and supported me over the past five years. During my PhD enrolment, I have worked full time for three years and part time for two. I have become a mother. I have held four different jobs, lived in six different homes, and relocated from one side of the world to the other. I could not have done this alone.

My husband, Campbell, has encouraged and believed in me through every step of this epic journey (which he compared—with supporting arguments—to his much-loved sci-fi show *Stargate Universe*). He has sacrificed much in order to give me the immense amounts of time that go into a PhD. He has also made the effort to understand what I have been doing and has proudly told friends and workmates all about it. I love you, and I am so grateful; I can't wait to enjoy 'life after PhD' with you.

My daughter, Brooke, has never known life without Mummy's 'doctor project'. She has heard me say "no" more times than either of us would have liked; nonetheless, she has taught me so much about perseverance, resilience, unconditional love, and what really matters in life (note: it's not a PhD). My precious girl, I am looking forward to a whole lot more "yes" ahead.

My parents, my sister, and my wonderful in-laws have been unflagging cheerleaders and have blessed us with so much practical support on this journey. Meals, childcare, writing retreats, proofreading, prayers, celebrating milestones, encouraging words, and supportive listening ears—this is what families (and PhDs) are made of. Thank you.

Friends across the globe have also contributed to this journey. Early on, friends in Abu Dhabi encouraged me as I navigated my new identities as researcher and mother; many also helped me recruit participants for the study. In the final, intense stages of writing up, friends in New Zealand brought us meals, prayed for our sanity, and patiently asked (yet again), "So, how's the PhD going?" As a distance student,

the companionship and support from other doctoral students who have crossed my path—either in person or via online communities—has been invaluable. Finally, I am grateful to my friend and fellow doctoral student in education, Jacqui Burne, who edited this thesis according to the Australian Standards for Editing Practice. My 'village' has been abundantly populated; thank you all.

Throughout all of the changes and challenges of the past five years, one other person has been a constant source of support, wisdom, guidance, and encouragement. She has contributed the most, yet, in some ways, is the hardest to thank. I feel incredibly lucky to have been supervised by Associate Professor Jill Aldridge, an enormously hard-working and generous woman and a wonderful academic. Jill has believed in me from the beginning; I have learned so much from her, yet, at the same time, her wise tutelage has helped me to spread my own academic wings. Her accessibility for email and Skype communication, her detailed feedback on drafts, and a few key in-person meetings have been crucial for me in navigating the PhD-by-distance experience. I cannot thank you enough; I hope we will continue to work together in other ways.

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My final thanks must go to the teachers who participated in my study. Although I am no longer in Abu Dhabi, I am pleased to be able to offer this research to those who remain there: the teachers from all corners of the globe; those who coach and support them and deliver a wide range of professional development; and those who lead reform at school and system levels. I hope my study will in some way prove to be for their benefit and for that of the students they serve. *Shukran jazeelan* (thank you very much).

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LIST OF ACRONYMS[1]

ADEC	Abu Dhabi Education Council
ANOVA	Analysis of variance
ITPD	Impact of teacher professional development (questionnaire)
M	Mean (statistic)
MANOVA	Multivariate analysis of variance
OECD	Organisation for Economic Co-Operation and Development
PD	Professional development
Q4TE	Questionnaire for professional training evaluation
SD	Standard deviation (statistic)
UAE	United Arab Emirates
UK	United Kingdom
US	United States

[1] The term 'TNTP' also appears among the references cited in this thesis. Despite its appearance, TNTP is not an acronym; it is the full formal name of a professional organisation (see www.tntp.com).

Chapter 1

INTRODUCTION

At the time that this study was designed, I was employed by the government of Abu Dhabi, United Arab Emirates. I was one of many expatriates brought to the country to facilitate an ambitious education reform project in public schools in Abu Dhabi, and my daily work involved the professional development of teachers. It was this work and the associated experiences, reflections, and conversations with teachers that prompted my interest in investigating teachers' experiences of the various types of professional development that they experienced.

As I provided, participated in, and observed teacher professional development in Abu Dhabi public schools, I noted a range of practices, attitudes, assumptions, and responses. I saw professional development that was immensely powerful, expanding teachers' thinking and changing their teaching practice; I also saw professional development that was irrelevant and actively resisted by teachers. This was not unlike my experiences of professional development in my home country of New Zealand, so I became increasingly interested in learning more about what made professional development effective. Because my own work centred on teachers, I placed them at the centre of my research; as such, the overarching aim of my study was to investigate teachers' experiences of professional development in the Abu Dhabi public school context.

As well as being interested in general principles for improving the effectiveness of professional development, I also had a growing sense, as a result of my involvement in teacher professional development provision in Abu Dhabi, that the uniqueness of the Abu Dhabi context and the cultural diversity among those involved in the education reform effort were influential factors. At one level, this had been explicitly acknowledged: As expatriate staff, from our initial induction experiences onwards, the importance of respecting culture had been consistently emphasised—we were tasked with 'modernising, not Westernising' education in Abu Dhabi. However, in my daily work, I saw how a range of cultures, philosophies, worldviews, traditions, and innovations intersected—sometimes gracefully, sometimes counter-productively.

I saw that improvement efforts in the Abu Dhabi context did not always ‘work’ in the ways that people expected and that the best ways forward were not universally agreed upon.

Through the doctoral research of a colleague, I was exposed to the seminal work of Geert Hofstede, describing cultural dimensions and examining the differences between cultures. This fascinated me, and so, as part of my study, I wanted to better understand how these cultural differences impacted teacher professional development in Abu Dhabi. As such, my study included consideration of how the fields of teacher professional development and cultural differences intersected in the specific case of teacher professional development within the large-scale public education reform initiative that was being conducted in Abu Dhabi.

The purpose of Chapter 1 is to provide an introduction to my study. Given that Abu Dhabi is a unique environment and understanding aspects of its uniqueness is essential to understanding my study, the chapter begins by providing background information about Abu Dhabi, the United Arab Emirates, and their educational landscapes (Section 1.1). Then, with the context thus established, my study is described in terms of its conceptual framework (Section 1.2), its research objectives (Section 1.3), and its significance (Section 1.4). Finally, this chapter concludes by providing an overview of the organisation of the rest of this thesis (Section 1.5).

1.1 Context of the Study: Public Schools in Abu Dhabi, United Arab Emirates

This section provides information about the context in which my study was conducted. First, Section 1.1.1 introduces the nation of the United Arab Emirates; Section 1.1.2 then focuses on Abu Dhabi, one of the seven emirates making up the country and the emirate in which this study took place. Section 1.1.3 provides an overview of education in the Emirate of Abu Dhabi and introduces the large-scale education reform initiative that was occurring at the time the study took place. Two specific aspects of the reform context that were relevant to my study are then described in more detail: the teaching staff of Abu Dhabi public schools (Section 1.1.4) and the professional development provided to those teachers (Section 1.1.5).

1.1.1 The United Arab Emirates

The United Arab Emirates (UAE) is a small, relatively young country located on the Arabian Gulf[2]. As shown in Figure 1.1, it borders Saudi Arabia to the west and south and Oman to the east.

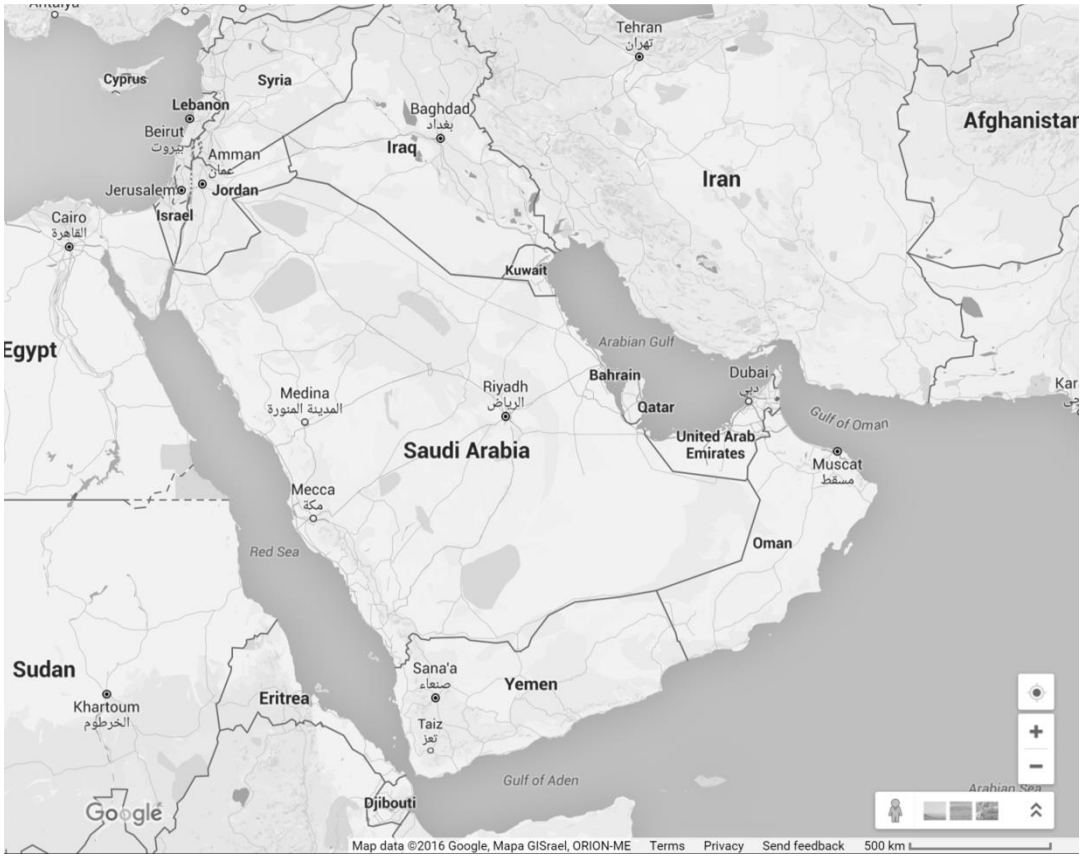

Figure 1.1. Map showing the United Arab Emirates and surrounding countries[3]

With a hot, dry climate and predominantly desert terrain, the area that now forms the UAE was traditionally inhabited by nomadic tribal communities of camel farmers, date farmers, and pearl divers. Islam has been followed in the region since the 7th century A.D. (G. R. King, 2001). Until the middle of the 20th century:

[2] Internationally, this stretch of water is more commonly known as the Persian Gulf. However, the name is disputed by a number of Arab countries, including the UAE, who refer to it as the Arabian Gulf – *Al Khaleej Al Arabi*. To respect the Arab context of my study, the term Arabian Gulf is used.
[3] Map source: http://maps.google.ae. Reproduced in accordance with Google Maps' terms of use.

> Life, even for members of the ruling family, was simple. Education was generally confined to lessons in reading and writing, along with instruction in Islam from the local preacher, while modern facilities such as roads, communications and health care were conspicuous only by their absence. Transport was by camel or boat, and the harshness of the arid climate meant that survival itself was often a major concern. (UAE Interact, 2008, p. 9)

The discovery of large oil reserves in the region in the 1950s and 1960s triggered dramatic changes. Sheikh Zayed bin Sultan Al Nahyan was appointed as ruler of Abu Dhabi in 1966 (UAE Interact, 2008) and charged with using the new oil revenues to generate rapid growth and development. Under his leadership, seven separate emirates (states) that had previously been under British protection united into a new nation, the United Arab Emirates, which was founded on December 2, 1971. Since then, the country has developed at an almost unprecedented rate in terms of technological advancement, infrastructure, social services, economy, and standards of living (UAE Interact, 2008; UAE National Media Council, 2013). The population has also grown dramatically, increasing from an estimated 250,000 in 1971 (UAE Interact, 2008) to over 9 million in 2017 (United Nations, 2017). Much of this population growth has been due to expatriates coming to work in the UAE; by 2015, Emirati nationals comprised only 10% of the total UAE population (United Nations, 2015).

Overall, at the time that my study was conducted[4], the UAE was a modern, forward-thinking, and ambitious nation. More religiously and culturally tolerant than some of its neighbours, the country values its Arabic language and culture while at the same time engaging with a wide range of international cultures and economies. The UAE of the 21st century is striving towards ambitious goals, thus continuing the legacy of its founder, Sheikh Zayed. According to the present UAE National Agenda, the country seeks, by its 50th anniversary in 2021, to lead the world in the areas of human development, public safety, entrepreneurship, economic indicators, education, healthcare, infrastructure, and sustainability (UAE Government, 2014). The education reform project, within which my study was conducted, is one of many

[4] The data for my study were collected in 2014.

ways in which the UAE is seeking to improve its performance and international competitiveness.

This section has introduced the UAE. The next section (Section 1.1.2) provides more detailed information on the Emirate of Abu Dhabi, where my study was conducted.

1.1.2 The Emirate of Abu Dhabi

The Emirate of Abu Dhabi is the largest of the seven emirates that make up the UAE, encompassing 87% of the country's land area (Statistics Centre – Abu Dhabi, 2015a). Figure 1.2 shows the division of the UAE into the seven emirates.

Figure 1.2. Map showing the seven emirates within the United Arab Emirates[5]

[5] Map source: http://www.d-maps.com/carte.php?num_car=5468&lang=en. Reproduced in accordance with *d-maps'* terms of use.

Due to its size, the Emirate of Abu Dhabi holds over 90% of the country's oil reserves and contributes approximately 60% of the country's economic output (UAE National Media Council, 2013). These advantages give the Emirate of Abu Dhabi a prominent role within the nation: The ruler of Abu Dhabi is the president of the UAE; the city of Abu Dhabi (the largest city within the emirate of the same name) serves as the country's capital; and, under the national constitution, the Emirate of Abu Dhabi has special voting powers within the Supreme Council (the UAE's highest authority).

When the UAE was established, the individual emirates retained much autonomy. Thus, the Emirate of Abu Dhabi has, *inter alia*, its own government, legal code, police force, health authority, customs authority, tax code, and education system (Abu Dhabi Government, 2013; UAE Government, 2017). Under the national constitution, each emirate also retains control over its own oil revenues.

Despite the rapid development and strong financial position generated by Abu Dhabi's oil production, the emirate nonetheless faces a number of key challenges. Many of these challenges are common to all seven emirates, but they are identified here due to their particular relevance to the Abu Dhabi government's priorities for social change and educational reform. At the time this study was conducted, key challenges included:

- A rapidly-growing youth population (UAE National Qualifications Authority, 2013);
- Substantial youth unemployment (UAE National Media Council, 2013);
- A high male drop-out rate from secondary schooling (Al Marri & Helal, 2011; Ridge, Farah, & Shami, 2013);
- A severe gap between the needs of employers and the outcomes of the education system, caused by the country's rapidly diversifying economy (Badri & Al Khaili, 2014; Muysken & Nour, 2006; Raven, 2011; UAE National Qualifications Authority, 2013);
- An over-reliance on foreign domestic workers for child rearing (Al Sumaiti, 2012; Roumani, 2005);

- A soaring divorce rate (Al Gharaibeh & Bromfield, 2012; Statistics Centre – Abu Dhabi, 2012);
- One of the highest traffic death tolls in the world (Godwin, 2006);
- High rates of diabetes, obesity, and smoking-related illnesses (Godwin, 2006);
- A heavy reliance on expatriate workers in almost all occupations (Aartun, 2002; Muysken & Nour, 2006; Raven, 2011);
- Concerns that globalisation (and, in particular, Westernisation and the pressure to establish English language fluency) may jeopardise Arabic language and Emirati culture and heritage (Godwin, 2006; Hopkyns, 2014);
- Apathy towards education and work among some Emirati nationals as a result of the security and generosity of the government's universal welfare provisions (Aartun, 2002; Godwin, 2006); and
- UAE citizens' overwhelming preference for public sector employment (Aartun, 2002; Godwin, 2006; Raven, 2011).

Together, these trends create a significant drain on government resources (World Bank, 1999). As such, the various issues facing Abu Dhabi and the UAE have informed the government's development of carefully targeted strategic plans (Abu Dhabi Government Executive Council, 2007; General Secretariat of the Executive Council, 2008; UAE Government, 2014). The specific priorities and strategies identified for educational improvement in Abu Dhabi (discussed in the next section) are, thus, situated within these wider national and emirate-wide agendas.

Geographically, the Emirate of Abu Dhabi comprises three regions: the Abu Dhabi region, which surrounds Abu Dhabi city; the Al Ain region, which surrounds Al Ain city; and Al Gharbia, which comprises a number of smaller towns including Madinat Zayed, Liwa, Sila'a, and Mirfa. Figure 1.3 shows the division of the Emirate of Abu Dhabi into these three regions and notes the number of school students, teachers, and administrators in each region. These values represent the fact that although Al Gharbia occupies the largest proportion of the emirate, it has the smallest population (Statistics Centre – Abu Dhabi, 2015b). The Abu Dhabi region, which includes the national capital city, has the largest population, closely followed by the Al Ain region (Statistics Centre – Abu Dhabi, 2015b).

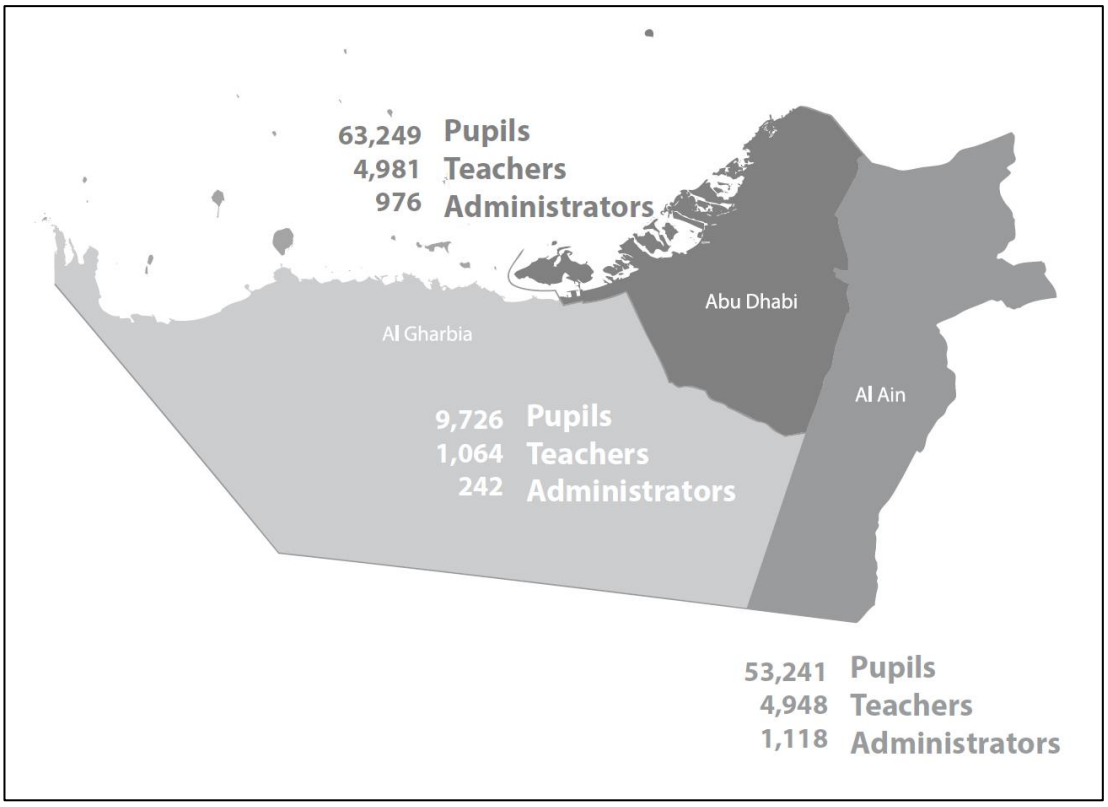

Figure 1.3. Map showing the three regions within the Emirate of Abu Dhabi[6]

Together, Sections 1.1.1 and 1.1.2 have provided an overview of the local context in which this study was conducted. The next section (Section 1.1.3) provides more specific information about education in that context. For clarity, in the remainder of this thesis, the term 'Abu Dhabi' will be assumed to refer to the Emirate of Abu Dhabi rather than the region or city of Abu Dhabi.

1.1.3 Education in Abu Dhabi: Past, Present, and Future Aspirations

Since the UAE was founded in 1971, educational improvement has been consistently recognised as a key priority to enhance the country's growth and development (UAE National Qualifications Authority, 2013). The country's founder, Sheikh Zayed bin Sultan Al Nahyan, believed strongly in the value of education, saying:

[6] Map source: Statistics Centre – Abu Dhabi, 2015, *Statistical Yearbook of Abu Dhabi 2015*, p. 170. Reproduced in accordance with Statistics Centre – Abu Dhabi terms of use.

> Wealth is not money. Wealth lies in men. This is where true power lies, the power that we value … The greatest use that can be made of wealth is to invest it in creating generations of educated and trained people. (UAE Interact, 2008, pp. 19–20)

Under the leadership of Sheikh Zayed and, subsequently, his sons, Sheikh Khalifa bin Zayed Al Nahyan and Sheikh Mohammed bin Zayed Al Nahyan (the president and crown prince, respectively, at the time that my study took place), education in Abu Dhabi was transformed within less than a century. The first school in Abu Dhabi was built in 1930, the first girls' school in 1963, the first kindergarten in 1968, and the first university in 1977 (Statistics Centre – Abu Dhabi, 2015a). By the 2013–2014 academic year (to which my study relates), Abu Dhabi had 438 schools serving over 340,000 students, with 95.7 females enrolled per 100 males (Statistics Centre – Abu Dhabi, 2012, 2015a). Under UAE law, public education provision from kindergarten to tertiary levels is completely free for all Emirati citizens, including items such as uniforms, textbooks, and field trips being fully funded by the government (Sills-Briegel, Bryant, & Al Hashimi, 2009). Illiteracy among Emirati nationals aged 10 or older in Abu Dhabi has dropped from 80.12% in 1970 to just 5.3% in 2013 (Statistics Centre – Abu Dhabi, 2015a).

Given these remarkable advances in education provision, the challenges surrounding education in Abu Dhabi in the 21st century largely relate to "improving both the quality and relevance of education" (UAE National Media Council, 2013, p. 175). Until very recently, education in Abu Dhabi and the UAE was:

> based on the traditional, transmission mode emphasising memorisation through rote learning … [and] training students to retain answers to fixed content-based questions—not developing critical or creative thinking for effective decision-making and problem solving. The teacher's responsibility was to cover the curriculum by completing the relevant sections of the textbook. There was no emphasis on diagnosis of learning nor was the teacher responsible for which resources to use or designing of tasks … These were provided by the textbook and the associated publisher.

> Students regarded their teachers and supervisors as being the experts and [teachers'] role was to tell the students where they [were] wrong. (Von Oppell & Aldridge, 2015, p. 37)

This traditional style of education has resulted in students from Abu Dhabi and the UAE performing poorly on international standardised assessments. For example, Abu Dhabi students have performed significantly below international averages in the Trends in International Mathematics and Science Study (see Martin & Mullis, 2013; Martin, Mullis, Foy, & Hooper, 2016; Martin, Mullis, Foy, & Stanco, 2012; Mullis, Martin, Foy, & Arora, 2012; Mullis, Martin, Foy, & Hooper, 2016) and the Progress in International Reading Literacy Study (see Martin & Mullis, 2013; Mullis, Martin, Foy, & Drucker, 2012). Further, students across the UAE have performed significantly below Organisation for Economic Co-operation and Development (OECD) averages in the Program for International Student Assessment (see OECD, 2014a, 2016; UAE Ministry of Education Assessment Department, 2013). Concerns about poor academic performance, along with recognition of the wider challenges facing Abu Dhabi society (outlined in Section 1.1.2), have led to deliberate and aggressive plans for educational reform in the emirate.

To lead educational improvement in Abu Dhabi, the Abu Dhabi Education Council (ADEC) was established in 2005. Since this time, ADEC has taken over from the national Ministry of Education in overseeing all aspects of public, private, and higher education in the emirate. A baseline analysis of education in Abu Dhabi, conducted by ADEC shortly after its formation, identified the following critical issues relating to public schooling (Abu Dhabi Education Council, 2009a; Badri & Al Khaili, 2014):

- Student achievement was substantially below grade level;
- High school graduates could not directly enter tertiary programmes;
- Teachers lacked relevant knowledge and skills in pedagogy as well as in English and Arabic language;
- The school governance system was unclear;
- School principals were poorly equipped and under-qualified;
- Annual teaching time was low, and this was exacerbated by student attendance issues;

- There was a lack of professional development for teachers;
- School facilities and infrastructure were of poor quality;
- There was a lack of clearly defined curriculum standards;
- There was a shortage of data (for example, relating to student achievement, infrastructure, or school performance) to inform planning and decision making;
- Arabic and English language instruction was poor; and
- School graduates were inadequately prepared to enter the workforce.

In response to these issues, ADEC developed a strategic plan for 2009–2018 "to migrate P–12 [pre-school to Grade 12] education from its current state to one of high quality" (Abu Dhabi Education Council, 2009a, p. 1; see also Badri & Al Khaili, 2014). For public schools, the crux of this plan was the *New School Model*[7], a comprehensive reform strategy encompassing curriculum, pedagogy, assessment, school infrastructure, and school leadership. The New School Model was rolled out year by year, as shown in Figure 1.4, beginning in 2010–2011 with kindergarten and grades one to three and then advancing by one grade in each subsequent year. By the 2013–2014 academic year (to which my study relates), the New School Model was being implemented in kindergarten, all cycle one[8] (primary) grades, and grade six of cycle two (middle school). Under the New School Model, new curriculum standards were introduced for English, mathematics, and science; new learning resources were provided that aligned to the new curriculum; and the language of instruction for these subjects was changed from Arabic to English.

This section has summarised the history of education in the Emirate of Abu Dhabi, its current state at the time that my study took place, and the goals and plans that were in place for its ongoing reform. This information is important for understanding my study. Given that the study relates specifically to teachers and their professional

[7] Since the time my study was conducted, the New School Model has been re-named the *Abu Dhabi School Model*. However, since 'New School Model' was the term in use at the time this study was conducted, that term is used throughout this thesis.

[8] Schooling in Abu Dhabi is structured using three 'cycles'. Cycle one is primary school, comprising grades one to five; cycle two is middle school, comprising grades six to nine; and cycle three is high school, comprising grades ten to twelve. Some schools span more than one of these cycles and are called 'common cycle' schools (for example, schools catering for grades six to twelve or kindergarten to grade twelve).

Cycle	Grade	Academic Year (August – July)				
		2010-2011	2011-2012	2012-2013	2013-2014*	2014-2015
Kindergarten	KG1					
	KG2					
Cycle one (primary school)	1					
	2					
	3					
	4					
	5					
Cycle two (middle school)	6					
	7					
	8					
	9					
Cycle three (high school)	10					
	11					
	12					

New School Model

* The study reported in this thesis related to teacher professional development in the 2013-2014 academic year.

Figure 1.4. Year-by-year roll-out of the New School Model in Abu Dhabi public schools

development, the next two sections provide additional information relating to the teachers in Abu Dhabi public schools at the time of the study (Section 1.1.4) and the professional development that those teachers were offered (Section 1.1.5).

1.1.4 Teachers in Public Schools in Abu Dhabi

At the time of my study, two groups of teachers worked in public schools in Abu Dhabi: *Arabic medium teachers* and *English medium teachers*. The former were teachers whose first language was Arabic and who delivered their lessons in Arabic. Some Arabic medium teachers were Emirati nationals; others were expatriates from countries such as Jordan, Egypt, Syria, Iraq, and Tunisia. A significant proportion of the Arabic medium teachers were degree qualified in their teaching subject (for

example, holding a bachelor's degree in mathematics) but had not studied education and did not hold a teaching qualification or licence; this reflected the normal expectations for teachers in Arab countries at the time. English medium teachers, on the other hand, were trained and qualified teachers (for example, holding a Bachelor of Education or a Postgraduate Diploma in Education) whose first language was English and who delivered their lessons in English[9]. At the time that my study took place, English medium teachers were recruited from Western countries, including the United States (US), United Kingdom (UK), New Zealand, Australia, South Africa, and Canada. Teachers from both of these groups were represented in my study (details of the study samples are provided in Section 4.3 of Chapter 4).

Under the New School Model reform programme (introduced in Section 1.1.3), Arabic medium teachers and English medium teachers taught different subjects and grade levels. Some subjects, including Arabic language, Islamic studies, social studies, art, physical education, and music, were taught solely by Arabic medium teachers at all grade levels. However, English, mathematics, and science subjects (including cycle two science and cycle three biology, chemistry, geology, and physics) were taught by English medium teachers in selected grade levels and by Arabic medium teachers in the remaining grade levels. The allocation of these subjects to either Arabic or English medium teachers was predominantly related to the progression of the New School Model roll-out, as shown in Figure 1.5. Since English, mathematics, and science were the only three subjects that used both English and Arabic medium teachers (albeit at different grade levels), these subjects were selected as the focus for my study.

This section has introduced the two groups of teachers employed in Abu Dhabi public schools at the time that this study was conducted—Arabic and English medium teachers—and outlined their deployment to the teaching of English, mathematics, and science. The next section (Section 1.1.5) concludes the contextual

[9] After this study took place, a new group of Emirati English medium teachers emerged – that is, Arab nationals who had demonstrated sufficient English language competence to be classified as an English medium teacher and who were, therefore, assigned to teach subjects and grade levels where the language of instruction was English. This reflected ADEC's focus on increasing the capacity of local teachers over time and reducing the reliance on expatriate staff (Badri & Al Khaili, 2014). However, to my knowledge, there were no Emirati English medium teachers in the 2013–2014 academic year, to which my study relates. At that time, English medium teachers were drawn solely from Western countries and were first-language English speakers.

Cycle	Grade	Subjects	Academic Year (August – July)				
			2010-2011	2011-2012	2012-2013	2013-2014	2014-2015
Kindergarten	KG1	Eng, Math, Sci	EMTs	EMTs	EMTs	EMTs	EMTs
	KG2	Eng, Math, Sci	EMTs	EMTs	EMTs	EMTs	EMTs
Cycle one (primary school)	1	Eng, Math, Sci	EMTs	EMTs	EMTs	EMTs	EMTs
	2	Eng, Math, Sci	EMTs	EMTs	EMTs	EMTs	EMTs
	3	Eng, Math, Sci	EMTs	EMTs	EMTs	EMTs	EMTs
	4	Eng, Math, Sci	AMTs	EMTs	EMTs	EMTs	EMTs
	5	Eng, Math, Sci	AMTs	AMTs	EMTs	EMTs	EMTs
Cycle two (middle school)	6	Eng, Math, Sci	AMTs	AMTs	AMTs	EMTs	EMTs
	7	Eng, Math, Sci	AMTs	AMTs	AMTs	AMTs	EMTs
	8	Eng, Math, Sci	AMTs	AMTs	AMTs	AMTs	AMTs
	9	Eng, Math, Sci	AMTs	AMTs	AMTs	AMTs	AMTs
Cycle three (high school)	10	Eng	EMTs	EMTs	EMTs	EMTs	EMTs
		Math, Sci*	AMTs	AMTs	AMTs	AMTs	AMTs
	11	Eng	EMTs	EMTs	EMTs	EMTs	EMTs
		Math, Sci*	AMTs	AMTs	AMTs	AMTs	AMTs
	12	Eng	EMTs	EMTs	EMTs	EMTs	EMTs
		Math, Sci*	AMTs	AMTs	AMTs	AMTs	AMTs

AMTs = Arabic medium teachers (Emirati nationals and expatriate Arabs from countries such as Jordan, Egypt, Syria, Iraq, and Tunisia).

EMTs = English medium teachers (expatriates from Western countries, such as the US, UK, New Zealand, Australia, South Africa, and Canada).

*At Cycle 3, four separate science subjects are taught: biology, chemistry, geology, and physics. These are all taught by AMTs.

Figure 1.5. Teachers of English, mathematics, and science subjects in Abu Dhabi public schools

background for my study by outlining the professional development provision for teachers of English, mathematics, and science in Abu Dhabi public schools.

1.1.5 Teacher Professional Development in Abu Dhabi Public Schools

The centralised nature of education in Abu Dhabi meant that at the time of my study, the professional development provision for public school staff was standardised and coordinated through ADEC's head office. Two main forms of teacher professional development were provided: a standardised professional development programme (described in Section 1.1.5.1) and support from a subject advisor (described in Section 1.1.5.2). After describing these two forms of professional development, this section concludes with a brief overview of what is already known about teachers' experiences of professional development in Abu Dhabi based on existing research (Section 1.1.5.3).

1.1.5.1 Standardised Professional Development: The Tamkeen Programme

From the 2011–2012 academic year onwards, all teachers in Abu Dhabi public schools were required to participate in the *Tamkeen* professional development programme. *Tamkeen* is a transliteration of an Arabic word that means 'empowerment'; the *Tamkeen* programme consisted (at the time of my study) of a series of standardised training workshops for all teachers and was intended to 'empower' and up-skill educators (Abu Dhabi Education Council, 2012b, 2012c, 2012d). Western private education companies (referred to henceforth as 'providers') were contracted by ADEC to develop training modules on topics such as differentiation, assessment for learning, student-centred learning, the use of technology in teaching and learning, and behaviour management. Once these modules were approved by ADEC, bilingual training manuals were produced with 'scripts' for delivering the modules.

Although different providers were tasked with developing the different *Tamkeen* modules, all providers contributed to the delivery of each module, following the standardised scripts. Each public school was allocated to a provider for the facilitation of the professional development. For each module, staff from the provider companies presented full-day workshops that were attended by one or more representatives from each school; these workshops were intended to be 'train the trainer' events. The staff from the provider companies then facilitated the cascading

of the training at each school site, sometimes using school staff—either those who had attended the train the trainer workshop or other selected staff—to assist with delivery. In-school training workshops were held after school and were compulsory for the whole staff. The modules used for this training were generic across all teaching subjects and were to be used without modification in all schools. Training materials were produced in both Arabic and English, and it was intended that translators or bilingual teaching staff should be used in the training delivery in order to accommodate both Arabic and English medium teachers. When my study took place, all teachers were required to attend 30 hours of *Tamkeen* training at their school.

1.1.5.2 School-Based Professional Development: Support from Subject Advisors

In addition to the standardised, non-subject-specific *Tamkeen* programme, teachers also received more personalised support from either a school-based, cross-subject head of faculty (in kindergarten and cycle one) or a visiting, single-subject advisor (in cycles two and three). Because of the significant differences in the nature of the support provided by heads of faculty (in kindergarten and cycle one) compared to that provided by subject advisors (in cycles two and three), my study focused only on teachers in cycles two and three. The role of subject advisors is, therefore, outlined in this section.

The subject advisors who worked in cycles two and three were employed at ADEC regional offices and were each allocated a number of schools to visit and support in relation to their specialist subject. The support that these subject advisors provided was typically needs-based and was intended to involve coaching, mentoring, in-class modelling, team teaching, formative (rather than summative) lesson observation and feedback, and other forms of support and professional development as needed. Subject advisors also provided a certain amount of leadership development for the school-based subject coordinators (heads of department). Despite being seen as experts in curriculum, pedagogy, and assessment, subject advisors did not have any line management authority over the teachers that they supported. Rather, their role was intended to be purely advisory, and the support provided by subject advisors was intended to be a major component of the teachers' professional development.

Two groups of staff served as subject advisors at cycles two and three: education advisors and subject support specialists. Education advisors were primarily Western-trained teachers with prior experience in educational leadership or professional development. Subject support specialists, on the other hand, were exclusively Arab nationals with experience in more managerial roles within the Ministry of Education. Although the contracts and job titles of these two groups of staff differed, their functional roles, objectives, and performance evaluation expectations were the same; as such, they were treated as a single group (referred to as 'subject advisors') for the purpose of my study.

Support from subject advisors was only consistently provided across all ADEC public schools for teachers of English, mathematics, and science subjects. Therefore, my study focused only on teachers of these subjects. Investigating the professional development experiences of teachers of English, mathematics, and science subjects in cycles two and three allowed a population to be defined that should, theoretically, have experienced similar forms of professional development: participation in the *Tamkeen* programme as well as support from a subject advisor. The sample space and samples for the study are detailed in Section 4.3 of Chapter 4, but this parameter for the sample space is noted here as part of establishing the context of my study.

1.1.5.3 Existing Research on Teacher Professional Development in this Context

A relatively small amount of prior research exists that is related to teacher professional development in Abu Dhabi and the UAE. These past studies provide further context for my study and, therefore, key findings are summarised in this section. It is noteworthy that much of the literature reported in this section was published while my study was being conducted (2012 to 2017), illustrating the emergent nature of educational research in Abu Dhabi and the UAE.

Within the available literature, there is clear evidence that, in ADEC schools, teacher participation in professional development has reached very high levels (Abu Dhabi Education Council, 2009b, 2012e; Badri, Al Nuaimi, Mohaidat, Yang, & Al Rashedi, 2016; Barrera-Pedemonte, 2016). For example, the 2013 OECD Teaching and Learning International Survey found that over 90% of the teachers surveyed in Abu

Dhabi had participated in professional development in the past 12 months, giving Abu Dhabi a higher rate of teacher participation in professional development than most other OECD countries (OECD, 2014b).

The existing literature suggests, however, that despite this high participation in professional development, the quality and impact of at least some professional development activities in the Abu Dhabi context are of concern. Traditional courses and workshops remain the most prevalent forms of teacher professional development, despite efforts to provide support in a range of forms (Badri et al., 2016) and teachers' reports that they found subject-specific coaching by education advisors more effective than workshop-style professional development (Al Hassani, 2012; Augustine, 2014). A large proportion of teachers in Abu Dhabi report that their professional development needs are not being met (Badri, Al Nuaimi, Yang, Al Rashedi, & Al Sumaiti, 2017), and school leaders have expressed concerns about the quality of professional development provision (Thorne, 2011) and its appropriateness for the context and culture of the UAE (Bond, 2014).

To date, a number of barriers have been found to limit the effectiveness of professional development in Abu Dhabi and the UAE. These barriers include:

- High staff turnover (Stephenson, 2010);
- A lack of employer support (Badri et al., 2016; Buckner, Chedda, & Kindreich, 2016);
- Cultural factors (Stephenson, Dada, & Harold, 2012; Von Oppell, 2016; Von Oppell & Aldridge, 2015);
- Teachers' existing commitments in terms of family life and professional workload (Badri et al., 2016; Buckner et al., 2016);
- Teachers' resistance to professional development focuses or formats (Bond, 2014; Stephenson, 2010);
- Teachers' pre-existing pedagogical beliefs and philosophies of education (Von Oppell, 2016; Von Oppell & Aldridge, 2015);
- Excessive costs or insufficient incentives associated with professional development (Badri et al., 2016; Buckner et al., 2016); and

- A perceived lack of relevant professional development opportunities (Badri et al., 2016; Buckner et al., 2016).

Finally, there is evidence that there may be a disconnect between Abu Dhabi teachers' *perceptions* of their professional development needs and their *actual* needs for improvement. In the 2013 Teaching and Learning International Study, the most common areas in which Abu Dhabi teachers reported that they needed further professional development were teaching students with special needs (54% of the teachers surveyed), using new technology in their work (43%), and teaching in multicultural settings (41%; OECD, 2014b). In contrast, the topics that were most closely related to teachers' core business were rarely identified as professional development needs by Abu Dhabi teachers: Professional development around pedagogy was only requested by 15% of the teachers surveyed; subject knowledge by 10%; and curriculum knowledge by 9%. The ADEC Research Office, in analysing these figures, noted that there was a strong negative correlation between Abu Dhabi teachers' reports of their need for professional development in a particular area and their reports of the impact of any professional development in that area (Badri et al., 2016). That is, teachers reported that the greatest impact was associated with the types of professional development they saw as the least necessary—professional development related to pedagogy, subject knowledge, and curriculum knowledge. As such, the Abu Dhabi results "might indicate [a] lack of teacher understanding of what professional development is needed" (Badri et al., 2016, p. 10).

This section (Section 1.1.5, with sub-sections 1.1.5.1 to 1.1.5.3) has provided background information about teacher professional development in Abu Dhabi. First, the two major professional development strategies implemented in cycle two and three ADEC public schools were outlined: the standardised *Tamkeen* professional development programme and the school-based, subject-specific support from visiting subject advisors. Section 1.1.5.3 then summarised the findings of existing research on teacher professional development in Abu Dhabi and the UAE. Although not intended to be an in-depth literature review, this information adds to the body of contextual knowledge necessary for conducting, interpreting, and critiquing my study.

Overall, Section 1.1 of this chapter has provided background information related to the context of my study at both macro- and micro-levels. At macro-levels, the section has described the rapid transformation that the UAE and Abu Dhabi have undergone as a result of their discovery of oil in the 1960s, finding that although the improvements in infrastructure and quality of life have been dramatic, a number of issues remain that have motivated the Abu Dhabi government to seek aggressive education reform. At more specific micro-levels, information has been provided regarding the typical style of public education in Abu Dhabi prior to the current reform project. Key strategies employed by ADEC to reform this situation have been detailed, including the New School Model reform strategy, the recruitment of English medium teachers, and the implementation of extensive teacher professional development. Finally, information related to teacher professional development in Abu Dhabi and the UAE has been provided. The next section (Section 1.2) describes the conceptual framework for my study.

1.2 Research Paradigm of the Study

All research and inquiry is situated—consciously or otherwise—within one or more paradigms that articulate the underlying assumptions about knowledge, truth, and reality (Kuhn, 1970; Willis, 2007). Explicitly acknowledging the research paradigms used enhances the validity of research by allowing the assumptions, decisions, methods, and conclusions associated with a particular study to be examined and critiqued (Maxwell, 2009, 2013). This section, therefore, identifies the research paradigm that underpinned my study and summarises how key features of this paradigm were reflected in the study.

My study was situated within an interpretivist paradigm (as defined by Willis, 2007), informed by a social constructivist epistemology. In a constructivist worldview, meaning is assumed to be socially constructed and contextually situated (Guba & Lincoln, 1994; Willis, 2007). The interpretivist paradigm reflects this epistemology as interpretivist research does not aim either to distil a single, common reality shared by all participants or to define a universally applicable theory. Rather, the aim of interpretivist inquiry is to understand the multiple realities described by participants in a particular context (Willis, 2007).

The selection of an interpretivist approach aligned well with my overarching aim of investigating *teachers' experiences* of professional development. My intention through this study was not to provide an objective record or assessment of professional development activities but, rather, to explore how teachers experienced, perceived, and responded to the professional development that they received in ADEC public schools.

The interpretivist paradigm also supported an *a priori* recognition that teachers were likely to have different experiences and perceptions of professional development—that is, different teachers would make different meaning of the professional development offered to them. These multiple realities or meanings were assumed to have emerged as a result of social interactions, influenced by the surrounding social contexts, including schools, social media networks, the wider ADEC school system, and Abu Dhabi and the UAE more generally. As such, the interpretivist approach reflected my original sense, based on my own experiences, that the unique context of Abu Dhabi and the differences between the cultural groups working in that context were significant factors affecting professional development within the ADEC education reform.

Interpretivist research is closely tied to the specific context in which it is conducted. As such, deep understanding of the research context is considered to be critical for the meaningful interpretation of data and the application of findings (Willis, 2007). Further, the emerging understanding of participants' experiences in a particular context is primarily valued for its ability to inform and enhance ongoing practice within that context (Willis, 2007). Generalisations beyond the original research context are not necessarily appropriate for interpretivist studies; rather, the ability to generalise depends on the degree of similarity between the research context and any proposed new contexts in which the findings of the research may be applied (Lincoln & Guba, 1986). Having lived in Abu Dhabi for several years before commencing this study, I had in-depth contextual knowledge that was able to inform my research. In preparing this thesis, detailed contextual description has been provided (see Section 1.1) to allow readers to situate my research within its unique context and to consider the transferability of findings to other contexts of interest (Lincoln & Guba, 1986).

Although the selection of an interpretivist paradigm for my study implied a particular set of underlying assumptions about reality, knowledge, and inquiry, this did not pre-determine a dependence on either qualitative or quantitative research methods. Indeed, the traditional associations of qualitative methods with interpretivist and critical paradigms and of quantitative methods with positivist and post-positivist paradigms have been criticised (Crotty, 1998; Gray, 2013; Willis, 2007). It has been argued that, "if it suits their purposes, any of the theoretical perspectives could make use of any of the methodologies" (Crotty, 1998, p. 12; see also Guba & Lincoln, 1994). The methods used for my study, therefore, included both quantitative and qualitative approaches; these methods were selected on the basis of their fitness for the purposes of the study as defined in the research objectives (R. B. Johnson & Onwuegbuzie, 2004; Teddlie & Tashakkori, 2011). The research objectives of the study are presented in Section 1.3); the associated research methods are detailed in Chapter 4.

Importantly, across all of the data sources and methods used, both data and results were viewed from an interpretivist perspective (Willis, 2007). This involved seeing data as emerging from participants' various conceptions of reality and representing one of many possible sources of information about teacher professional development within the specific context of the ADEC education reform. Further, results were not seen as absolute truths but as my own best interpretation (construction of meaning) of the available data, informed by my knowledge of the Abu Dhabi context.

Though not pre-determining research methods, the identification of a research paradigm does have clear implications for the quality criteria that are appropriate for evaluating a study. The social constructivist epistemology and the interpretivist paradigm selected for my study discount the traditional empirical criteria of objectivity, reliability, and internal and external validity (Creswell & Miller, 2000; Crotty, 1998; Lincoln & Guba, 1986; Shannon & Hambacher, 2014; Willis, 2007). Instead, scholars such as Creswell and Miller (2000) and Lincoln and Guba (1986) have argued that research conducted within a particular paradigm may draw on either qualitative or quantitative methods but should be evaluated in accordance with the theoretical positions implicit in the selected paradigm. Various sets of quality criteria have been proposed that are appropriate for research within an interpretivist

paradigm (Creswell & Miller, 2000; Lincoln, 1995; Lincoln & Guba, 1985, 1986; Torrance, 2012; R. K. Yin, 2011). Overall, these criteria and the associated research strategies are intended to ensure that research is transparent and methodical and that the results are closely embedded in the data that were collected (R. K. Yin, 2011). For my study, specific strategies for ensuring the validity of interpretivist research were identified from the work of Creswell and Miller (2000) and Willis (2007); Section 4.7 of Chapter 4 details how my study incorporated these strategies.

This section (Section 1.2) has introduced the conceptual framework that underpinned my study. Given this philosophical foundation as well as the contextual description provided in Section 1.1, the next section (Section 1.3) introduces the specific objectives of the study.

1.3 Objectives of the Study

The overarching aim of my study was to investigate teachers' experiences of professional development within the Abu Dhabi Education Council's public education reform. To support this aim, five specific research objectives were defined as follows.

First, in preparation for the examination of teachers' experiences of professional development, a new instrument was developed to capture teachers' perceptions of the professional development in terms of literature-based dimensions of impact. Therefore, the first research objective was:

Research Objective 1:

> To develop and validate a questionnaire to examine teachers' perceptions of the impact of professional development.

Existing literature related to professional development (reviewed in Chapter 2) indicates that the design of professional development is important for ensuring that the professional development results in the desired teaching and learning impacts. Because of the lack of existing literature and documentation around teacher professional development activities in Abu Dhabi public schools, it was considered

important to document the range of professional development practices occurring in schools and examine both the design and the resulting impacts of these activities. Therefore, the second research objective was:

Research Objective 2:

> To examine teachers' perceptions of the design and the impact of the professional development that they had experienced in Abu Dhabi public schools.

The existing theoretical principles for best practice in teacher professional development come primarily from Western countries and, as such, may or may not be appropriate in non-Western contexts, such as the Abu Dhabi educational reform. It was, therefore, necessary to examine whether in the Abu Dhabi context, professional development that reflected literature-based design features was, in fact, more likely to result in teaching and learning impacts, as the literature suggests. The third research objective, therefore, was:

Research Objective 3:

> To investigate relationships between teachers' perceptions of the design and the impact of the professional development that they had experienced in Abu Dhabi public schools.

As the study progressed, it became clear that in the Abu Dhabi context, non-design-related factors related to professional development made important contributions to teachers' perceptions of professional development's effectiveness. As a result, a fourth research objective was added to enable these factors to be examined and reported in addition to the design-related factors. The fourth objective was:

Research Objective 4:

> To investigate factors, other than the design of professional development, that influenced teachers' perceptions of the impact of professional development.

Finally, it was considered important to examine whether there were differences in the ways that teachers from different cultural backgrounds perceived and responded to the professional development that they had experienced. Since the teaching workforce in Abu Dhabi public schools comprised teachers from both Arab and Western cultural backgrounds, it was expected that there might be some variations in these groups of teachers' views of, attitudes towards, need for, perceptions of, or responses to the same professional development. Therefore, the last research objective was:

Research Objective 5:

> To investigate whether Arab and Western teachers differed in terms of their perceptions of and responses to professional development.

This section (Section 1.3) has defined the research objectives that guided the study. The next section (Section 1.4) outlines the significance of the study.

1.4 Significance of the Study

The findings of my study offer theoretical, methodological, and site-specific contributions. These contributions are summarised in this section and discussed in more detail in Section 7.4 of Chapter 7.

The interpretive stance (described in Section 1.2) meant that my study was deeply embedded in the specific context of Abu Dhabi public schools. As such, the findings of the study have their greatest value and meaning when considered within that context. Therefore, the contributions to the Abu Dhabi context are considered first.

Professional development represents a significant part of Abu Dhabi teachers' working lives (see Section 1.1.5). It is also a "key lever" (Opfer, 2016, p. 3) for improving teaching and learning (see also Bowe & Gore, 2016; Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009) and has been linked in other contexts to teacher efficacy (Yoo, 2016) and job satisfaction (H. Fraser, Draper, & Taylor, 1998). Given these considerations, efforts to improve teachers' experiences of professional development are likely to make a real difference to the working lives of

teachers in Abu Dhabi public schools. My study contributed to that process by examining teachers' experiences and offering insights into how Abu Dhabi teachers feel that professional development works best; the findings of my study may, therefore, be of use for informing future professional development policy and practice in the Abu Dhabi context. Further, the study gave the participating teachers a voice in a context where, hitherto, professional development has been policy driven and teachers have not been consulted (Al-Taneiji & McLeod, 2008; Botes, 2012; Thorne, 2011).

More broadly, my study contributed to the accumulation of a body of research relating to education in Abu Dhabi. The education reform being conducted in Abu Dhabi is a recent phenomenon, and the related literature base is emergent (Badri & Al Khaili, 2014; Thorne, 2011). As such, my research addressed an under-researched phenomenon (teacher professional development) in an under-researched context (Abu Dhabi and its education reform effort), offering both breadth and depth through the use of a mixed-methods design (detailed in Chapter 4).

Specific characteristics of the Abu Dhabi reform context meant that my research also contributed to several under-researched areas of the wider literature. These included: the successful implementation of large-scale education reform (Akiba, 2013a, 2013b; Fullan, 2009; Mourshed, Chijioke, & Barber, 2010); the decentralised delivery of professional development at multiple sites by multiple providers (Borko, 2004; Wayne, Yoon, Zhu, Cronen, & Garet, 2008); and professional development activities that involve mandatory rather than voluntary teacher participation (Desimone, 2009; Fishman, Marx, Best, & Tal, 2003; Hochberg & Desimone, 2010). Although the interpretive stance taken for my study means that the findings are not automatically transferable to different contexts, there are, nonetheless, ways in which the findings of my study may be of use to those involved in education reform or teacher professional development in a range of contexts (see Section 7.3 of Chapter 7).

A significant aspect of my study's originality is the integration of the fields of teacher professional development and cultural differences. Increasing globalisation and the trend for international policy borrowing in education (A. Kennedy, 2014) create a need to carefully examine the appropriateness and effectiveness of reform

strategies that are used in new contexts or with people of differing cultural backgrounds. In my research, the understanding gained from past work in the field of cultural differences was used as a key way of interpreting what teachers reported about their experiences of professional development; this is reflected in Chapters 6 and 7.

Finally, my study made a methodological contribution. At present, schools and education systems lack practical tools and strategies for evaluating professional development (Borko, 2004; Desimone, 2009; Flecknoe, 2002; Harris, Day, Goodall, Lindsay, & Muijs, 2006). As such, my study made an original contribution to the field through the development, translation, and validation of a new questionnaire for capturing teachers' perceptions of the impact of professional development.

This section (Section 1.4) has outlined the significance of my study and the contributions it made to existing literature; this is discussed further in Section 7.4 of Chapter 7 in light of the findings of the study. The next section (Section 1.5) concludes this introductory chapter by providing an overview of the organisation of this thesis.

1.5 Organisation of the Thesis

This thesis is organised into seven chapters. Chapter 1 has provided background information about the context and the conceptual framework of my study as well as defining the research objectives and outlining the significance of the study. As such, this chapter has introduced my study and the context in which it took place.

Chapters 2 and 3 review relevant bodies of literature that informed my study. Chapter 2 reviews literature on teacher professional development, including addressing the importance of teacher professional development, characteristics of effective professional development, and the complexity associated with achieving desired impacts following professional development. Chapter 2 also reviews literature related to how teacher professional development should be evaluated and identifies the theoretical frameworks that informed my evaluation of professional development in Abu Dhabi (Desimone, 2009; Guskey, 2000).

Chapter 3 reviews literature on culture and cultural differences. The construct of culture and its role in education reform are discussed, then a number of dimensions of cultural difference are identified from within the existing literature. Arab and Western cultures are described in terms of each of these cultural dimensions to inform my study.

Given the background established in Chapters 1 to 3, Chapter 4 reports the research methods used in my study. The overall design of the study is described and justified, then details are provided of the sample, data collection tools and procedures, data analyses, and ethical considerations relevant to the study. The methods detailed throughout Chapter 4 are linked to the research objectives and conceptual framework defined in Chapter 1, the theoretical frameworks and cultural considerations identified in Chapters 2 and 3, and the overall design specified at the beginning of Chapter 4.

Chapters 5 and 6 present the results of the study, organised around the five research objectives and informed by the interpretive paradigm that was selected for the study (described in Section 1.2 of Chapter 1). First, Chapter 5 presents results related to the validation of the new questionnaire (research objective 1), teachers' perceptions of the design and impact of professional development (research objective 2), and the relationships between aspects of the design and impact of professional development (research objective 3). Chapter 6 then presents results related to the non-design-related factors that, according to teachers, influenced the effectiveness of professional development in Abu Dhabi public schools (research objective 4) as well as the differences between Arab and Western teachers' perceptions and experiences of the professional development (research objective 5).

Finally, Chapter 7 discusses the results reported in Chapters 5 and 6, interpreting these results in light of the context of the study (Chapter 1) and the literature reviewed in Chapters 2 and 3. The limitations of the study are acknowledged, and recommendations are made in relation to professional development practice and future research.

Chapter 2

TEACHER PROFESSIONAL DEVELOPMENT

Teachers' experiences of professional development were the focus of my study. At the time that my study was conducted, professional development was a major component of Abu Dhabi's education reform strategy and a significant part of Abu Dhabi teachers' working lives (see Chapter 1). Therefore, this chapter reviews literature related to teacher professional development and its evaluation. This chapter is complemented by a second review of literature (provided in Chapter 3) that focuses on culture and cultural differences.

First, Section 2.1 reviews literature related to the progress made and the challenges faced in the field of teacher professional development since its emergence in the middle of the twentieth century. This section introduces the broad research problem related to my study—namely, the limited impact of much teacher professional development practice. The significance of addressing this problem is then established in Section 2.2, which reviews literature related to the importance of teacher professional development for improving teaching and learning.

To inform my study's critique of professional development practice in the Abu Dhabi context, Section 2.3 outlines research-based features of effective teacher professional development, and Section 2.4 reviews conceptual models of the process by which professional development activities lead to teaching and learning impacts. Given this theoretical foundation, Section 2.5 then reviews literature related to how professional development should be evaluated. Section 2.6 provides a summary of this chapter and considers how my study contributes to the existing literature in the field of teacher professional development.

2.1 Teacher Professional Development: Past and Present

Teacher professional development has risen to prominence in recent years, and our understandings of teacher professional development have advanced significantly. This section describes the history of teacher professional development as well as the

current state of teacher professional development practice, establishing a broad context for subsequent sections of this chapter.

Ongoing occupational learning after qualification or registration has long been a characteristic of many professions, including medicine, law, engineering, and accountancy (Hurd, 1967; Mizell, 2010; Muijs & Lindsay, 2008; Webster-Wright, 2009). Around the middle of the twentieth century, this 'professional development' also became common within the teaching profession (Clarke & Hollingsworth, 2002; Murphy-Latta, 2011). The large-scale education reform efforts conducted in the US during the 1960s—motivated by the 'space race' and the civil rights movement—established professional development as a routine part of teachers' lives. Since then, professional development has remained an integral component of educational improvement efforts (Cuban, 1990; Fullan, 2000; OECD, 2009).

Teacher professional development was originally based on a deficit model, which assumed that there were gaps in teachers' knowledge and skills that could be addressed through teacher training events—one-off workshops, conferences, or other in-service sessions delivered by outside experts (Clarke & Hollingsworth, 2002; Desimone, 2009; Guskey, 1986; Little, 1993). During the 1980s, however, it became clear that this approach was ineffective for improving teaching and learning (Clarke & Hollingsworth, 2002). Consequently, new paradigms for teacher professional development emerged that have continued to develop until the present day (Broad & Evans, 2006).

Modern paradigms of teacher professional development have several key differences from the earlier deficit paradigm. First, modern paradigms acknowledge the challenges that teachers face in their classrooms and consider teachers' intrinsic motivations for participating in professional development (Guskey, 1986). Second, professional development is no longer seen as something that is done to teachers; rather, teachers are viewed as active participants in professional learning who should be afforded the agency and opportunities to direct their own professional development journeys (Clarke & Hollingsworth, 2002; A. Kennedy, 2005, 2014). Finally, modern paradigms recognise teacher professional development as a learning process and expect professional development opportunities to reflect modern

teaching pedagogy and adult education principles (Beavers, 2009; Clarke & Hollingsworth, 2002; Grierson & Woloshyn, 2013; Hawley & Valli, 2000; Hunzicker, 2011; Mitchell, 2013; Putnam & Borko, 1997; Webster-Wright, 2009).

This paradigm shift has meant that professional development is now widely considered to include a range of forms and activities (Avalos, 2011; Borko, 2004; Desimone, 2009; Gaible & Burns, 2005; OECD, 2009; Wilson & Berne, 1999). Rather than being restricted to traditional workshops and training events, modern conceptualisations of professional development may include teacher reflection, coaching and mentoring, professional learning communities, professional reading, lesson study, action research, collaborative lesson planning, co-teaching, lesson observation and feedback, and even spontaneous 'hallway conversations'. Capturing this shift, one inclusive definition suggests that professional development is the "sum total of formal and informal learning experiences throughout one's career from preservice teacher education to retirement" (Fullan & Steigelbauer, 1991, p. 326). There is also increasing acknowledgement that less traditional professional development practices may be more effective in improving teaching and learning (Akiba & Liang, 2016; Barrera-Pedemonte, 2016).

Most recently, a further paradigm shift for our conceptualisations of professional development has been proposed. Some scholars have argued for a move away from seeing professional development in terms of events and activities and, instead, toward considering *the development of the professional*—that is, the internal change in a teacher's understanding, beliefs, knowledge and/or skills, along with subsequent changes in their teaching practice (Bubb & Earley, 2008; Cole, 2012; Evans, 2002, 2011, 2014; F. King, 2014; Webster-Wright, 2009). In some contexts, this reconceptualisation has been represented through a deliberate shift in language, with the term 'professional development' being replaced with 'professional learning' (see, for example, Boylan, Coldwell, Maxwell, & Jordan, 2017; Lieberman & Miller 2014; Mayer & Lloyd 2011; Timperley 2011).

Given the varying conceptualisations of professional development outlined above, it is important to clarify how the term is used in this thesis. For the purpose of my study, teacher professional development was considered to encompass any activities

that caused, or were intended to cause, teacher learning. These activities may have been planned, spontaneous, formal, or informal. Although there is much to be gained from conceptualising professional development in terms of internal teacher change, professional development practice in Abu Dhabi at the time that my study was conducted did not involve such a conceptualisation. Rather, the term 'professional development' was widely understood by teachers, school leaders, and policy makers in Abu Dhabi to relate to professional development *activities*.

Although theoretical understandings of teacher professional development have advanced, it is widely agreed and well documented that, in many cases, professional development practice around the world has *not* progressed but, rather, remains of low quality with minimal impact on teaching and learning (Barrera-Pedemonte, 2016; Hill, 2007, 2009; Ling & Mackenzie, 2015; TNTP, 2015; Webster-Wright, 2009). For example, although the vast majority of teachers across the globe report participating in some form of professional development, this remains heavily weighted in favour of traditional courses and workshops (Bill & Melinda Gates Foundation, 2014; OECD, 2014b; Opfer, 2016). Educational researchers have assessed teacher professional development practice as "woefully inadequate" (Borko, 2004, p. 3); "poorly conceived and deeply flawed" (Hunt, 2009, p. 2); and "broken" (Hill, 2009, p. 470). One recent, large-scale, longitudinal study of the impact of professional development in three US states found that, despite

> massive investment in teacher improvement … most teachers do not appear to improve substantially from year to year … [and] many teachers' professional growth plateaus while they still have ample room to improve … In short, we bombard teachers with help, but most of it is not helpful. (TNTP, 2015, p. 2)

Many factors compromise the quality of professional development practice and its impact in classrooms. Teachers, school leaders, professional development leaders, and policy makers may have competing views about professional development priorities and different perceptions of professional development's effectiveness (Goodall, Day, Lindsay, Muijs, & Harris, 2005; Pedder & Opfer, 2010). Teachers may be reluctant to participate in professional development or unwilling to allow any

new knowledge gained to impact their classroom practice (Ling & Mackenzie, 2015). Professional development needs analysis, and subsequent professional development planning, can be "unstrategic and erratic" (Pedder & Opfer, 2010, p. 437), and those responsible for planning and leading teacher professional development, particularly at the school level, may lack the knowledge and skills to do this well (Goodall et al., 2005). Commercial professional development providers may introduce conflicting interests: "Providers' incentives are to sell more professional development—which means supplying programs that teachers enjoy, not programs from which they can learn" (Hill, 2007, p. 123). Time, cost, and the potential disruption to teaching and learning present practical barriers for schools and education systems planning professional development and may influence decision making in favour of less effective approaches (Goodall et al., 2005). Finally, in many schools and education systems, poor evaluation of professional development obscures its lack of impact and, thus, masks the problem (Desimone, 2009; Guskey, 2000; Hill, 2007).

The literature reviewed in this section (Section 2.1) indicates that despite the prevalence of teacher professional development today and the significant advances in modern understandings of professional development, there are still major issues with the quality and impact of much teacher professional development practice. The next section outlines the crucial role teacher professional development has within education reform efforts.

2.2 The Importance of Teacher Professional Development

Much research evidence suggests that teacher professional development has the potential to improve education and, moreover, that education cannot be substantially or sustainably improved without it. This section reviews literature related to the importance of teacher professional development.

In the 1980s, randomised controlled studies conducted by Good, Grouws, and Ebmeier (1983) and by Carpenter, Fennema, Peterson, Chiang, and Loef (1989) provided the first empirical demonstrations that professional development could lead to changes in teachers' classroom practices and improvements in student learning outcomes. Subsequent studies have supported these findings, using empirical and

non-empirical methods, and have provided many exemplars of successful professional development initiatives (see, for example, Althauser, 2015; Bell & Aldridge, 2014; Bond, 2014; Borko, 2004; Garet, Porter, Desimone, Birman, & Yoon, 2001; Gibson & Brooks, 2012; Mitchell, 2013; Mundy, Howe, & Kupczynski, 2015; Soebari & Aldridge, 2015, 2016; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). The clear consensus of such literature is that teacher professional development can lead to positive change in teachers' knowledge, skills, and classroom practices and that, consequently, professional development can be deliberately employed "as a mechanism to improve teaching" (Garet et al., 2001, p. 937; see also Harris & Jones, 2017; Opfer, 2016).

Research on educational improvement has established that teacher professional development is not only a possible mechanism for improving teaching and learning but is, in fact, essential for achieving reform goals (Hawley & Valli, 1999; Harris & Jones, 2017). For example, two large-scale studies conducted by the global consulting firm McKinsey and Company examined the strategies used by effective education systems across the globe; both of these studies highlighted the importance of teacher professional development (Mourshed & Barber, 2007; Mourshed et al., 2010). McKinsey and Company's research showed that professional development was a crucial component of how both top-performing and steadily-improving education systems achieved their success. Further, this was found to be the case despite significant diversity in the size of the education systems, their economic resources, and their culture and policy landscapes. These findings add empirical weight to the existing view that education reform must involve extensive teacher learning and professional development (see, for example, Borko, 2004; Fullan, 2007; Opfer, 2016; Putnam & Borko, 1997; Smylie, 1996; Sykes, 1996).

The recognition that teacher professional development is an essential component of education reform has led to widespread advocacy for the implementation of good-quality professional development. Educational researchers have produced an extensive range of publications on teacher professional development that are specifically aimed at school- and education system-based practitioners (see, for example, Birman, Desimone, Porter, & Garet, 2000; Darling-Hammond & McLaughlin, 1995; Desimone, 2011; Guskey, 2003; Guskey & Yoon, 2009; Hill,

2009; Hunzicker, 2011; Mitchell, 2013; Sykes, 1996). These publications reflect researchers' belief in the importance of professional development for improving education and their desire to see improvements in practice so that this potential can be realised. Numerous influential education bodies have also published reports seeking to inform school administrators about key principles and models for effective teacher professional development (see, for example, Archibald, Coggshall, Croft, & Goe, 2011; Darling-Hammond et al., 2009; Meiers & Buckley, 2009; National Institute for Excellence in Teaching, 2012; OECD, 1998, 2009; Timperley, 2008; Timperley, Wilson, Barrar, & Fung, 2007). These reports indicate that these organisations, like researchers, see teacher professional development as an important element of educational improvement and one that needs to be implemented effectively.

Many governments and education departments have taken practical steps to promote teacher professional development. These steps include: creating extensive time for professional development within teachers' normal working weeks (Darling-Hammond et al., 2009); making large financial investments in teacher professional development (TNTP, 2015); requiring teachers to complete extensive professional development in order to maintain their registration or teaching licence (Darling-Hammond et al., 2009); embedding professional development activities and principles within teacher appraisal and evaluation processes (Australian Institute for Teaching and School Leadership, 2012; OECD, 2013); and providing grants, scholarships, sabbaticals, and other forms of funding to allow teachers to participate in postgraduate study (Darling-Hammond et al., 2009; Hill, 2007). Together, these strategies represent extensive investment in teacher professional development and reflect governmental and educational leaders' belief that professional development is essential for reaching educational improvement goals.

Finally, when teachers themselves are asked their views on professional development, their message is clear: "Despite their dissatisfaction with much current professional development … teachers value its potential as a tool to help them plan and improve instruction" (Bill & Melinda Gates Foundation, 2014, p. 4). The OECD's (2014b) latest study of teachers and teaching internationally found that teachers actively seek professional development that focuses on topics that they

consider to be useful or pressing, and that teachers report significant needs for further professional development (see also Hustler, McNamara, Jarvis, Londra, & Campbell, 2003).

The literature reviewed in this section (Section 2.2) indicates that there is widespread agreement that teacher professional development is an important and potentially powerful force for educational improvement. It would appear that Abu Dhabi's education reform strategy, with its emphasis on teacher professional development, has been informed by this international consensus. Given that few studies have specifically investigated teacher professional development in the Abu Dhabi context (see Section 1.1.5.3 of Chapter 1), my study adds to the existing literature by providing a comprehensive account of teachers' experiences of professional development in Abu Dhabi. My study also extends existing literature by relating teacher professional development to culture, exploring the influence of cultural differences on teachers' perceptions of and responses to the same professional development. Understanding the role of culture in teacher professional development has potential significance for a range of education systems seeking to leverage teacher professional development for educational improvement.

2.3 Features of Effective Teacher Professional Development

Given that my study involved evaluating the teacher professional development occurring in Abu Dhabi (research objective 2), this section reviews literature related to the features of effective teacher professional development. It is recognised, however, that the existing research in this area was carried out primarily in Western contexts and that cultural or contextual factors may affect the effectiveness of professional development in non-Western contexts. The literature reviewed in this section, then, provides a starting point—rather than comprehensive criteria—for my examination of teacher professional development in Abu Dhabi.

Empirical understanding of how the features of professional development contribute to its impact was first provided by Garet et al. (2001), who extended the existing, more general empirical finding that professional development could impact teaching and learning (Carpenter et al., 1989; Good et al., 1983; see Section 2.2) by

identifying the specific features of professional development that caused that impact. Using data from a large sample of teachers and controlling for school and teacher characteristics, Garet et al. (2001) constructed a causal model that showed that six features of professional development had significant effects on teachers' knowledge, skills, and classroom practice. These features were:

- *Form*. Whether the professional development used a traditional format (for example, a workshop or conference) or a reform format (for example, coaching or a study group).
- *Duration*. The time spent on the professional development, measured in both contact hours and the total time span from beginning to end (for example, 20 contact hours could be condensed into four consecutive days or spread throughout an academic year).
- *Collective participation*. Whether groups of teachers who normally worked together or who taught the same students participated in the professional development together.
- *Content focus*. Whether the professional development was subject specific, relating to teachers' subject content knowledge or subject pedagogical content knowledge (Shulman, 1987).
- *Active learning*. Whether the professional development actively engaged teachers in discussions, tasks, and activities (as opposed to simply sitting passively and listening).
- *Coherence*. Whether the professional development was consistent with teachers' learning goals, previous professional development or follow-up activities, and state standards and assessments, and whether the professional development fostered ongoing communication and sharing among teachers.

An obvious limitation of Garet et al.'s (2001) study was that it only considered the impact of professional development on *teachers*—not on students, for whose benefit professional development ultimately occurs. Nonetheless, given the lack of related research, Garet et al.'s (2001) study constituted "an important advance in the field" (Penuel, Fishman, Yamaguchi, & Gallagher, 2007, pp. 923–924) because of the new empirical evidence it contributed about factors affecting the outcomes of professional development.

Of the six features that Garet et al. (2001) found to be significant, one—form—did not directly influence outcomes. Rather, form was significant only as it affected other features of professional development—in particular, duration—which then impacted outcomes:

> Reform activities tend to produce better outcomes primarily because they tend to be of longer duration … Thus, to improve professional development, it is more important to focus on the duration, collective participation, and the core features (i.e., content, active learning, and coherence) than type. (Garet et al., 2001, pp. 935–936)

Emphasising features of professional development other than form—such as context, content, and design—is supported by other experts, such as M. Kennedy (1998, 1999) and Timperley et al. (2007), as well as by one of the contributors to the original Garet et al. (2001) study, Laura Desimone. Eight years after that study, Desimone (2009) excluded form and named only the other five features (content focus, active learning, coherence, duration, and collective participation) as the "critical features" (p. 183) of effective professional development activities, arguing that these were the "features of PD [professional development] worth testing" (Wayne et al., 2008, p. 472).

Examination of the features that were used in a range of recent publications to define effective professional development shows that the five features listed by Desimone (2009) are the most commonly used criteria. Table 2.1 summarises the features of effective professional development found in a range of studies and reports published since 2001. In each case, most or all of Desimone's (2009) five features appear, using either the same or different phrasing for each concept (for the exact wording, refer to Appendix 1). Further, although many of the publications include one or more additional features that do not align with any of Desimone's five features, there is little consistency among these additional features. Given these findings, Desimone's five features—content focus, active learning, coherence, duration, and collective participation—were considered, for the purpose of my study, to be the best that the field has to offer in terms of a standard set of design criteria for effective professional development.

Table 2.1. Features of effective teacher professional development used in a range of publications

Study	Features of effective teacher professional development					
	Features identified by Desimone (2009)					Additional features
	Content focus	Active learning	Coherence	Duration	Collective participation	
Archibald et al. (2011)	✓	✓	✓	–	✓	• Embedded follow-up • Continuous feedback
Blank and de las Alas (2009)	✓	✓	✓	✓	✓	
Darling-Hammond et al. (2009)	✓	–	✓	✓	✓	• Intensive • Ongoing • Connected to practice
Doherty (2011)	✓	✓	✓	✓	✓	• Job-embedded • Authentic, meaningful learning
Hill (2007)	✓	✓	✓	✓	✓	• Providers • Learning opportunity formats • Philosophies of teacher learning

Study	Features of effective teacher professional development					
	Features identified by Desimone (2009)					Additional features
	Content focus	Active learning	Coherence	Duration	Collective participation	
Ingvarson, Meiers, and Beavis (2005)	✓	✓	–	✓	✓	• Follow up • Feedback on practice
Jauhiainen, Lavonen, Koponen, and Kurki-Suonio (2002)	✓	✓	✓	✓	✓	
Myung, Martinez, and Nordstrum (2013)	✓	✓	✓	✓	✓	• Integrated into daily classroom teaching • Focus on student outcomes • Adaptive and targeted to individual teacher needs
Supovitz and Turner (2000)	✓	✓	✓	✓	–	• Modelling inquiry teaching
Timperley et al. (2007)	✓	✓	✓	✓	✓	• Experts external to the group • Focusing on engaging teachers • Active leadership by school leaders • Challenging prevailing discourses • Integrating theory and practice

This section (2.3) has reviewed literature to determine the features that are considered to be characteristics of effective teacher professional development. Five such features were found to be widely acknowledged: content focus, active learning, coherence, duration, and collective participation (Desimone, 2009). These can all be seen to be features of the *design* of professional development activities. My study adds to existing research in this area in three ways. First, my study applies these five design features in a new context, critiquing the professional development reported by teachers in Abu Dhabi (research objective 2). Second, my study examines how the design of professional development in Abu Dhabi was related to teachers' perceptions of the professional development's impact on teaching and learning (research objective 3). Third, my study considers additional factors, including cultural differences, that affected the impact of professional development (research objectives 4 and 5).

The next section considers literature related to the progression from professional development activities to teacher and student impacts.

2.4 From Professional Development Activities to Teacher and Student Impacts

Teacher professional development is a complex endeavour, and its outcomes are influenced by interrelationships between the professional development's content, design, context, and participants (Guskey, 2000). This means that although an understanding of the characteristics of effective professional development design is important (see Section 2.3), other factors can affect the extent to which even well-designed professional development leads to positive changes in teaching and learning. That is, "the same professional development experience can result in very different outcomes for teachers" (Timperley et al., 2007, p. 6) and "the link between high-quality PD [professional development] and new practices being implemented or sustained is not automatic" (F. King, 2016, p. 92; see also Capps, Crawford, & Constas, 2012; Desimone & Stuckey, 2014; Harris & Jones, 2017; Hill, Beisiegel, & Jacob, 2013).

This section, therefore, examines literature related to the progression from professional development activities to teacher and student impacts. This review informed the methodology used for my study's evaluation of teacher professional development in Abu Dhabi (research objective 2) and contributed to establishing a mandate for developing a new instrument to evaluate the impact of professional development (research objective 1).

A range of models have been presented that attempt to portray the progression from professional development opportunities to teacher and student impacts; four such models are provided in Figures 2.1 to 2.4 (Desimone, 2009; Guskey, 1986, 2002b; Supovitz & Turner, 2000; Timperley et al., 2007). Although other models are also available (Boylan et al., 2017; Clarke & Hollingsworth, 2002; Evans, 2002), these models were selected for consideration in my study because of the clarity with which they mapped the progression from professional development activities to the resulting impacts.

The four models shown in Figures 2.1 to 2.4 share some commonalities. Each model begins with the professional development itself (the activities or opportunities for professional learning), and each model depicts changes to student learning outcomes occurring after changes in teachers' classroom practice. Desimone (2009, p. 185) claims that these "basic components are nearly universal in theoretical notions of teacher learning".

Despite these common underpinnings, the four models have significant differences that raise important questions with respect to the complexity and challenges associated with achieving teacher and student impacts as a result of professional development. For example, when do teacher beliefs change? Are they changed by the professional development itself (as suggested by Desimone, 2009; see Figure 2.1) or not until teachers see evidence of how the new practices and approaches improve student learning (as suggested by Guskey, 2002b; see Figure 2.2)? These differences in how the models incorporate teacher beliefs suggest that it is unclear as to whether professional development initiatives and the surrounding school context should actively seek to effect change in teacher beliefs or, rather, focus on ensuring teachers implement the new ideas effectively in their classrooms.

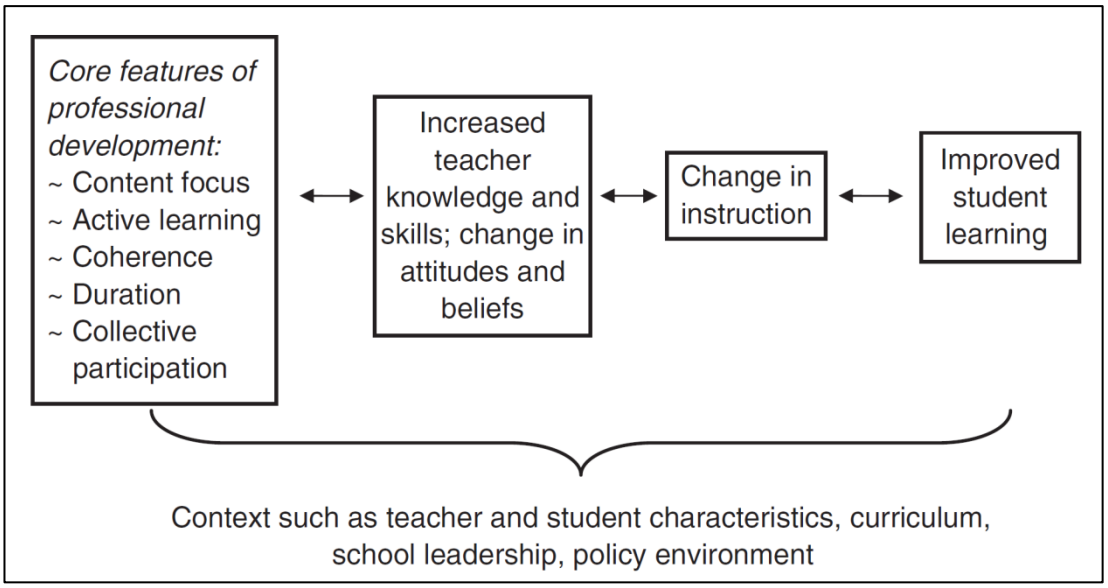

Figure 2.1. Core conceptual framework for teacher professional development (Desimone, 2009)[10]

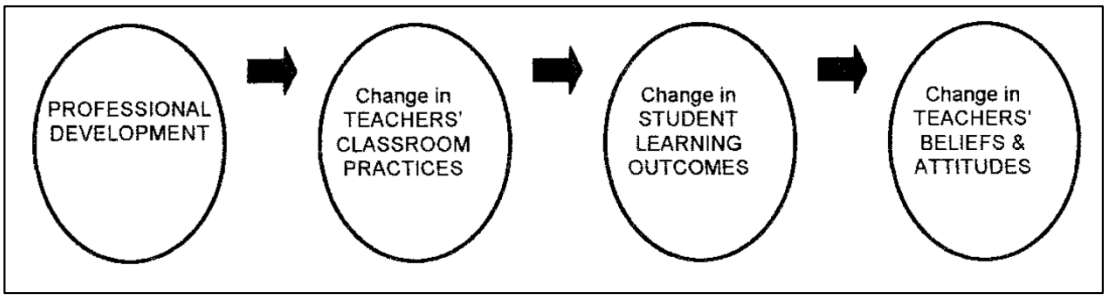

Figure 2.2. The process of teacher change (Guskey, 2002b)[11]

[10] Source: Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher, 38*(3), p. 185. Reprinted by permission of Sage Publishing, www.sagepublishing.com (see Appendix 2).

[11] Source: Guskey, T. R. (2002b). Professional development and teacher change. *Teachers and Teaching: Theory and Practice, 8*, p. 383. Reprinted by permission of Taylor & Francis Ltd, www.tandfonline.com (see Appendix 3).

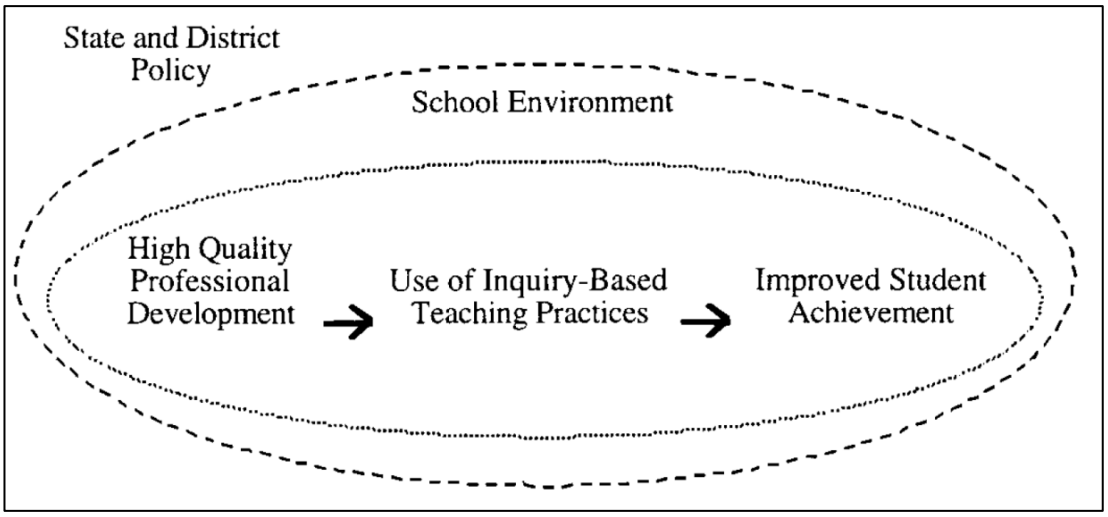

Figure 2.3. The relationship between professional development and student achievement (Supovitz & Turner, 2000)[12]

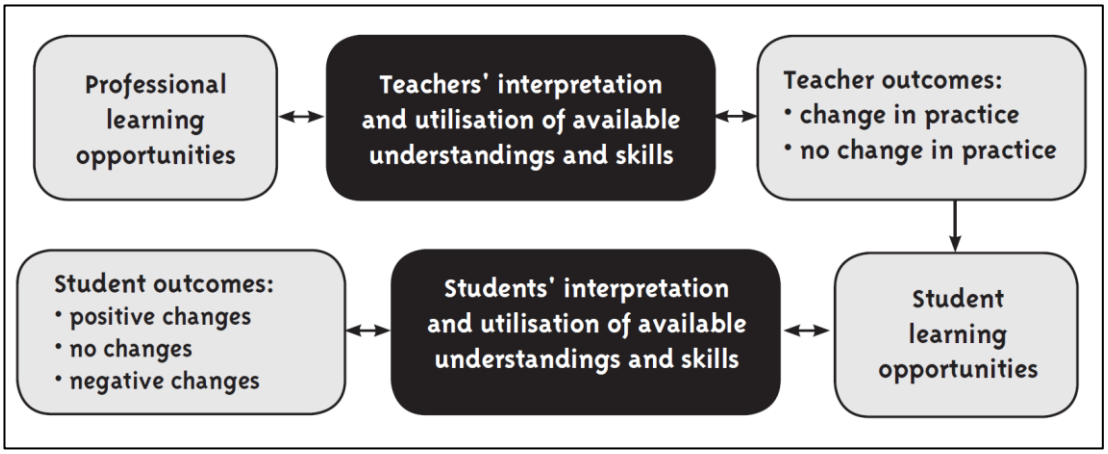

Figure 2.4. The black boxes of teacher and student learning (Timperley et al., 2007)[13]

[12] Source: Supovitz, J. A., & Turner, H. M. (2000). The effects of professional development on science teaching practices and classroom culture. *Journal of Research in Science Teaching, 37*(9), p. 965. Reprinted by permission of John Wiley and Sons, www.wiley.com (see Appendix 4).

[13] Source: Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2007). *Teacher professional learning and development: Best evidence synthesis iteration*, p. 7. Reprinted by permission of the New Zealand Ministry of Education (see Appendix 5).

The differences between the four models also raise the question: What, if anything, lies between professional development activities and changes to teachers' classroom practice? Desimone (2009; see Figure 2.1) explicitly depicts internal changes in teachers' knowledge, skills, attitudes, or beliefs as an intermediate stage between professional development experiences and classroom implementation. However, two other models (Guskey, 2002b; Supovitz & Turner, 2000; see Figures 2.2 and 2.3) instead show professional development leading directly to changes in teachers' classroom practice. This latter assumption appears to deny the concepts of teachers' agency and autonomy that characterise modern paradigms of professional development (as described in Section 2.1). Perhaps Timperley et al.'s (2007) model (see Figure 2.4) best captures the complexity of this specific move with its metaphor of a little-understood 'black box' between professional development and classroom change as well as its explicit acknowledgement (in the third box of the diagram) that there may well be *no* change to classroom practice after professional development occurs. In the context of my study, it is also important to recognise the potential influence of culture in mediating this progression from professional development opportunities to classroom changes (see Chapter 3).

A further question raised by the differences in the four models is: To what extent do contextual factors influence or inhibit the outcomes of professional development? Only two of the four models acknowledge contextual factors (Desimone, 2009; Supovitz & Turner, 2000; see Figures 2.1 and 2.3), yet past studies indicate that school- and system-level factors do influence the outcomes of teacher professional development (see, for example, Harris & Jones, 2017; Hochberg & Desimone, 2010; National Institute for Excellence in Teaching, 2012; Opfer & Pedder, 2011; Pedder & Opfer, 2010).

Finally, in comparing the four models, we may also ask: Do changes in teachers' classroom practice lead directly to improved student outcomes? Three of the four models imply that this is the case (Desimone, 2009; Guskey, 2002b; Supovitz & Turner, 2000; see Figures 1 to 3). However, Timperley et al. (2007; see Figure 4) illustrate the complexity of this move with a second 'black box', saying "There is no direct relationship between teaching inputs and student learning because *how* students interpret and utilise the available information determines *what* they learn"

(p. 7; italics in original). An additional complicating factor may be the ‘implementation dip’ that occurs when teachers first try to implement something new but, initially, fail to do so correctly, resulting in a short-term negative impact on student learning (Desimone & Stuckey, 2014; Fullan, 2007; Fullan & Miles, 1992; Fullan & Steigelbauer, 1991).

This section (Section 2.4) has examined how professional development activities lead to teacher and student impacts. The comparison of four different models of the teacher change process has revealed many complexities, uncertainties, and unanswered questions within the literature. As such, it would appear that simple cause-and-effect thinking is not sufficiently sophisticated to capture how teacher and student impacts result from professional development opportunities and activities (Bates, 2013; Hochberg & Desimone, 2010; F. King, 2016; Opfer & Pedder, 2011). Therefore, although lists of characteristics related to effective teacher professional development (such as those reviewed in Section 2.3) provide a useful starting point and offer practical insight into what sorts of activities are known to be *ineffective* and, hence, may be avoided, such design characteristics are “necessary but not sufficient” (Timperley et al., 2007, p. xlvi) to ensure positive changes in teacher knowledge, teacher practice, and student learning outcomes. This finding indicates the importance of explicit evaluation of the impact of professional development on teaching and learning, which is discussed in the next section (Section 2.5).

Based on the unanswered questions raised in this section, it would appear that explicitly examining the interaction between the *design* and the *impacts* of professional development activities for a range of sites, participants, and formats is important for the field to advance. My study provided such an investigation, incorporating a range of professional development activities in the context of Abu Dhabi (research objective 3). As such, my study contributed to the ongoing compilation of evidence showing the extent to which particular professional development activities, with particular design features, have achieved positive impacts on teaching and learning.

2.5 Evaluating Teacher Professional Development

Given the limited impact of much professional development practice (discussed in Section 2.1), the importance of teacher professional development for improving teaching and learning (Section 2.2), and the difficulties associated with achieving positive teacher and student impacts as a result of even well-designed professional development opportunities (Section 2.4), there is an urgent need for meaningful evaluation of the quality and impact of teacher professional development. Therefore, to inform my study's critique of professional development practice in Abu Dhabi, this section reviews literature related to the evaluation of teacher professional development.

This section begins with a brief overview of a number of frameworks for evaluating professional development that were found within the literature (Section 2.5.1). Critique of the available frameworks led to the selection of two—those presented by Guskey (2000) and Desimone (2009)—for use as the theoretical basis for my study. These two frameworks are, therefore, described in detail in Sections 2.5.2 and 2.5.3, respectively, summarising what each framework recommends in terms of the elements that should be evaluated and appropriate methods for carrying out that evaluation. In Section 2.5.4, Guskey (2000) and Desimone's (2009) frameworks are then compared and critiqued, and literature support for each is examined in order to confirm the suitability of these frameworks for informing the methodology of my study. Finally, Section 2.5.5 provides a brief review of key issues associated with the practical evaluation of teacher professional development by practitioners in schools and education systems.

2.5.1 Overview of Available Evaluation Frameworks

The importance of rigorously evaluating teacher professional development is widely acknowledged by researchers, and much work has been done to develop and disseminate conceptual frameworks for such evaluation (see, for example, Desimone, 2009; Fishman et al., 2003; Guskey, 2000; Guskey & Sparks, 1991; Wilson & Berne, 1999). This represents a shift from previous attitudes:

> For many years, educators have operated under the premise that professional development is good by definition, and therefore, more is always better … Today, however, we live in an age of accountability … and professional developers are asked to show that what they do really matters. (Guskey, 2000, p. 67)

My review of literature identified ten frameworks, published since the year 2000, for evaluating teacher professional development. These frameworks were presented by:

- Bubb and Earley (2010);
- Coldwell and Simkins (2011);
- Desimone (2009);
- Earley and Porritt (2010);
- Fishman et al. (2003);
- C. Fraser, Kennedy, Reid, and McKinney (2007);
- Guskey (2000);
- Hunzicker (2011);
- F. King (2014); and
- Shaha, Lewis, O'Donnell, and Brown (2004).

These ten frameworks were scrutinised in terms of the elements identified for evaluation (in terms of features of the professional development, impact of the professional development, and contextual and strategic considerations), and the guidance provided in terms of methodological approaches for conducting evaluation. The results of this analysis are summarised in Appendix 6.

The ten frameworks varied substantially in terms of both the types of elements identified for evaluation and whether any methodological guidance was offered. For example, the frameworks presented by Fishman et al. (2003) and by Shaha et al. (2004) each require evaluation of the impacts of professional development without consideration of either the quality and nature of the professional development itself or the contextual and strategic considerations that may influence the effectiveness of professional development in a particular environment. On the other hand, the framework presented by C. Fraser et al. (2007) considers *only* the nature and context

of professional development and omits any assessment of the resulting impacts. Hunzicker's (2011) framework is even narrower, addressing only the features of the professional development and omitting both impact and contextual and strategic considerations. Three of the ten frameworks offer no methodological guidance.

In terms of practical implementation within schools and education systems, Shaha et al.'s (2004) two-dimensional matrix framework—evaluating learning, attitudinal, and resource impacts for both teachers and students—may be the least useful. Their model identifies key areas for evaluation, but these are not linked or sequenced in any way; this removes the potentially useful facility for schools or education systems to track progress and identify the point at which impact may have broken down. Fraser et al.'s (2007) framework may also be somewhat unhelpful for practitioners since it does not assess the impact of professional development but, based on the case studies presented alongside the framework, appears to be intended for use in interpreting already established findings about the impact of professional development programmes. Finally, the framework presented by Earley and Porritt (2010) may compromise practitioners' focus on the impact of professional development due to the extensive emphasis on other aspects, including the recommendation to begin evaluation by considering processes and products.

The evaluation frameworks presented by Bubb and Earley (2010), Coldwell and Simkins (2011), and F. King (2014) are clearly the most complex, specifying the largest numbers of elements to be evaluated. All three, however, span the three categories of evaluation used for the analysis provided in Appendix 6—namely, features of the professional development, impact of the professional development, and contextual and strategic considerations. Further, the aspects that are recommended for evaluation in each framework are essentially very similar, aligning closely to the broader categories used to identify evaluation dimensions in the frameworks presented by Desimone (2009) and Guskey (2000).

For the purpose of my study's evaluation of professional development in Abu Dhabi, it was necessary to select one or more of the evaluation frameworks listed above to underpin the research design. The issues of comprehensiveness and usefulness described above led to the elimination of five frameworks as possible theoretical

foundations for my study—namely, the frameworks presented by Earley and Porritt (2010), Fishman et al. (2003), C. Fraser et al. (2007), Hunzicker (2011), and Shaha et al. (2004).

When the five remaining frameworks were reviewed, it was observed that they had much in common, except that Guskey's (2000) framework omitted any analysis of the features of the professional development itself. Citation patterns in the literature reviewed indicated that the frameworks presented by Desimone (2009) and Guskey (2000) were widely respected and that Guskey's (2000) framework, in particular, had been used to inform many subsequent evaluation projects and frameworks, including the frameworks presented by Bubb and Earley (2010), Earley and Porritt (2010), Coldwell and Simkins (2011), and F. King (2014).

It was decided, therefore, that the frameworks presented by Desimone (2009) and Guskey (2000) would be used together to provide the theoretical foundation for my study. Both frameworks offered useful methodological guidance. Further, used in combination, the two frameworks specified a comprehensive but concise set of elements for evaluation: Although Guskey's (2000) framework does not address the features of professional development, this dimension is addressed in detail in Desimone's (2009) framework.

Having justified the selection of these two frameworks to provide the theoretical foundation for my study, Sections 2.5.2 and 2.5.3 review each of these frameworks in greater detail. In Section 2.5.4, the two frameworks are then compared and critiqued, and their limitations are acknowledged.

2.5.2 Guskey's Evaluation Framework

The first evaluation framework selected to underpin my study was that presented by Guskey (2000). Guskey recommends evaluating professional development using five levels. The levels, described below, address progressively more complex phenomena and, therefore, become increasingly difficult to evaluate.

- *Participants' reactions*. This level explores whether teachers liked, were satisfied with, or enjoyed professional development. It incorporates reactions to the professional development's content (for example, whether it made sense, was engaging, or seemed useful) as well as to practical and contextual aspects (for example, the venue or refreshments).
- *Participants' learning.* This level considers whether teachers gained new knowledge or skills from professional development. It can also incorporate changes to teachers' attitudes and beliefs, although these changes may not occur until a later stage (discussed further in Section 2.5.4).
- *Organisation support and change*. This level measures the ways in which schools or education systems support, facilitate, hinder, or ignore teachers' attempts to apply their new knowledge, skills, attitudes, and beliefs.
- *Participants' use of new knowledge and skills*. This level measures whether teachers implement new knowledge and skills in their classrooms. This level focuses on teachers' *actual* use of new knowledge and skills, not simply teachers' *intentions* for their future practice (as may be reported immediately after a professional development activity).
- *Student learning outcomes*. Guskey (2000) describes this level as representing the "ultimate goal" (p. 207) of teacher professional development—namely, evaluating whether it impacted students and their learning. Student outcomes considered at this level may be cognitive, attitudinal, or behavioural and may be either expected or unexpected.

According to Guskey (2000), these five levels are sequential, and "success at one level is necessary for success at the levels that follow" (p. 78). This feature of Guskey's model allows schools to investigate where the process may have broken down if positive student outcomes are not observed.

As well as identifying the five levels that should be evaluated, Guskey (2000, 2002a) also recommends *ways* to evaluate them. For example, he suggests that questionnaires can be used at all five levels; teacher reflections or portfolios for all but the first level; classroom observations at the fourth level; and structured interviews at the third, fourth, and fifth levels. Figure 2.5 summarises Guskey's five evaluation levels and his suggested techniques for investigating each one.

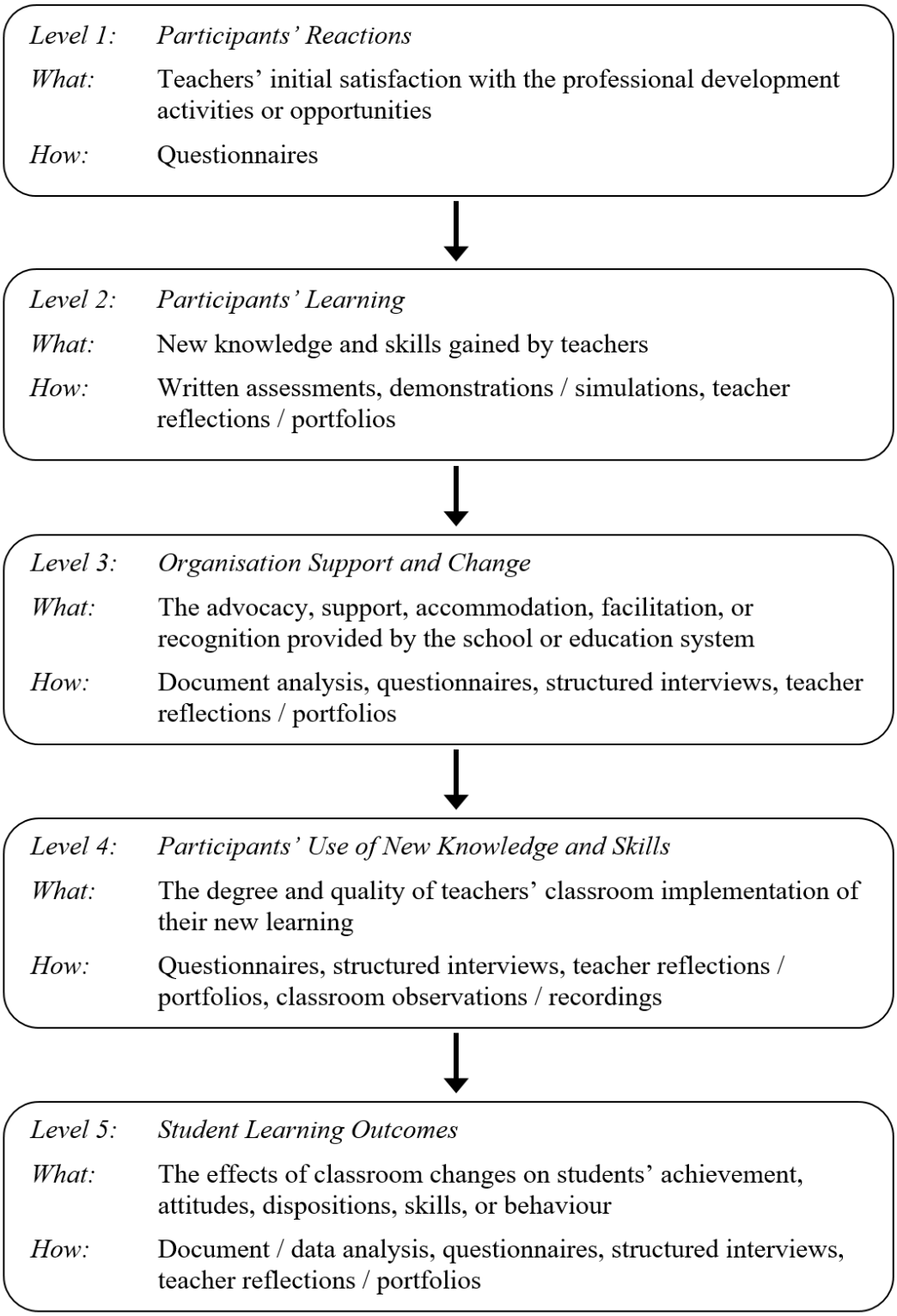

Figure 2.5. Five levels of professional development evaluation (Guskey, 2000)

An important characteristic of Guskey's (2000) model is that it does not insist on the use of experimental methods. This approach contrasts with other scholars' arguments

that experimental or quasi-experimental studies are the only valid ways to demonstrate links between professional development and student outcomes (see, for example, Shaha et al., 2004; Whitehurst, 2012; Yoon et al., 2007). Guskey (2000) notes that, although useful in specific circumstances, experimental methods are typically not practicable for evaluating teacher professional development in real school contexts:

> To do so, you would need to eliminate or control for all other factors that could have caused the change. This requires the random assignment of educators and students to experimental and control groups … The problem, of course, is that nearly all professional development takes place in real-world settings where such experimental conditions are impossible to meet … and there are too many intervening variables to allow for simple causal inferences … Furthermore, most schools are engaged in systemic reform initiatives that involve the simultaneous implementation of multiple innovations … Isolating the effects of a single program or activity under such conditions is usually impossible. (Guskey, 2000, p. 87)

Guskey's (2000) recommendation, instead, is that evaluators gather 'evidence' of professional development's impact rather than definitive proof. For example, evidence that professional development appears to have led to positive outcomes for students (Guskey's final level) might consist of a combination of pre- and post-test data, comparison groups, and anecdotal reports. Such evidence cannot definitively prove that professional development was causally and solely responsible for changes in student outcomes, but it can, nonetheless, help schools and education systems consider "whether [they] are heading in the right direction or whether [they] need to go back to the drawing board" (Guskey, 2000, p. 88). As such, Guskey's framework is deliberately practicable for schools in real-life contexts.

Guskey's evaluation framework is discussed further, critiqued, and placed into a broader literature context in Section 2.5.4 of this chapter. Next, however, Section 2.5.3 describes the second evaluation framework selected for my study.

2.5.3 *Desimone's Evaluation Framework*

The second evaluation framework selected to underpin my study was that presented by Desimone (2009; shown in Figure 2.6). Desimone's framework was reviewed earlier in this chapter in terms of her identification of five features of effective professional development design (see Section 2.3) and her model of the progression from professional development activities to teacher and student impacts (Section 2.4). This section, however, discusses Desimone's framework in terms of its use for evaluating professional development.

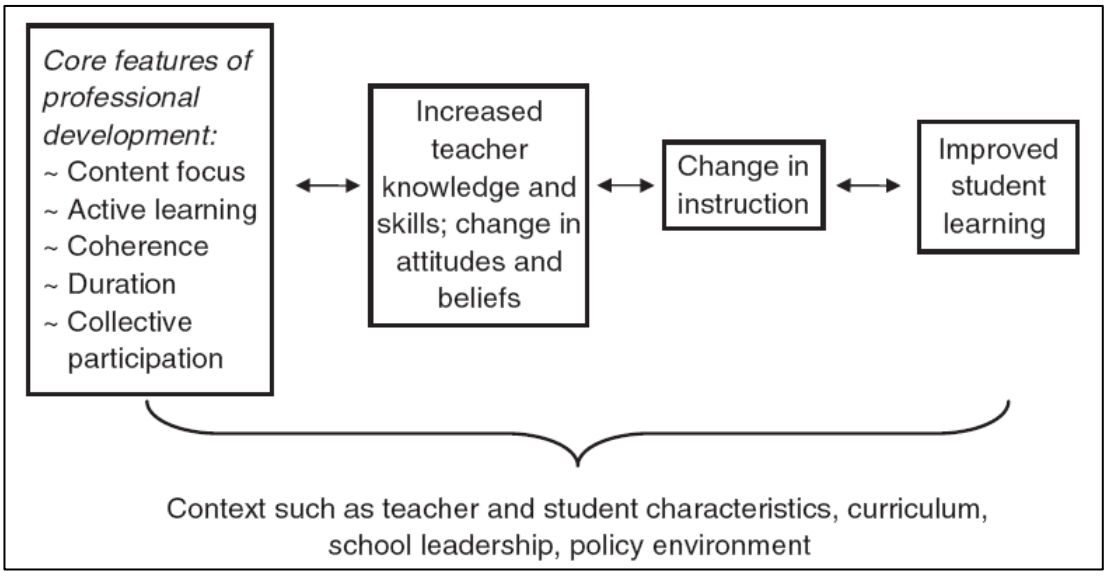

Figure 2.6. Core conceptual framework for teacher professional development (Desimone, 2009)[14]

Desimone's (2009) framework for evaluating professional development has five components: four sequential stages and an overarching factor, context. The four sequential stages are as follows:

[14] Source: Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher, 38*(3), p. 185. Reprinted by permission of Sage Publishing, www.sagepublishing.com (see Appendix 2).

- Teachers experience professional development that reflects the core features of content focus, active learning, coherence, duration, and collective participation (see Section 2.3).
- Teachers' knowledge and skills increase or their attitudes and beliefs change.
- Teachers implement what they have learned, or enact their new attitudes or beliefs, in their classroom practice.
- Student learning improves as a result of these changes.

The fifth component of Desimone's (2009) model is context. This mediating and moderating factor—which incorporates characteristics of students, teachers, classrooms, schools, education systems, and educational policy environments—influences all of the other components of Desimone's model. That is, contextual factors may impact whether: professional development reflects effective design features; teachers experience changes in their knowledge, skills, attitudes, or beliefs; teachers enact those changes in their classroom practice; and those changes to teaching have a positive impact on student learning.

In terms of how to go about evaluating these five components, Desimone (2009) strongly recommends using empirical, causal studies of the impact of professional development. She argues that her evaluation framework can and should be implemented in that way, including through the use of randomised controlled trials. This emphasis on experimental methods is supported by others, including Shaha et al. (2004), Whitehurst (2012), and Yoon et al. (2007), but is in clear contrast to Guskey's (2000) more practical approach (described in Section 2.5.2).

Desimone (2009) does not identify specific data collection approaches for the various components of her model as Guskey (2000) does. Rather, she argues that surveys, observations, and interviews all have both strengths and weaknesses, and she recommends selecting data collection techniques based on the unique requirements of a particular investigation and its research questions.

Desimone (2009) notes that, traditionally, researchers have been concerned that surveys may lead to biased or unreliable data, with teachers overstating their performance—a perception that stemmed from a series of studies conducted in the

1960s and 1970s that compared teacher self-reports with classroom observation. However, she argues that when these same studies were examined using today's methodological standards, they were found to have "fatal flaws" (Desimone, 2009, p. 189), such as comparing teacher self-report data with either inappropriate or insufficient classroom observation data. More recent studies in which data collection was confidential and not tied to the teachers' performance evaluation have found strong correlations between what teachers said about their practice and what was observed (Desimone, 2002; Ingvarson et al., 2005; Mayer, 1999; Mullens & Kasprzyk, 1999; Porter, Kirst, Osthoff, Smithson, & Schneider, 1993). Given this evidence, Desimone (2009) concludes that it is the *quality* of a survey, interview, or observation protocol, rather than the technique itself, that has the greatest impact on the reliability and validity of the data obtained. That is, a "well-constructed and administered interview, observation, or survey protocol, when used appropriately, can provide similarly useful data, just as a poorly constructed or administered interview, observation, or survey protocol can provide skewed and biased information" (Desimone, 2009, p. 190).

The overall aim of Section 2.5 is to review literature relating to best-practice recommendations for evaluating teacher professional development. Therefore, having justified the selection of the evaluation frameworks presented by Guskey (2000) and Desimone (2009) to inform my study (Section 2.5.1), and having presented each of these frameworks individually (Sections 2.5.2 and 2.5.3, respectively), the next section (Section 2.5.4) compares and critiques these two frameworks in order to further inform their use in my study.

2.5.4 Discussion of Guskey and Desimone's Evaluation Frameworks

This section considers the extent to which Guskey (2000) and Desimone's (2009) frameworks for evaluating teacher professional development align with each other and are supported by wider literature. Limitations of the frameworks are also discussed.

Both Guskey (2000) and Desimone's (2009) frameworks contain five components that should be evaluated. Three of the five components within each framework can be directly aligned, as follows:

- Guskey's second level (participants' learning) aligns closely with Desimone's second stage (increased teacher knowledge and skills; change in attitudes and beliefs). Both components measure internal teacher change following professional development.
- Guskey's fourth level (participants' use of new knowledge and skills) aligns with Desimone's third stage (change in instruction). Both components measure changes in teachers' classroom practice.
- Guskey's final level (student learning outcomes) aligns with Desimone's final stage (improved student learning). Both Guskey and Desimone see student learning gains as the ultimate goal of teacher professional development and the ultimate measure of its effectiveness.

In addition to these direct alignments, Guskey's third level (organisation support and change) relates, to some extent, to Desimone's overarching factor, context. Both of these components incorporate student-, school-, and system-level considerations. Guskey's third level, however, combines describing contextual attributes with evaluating organisational change, the latter of which is not part of Desimone's conceptualisation of context. Figure 2.7 provides a visual summary of the alignment between the various components of Guskey (2000) and Desimone's (2009) models, with the dashed line representing partial alignment.

Given the alignments shown in Figure 2.7, just one unique component remains within each framework. Guskey (2000) begins his model with participants' reactions to professional development, whereas Desimone (2009) begins hers with the five core features of effective professional development design (see Section 2.3). These components are not mutually exclusive and do not cause the models to contradict each other; evaluating either—or both—of these components could be of value to schools or education systems.

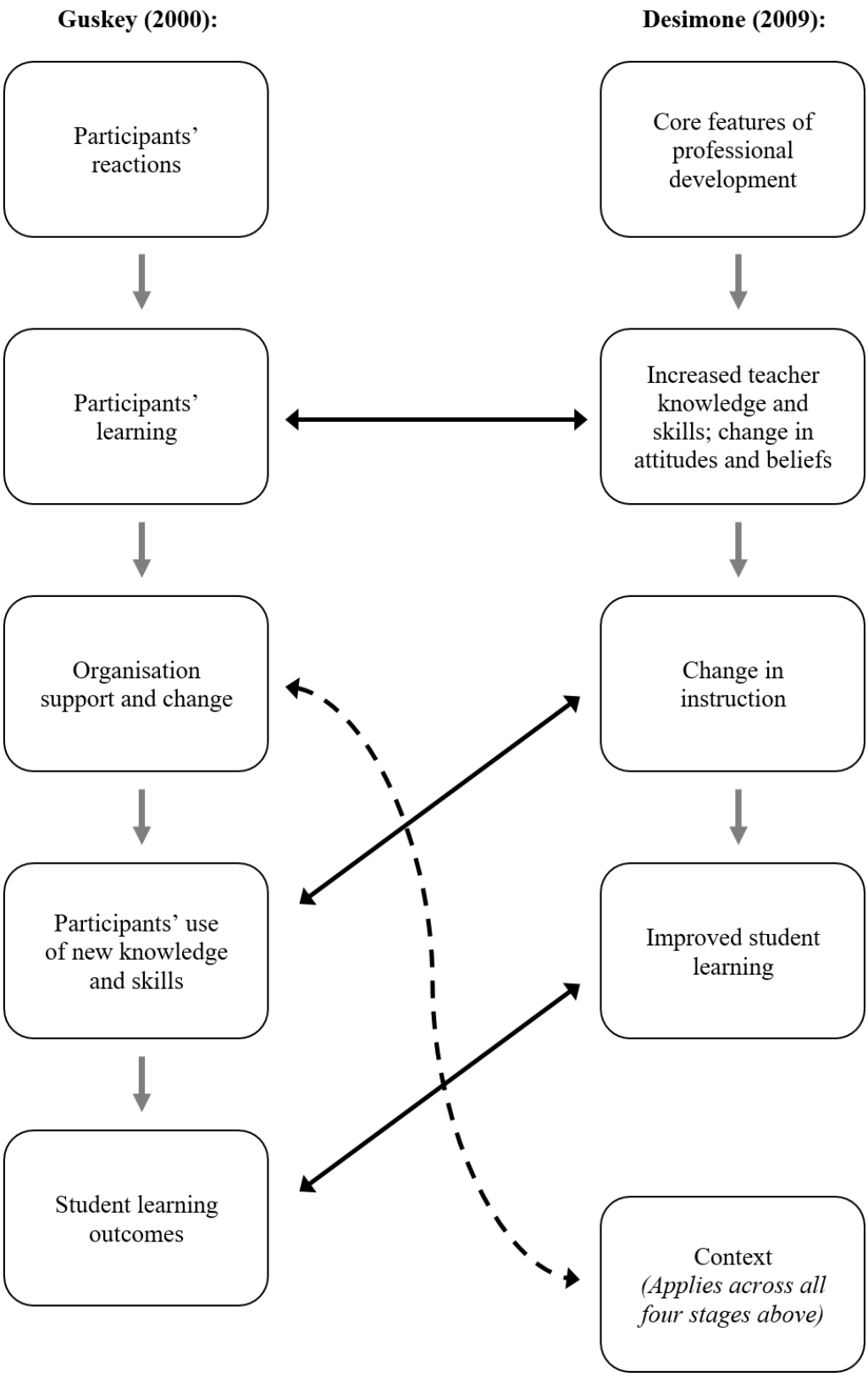

Figure 2.7. Alignment of theoretical frameworks for evaluating teacher professional development described by Guskey (2000) and Desimone (2009)

Although the basic sequence of *professional development—teacher learning—classroom implementation—student benefits* is common to both frameworks, the frameworks differ in their incorporation of contextual factors. Guskey (2000) argues that organisational support acts as a gateway between teachers' learning and their use of new knowledge and skills; therefore, he places this as his third level. In contrast, Desimone (2009) argues that as well as influencing teachers' implementation of new knowledge and skills (her second stage), contextual factors can also affect the design of professional development (her first stage), the degree of teacher learning (her third stage), and even whether students benefit from any classroom changes (her final stage). She, therefore, places context as an overarching factor outside the sequential progression.

Guskey (2000) and Desimone's (2009) use of sequential (or path) structures for their evaluation models is also well supported within wider evaluation literature. Many other evaluation models use similar structures, including influential early models for workplace training evaluation in the business world (Kirkpatrick, 1959; Kirkpatrick & Kirkpatrick, 2006; Stake, 1967, 2011; Stufflebeam, 1983, 2000) as well as more recent, education-specific models (Bubb & Earley, 2010; Coldwell & Simkins, 2011; F. King, 2014). Evaluating at a series of sequential levels or stages is, thus, widely considered to be useful and appropriate.

Additional literature sources, though not presenting complete evaluation frameworks, also endorse aspects of Guskey (2000) and Desimone's (2009) models. For example, the approach of evaluating at multiple levels of impact is supported by the Australian Institute for Teaching and School Leadership (n.d.) and the US National Staff Development Council (Haslam, 2010). Explicitly evaluating impact on students is advocated by Timperley et al. (2007) and Earley and Porritt (2014); to this end, Timperley et al. (2007, p. 12) argue that: "If we are to make a difference to students, improving teaching practice should not be considered an end in itself but should be judged according to the impact on students". Further, as noted in Section 2.1, some researchers have suggested that instead of thinking of professional development in terms of specific activities, a better approach may be to see professional development as actual professional change—the development (growth, change, or improvement) of the professional (Bubb & Earley, 2008; Evans, 2002, 2011, 2014; F. King, 2014).

This conceptualisation would align with Guskey (2000) and Desimone's (2009) explicit evaluation of changes—implying professional development—in teachers' knowledge and classroom practice.

Three limitations of Guskey (2000) and Desimone's (2009) frameworks can be identified. First, although the individual components within these frameworks are widely accepted, there is less agreement around their sequence. For example, there is disagreement in the literature about when teachers' attitudes and beliefs change (Desimone, 2009; Guskey, 1986, 2000, 2002b)—or, indeed, whether beliefs change at all (Evans, 2002; Fang, 1996; Metzger & Wu, 2008; Richardson & Placier, 2001). There is also disagreement about the role of contextual factors: Do these function as a gateway at a particular point in the process (Guskey, 2000), or act across all stages (Desimone, 2009)? Other scholars have suggested that the process of teacher change (and, by implication, the impacts of professional development) may not follow a linear model at all (Bates, 2013; Evans, 2002; Huberman, 1995; Opfer & Pedder, 2011).

A second limitation of the frameworks presented by Guskey (2000) and Desimone (2009) is that even if their sequence or structure is accurate, they only measure success at each level and do not shed light on *how* progression from one level or stage to the next occurs. It is well established that "the links between teacher PD, pupils' outcomes and school improvement are not automatic" (F. King, 2014, p. 107; see also Section 2.4); therefore, practitioners need information about factors that may promote or hinder progression through the levels of impact (Mitchell, 2013). Evans (2014) argues that:

> In relation to one question—How do people develop professionally?—conceptual and processual models [such as Guskey's and Desimone's] … fall short, for while much research has been directed at addressing the question, findings have tended to lack the specificity that offers the kind of meaningful elucidation that those with responsibility for leading and facilitating professional development may find useful. (p. 183)

Having measured the extent of the impact of professional development, neither Guskey (2000) nor Desimone's (2009) framework has further explanatory or advisory power to assist practitioners with possible next steps. As such, these frameworks primarily offer summative rather than formative information (Scriven, 1994).

A final limitation of Guskey (2000) and Desimone's (2009) frameworks is that they were developed in Western countries. As such, they are informed by Western culture and Western constructions of education. This may introduce significant bias and reduce the generalisability of the models to non-Western contexts (Henrich, Heine, & Norenzayan, 2010). This consideration is discussed in more depth in Chapter 3, but it is mentioned briefly here as it may be the most relevant limitation of Guskey (2000) and Desimone's (2009) frameworks for the purpose of my study.

Together, Sections 2.5.1 to 2.5.4 have introduced, compared, and critiqued a number of best-practice frameworks for evaluating teacher professional development. Of the various frameworks available in the literature, those presented by Guskey (2000) and Desimone (2009) were considered to be the most suitable for providing a theoretical foundation for my study reported and, therefore, were examined in greater detail. Overall, Guskey (2000) and Desimone's (2009) frameworks align closely, are widely used, and are well supported by other literature, although contrasting models and limitations of the two frameworks have been acknowledged. For these reasons, Guskey (2000) and Desimone's (2009) frameworks were used as the basis for my study.

Having reviewed best-practice recommendations for evaluating teacher professional development, the next section (Section 2.5.5) compares that standard with common evaluation practice within schools and education systems. Whereas the best-practice recommendations (described in Sections 2.5.1 to 2.5.4) provided a theoretical foundation for my study, consideration of typical evaluation practice (described in Section 2.5.5) informed the development of the new questionnaire as part of my study (research objective 1).

2.5.5 Teacher Professional Development Evaluation in Practice

This section reviews literature related to the teacher professional development evaluation practices that have been widely observed in schools and education systems. Existing research indicates that much school-based evaluation of professional development fails to incorporate the recommendations of the literature reviewed in this chapter; this section considers why this is the case.

There is much evidence to suggest that high quality evaluation of teacher professional development, such as that described in Section 2.5.1, is far removed from what happens in practice (see, for example, Blank, de las Alas, & Smith, 2008; Boylan et al., 2017; Brown, Edmonds, & Lee, 2001; Bryant, 2007; Earley & Porritt, 2014, 2010; Frechtling, 2001; Goodall et al., 2005; Ofsted, 2006; Pedder & Opfer, 2010; Regional Education Laboratory Southeast, 2009; Yoon et al., 2007). School-based professional development evaluation has been heralded as "the weakest link in the [professional development] chain" (Ofsted, 2006, p. 19), and it has been criticised as being "instinctive and pragmatic with reference to outcomes that are insufficiently specified and insufficiently linked to pupil learning outcomes, school improvement and self-evaluation" (Pedder & Opfer, 2010, pp. 448–449). This is of concern, particularly when paired with the fact that professional development itself is often of poor quality (as discussed in Section 2.1). Consequently, this adds to the mandate for deliberate, research-based investigations of professional development such as my study.

In contrast to the literature-based emphasis on evaluating the impacts of professional development, past studies indicate that practitioners in schools and education systems frequently use 'evaluation' strategies that omit examination of such impacts. For example, evaluation forms—usually a simple questionnaire administered at the end of a professional development activity—are widely used by school-based practitioners (Brown et al., 2001; Fishman et al., 2003; Goodall et al., 2005; Guskey, 2000; Joyce & Showers, 2002; Pedder & Opfer, 2010; Wilson & Berne, 1999). Such evaluation forms have been widely criticised for their emphasis on teachers' immediate, affective reactions to professional development (corresponding to Guskey's first evaluation level) and their failure to measure actual impacts on

teaching and learning (Brown et al., 2001; Frechtling, Sharp, Carey, & Vaden-Kiernan, 1995; Guskey, 2000). Nonetheless, large-scale studies of evaluation practice in schools indicate that, overall, teachers' satisfaction with professional development is the most commonly evaluated dimension, whereas the impact of professional development on students is the least commonly evaluated (Bryant, 2007; Frechtling, 2001; Goodall et al., 2005).

Another 'evaluation' strategy that is widely used in schools and education systems centres on record keeping. In these cases, 'evaluation' consists of documenting either the dissemination of training content to other school staff (Brown et al., 2001; Goodall et al., 2005; Harris et al., 2006) or practical details such as lists of courses run, contact hours, and numbers of attendees (Broad & Evans, 2006; Guskey, 2000; Regional Education Laboratory Southeast, 2009; Wilson & Berne, 1999). Such record-keeping approaches offer no information about the quality of the professional development activities themselves and, like evaluation forms, do not measure whether professional development is actually generating improvements in teaching and learning.

Overall, it would appear that much 'evaluation' practice in schools and education systems either is not evaluative at all or only evaluates at a superficial level, focusing on teachers' affective reactions. As such:

> Despite widespread reliance on professional learning as a core component of efforts to improve education for all children, educators have little systematic information to allow us to assess the quality of professional learning or to gauge their contributions [sic] to professional practice and student learning. In short, there is little information on the return on the investment. (Haslam, 2010, p. 8)

A number of barriers contribute to the current lack of robust school-based professional development evaluation. First, high-quality evaluation typically involves a high resource demand (Desimone, 2009; Fishman et al., 2003; Wilson & Berne, 1999). Second, due to the complex nature of school environments, it is difficult for evaluators to isolate the effects of a specific professional development initiative

(Guskey, 2000; Wayne et al., 2008). Third, there is a severe lack of practical tools that translate robust theoretical principles into formats that are appropriate for use in the real-world school environment (Blank et al., 2008; Borko, 2004; Desimone, 2009; Goodall et al., 2005; Soine & Lumpe, 2014). Fourth, practitioners' willingness to contribute or collect robust data on the impacts of professional development may be compromised by issues related to vulnerability within today's high-stakes accountability context of education (Desimone, 2009; Fishman et al., 2003; Guskey, 2000; Hochberg & Desimone, 2010; F. King, 2014; Shaha et al., 2004; Wilson & Berne, 1999). Finally, some practitioners hold a faulty belief that professional development will automatically lead to the desired teaching and learning impacts, making it seem unnecessary to explicitly evaluate teacher learning, changes in teachers' classroom practice, or changes in student outcomes (Brown et al., 2001; Guskey, 2000; Shaha et al., 2004).

Given these barriers, high-quality, theoretically-informed evaluations of the impact of teacher professional development have, largely, been conducted by academics and researchers (see, for example, Abell et al., 2007; Askew, Brown, Rhodes, Wiliam, & Johnson, 1997; Fishman et al., 2003; Gibson & Brooks, 2012; Soebari & Aldridge, 2015; Soine & Lumpe, 2014). These evaluations have typically involved time-consuming and costly techniques, such as interviews and classroom observations, which are unlikely to ever be widely used in schools and education systems (Blank et al., 2008). Although some researchers have cautioned that "evaluation should not become too burdensome a procedure on schools and teachers" (Goodall et al., 2005), few practical suggestions have been offered to practitioners about how to make best-practice evaluation manageable.

Given the poor quality of much professional development practice (outlined in Section 2.1) and the importance of teacher professional development for improving education (Section 2.2), it is critical that professional development practice is evaluated well. The literature reviewed in Sections 2.5.1 to 2.5.4 indicates that there are strong theoretical guidelines for such evaluation. However, based on the literature reviewed in Section 2.5.5, I argue that in order for there to be significant, widespread improvement in the quality of evaluation practice, schools and education systems urgently need practical support to translate best-practice recommendations into

strategies that address some or all of the barriers that currently inhibit good evaluation practice. My study aimed to contribute one such practical evaluation tool to the field; the development of the new evaluation instrument (research objective 1) was informed by consideration of the barriers described in this section.

2.6 Chapter Summary

This chapter has reviewed literature related to teacher professional development and its evaluation. It is accompanied by a second chapter (Chapter 3) that reviews literature related to culture and cultural differences. Together, the purposes of these two chapters are to locate my study within the context of existing research, to establish a warrant for the study's unique research objectives (see Chapter 1), and to inform the study's methodology (see Chapter 4) and interpretation of findings (see Chapter 7).

This chapter began by noting the significant advances that have been made in the field of teacher professional development since the middle of the twentieth century (Section 2.1). I described the theoretical shift away from a deficit-based, transmissive, training-centred model and, instead, toward a paradigm that acknowledges teachers as professionals with agency and expertise. Despite these advances, however, the literature reviewed in Section 2.1 indicated that these shifts in theoretical understanding have not yet been embedded in widespread practice, with much professional development practice today still lacking both quality and impact.

Section 2.2 then reviewed literature that demonstrated the importance of teacher professional development for educational improvement efforts. There was strong evidence to indicate that despite the issues (discussed in Section 2.1) related to current practice, teacher professional development remains an important and potentially powerful lever for educational change. My study, therefore, extends the existing literature by investigating teachers' experiences of professional development in the under-researched context of Abu Dhabi and examining the factors—including design features, non-design-related factors, and cultural factors—that contributed to

the effectiveness of professional development in that context (research objectives 2 to 5).

The literature reviewed in Section 2.3 identified key characteristics of effective professional development design. Five such features—content focus, active learning, coherence, duration, and collective participation (Desimone, 2009)—were found to be widely acknowledged and, as such, were selected for use in my study. To my knowledge, my study is the first to use these five features to examine teacher professional development in Abu Dhabi.

Section 2.4 reviewed literature related to the complexity of the progression from professional development activities to the desired impacts on teaching and learning. Through comparing four literature-based models of this process, I concluded that, though important as a first step, simply planning professional development to reflect research-based characteristics of effective professional development design does not guarantee that the desired outcomes will follow. Rather, it is essential that there be effective evaluation of teacher professional development's impact on teaching and learning. My study, therefore, contributes to the evaluation of professional development practice in Abu Dhabi by examining both the design and the impact of professional development efforts (research objective 2) and, further, by examining the nature of the relationships between those measures (research objective 3).

Section 2.5 then reviewed literature related to the evaluation of teacher professional development. After examining ten literature-based frameworks for evaluating teacher professional development, the frameworks proposed by Guskey (2000) and Desimone (2009) were selected to provide a theoretical basis for my study. Despite the strength of the theoretical base related to the evaluation of teacher professional development, however, it was noted that a large theory–practice gap exists. The literature reviewed indicated that evaluation in practice largely relies on poor-quality methods that do not measure the impact of professional development on teachers and students. A number of barriers were identified that inhibit better evaluation practice, and I argued that in order for evaluation practice to improve, practitioners need targeted support in overcoming these barriers. My study contributes to the field through the development of a new evaluation instrument that is specifically designed

to address some of the practical barriers identified in this review of literature (research objective 1).

The fact that Abu Dhabi is a non-Western context is, clearly, a significant factor in this study's originality and contribution to the field. It is, therefore, necessary to review literature relating to culture and cultural differences in addition to this chapter's examination of professional development literature. Chapter 3 presents such a review.

Chapter 3

CULTURE AND CULTURAL DIFFERENCES

My study investigated teachers' experiences of professional development in Abu Dhabi. The cultural diversity of the teachers working in Abu Dhabi public schools (see Section 1.1.4 of Chapter 1), as well as the non-Western context in which the study was conducted, meant that culture and cultural differences were required to be considered throughout the design, execution, and interpretation of my research. This chapter, therefore, reviews literature relating to culture and cultural differences, complementing the review of literature provided in Chapter 2 in relation to teacher professional development.

This chapter contains five sections. The first (Section 3.1) reviews literature related to definitions and interpretations of culture and, consequently, clarifies how culture is understood for the purpose of my study. Given this foundation, Section 3.2 reviews literature to examine the relevance and influence of culture on large-scale education reform efforts. Section 3.3 then reviews literature related to the various dimensions on which cultural differences can be measured and compares Arab and Western cultures in terms of each of these dimensions. Finally, Section 3.4 summarises the findings of the literature reviewed in this chapter and highlights the contributions made by my study.

3.1 Concepts of Culture

Concepts of culture were highly relevant to my study. The study investigated a particular aspect—teacher professional development—of an education reform that was situated in an Arab context and involved teachers from both Arab and Western nationalities. As such, it was recognised that culture and cultural differences were likely to affect teachers' perceptions of and responses to professional development and, ultimately, the success of the broader education reform agenda. Therefore, to provide a foundation for my study, this section reviews literature related to the concept of culture.

Although the word ‘culture’ is used freely and frequently in everyday language (Dahl, 2004), as a formal construct, culture is “a notoriously difficult term to define” (Spencer-Oatey, 2012, p. 1; see also Apte, 1994). This was effectively illustrated by Kroeber and Kluckhohn (1952), who located and examined more than 160 definitions of culture, which were found to differ significantly in terms of their scopes and emphases. Now, sixty-five years after the review by Kroeber and Kluckhohn (1952), a single, commonly accepted definition of culture is still lacking (Spencer-Oatey, 2012).

A number of factors have made it difficult for the field to progress toward definitive understandings of culture. First, culture is “not static but, rather, dynamic. This means that cultures change; they are fluid, always moving” (Neuliep, 2011, p. 47). Culture is also a layered construct, spanning a range of levels from external, visible behaviours to internal, deeply held values and beliefs (Dahl, 2004; Spencer-Oatey, 2012). Further, cultures “are not synonymous with countries [and] do not respect political boundaries” (Jandt, 2007, p. 6), making it difficult to define the groups to whom cultures belong. Finally, the norms and trends of any culture are mediated by the unique personality and experiences of each individual within the cultural group, meaning that “general ‘dimensions’ of culture can be established at a culture-level, [but] these may not necessarily be reflected in the behaviour of each individual from that culture” (Dahl, 2004, p. 8). Any description of cultural variation must, therefore, be recognised as offering only a general observation that reflects a “central tendency” (Hofstede, Hofstede, & Minkov, 1991, p. 253) associated with a particular group of people.

Despite the lack of consensus on precise definitions of culture, there is, nonetheless, widespread agreement in several areas. First, there is agreement, based on direct observation, that groups of people differ both in their internal thinking and feeling and in their external behaviour (Dahl, 2004; Hofstede, 1983; Jandt, 2007). This may be true of groups such as families, members of ethnic groups, citizens of countries, members of organisations, employees of companies, or staff and students of schools. Second, there is a common understanding that these internal and external differences—however they came to be—may be described as the culture of a group of people (Dahl, 2004; Jandt, 2007). Third, it is widely accepted that this abstract and

somewhat ill-defined construct called culture influences—and perhaps even controls—people's thoughts, feelings, actions, reactions, expectations, interactions with others, and interpretations of events and of the behaviour of others (Dahl, 2004; E. T. Hall, 1959; E. T. Hall & Hall, 1990; Neuliep, 2011; Spencer-Oatey, 2012). It is, however, simultaneously acknowledged that people may, at different times, act in ways that seem inconsistent with their cultural norms, and some individuals may *consistently* act in ways that do not align with the majority of their larger cultural group. Finally, it is recognised that, in many cases, the influence of culture is unconscious: "Culture hides much more than it reveals, and strangely enough what it hides, it hides most effectively from its own participants" (E. T. Hall, 1959, p. 29; see also Dahl, 2004; Neuliep, 2011).

The literature, therefore, suggests that any investigation of culture—such as that involved in my study—must be conducted with caution. Although culture and cultural differences are valid constructs that may be investigated, the limitations arising from the generalisations and complexities involved in attempting to capture and define culture and cultural differences must be acknowledged (Hofstede, 2001; Neuliep, 2011). It is helpful, therefore, to consider Hofstede's illustration that:

> Within each collective there is a variety of individuals. If characteristics of individuals are imagined as varying according to some bell curve; the variation between cultures is the shift of the bell curve when one moves from one society to the other. (Hofstede, 2011, p. 3)

For the purpose of my study, culture was interpreted according to the definition presented by Spencer-Oatey (2008, p. 3):

> Culture is a fuzzy set of basic assumptions and values, orientations to life, beliefs, policies, procedures and behavioural conventions that are shared by a group of people, and that influence (but do not determine) each member's behaviour and his/her interpretations of the 'meaning' of other people's behaviour.

This definition was considered appropriate for my study because it encapsulated several key messages identified in the literature reviewed thus far: (a) the 'fuzziness' inherent in the construct of culture; (b) the range of factors, both internal (such as assumptions or values) and external (behaviours), that comprise culture; (c) the tension between the general trend of the influence of culture and each individual's personality and self-determination; and (d) the manifestation of culture in both people's behaviours and their interpretations of the behaviour of others.

In addition to defining how culture was interpreted in my study, it is also necessary to clarify the level of analysis used. The concept of culture can be interpreted at various levels of analysis, depending on the group of people whose culture is being examined. In particular, there is much discussion in education literature about *school* culture and *organisational* culture, including how these relate to education reform (see, for example, Desimone, 2002; Fullan, 2000, 2007; Fullan & Miles, 1992; Hargreaves & Goodson, 2006; Hopkins, 2011; Levin, 2001; Whelan, 2009). However, culture can also be considered in terms of *societal* and *national* culture (Hofstede, 1993; H. Yin, 2013), generating quite a different level of depth and analysis. National and societal cultures involve deeply held values and beliefs that are shared—and believed to be normal—by the majority of people, having been acquired in early childhood (Hofstede, 1993). In contrast, organisational cultures, including school cultures, are more superficial and largely relate to shared, practical ways of working (Hofstede, 1993).

My study involved cultural analysis at the level of societal and national culture. In this way, my study is distinct from much past research related to educational change, which has primarily conceptualised culture in school and organisational terms (Cheng, 1995; H. Yin, 2013). Based on my personal experiences in Abu Dhabi (see Chapter 1) and the literature reviewed in this section, I shared the view that "the culture of a nation exerts a hidden but demonstrable influence on its organizations and their capacity to change" (Hallinger & Kantamara, 2001, p. 388). Therefore, my study extended the existing literature by considering how societal and national culture affect educational reform in terms of the specific case of teacher professional development.

This section (Section 3.1) has reviewed literature related to the construct of culture and specified how culture was understood for the purpose of my study. As such, the concepts and definitions examined in this section inform the review of literature provided in the remainder of this chapter related to the impact of culture and cultural differences on education reform and professional development. Given this conceptual foundation, the next section (Section 3.2) reviews literature to examine the scale and nature of the influence of cultural factors on education reform in general and teacher professional development in particular.

3.2 Culture, Large-Scale Education Reform, and Teacher Professional Development

Around the world, large-scale education reform efforts have become commonplace as a result of "the global hyper-narrative that tells us (and tells governments in particular!) that improving teacher quality will improve pupil outcomes, which will increase nation-states' economic competitiveness" (A. Kennedy, 2014, p. 691, parentheses in original; see also Akiba, 2013a; Fullan, 2009; Harris, 2012; Helsby, 1999). Large-scale education reforms have been defined as "deliberate policy and strategy attempts to change the [education] *system* as a whole" (Fullan, 2009, p. 102). Further, to be truly considered large scale, these initiatives should involve "a minimum of 50 or so schools and 20,000 students" (Fullan, 2000, p. 8).

According to these criteria, the ADEC public school reform project, to which my study relates, constitutes a large-scale reform (see Section 1.1.3 of Chapter 1). Therefore, to inform my research, this section reviews literature related to the impact of culture on large-scale education reforms. Further, given that the literature reviewed in Section 2.2 of Chapter 2 indicated that teacher professional development is a powerful vehicle for education reform, this section also reviews literature specifically related to the impact of culture on teacher professional development.

The increased prevalence of large-scale reform efforts has been accompanied by the emergence of a distinct field of research focusing on large-scale education reforms (Fullan, 2009). This research has documented not only the various large-scale reforms being implemented around the world but also the significant difficulties that

have been encountered within those efforts: “Educators appear to know how to create islands of change but not how to construct archipelagos or build entire continents of them” (Hargreaves & Goodson, 2006, p. 4). Both replicating change across a large number of sites and sustaining change over time have remained elusive goals (Fullan, 2000, 2009; Hargreaves & Goodson, 2006). It is only very recently that effective system-wide reforms have been observed and that literature indicating how to achieve such reforms has begun to emerge (Fullan & Quinn, 2016). As such, it must be acknowledged that, until very recently, the leaders of large-scale reform efforts such as the ADEC reform examined in my study have, to an extent, been ‘flying blind’, informed by literature and the experiences of other systems that have not yet reflected strong positions of success.

Much comparative research and analysis has been conducted to examine how large-scale education reforms are conducted in different cultural, political, and geographical contexts as well as the associated successes and challenges (see, for example, Akiba, 2013c; Fullan, 2009; Levin, 2001; Mourshed & Barber, 2007; Mourshed et al., 2010; OECD, 2008). Within this literature, education reform is clearly depicted as a culturally-situated and culturally-informed phenomenon; consequently, reform strategies must be selected and adapted “taking into account the history, culture, politics, and structure of the school system and the nation” (Mourshed et al., 2010, p. 18). Making this point in relation to the successful large-scale reforms undertaken in Finland, Hargreaves, Halász, and Pont (2008, p. 92) note that:

> No single part of the overall [educational] innovation can or should be extracted or transposed from this society-wide example, since the components are mutually reinforcing parts of a complex system. It is hard to imagine how Finland’s educational success could be achieved or maintained without reference to the nation’s broader system of distinctive social values that more individualistic and inequitable societies may find it difficult to accept.

Thus, although it may be possible to learn from the successes of other countries or school systems, there are no “silver bullets” (Hargreaves et al., 2008, p. 76). The

influence of culture and cultural differences means that there are no approaches, strategies, or models from successful reforms that, if replicated in any other context, could be automatically expected to bring about similar improvements. Rather, "the harsh reality is that even the best policies travel badly" (Harris, 2012, p. 395). Instead, and of key importance for my study, "there are culturally grounded differences in people's responses to change. These suggest potential differences [across cultures] in the types of strategies that foster change" (Hallinger & Kantamara, 2001, p. 405).

A useful model for conceptualising how culture affects education reform is the conditional matrix described by Datnow, Hubbard, and Mehan (1998) and P. M. Hall and McGinty (1997). In this model, education reform is formulated as a conditional matrix—"a web of interrelated conditions, action/interaction, and consequences" (P. M. Hall & McGinty, 1997, p. 461) that allows acknowledgement of the many interacting factors influencing policy and practice. Culture can then be formulated as one of these numerous interacting factors—"an often neglected dimension of school reform" but one that "is as important as other dimensions and profoundly impacts the actions of educators and the constraints they face" (Datnow et al., 1998, p. 5).

The conditional matrix model described above is consistent with other related literature. For example, based on analysis of large-scale education reforms from the 1950s to 2009, Fullan (2009) states that "one cardinal rule in systems reform is never, ever, endorse one factor at a time as key" (p. 108). He notes that it is not individual strategies or factors, but the interaction of combinations of these, that leads to results. As such, Fullan's (2009) position supports the conditional matrix interpretation, although he does not specifically identify culture as an element of the matrix. Hargreaves et al. (2008), likewise, warn against copying education reform models, either in whole or in part, from a particular context and implementing them elsewhere, because effective strategies arise "out of alignment between and integration of a deep set of cultural and social values, a particular kind of social and economic state, and a distinctive approach to education reform" (p. 77). Thus, in line with the conditional matrix model, Hargreaves et al. (2008) describe a number of factors, including culture, that interact in and affect the progress of education reforms.

Although culture is only one of many factors affecting education reform, its relative influence has been found to be substantial. Research syntheses comparing education reforms in a range of cultural contexts have indicated that culture affects education reform significantly at all stages: as reform is conceptualised and planned, as it is implemented and adopted, and as it is either institutionalised or forgotten (Akiba, 2013c; Datnow & Stringfield, 2000). For example, after examining education reform efforts in 10 countries, Akiba (2013a) concluded that:

> I … observed major differences [across the 10 countries] in the reform design, implementation, and potential outcomes. The design of the teacher reform in each country was influenced by the local contexts … the specific design and implementation process of the teacher reform varied across the countries, [and] so did the potential outcomes on teachers and students. (Akiba, 2013a, p. 289)

Similar results have also been found in studies investigating single education reform initiatives. In Thailand, for example, Hallinger and Kantamara (2001) found that Thai cultural characteristics had numerous effects on the implementation of educational change, concluding that new, culturally informed strategies for managing change needed to be developed. H. Yin (2013) obtained similar results in a study of teachers' responses to curriculum reform in China, as did Tam, Lai, and Lam (2007) in their study of secondary school teaching reform in Hong Kong.

Despite these indications in the existing literature that culture and cultural differences significantly affect education reform, there is an increasing "global trend of transnational borrowing and lending in education" (Steiner-Khamsi, 2004, p. 1) with regard to policies and strategies for reform. As both the research base on large-scale education reform and the global competition for improved educational achievement have grown, there has been a "movement towards a global school improvement community" (Hallinger & Kantamara, 2001, p. 405). Methods, strategies, policies, expertise, and even personnel are increasingly transferred and shared between countries and education systems (Appleton, Sives, & Morgan, 2006; Hallinger & Kantamara, 2001; Sharma, 2012; Tucker, 2011). Given the importance of teacher professional development within education reform efforts (as indicated in Chapter 2),

it is not surprising that professional development philosophies and practices are included in this international policy borrowing (see, for example, Subitha, 2017).

Although this international sharing and "learning from the experience of others" (Phillips, 2000, p. 297) may be a positive development, it also increases the risk that policies or strategies will be inappropriately transferred to a new context without consideration of cultural factors or subsequent modification to suit the new context (Hallinger & Kantamara, 2001; Subitha, 2017). Of particular relevance for my study is the need for caution when educational principles and practices developed in Western contexts are applied in a non-Western environment. Writing in the context of behavioural science, Henrich et al. (2010) present a robust criticism of the common practice of making universal claims "based on samples drawn entirely from Western, Educated, Industrialized, Rich, and Democratic (WEIRD) societies" (p. 61). They argue that:

> Researchers—often implicitly—assume that either there is little variation across human populations, or that these 'standard subjects' are as representative of the species as any other population … [However,] WEIRD subjects are particularly unusual compared to the rest of the species … [and] are among the least representative populations one could find for generalizing about humans. (Henrich et al., 2010, p. 61)

Although Henrich et al. (2010) made this point within the behavioural science field, it is worthy of consideration in the context of educational reform as well. Indeed, this is the essential message of this chapter: that Western models of education may not necessarily be appropriate in non-Western contexts or for non-Western participants due to the fundamental cultural differences at play (Cheng, 1995; Hofstede, 1986).

Although the literature reviewed above provides substantial evidence that education reform is sensitive to cultural differences, there is a lack of literature specifically examining the influence of cultural differences on teacher professional development. This is of concern, given that the literature reviewed in Section 2.2 of Chapter 2

indicated that professional development is widely used as a core strategy in education reform efforts.

In my review of literature, only one group of existing publications was located that specifically addressed the influence of cultural differences on teacher professional development: namely, the work of Gu, who explored differences in the beliefs and practices of British English language teaching specialists and the Chinese English language teachers they trained (Franson & Gu, 2004; Gu, 2005a, 2005b, 2010; Gu & Schweisfurth, 2006). She found that cultural differences were significant factors influencing the effectiveness of the professional development and concluded that specific teaching (and, therefore, professional development and training) practices are unlikely to be globally more effective due to the influence of differing local contexts (Gu, 2005b). As such, Gu recommended that educators working cross-culturally needed to develop deep understandings of cultural differences, not just at generalised levels but also in terms of the specific motivations and needs of the particular group of learners they are working with (Gu & Schweisfurth, 2006). These findings emphasise the significant role played by cultural differences when teachers engage in professional development and the complexity of enacting professional development across cultural boundaries.

Though not reporting empirical findings, one further publication was located that presented a literature review and policy analysis related to teacher professional development in India and the associated policy borrowing from Western countries (Subitha, 2017). Subitha argued that recent education reforms in India failed because the new educational policies and the associated professional development "d[id] not consider cultural and structural constraints" (p. 8). For example, Subitha suggested that the overall reform goal of introducing constructivist pedagogies to India did not align with Indian cultural values and norms.

Finally, a publication was located that reported on the impact of culture on professional development in a business context within the UAE. Although this is outside of the educational field in which my study took place, the lack of alternative literature related to the impact of culture on professional development as well as the study's UAE context make this publication worth examining. S. Jones (2008) studied

how the cultural values and norms of 70 young Emirati national staff influenced the success of a workplace training programme. The practices advocated within the training were drawn from international, but primarily Western, literature and best practice, creating a cultural gap between the training material and the Emirati participants. Despite extensive training, Jones found that the Emirati staff consistently selected the approaches that had been portrayed in the professional development as the *least* effective strategies. Jones concluded that:

> Training outcomes based on international standards … may be compromised by the pre-existence of culturally specific beliefs and values which may be incompatible with those promoted within training programs. In this study, the training participants … were predominantly influenced by perceptions of how they should react … that are significantly mediated by their socio-political context. (S. Jones, 2008, p. 58)

Despite its non-educational context, therefore, the study by S. Jones (2008) provides further evidence that professional development is sensitive to cultural factors and that Western principles may not transfer effectively into non-Western contexts.

This section (Section 3.2) has reviewed literature related to the influence of culture on large-scale education reform in general and teacher professional development in particular. The literature reviewed indicated that large-scale education reform initiatives, such as the reform project being conducted in Abu Dhabi at the time that my study took place, are culturally situated. Minimal literature, however, was located that addressed the influence of culture on teacher professional development specifically; hence, although the available literature supported the hypothesis that teacher professional development is culturally situated, there is a pressing need for further investigation of this premise. My study, therefore, extended the existing literature by examining teacher professional development within the Abu Dhabi public school education reform project, investigating the factors that contributed to the impact of professional development in that context and comparing the perceptions and responses of Arab and Western teachers to the professional development provided.

The next section of this chapter builds upon the findings of the literature reviewed in Sections 3.1 and 3.2. Given the importance of culture for education reform and teacher professional development, Section 3.3 reviews literature related to the specific differences between cultural groups and, in particular, between Arab and Western cultural groups.

3.3 Cultural Differences

Recognising how members of different cultural groups tend to vary is important in any cross-cultural context because cultural differences can lead to conflicts, misunderstandings, and frustrations when people of different cultural groups interact (Silverthorne, 2005). People naturally bring their cultural norms and expectations with them into any situation but, in many cases, this is done subconsciously; we often do not realise that what we see as 'normal' or 'obvious' may not be seen that way by others as a result of genuine cultural differences. Therefore, in any professional situation where members of different cultural groups interact—such as the educational context of my study—a lack of understanding of cultural differences can inhibit progress and productive professional activity (Silverthorne, 2005). For these reasons, and given that the literature reviewed in Section 3.2 indicated that culture has a significant influence on education reform, it was important to examine the specific cultural factors that may be relevant for my study.

This section considers the various ways in which people can be classified into cultural groups and justifies the use of the broad groupings of Arab and Western cultures for the purpose of my research (Section 3.3.1). Section 3.3.2 then introduces cultural dimensions (Hofstede, 1980, 1983): that is, variables with which the similarities and differences between cultures can be captured. Seven cultural dimensions found in the existing literature are introduced, and criticisms of the use of cultural dimensions are acknowledged. Sections 3.3.3 to 3.3.9 then provide further detail about the seven dimensions and highlight how Arab and Western cultures differ in terms of each dimension.

3.3.1 Approaches to Cultural Classification

Any classification of people into groupings for the purpose of research or analysis is a complex and sensitive matter. The common experiences and attributes that are assumed to be held by those classified into a particular group, as well as the stability of such classifications over time, are dubious constructs (Somers & Gibson, 1994), and "for every categorisation there will always be a subgroup whose experience may not be represented by the categorisation" (Ezzy, 2002, p. 158). However, although such categorisations are problematic,

> this does not mean that we should never attempt to categorise people into groups of shared experience. The inherently political nature of social life means that the use of categories to describe group experience is unavoidable. The point is to be critically aware of the … implications of such categorisations. (Ezzy, 2002, p. 159)

In terms of intercultural research, national borders have, historically, been seen as the most appropriate way to associate people with cultural groupings. The two pioneering researchers in the field of inter-cultural research, E. T. Hall (1959; see also Hall & Hall, 1990) and Hofstede (1980, 1983, 2001), used country boundaries to describe and compare cultures, and this approach has been continued by subsequent researchers (see, for example, Dahl, 2004; Jandt, 2007; Silverthorne, 2005). Practical reasons contribute to the use of country borders for defining and comparing cultures: It is usually more straightforward to identify someone's nationality than to analyse their membership of one or more subcultures, and "there is considerable support for the notion that people coming from one country will be shaped by largely the same values and norms as their co-patriots" (Dahl, 2004, p. 7).

Despite the widespread use of nationality for cultural classification, this approach has limitations (Littrell, 2012). National borders are essentially a political phenomenon and may be influenced by a range of political forces, meaning that national borders may not accurately reflect the actual ways and places in which groups of people are similar or different (Jandt, 2007; Littrell, 2012). Compared to culture, which is a construct assumed to span the whole of human history:

> The invention of ‘nations’, political units into which the entire world is divided and to one of which every human being is supposed to belong—is a recent phenomenon. Earlier, there were states, but not everybody belonged to one of these or identified with one. The nation system was only introduced worldwide in the mid-twentieth century. (Hofstede et al., 1991, p. 11)

Further, within a single country, there may be multiple, quite different cultural subgroups and societies (Jandt, 2007). Grouping these together through the use of a national cultural classification and assigning or assuming cultural norms may, therefore, be inappropriate. Factors such as ethnicity, race, socioeconomic status, tribe, citizenship, refugee status, indigenous status, region or city of origin (particularly for large countries such as the US or China), mother tongue, gender, generation, and religion or religious sect may all offer alternative categorisations of people into cultural groups and may carry more meaning than national classifications to the individuals within those groups (Hofstede, 2001; Hofstede et al., 1991; Jandt, 2007; Littrell, 2012; Spencer-Oatey, 2012).

For the purpose of my research, broad regional groupings of nationalities were used to classify teachers as either Arab or Western. This approach was selected to ensure that my study did not use too fine a level of analysis or attempt to compare closely-related cultural groups. For example, it was considered inappropriate to attempt to distinguish between the cultures of teachers of neighbouring countries, such as the UAE and Oman, or between teachers who were originally from Gulf countries such as Jordan or Oman but who may have been resident in the UAE for several decades. As a group, however, it was considered that the cultures of the various Arab countries represented in the population of teachers in Abu Dhabi public schools were likely to be different, in observable ways, to the cultures of the various Western countries represented in that population of teachers. The use of such broad regional groupings can be found within the work of E. T. Hall (1959); E. T. Hall and Hall (1990) and Hofstede (1980, 1983, 2001) themselves as well as in the work of other cross-cultural researchers such as At-Twaijri and Al-Muhaiza (1996), Cheng (1995), Hingston (2012), and Leach (1994).

3.3.2 Hofstede and Hall's Cultural Dimensions

Given the difficulties associated with defining culture (as described in Section 3.1), much research into cultural differences has involved an observational stance on the premise that: "If we are to understand the way culture relates to social psychological phenomena, we must analyze it by determining dimensions of cultural variation" (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988, p. 323). Thus, much work in the field of intercultural communication has centred on identifying and defining the various dimensions upon which cultures vary and, having done so, characterising and even quantifying particular cultural groups against each of these dimensions. Cultural dimensions are commonly thought of as bipolar spectrums in which the two ends of the spectrum represent opposite extremes (Silverthorne, 2005); individual cultures may be at one extreme or the other, or somewhere in between.

Seven cultural dimensions were selected from the literature to inform my study. These dimensions are:

- High- and low-context cultures (E. T. Hall, 1959, 1969);
- Monochronic and polychronic cultures (E. T. Hall, 1959, 1969);
- Power distance (Hofstede, 1980, 1983, 2001);
- Individualism–collectivism (Hofstede, 1980, 1983, 2001);
- Masculinity–femininity (Hofstede, 1980, 1983, 2001);
- Uncertainty avoidance (Hofstede, 1980, 1983, 2001); and
- Long-term orientation (Hofstede, 2001, 2011; Hofstede & Bond, 1988; Hofstede et al., 1991).

Other cultural dimensions, besides these seven, can be found in the literature (for lists and summaries, see, for example, Dahl, 2004; Hofstede, 2001, 2011; Kirsch, Chelliah, & Parry, 2012; Silverthorne, 2005). However, there are, as yet, no clear trends in terms of which of the proposed alternative dimensions are most powerful or accurate. Further, limited country classification or score data is available for these alternative cultural dimensions, and to attempt to construct valid and reliable measures and collect rigorous new data on cultural differences in a study such as mine is "usually a waste of time, a source of confusion, and at best a reinvention of

the wheel" (Hofstede, 2011, p. 49). Therefore, the seven dimensions identified above and described in Sections 3.3.3 to 3.3.9 were chosen for use in my study because of their prominence within the literature as well as the availability of associated country classifications and scores (Dahl, 2004; Hingston, 2012).

In using Hofstede's and Hall's cultural dimensions to inform my study, the limitations associated with these models must be acknowledged. Hall's dimensions have been criticised for their anecdotal rather than empirical basis (Cardon, 2008; Dahl, 2004; Kittler, Rygl, & Mackinnon, 2011), and contradictory country classifications have been reported in different studies (Kittler et al., 2011). Hofstede's work has been criticised in regard to the size and representativeness of the sample that was used to identify his cultural dimensions (P. B. Smith & Dugan, 1996) as well as his research methods (Silverthorne, 2005). Further, it has been suggested that, because of Hofstede's European heritage, his work reflected a Western bias in terms of the values that were measured and the countries that were initially surveyed (Silverthorne, 2005; P. B. Smith & Dugan, 1996). Hofstede himself has acknowledged this, and his more recent addition of the long-term orientation dimension (reviewed in Section 3.3.9) represents an effort to rectify this bias.

Despite the criticisms outlined above, the cultural dimensions identified by Hall and Hofstede remain highly influential (Dahl, 2004; Triandis, 2004) and, to date, have not been overtaken by any alternative dimensions. Given this, and having acknowledged the associated limitations, these cultural dimensions were considered to be appropriate for the purposes of my study.

In the following sub-sections, the cultural dimensions selected for this study are defined, and Arab and Western cultures are compared in terms of each dimension. Aggregate descriptions of the characteristics of Western cultures were obtained by holistically considering the country classifications and scores assigned by Hofstede and Hall to seven countries: Australia, Canada, Great Britain, Ireland, New Zealand, South Africa, and the US (E. T. Hall, 1959; E. T. Hall & Hall, 1990; Hofstede, 1980, 1983, 2001; Hofstede, Hofstede, & Minkov, 2010). These seven countries are the predominant countries from which Western teachers come to work in Abu Dhabi

public schools (Augustine, 2014) and were the countries represented in the sample for my study (see Section 4.3 of Chapter 4).

Aggregate descriptions of the characteristics of Arab cultures were obtained in two ways. First, Hofstede's original regional scores for 'Arab countries' were reviewed; these combined regional scores reflected Egypt, Iraq, Kuwait, Lebanon, Libya, Saudi Arabia, and the UAE (Hofstede, 1980, 1983). Second, Hofstede's more recent research, which discriminates between selected Arab countries, was also reviewed (Hofstede, 2001), allowing unique scores for four of the seven Arab countries represented in the sample for my study to be identified: the UAE, Jordan, Egypt, and Syria (see Section 4.3 of Chapter 4). The remaining three Arab countries represented in my study—Tunisia, Sudan, and Yemen—have not been individually investigated and scored by Hofstede against his cultural dimensions.

3.3.3 High and Low Context

The cultural dimension of high and low context, identified by E. T. Hall and Hall (1990), examines the relative roles of *context* and *content* in communication. Arab countries are considered to have high-context cultures whereas Western countries tend to have low-context cultures (E. T. Hall & Hall, 1990). As such, differences between Arab and Western teachers in terms of this dimension may affect professional development in Abu Dhabi public schools.

In high-context cultures, including Arab cultures, much meaning is assumed to be contained within the context surrounding a communication—for example, in body language, social norms, differences in social status, and shared experiences (Jandt, 2007; Neuliep, 2011). When someone from a high-context culture communicates, much of the burden of interpretation falls on the listener: "The rules of communication are implicit, and communicators are expected to know and understand unspoken communication" (Neuliep, 2011, p. 63). For communication in such high-context cultures, "most of the information is already in the person, while very little is in the coded, explicit, transmitted part of the message" (E. T. Hall & Hall, 1990, p. 6).

On the other hand, in low-context cultures, such as Western cultures, little or no meaning is assumed to be communicated through context; rather, the spoken or written words used in the communication are considered to be the primary vehicle for transmitting meaning and, as such, are made highly direct and explicit (Jandt, 2007). The burden of ensuring correct understanding is placed upon the person speaking or writing, who may not assume that the reader or listener will construct meaning using background knowledge, interpretation of body language, or other contextual factors. Therefore, in low-context cultures and communication, "most of the information must be in the transmitted message in order to make up for what is missing in the context" (Hall, 1976, as cited in Dahl, 2004, p. 10).

Professional interactions across such a high context–low context cultural divide are often problematic (Silverthorne, 2005). For example, "high-context people are apt to become impatient and irritated when low-context people insist on giving them information they don't need. Conversely, low-context people are at a loss when high-context people do not provide enough information" (E. T. Hall & Hall, 1990, p. 9). Further, people from low-context cultures naturally interpret information and communications received in a highly literal way, which is unlikely to be appropriate when they are interacting within a high-context society and communicating with others from high-context cultural backgrounds (Silverthorne, 2005). Finally, the direct communication approaches that are instinctive to people from low-context backgrounds include an inclination to speak up and attempt to address any issues or problems faced in the workplace, whereas people from high-context cultures "tend to see the topic of communication as intrinsic to the person" and so may feel that, "if [an] issue is attacked, so is the person" (Neuliep, 2011, p. 64).

3.3.4 Monochronic and Polychronic Time

A second dimension on which cultures vary concerns people's attitude towards time, with cultural groups having either a monochronic or a polychronic view of time (E. T. Hall, 1959, 1969). Western countries have monochronic views of time, whereas Arab countries have polychronic views of time (E. T. Hall & Hall, 1990).

Monochronic cultures, such as those of Western countries, see time as a single, linear chain or path and as a concrete, measurable, and finite resource. Time can be clearly divided into segments, allocated, and sequenced, and people in monochronic cultures are conscious of how they spend, save, waste, or lose time (E. T. Hall & Hall, 1990). People from monochronic cultures are heavily influenced by deadlines, timetables, schedules, routines, and plans. They also strive to respect the time of others by avoiding interrupting others, or apologising if they must do so; by making and honouring advance arrangements to spend time together; and by valuing promptness. E. T. Hall and Hall (1990) argue that a monochronic time orientation, in fact, "seals people off from one another … Time becomes a room which some people are allowed to enter, while others are excluded" (p. 14).

In contrast, a polychronic view of time, common in Arab countries, involves a dynamic, non-linear concept of time that is "characterised by the simultaneous occurrence of many things and by a *great involvement with people*. There is more emphasis on completing human transactions than on holding to schedules" (E. T. Hall & Hall, 1990, p. 14; emphasis in original). People from polychronic cultures are not bound by fixed expectations of time, as people from monochronic cultures are, and are more likely to accept interruptions, do multiple things at once, or switch between tasks or activities rather than focusing on completing one task at a time. To such people, schedules and time commitments represent preliminary intentions but are not viewed as fixed requirements that must be adhered to (E. T. Hall & Hall, 1990, p. 16).

In professional contexts, problems can arise because "monochronic and polychronic people do not understand each other or even realize that two such different time systems exist" (E. T. Hall & Hall, 1990, p. 16). Conflicts may relate to differing perceptions of schedules, deadlines, plans, and agendas. Further, monochronic cultures' emphasis on "the compartmentalization of functions and people" (E. T. Hall & Hall, 1990, p. 15) in order to create dedicated spaces and times for concentrating on assigned tasks may conflict with the polychronic preference for shared spaces that allow for a free flow of information and enable people to react spontaneously to new information, people, or requests.

3.3.5 Power Distance

Power distance is defined as "the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally" (Hofstede, 1980, p. xix). Power distance manifests in families, friendships, schools, businesses, and other organisations and structures within a society (Neuliep, 2011).

Arab cultures have high power distances; as shown in Figure 3.1, the Arab countries involved in my study scored between 70 and 90 on Hofstede's 1 to 100 power distance index (Hofstede et al., 1991, 2010). The UAE's score of 90 for this dimension indicates a particularly high level of power distance. In contrast, Western cultures have much lower power distances, with the scores for the Western countries considered in my study ranging from 22 to 49 (as shown in Figure 3.1). As such, Arab and Western cultures' differing attitudes to power distance may affect communication and professional activities in the ADEC reform context.

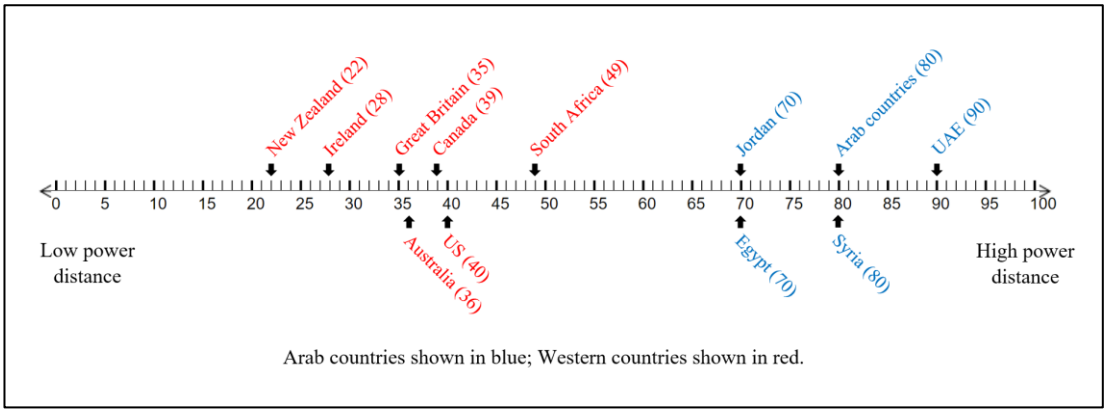

Figure 3.1. Arab and Western country scores for power distance

In cultures with a high power distance, such as Arab cultures, hierarchies of authority, prestige, and wealth are expected and respected "by the followers as much as by the leaders" (Hofstede, 2011, p. 9). For example, employees typically do not question or challenge their superiors, significant social and socio-economic differences exist between workers and managers, and teachers are greatly respected

and should not be challenged by students (Jandt, 2007). In all sectors of society, people of lower ranks are expected to show respect for their superiors (Jandt, 2007). Authority by virtue of one's position—for example, one's rank in the family, organisation, or even society—is important and accepted (Neuliep, 2011).

In contrast, in cultures with low power distances, including Western cultures, equality and democratic decision making are valued (Neuliep, 2011). Students are expected to think critically and challenge their teachers (Hofstede, 1986). Employees can approach their managers freely; present, challenge, and criticise ideas; and contribute to collective decision making (Jandt, 2007). Authority and respect are earned and are not automatically granted by virtue of position (Neuliep, 2011). The truth held to be "self-evident" (US Congress, 1776, para. 2) by those in low power distance countries—that "all men are created equal" (US Congress, 1776, para. 2)—is not at all self-evident, or even sensible, to members of cultures with high power distances (Neuliep, 2011).

Differing power distances can create conflicts in professional settings. People from high power distance cultures may expect decisions to be made unilaterally by those at the top, whereas those from low power distance cultures may expect to be able to be involved in consultation and more democratic decision making (Jandt, 2007; Neuliep, 2011; Silverthorne, 2005). In educational contexts specifically, conflicting power distances can be problematic due to "differences in the social positions of teachers and students in the two societies … [and] differences in expected patterns of teacher/student and student/student interaction" (Hofstede, 1986, p. 303).

3.3.6 Individualism–Collectivism

The individualism–collectivism dimension describes whether a culture prioritises individual or collective interests. As shown in Figure 3.2, the Western countries considered in my study have individualistic cultures, with scores ranging between 65 and 91 (Hofstede et al., 1991, 2010). In contrast, the scores for the Arab countries relevant to my study range from 25 to 38, indicating predominantly collectivist cultures. The UAE's score of 25 makes it (equally with Egypt) the most strongly collectivist country analysed for my study.

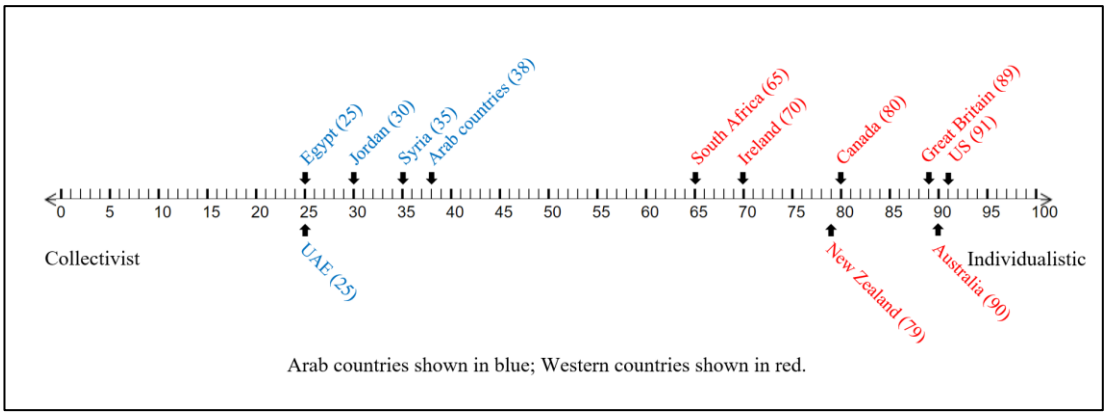

Figure 3.2. Arab and Western country scores for individualism–collectivism

In individualistic societies such as those of Western countries, "the ties between individuals are loose" (Hofstede, 1980, p. 51); people prioritise their own goals, efforts, and achievements over those of the group; and personal rights to privacy, independence, and opinions are prized (Hofstede, 1980, 1983, 2001). People in individualistic cultures have a strong sense of individual identity distinct from any ingroups they may be a part of (that is, social groups that people may belong to, such as family groups, friendship circles, clubs, gangs, or sports teams; see Hofstede, 1983). People select and move between ingroups according to whether these groups meet their personal needs and preferences (Triandis et al., 1988).

In contrast, in collectivist societies such as those of Arab countries, people define their identity through their group membership rather than by their individual traits or achievements (Hofstede, 1983). Fidelity and loyalty to ingroups endure over time—even when the ingroups place great demands on people or intrude on their personal freedoms—because the goals of the group are seen as more important than individual goals or desires (Triandis et al., 1988). Social harmony is highly valued, and people obey group expectations and follow group norms in order to preserve that harmony (Triandis et al., 1988). Interestingly, Hofstede (1986) has suggested that in collectivist societies such as Arab countries, it is not considered appropriate for adults to take on the role of learner.

The individualism–collectivism dimension is closely related to Hall's high- and low-context dimension (reviewed in Section 3.3.3): Many low-context cultures are also

individualistic, and many high-context cultures are also collectivist (Neuliep, 2011; Triandis, 2004). Indeed, it has been suggested that a culture's individualism or collectivism is what leads to their use of either a low- or high-context approach to communication (Triandis, 2004). That is, collectivist cultures naturally have the shared contextual understanding that facilitates "fast, proficient, and gratifying" high-context communication (Neuliep, 2011, p. 63); individualistic cultures do not, leading them to rely on low-context communication to avoid misunderstanding (E. T. Hall & Hall, 1990).

In the workplace, differences between members of individualistic and collectivist cultures may be manifested in a range of ways. These include people's leadership styles, expectations of leaders, sources of motivation, attitudes to performance evaluation, responses to feedback, preferred ways of receiving feedback, and orientation to work either competitively and in isolation or collaboratively as part of a team (Silverthorne, 2005).

3.3.7 Masculinity–Femininity

The masculinity–femininity dimension describes the extent to which the roles of men and women are distinct (Hofstede, 1983; Jandt, 2007). Despite the potential confusion caused by the name of this dimension, a culture's values in this area apply equally to both women and men: "Both women and men learn to be ambitious and competitive in masculine cultures, and both women and men learn to be modest in feminine cultures" (Jandt, 2007, p. 172).

On Hofstede's 1 to 100 masculinity index, the Arab countries considered in my study scored between 45 and 53; the UAE scored 50 (as shown in Figure 3.3). These scores indicate that Arab cultures have a balance of both masculine and feminine values and characteristics (Hofstede et al., 1991, 2010). Western countries scored only slightly more highly, indicating a slightly more masculine orientation: The scores for Western countries ranged from 52 to 68 (see Figure 3.3). As such, this is the first cultural dimension on which Arab and Western countries seem to have somewhat similar orientations.; this similarity suggests that this dimension may not have a significant influence on cross-cultural interactions in the ADEC reform context.

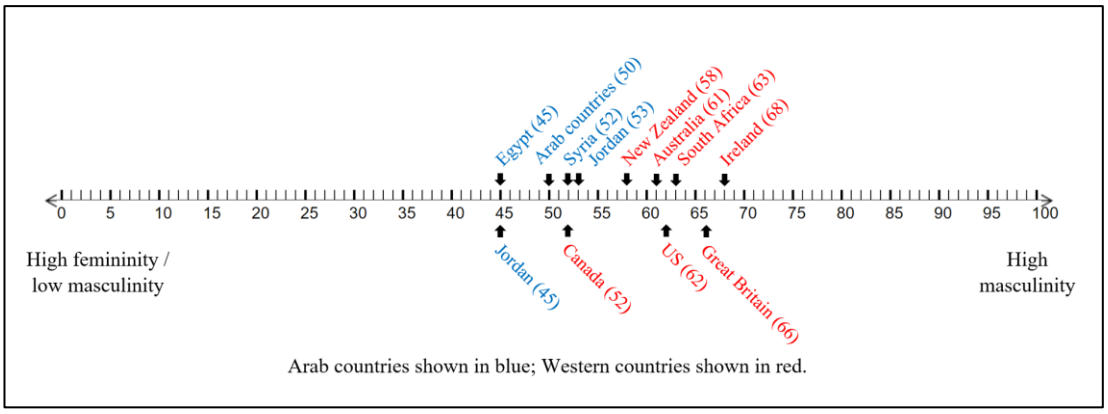

Figure 3.3. Arab and Western country scores for masculinity–femininity

3.3.8 Uncertainty Avoidance

Uncertainty avoidance measures a culture's level of comfort with uncertainty, change, and unknowns. The Arab countries considered in my study scored between 60 and 80 for this dimension (as shown in Figure 3.4), indicating a moderate to high level of uncertainty avoidance (Hofstede et al., 1991, 2010). The UAE's score of 80 indicates that Emirati culture is characterised by a particularly strong need to avoid uncertainty, risk, and change. In contrast, the Western countries relevant to my study have lower levels of uncertainty avoidance, with scores ranging from 35 to 51 (see Figure 3.4). As such, this difference between the two cultural groups may affect professional interactions and activities in the ADEC reform context.

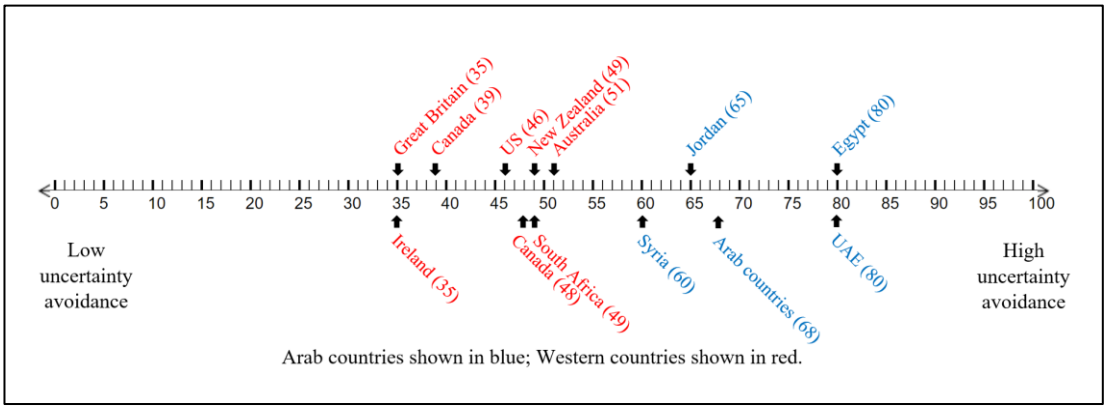

Figure 3.4. Arab and Western country scores for uncertainty avoidance

A high level of uncertainty avoidance, as is characteristic of Arab cultures, leads to high needs for predictability and familiarity. People in cultures with high levels of uncertainty avoidance meet these needs through extensive rules and codes for behaviour and the belief that truth is absolute (Jandt, 2007). To people high in uncertainty avoidance, "the uncertainty inherent in life is felt as a continuous threat that must be fought" (Hofstede, 1983, p. 61). As such, members of such cultures exhibit high anxiety; are uncomfortable with conflict, competition, and diversity; and avoid taking risks.

In contrast, people in cultures that are low in uncertainty avoidance, such as Western cultures, are more open to conflict, competition, and diversity; they exhibit less anxiety, show a greater openness to risks, and accept a lower degree of structure in all areas of society. To people in such cultures, the unknown is seen as "curious" (Neuliep, 2011, p. 85) rather than dangerous. Triandis (2004, p. 92) uses the terms 'tight' and 'loose' to aptly characterise the two ends of the uncertainty avoidance spectrum:

> In tight [high uncertainty avoidance] cultures there are many rules, norms, and standards for correct behavior … In loose [low uncertainty avoidance] cultures there are few rules, norms, or standards. Furthermore, when people do not follow a rule, when they break a norm or ignore a standard, in tight cultures they are likely to be criticized, punished, or even killed. In loose cultures people in that situation are likely to say: "It does not matter". (Triandis, 2004, p. 92)

Compared to other cultural dimensions, relatively little has been written about uncertainty avoidance, perhaps due to the assumption that "this dimension is fairly easily grasped" (Dahl, 2004, p. 13). However, the available literature suggests that uncertainty avoidance can affect people's work, particularly in the areas of organisational change (Kirsch et al., 2012), communication preferences (Kirsch et al., 2012), attitudes towards job security or mobility (Silverthorne, 2005), and innovation and creativity (Shane, 1995).

3.3.9 Long-term Orientation

Long-term orientation[15] relates to whether people are primarily concerned with the future (long-term) or the past and present (short-term; Hofstede, 2011; Hofstede & Bond, 1988). As shown in Figure 3.5[16], the Arab country scores ranged from 7 to 36, indicating that Arab cultures tend to have a short-term orientation. The scores for Western countries were somewhat higher, ranging from 21 to 51, although they did overlap with some of the Arab country scores. These scores suggest that Western cultures still tend to have a somewhat short-term orientation but that this tendency is not as strong as it is in Arab cultures.

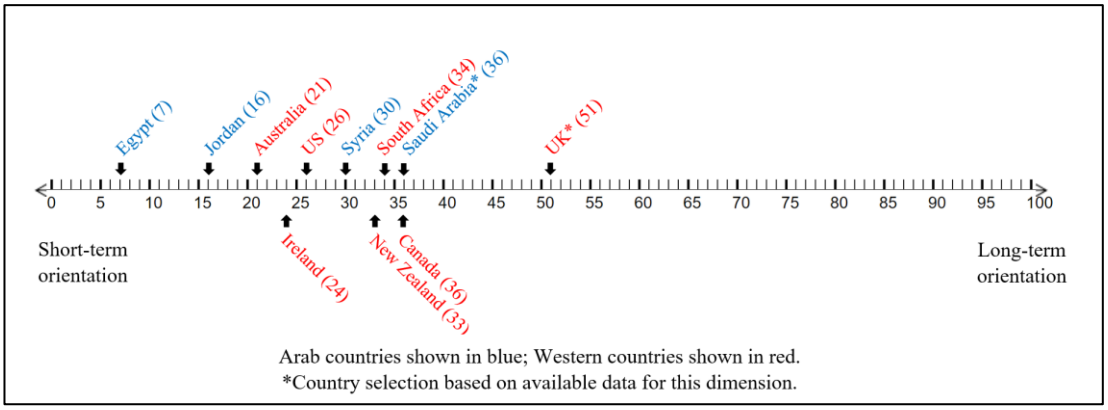

Figure 3.5. Arab and Western country scores for long-term orientation

Values associated with the short-term orientation that both Arab and Western countries reflect include personal stability, saving face, and respecting and reciprocating traditions and social courtesies; overall, people in such cultures prefer more immediate results or gratification (Hofstede & Bond, 1988). People with short-

[15] The long-term orientation dimension was originally named (by its developers) *Confucian dynamism*, acknowledging the influence of Confucius's teachings on Eastern cultures and values. However, it is now more commonly referred to as long-term orientation (see, for example, Hofstede, 2001, 2011), and that term is used for the purpose of this thesis.

[16] The long-term orientation dimension was developed later than Hofstede's original four dimensions (power distance, individualism–collectivism, masculinity–femininity, and uncertainty avoidance). As such, classifications are not available for all the countries that were examined when developing the original four dimensions; in particular, there is no long-term orientation score available for the UAE. Scores for Egypt, Jordan, and Syria were able to be accessed; in addition, the score for Saudi Arabia was used for this dimension as Saudi Arabia borders the UAE and both countries belong to the Gulf Cooperation Council.

term orientations also value preserving existing norms and practices, treating traditions as sacrosanct, and this may lead members of such cultures to be resistant to change (Hofstede, 2011). At the other end of the continuum, values associated with a long-term orientation include dedication, motivation, perseverance, thrift, ordering relationships based on status, and having a sense of shame; overall, people in long-term oriented cultures show a willingness to work towards long-term, future goals or benefits (Hofstede & Bond, 1988).

Hofstede and Bond (1988) have argued that long-term orientations facilitate economic growth, success, and innovation, whereas short-term orientations may detract from such outcomes due to the reduced likelihood that people will consider the long-term consequences of their actions and choices (see also Silverthorne, 2005). Therefore, while the Arab and Western cultures considered for my study do not differ greatly in terms of this dimension, their shared short-term orientations, with the associated preference for preserving existing practices and norms, may present challenges to education reform and teacher professional development efforts.

This section (Section 3.3, with sub-sections 3.3.3 to 3.3.9) has reviewed literature related to seven dimensions of cultural difference. The literature indicates that Arab and Western cultures differ significantly in terms of five of these dimensions, the exceptions being the masculinity–femininity and long-term orientation dimensions. My study drew on the findings of the literature reviewed in this section to infer that the specific, documented differences between Arab and Western teachers were likely to impact on education reform efforts such as the professional development being delivered to teachers in ADEC public schools. Consequently, my research extended the existing literature by specifically investigating how cultural differences affected Arab and Western teachers' experiences of professional development.

3.4 Chapter Summary

This chapter has reviewed literature related to culture and cultural differences, complementing the review of literature provided in Chapter 2 related to teacher professional development and its evaluation. Together, the purposes of these two chapters were to locate my study within the context of existing research, to establish

a warrant for the study's unique research objectives (defined in Chapter 1), and to inform the study's methodology (described in Chapter 4) and interpretation of findings (presented in Chapters 5 to 7).

This chapter began with a review of literature related to the concept of culture (Section 3.1). The lack of clarity around the concept of culture, and key limitations relevant to any cross-cultural investigation, were described. Based on the review of literature in this section, a definition of culture was selected for the purpose of my study.

Section 3.2 provided a review of literature related to the influence of culture on large-scale education reform in general and teacher professional development in particular. Based on the literature that was reviewed, I argued that large-scale education reform efforts are fundamentally culturally situated and culturally informed and, consequently, that reform strategies must be informed by the cultural context of the reform effort as well as by the culture or cultures of the people involved in the reform. For the case of the ADEC public education reform (the focus of my research), this implied that the local Arab culture should be considered, as should the differences between the cultures of the Arab and Western teachers employed in Abu Dhabi public schools. My review of the limited available literature that directly related to professional development activities supported the hypothesis that teacher professional development is sensitive to cultural differences.

Section 3.3 then reviewed literature in order to identify differences that have previously been documented between Arab and Western cultures. The use of these two broad cultural groupings was justified based on the literature, and it was hoped that using this level of analysis would mitigate some of the issues related to using national boundaries to describe cultures yet still provide a practicable approach for my study. Seven cultural dimensions found in the literature were then reviewed: high- and low-context communication, monochronic and polychronic views of time, high and low power distance, individualism–collectivism, masculinity–femininity, uncertainty avoidance, and long-term orientation. Arab and Western cultures were compared in terms of each of these dimensions, revealing significant differences

between the two groups in terms of five of these dimensions (the exceptions being masculinity-femininity and long-term orientation).

Overall, the literature reviewed in this chapter indicated that culture and cultural differences were likely to be significant factors influencing the education reform effort being conducted in Abu Dhabi. However, minimal research, to date, has specifically linked cultural differences with professional development, and no prior research was located that had investigated this topic in relation to Arab cultures. My study, therefore, extended the existing literature by examining how cultural differences affected teacher professional development in an Arab context as well as through the comparison of Arab and Western teachers' perceptions of the same professional development.

The first three chapters of this thesis have provided a foundation for the research reported in this thesis through an overview of the context and scope of my study (Chapter 1), a review of literature relating to teacher professional development (Chapter 2), and a further review of literature relating to culture and cultural differences (Chapter 3). The next chapter (Chapter 4) now provides a detailed account of the research methods used in my study.

Chapter 4

RESEARCH METHODS

Informed by the reviews of literature provided in Chapters 2 and 3, this chapter describes the methods used in my study to investigate teachers' experiences of professional development in Abu Dhabi. The chapter begins with a summary of the specific objectives of the study (Section 4.1) and an overview of the research design (Section 4.2). Details are then given regarding the samples involved in the study (Section 4.3); the instruments and procedures used for data collection (Sections 4.4 and 4.5); and the data analyses conducted in order to investigate each research objective (Section 4.6). Quality considerations for the study are discussed in Section 4.7 and ethical considerations in Section 4.8. Section 4.9 provides a summary of the chapter.

4.1 Research Objectives

The overarching aim of my study was to investigate teachers' experiences of professional development within the ADEC public education reform in Abu Dhabi, UAE. In order to do this, it was necessary to consider three main aspects: (a) the nature and design of the professional development experienced by teachers; (b) teachers' perceptions of and responses to that professional development; and (c) the influence of cultural factors on these experiences and perceptions.

Consequently, the specific research objectives for the study (as introduced in Section 1.3 of Chapter 1) were:

1. To develop and validate a questionnaire to examine teachers' perceptions of the impact of professional development;
2. To examine teachers' perceptions of the design and the impact of the professional development that they had experienced in Abu Dhabi public schools;

3. To investigate relationships between teachers' perceptions of the design and the impact of the professional development that they had experienced in Abu Dhabi public schools;
4. To investigate factors, other than the design of professional development, that influenced teachers' perceptions of the impact of professional development; and
5. To investigate whether Arab and Western teachers differed in terms of their perceptions of and responses to professional development.

The next section (Section 4.2) describes how the study was designed in order to address these research objectives.

4.2 Research Design

The design of my study was informed by consideration of how the unique context of Abu Dhabi (see Chapter 1) intersected with the literature reviewed in Chapters 2 and 3. First, given that educational research in the UAE is still an emerging field (Ridge, 2010; Shaw, Badri, & Hukul, 1995; Troudi & Alwan, 2010), few previous studies had investigated the ADEC public school reform project (Thorne, 2011), and even fewer had focused specifically on teacher professional development in that context (see Chapter 1). Second, features of the ADEC reform meant that my study related to a number of areas that are not well understood in the existing international research base: the implementation of large-scale education reform (Akiba, 2013c; Fullan, 2009; Hopkins, 2011; LeTendre, 2013; Mourshed et al., 2010); the decentralized delivery of large-scale professional development programmes at different sites and by different providers (Borko, 2004; Wayne et al., 2008); and teacher professional development that is compulsory rather than voluntary (Desimone, 2009; Fishman et al., 2003; Hochberg & Desimone, 2010).

Given the potential significance of my study in relation to these areas of research, a mixed-methods design was considered to be the most appropriate approach. The advantage of mixed methods designs is that "the use of both quantitative and qualitative methods, in combination, provides a better understanding of the research problem and questions than either method by itself" (Creswell, 2008, p. 552). For my

study, quantitative data were gathered from a large number of teachers to afford documentation of phenomena at the system level, and more contextual and descriptive qualitative data were gathered from a smaller number of teachers to provide greater depth and add richness to the study and its findings (Creswell, 2008).

There are four main types of mixed methods design: triangulation, embedded, explanatory, and exploratory designs (Creswell, 2008). Of these, a triangulation design was considered to be most appropriate for my study, given that "the purpose of triangulation designs is to use both qualitative and quantitative data to more accurately define relationships among variables of interest" (Castro, Kellison, Boyd, & Kopak, 2010, p. 344).

In any mixed methods research (including, but not limited to, triangulation designs), it is important to pursue meaningful integration of quantitative and qualitative components: "The stronger the 'mix' of methods throughout [the study] the more that researchers can derive the benefits from using mixed approaches" (R. K. Yin, 2006, p. 41). This was a key consideration in the development of the research methods for my study and was a further reason for the selection of the triangulation design.

Quantitative and qualitative methods were mixed at all stages of my study. First, both quantitative and qualitative data were used to contribute to the investigation of three of the five research objectives; the exceptions were research objective 1, which involved quantitative validation of the new questionnaire, and research objective 4, which was added to the study later as a result of analysis of the qualitative data. Second, both quantitative and qualitative data were gathered simultaneously (as detailed below), meaning that all teachers participating in the study had the opportunity to express their views in both quantitative and qualitative ways. Finally, the quantitative and qualitative data were analysed simultaneously (as detailed in Section 4.6); the findings from each data source were constantly compared and were considered to be interdependent elements contributing to "reaching a common theoretical or research goal" (Bazeley, 2009, p. 204). This deliberate integration of quantitative and qualitative approaches at all stages resulted in my study involving truly mixed methods (R. K. Yin, 2006).

The design of my study was also informed by the interpretivist paradigm in which the research was situated (see Chapter 1). Although both quantitative and qualitative methods are compatible with interpretivist research (Crotty, 1998; Gray, 2013; Guba & Lincoln, 1994; Willis, 2007), the approaches to data collection, analysis, and interpretation differ in interpretivist studies. For my study, the interpretivist stance meant that the overarching focus was on understanding *teachers' experiences* of professional development and the meaning that they had constructed in relation to professional development in the Abu Dhabi context. As such, the research design needed to afford in-depth exploration of teachers' experiences and perceptions, capturing authentic teacher voice. Given this overarching focus on teachers' experiences, three data collection techniques were selected and used in my study; these are introduced below.

The first data collection technique was a broad survey (referred to hereafter as the 'main survey') that assessed teachers' perceptions of the professional development they had experienced in the 2013–2014 academic year. This survey was completed by a large sample of teachers (N = 393). The main survey was primarily quantitative, but it also incorporated a qualitative, open-ended component in line with the triangulation design and interpretive stance of the study; 96 of the 393 teachers chose to provide qualitative comments on the main survey. Details of the questionnaire used for the main survey are provided in Section 4.4, and details of the associated sample are provided in Section 4.3.2.

The second data collection method was a series of in-depth, semi-structured teacher interviews (qualitative), and the third was an 'interviewee survey' (quantitative). As the interviewee survey was completed by teachers during their interviews, both of these data collection methods involved the same sample of N = 35 teachers. Thus, a rich amalgam of closely related quantitative and qualitative data emerged from the written interviewee survey, teachers' verbal comments while completing the survey, and the related discussion arising in the remainder of each interview. The interviewee survey drew on the items from the main survey, but it was designed to drill down further than the broader main survey, eliciting more detailed information about individual professional development activities. Details of the interviews and

interviewee survey are provided in Sections 4.5 (in terms of the interview protocol and the interviewee survey) and 4.3.3 (in terms of the sample obtained).

Table 4.1 shows how these three data sources (the main survey, interviews, and interviewee survey) related to the research objectives for my study (as defined in Section 1.3 of Chapter 1). It can be seen that for three of the five research objectives, both quantitative and qualitative data were used. This was in keeping with the triangulation mixed methods design and was intended to afford rich findings, reflecting both breadth and depth, related to each objective (Castro et al., 2010; Creswell, 2008; R. K. Yin, 2006).

Although my study had clear objectives and well-specified *a priori* plans for data collection and analysis, I was, nonetheless, continually open to changing either the objectives or the plans if an apparent need for such change emerged during the research (as recommended by R. K. Yin, 2011). I sought to maintain an inductive rather than a deductive stance, as recommended by L. Cohen, Manion, and Morrison (2007). At several stages during the study, I discussed with my supervisor what the data were telling me in case unexpected findings were emerging or new threads needed to be pursued. As the research progressed, the original objectives (objectives 1, 2, 3, and 5) and plans appeared to remain relevant and appropriate; however, one additional element emerged and was, therefore, incorporated into the study through an additional research objective (research objective 4; see Section 1.3 of Chapter 1).

I also recognised the need for openness and personal reflexivity (Creswell, 2008), especially given my role and responsibilities relating to professional development through my work for ADEC (see Chapter 1). The argument that “the personal experience of the researcher is an integral part of the research process” (Ezzy, 2002, p. 153) was particularly true in my case since I had personally provided professional development to some of the teachers involved in my study and had my own experiences and opinions relating to the various forms of professional development offered to teachers within the ADEC reform.

Table 4.1. Data sources and types used to investigate each research objective

Research objectives	Quantitative data		Qualitative data	
	Main survey items (786 responses from *N* = 393 teachers[a])	Interviewee survey (297 responses from *N* = 35 teachers[b])	Main survey comments (*n* = 96 teachers[c])	Interviews (*N* = 35 teachers)
1. To develop and validate a questionnaire to examine teachers' perceptions of the impact of professional development.	✓			
2. To examine teachers' perceptions of the design and the impact of the professional development that they had experienced in Abu Dhabi public schools.		✓	✓	✓
3. To investigate relationships between teachers' perceptions of the design and the impact of the professional development that they had experienced in Abu Dhabi public schools.		✓		✓
4. To investigate factors, other than the design of professional development, that influenced teachers' perceptions of the impact of professional development.			✓	✓
5. To investigate whether Arab and Western teachers differed in terms of their perceptions of and responses to professional development.	✓	✓	✓	✓

[a] Teachers responded to the main survey items twice, in terms of (a) whole-school and (b) subject-specific forms of professional development.
[b] Teachers responded to the interviewee survey items an average of 8.49 times each, describing each distinct type of professional development they had participated in during the 2013–2014 academic year.
[c] Although *N* = 393 teachers completed the quantitative items of the main survey, only *n* = 96 of these teachers chose to provide additional qualitative comments.

This section (Section 4.2) has provided a broad overview of the design of my study. Given this foundation, the next section (Section 4.3) defines the sample space for the study and the samples achieved for each data collection technique.

4.3 Sample

A priority in designing this study was that it should inform ongoing professional development practice in Abu Dhabi, given the lack of extant literature in this area. However, it was recognised that the diversity of practice and experience in any education system are too great to be captured in any single doctoral-level study. This section reports on the definition of an appropriate sample space for my study (Section 4.3.1) and the intended and actual samples for the main survey (Section 4.3.2) and the interviews and interviewee survey (Section 4.3.3).

4.3.1 Sample Space

To define the scope of the study, it was necessary to identify a sample space that was sufficiently large to comprehensively capture the experiences of teachers in Abu Dhabi, while also being sufficiently contained in terms of representing a body of teachers with a degree of shared experience of professional development so that teachers' experiences and perspectives could be usefully compared. With these considerations in mind, the sample space for my study was defined as: *teachers of English, mathematics, or science subjects*[17] *in grades 6 to 12 within Abu Dhabi public schools in the 2013–2014 academic year.* The sample space was defined in this way because ADEC policies meant that these teachers should have experienced the same two primary types of professional development in the 2013–2014 academic year, as detailed in Section 1.1.5 of Chapter 1: (a) standardised, generic (that is, not subject-specific) whole-school professional development coordinated by external provider companies and (b) needs-based, subject-specific professional development provided by visiting subject advisors.

Table 4.2 shows the distribution of the teachers in the sample space in terms of the teachers' cultural backgrounds and teaching subjects. The sample space comprised

[17] As detailed in Chapter 1, "science subjects" encompasses cycle two (grades 6 to 9) general science and cycle three (grades 10 to 12) biology, chemistry, geology, and physics.

Table 4.2. Cultural backgrounds and teaching subjects of the teachers in the sample space

Teaching subject	Arab teachers	Western teachers	Total
English	511 (17%)	494 (17%)	1,005 (34%)
Mathematics	830 (28%)	93 (3%)	923 (32%)
Science	855 (29%)	108 (4%)	963 (33%)
Multiple subjects	0 (0%)	36 (1%)	36 (1%)
Total	2,196 (75%)	731 (25%)	2,927 (100%)

almost 3,000 teachers who were approximately equally distributed between English (1,005 teachers), mathematics (923), and science subjects (963), with 36 teachers (1%) teaching more than one of these subject areas. The sample space included 2,196 Arab teachers, including Emirati nationals and expatriates from other Arab countries, and 731 Western teachers.

Within this sample space, the samples obtained for the study are described in Sections 4.3.2 (for the main survey) and 4.3.3 (for the interviews and interviewee survey).

4.3.2 Main Survey Sample

The target sample size for the main survey was a minimum of 300 teachers, representing approximately 10% of the sample space. This sample was intended to be representative of Arab and Western teachers as well as of teachers of English, mathematics, and science subjects, based on the demographic distribution of teachers in the sample space (see Section 4.3.1).

A range of sampling methods were considered, including random, cluster, and stratified sampling (see L. Cohen et al., 2007; Creswell, 2008), but, ultimately, were not used. Given that my study was intended to give teachers a voice in an educational

context where they have often felt unheard and under-consulted (see Chapter 1), it was considered preferable to offer *all* teachers within the sample space the opportunity to participate. Thus, any teacher who wished to express their views on teacher professional development was able to do so through the main survey. It was not expected that this approach would provide the representative sample described above; rather, the intention was to sample in two stages. First, the main survey would be administered online and made available to all teachers in the sample space. The distribution of responses would then be reviewed, and additional data would be collected through targeted visits to particular schools or groups of teachers as needed to increase the sample size or improve the representativeness of the sample.

During the initial, online administration of the main survey, a number of strategies were used to maximise awareness of the survey—and, therefore, response rates—across the sample space (as recommended by L. Cohen et al., 2007). First, with the support of the ADEC School Operations Division, which oversaw Abu Dhabi public schools, emails were sent to principals of all cycle two and cycle three schools to introduce the survey and to ask principals to encourage eligible teachers to participate. Second, the survey was promoted on a number of ADEC teacher Facebook group pages with the permission of the administrators of each group. Third, direct individual phone and email contact was made with teachers whom I had previously worked with, asking them to participate in the survey and to share the survey links with their colleagues. Finally, ADEC subject advisors were asked to forward details of the survey and associated information to teachers and to encourage them to participate.

Altogether, 342 teachers responded to the main survey during the online administration. After ineligible[18] and incomplete[19] responses were removed, 227

[18] Ineligible responses were those provided by teachers outside the sample space (teachers of subjects or grade levels not included in the sample space).

[19] The online survey was presented using a series of screens (see Section 4.4.4). The first screens of the survey contained preliminary (demographic) items; these were then followed by the scale items. Some teachers began the survey but did not proceed beyond these preliminary questions and answer the scale items, so these teachers' responses were classed as incomplete. The online platform used for the main survey did not allow teachers to complete only some of the scale items; therefore, teachers either completed all the scale items (in which case their response was classed as complete) or none of them (in which case their response was classed as incomplete and removed from the data set).

teachers' responses remained; this total was less than the target sample size of 300 teachers. Both Arab and Western teachers were well represented; however, science teachers (in particular, Western science teachers) were under-represented in the sample, and mathematics teachers (in particular, Arab mathematics teachers) were over-represented. Thus, the overall sample size needed to be increased through a second phase of data collection, and it was considered important to actively seek responses from (particularly Western) science teachers to improve the representativeness of the sample.

Additional data were collected from 195 teachers by administering the main survey in paper form at eight teacher professional development events at the beginning of the 2014–2015 academic year. These events, each of which involved a large subset of teachers from the target sample space (for example, all cycle two English teachers), allowed for the efficient collection of large amounts of data and the targeting of particular subgroups of teachers in order to improve the representativeness of the sample. It was hoped that this approach would, more fairly, allow opportunities for teachers to choose to participate in the study than if, for example, individual schools had been randomly selected.

After ineligible[20] and incomplete[21] responses from this additional administration were removed, 166 teachers' responses remained. When combined with the responses from the online administration, this resulted in a final sample for the main survey of 393 teachers. This exceeded the target sample size of 300 teachers and was, therefore, considered sufficient.

The composition of the main survey sample was compared to that of the sample space to ensure that the sample was sufficiently representative for the purposes of the study. As shown in Table 4.3, the sample comprised 241 (61%) Arab teachers and

[20] As was the case for the online administration, ineligible responses to the paper administration of the main survey were those provided by teachers outside the sample space.

[21] Paper responses to the main survey were considered incomplete and removed from the data set if they were missing more than three responses (10%) to scale items. Responses with between one and three missing values were retained, and replacement values were entered (as detailed in Section 4.6.1.1).

Table 4.3. Comparison of the sample space and actual sample obtained for the main survey in terms of teachers' cultural backgrounds and teaching subjects

Teaching subject	Arab teachers		Western teachers		Total	
	Study sample	Sample space	Study sample	Sample space	Study sample	Sample space
English	67 (17%)	511 (17%)	44 (11%)	494 (17%)	111 (28%)	1,005 (34%)
Mathematics	97 (25%)	830 (28%)	78 (20%)	93 (3%)	175 (45%)	923 (32%)
Science	77 (20%)	855 (29%)	22 (6%)	108 (4%)	99 (25%)	963 (33%)
Multiple subjects	0 (0%)	0 (0%)	8 (2%)	36 (1%)	8 (2%)	36 (1%)
Total	241 (62%)	2196 (75%)	152 (37%)	731 (25%)	393 (100%)	2,927 (100%)

All percentages have been rounded to 0 d.p.; this means some rows or columns may not add up to exactly 100%.

152 (37%) Western teachers[22]. This distribution was considered to be acceptable as, in the entire sample space, there was a much greater proportion of Arab than Western teachers (see Table 4.2 on page 104), yet the sample still contained a sufficient number of Western teachers to allow for analysis and interpretation of the data.

The sample was also considered to have an acceptable distribution for the purpose of the study in terms of teaching subjects. As shown in Table 4.3, most proportions in the sample were close to those in the sample space. Only the proportion of Western mathematics teachers (20%) was particularly disproportionate, given that such teachers comprised only 3% of the sample space; this over-representation arose from the initial online administration, during which any interested teacher was able to complete the survey, and was not able to be corrected through additional data collection.

[22] Appendix 7 provides a further breakdown of the main survey sample in terms of the teachers' nationalities.

4.3.3 Interview and Interviewee Survey Sample

A second sample was needed for the qualitative interviews and the quantitative interviewee survey. These two data collection methods involved the same sample of teachers as teachers completed the interviewee survey during their interviews. Purposive sampling and snowball sampling were used to select this sample (L. Cohen et al., 2007). Purposive sampling was used to select a sample that reflected the experiences of a range of teachers, including:

- English, mathematics, and science teachers;
- Male and female teachers;
- Teachers from cycle two (grades six to nine) and cycle three (grades ten to twelve) schools;
- Teachers from single-cycle and common-cycle (for example, kindergarten to grade nine) schools;
- Teachers from urban and rural schools; and
- Emirati nationals, other expatriate Arabs, and Westerners.

Snowball sampling assisted in identifying participants who might provide different perspectives and ensuring the comprehensiveness of the sample: Interviewees were asked to help identify other teachers who would be suitable participants and who might bring alternative views. Together, purposive and snowball sampling methods were considered to be appropriate for the purposes of the interviews and interviewee survey. These sampling methods were also considered to effectively complement the sampling methods used for the main survey (see Section 4.3.2).

A set number of interviews was not pre-determined. Rather, Seidman's (2006) two criteria for determining when to stop interviewing were used: sufficiency and saturation. Sufficiency means that the sample contains enough participants to reflect the diversity of the population; for my study, this meant representation of the subgroups listed above and any others identified as significant through the interviews. Saturation means that interviewing continues until additional interviews stop contributing new themes or insights beyond what those that have already been captured. During data collection, I used constant comparative analysis (L. Cohen et

al., 2007) of both the sample distribution (for sufficiency) and the data obtained (for saturation) to inform ongoing sampling and to determine when both sufficiency and saturation points had been reached.

The final sample for the interviews and interviewee survey included 35 teachers. Figure 4.1 shows the distribution of the teachers in this sample in terms of a number of demographic variables.

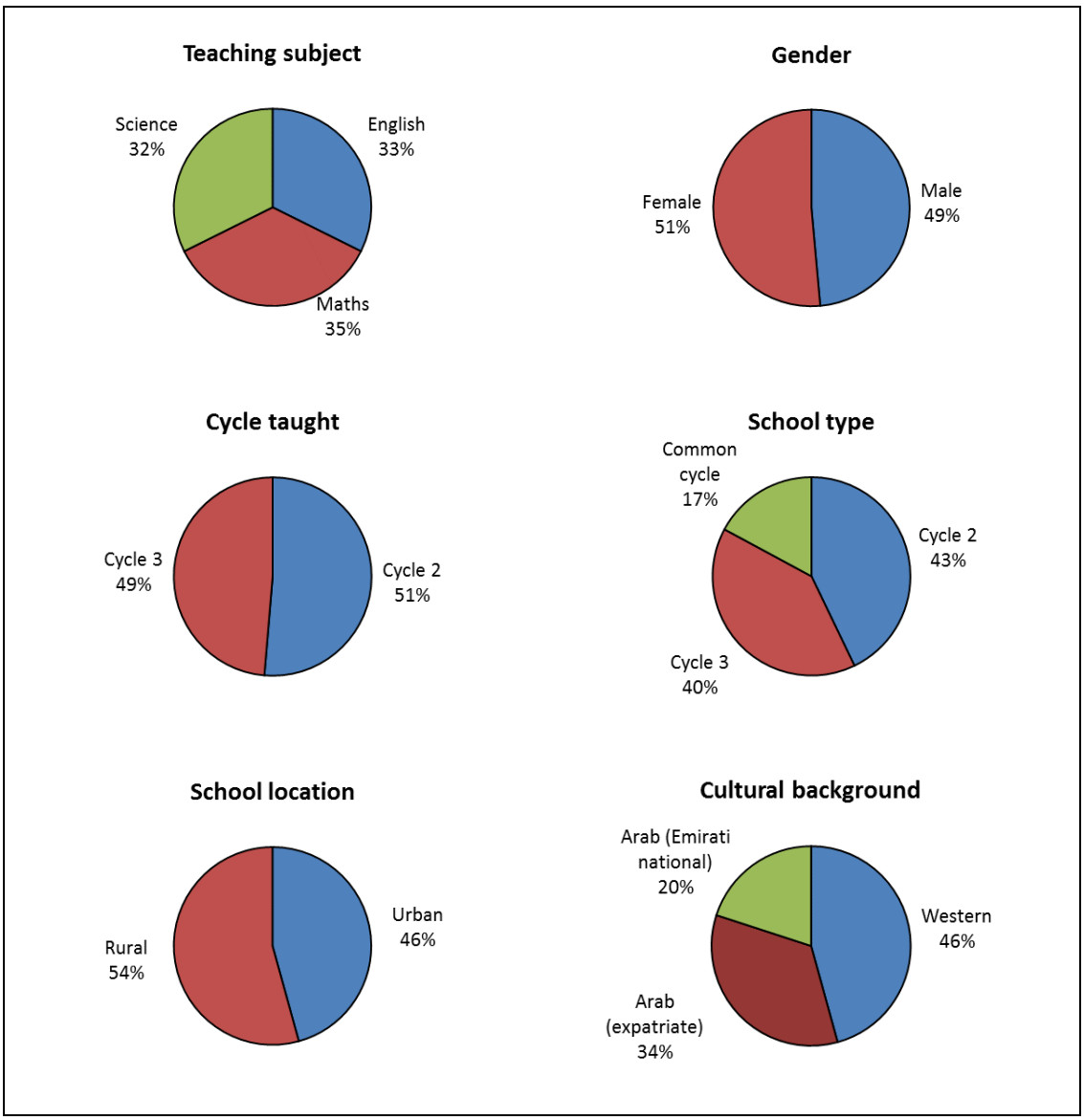

Figure 4.1. Distribution of the interview and interviewee survey sample in terms of six demographic factors

As a result of the purposive sampling approach, the sample contained approximately equal representation of English, mathematics, and science subject teachers; male and female teachers; teachers of cycles two and three; and teachers in urban and rural schools. In terms of school type, there was approximately equal representation of teachers from cycle two and cycle three schools, with a smaller proportion of teachers coming from common cycle schools; this reflected the nature of the sample space. Finally, the sample contained a satisfactory representation in terms of the teachers' cultural backgrounds: Although the sample space contained 75% Arab and 25% Western teachers (as shown in Table 4.2 on page 104), a higher proportion of Western teachers was considered necessary for the interview sample (16 teachers, 46%) to allow for confidence in the analysis and interpretation related to research objective 5 (comparing Arab and Western teachers' experiences and perceptions).

By the time that these 35 teachers had been interviewed, it seemed that saturation had been reached as no new themes had been uncovered through the latter interviews. It was also considered that the sample was sufficient in terms of its total size (N = 35) and the range of professional development types described by the teachers.

Section 4.3 has described the sample space that was defined for my study (Section 4.3.1) and the intended samples, sampling methods, and final samples obtained for the main survey (Section 4.3.2) and for the interviews and interviewee survey (Section 4.3.3). Together, these samples allowed the research objectives of the study to be investigated in both broad and deep ways (Creswell, 2008).

The next two sections describe the instruments that were developed for data collection in the study and administered to the samples of teachers detailed in this section. Section 4.4 describes the main survey, used with the larger sample of 393 teachers, and Section 4.5 then describes the interview protocol and interviewee survey, used with the smaller sample of 35 teachers.

4.4 Main Survey

The main survey examined teachers' perceptions of the impact of the professional development that they had experienced in the 2013–2014 academic year. As shown

in Table 4.1 (on page 102), the data from the administration of the main survey was used to validate the new questionnaire (research objective 1) and to investigate differences between the perceptions of Arab and Western teachers (research objective 5). Further, having validated the questionnaire with the larger, main survey sample (N = 393 teachers), the items were then incorporated into the interviewee survey (described in Section 4.5), which was used with the smaller sample (N = 35 teachers) to investigate the design and impact of professional development (research objectives 3 and 4). The development and validation of the questionnaire also contributed to addressing the current lack of practicable yet theoretically sound instruments that are available to school-based practitioners for evaluating teacher professional development (see Section 2.5.5 of Chapter 2).

Several parameters were identified for the development of the main survey. First, to encourage a maximum number of responses, the main survey needed to be simple, clear, brief, and available in both Arabic and English languages. Second, to provide robust information and inform meaningful evaluation of professional development, the survey needed to be based on a strong theoretical foundation and be psychometrically sound. Finally, to be of use to practitioners in schools and education systems, the survey needed to be time- and cost-effective to implement and suitable for evaluating any form of teacher professional development in any context.

Given these considerations, it was decided that a questionnaire would be the most appropriate data collection format for the main survey. Questionnaires are easy to implement and are time- and cost-effective (Champion, 2006; Check & Schutt, 2012; Desimone, 2011; Desimone & Le Floch, 2004). Further, according to Desimone and Le Floch (2004, pp. 4–5), “there is sufficient evidence to suggest that, when designed and used correctly, surveys [questionnaires] can provide meaningful, substantive and informative data that may enrich our understanding of educational processes”.

The following sections report on the development of the new questionnaire. Section 4.4.1 details the use and modification of a source questionnaire as a starting point for developing the new questionnaire, Section 4.4.2 reports on the review of the resulting draft questionnaire by an expert panel, and Section 4.4.3 details the translation

processes that were used. Finally, Section 4.4.4 reports on how the main survey was administered to teachers.

4.4.1 Modification of Source Questionnaire

The development of the new questionnaire drew on and modified (to suit the educational context) a recently published questionnaire from the general workplace training and development literature, the Questionnaire for Professional Training Evaluation (Q4TE; Grohmann & Kauffeld, 2013). This questionnaire was selected as an appropriate source questionnaire for the main survey because of its compatibility with the priorities described above: The Q4TE is a short, easy-to-use instrument; it is sufficiently generic to allow for the evaluation of a range of training types; the scales draw on research and best practice in training evaluation (in particular, the path model presented by Kirkpatrick & Kirkpatrick, 2006); and it has been shown to have sound psychometric properties (Grohmann & Kauffeld, 2013).

The Q4TE contains six scales: (1) reaction / satisfaction; (2) reaction / utility; (3) learning / knowledge; (4) behaviour / application to practice; (5) organisational results / individual; and (6) organisational results / global. Together, these scales support the explicit investigation of the *impact* of professional development, which was identified in Chapter 2 as essential for meaningful evaluation. Each of the six scales of the Q4TE is measured by two items that are responded to using an 11-point response scale ranging from 0% = *completely disagree* to 100% = *completely agree*. Two items per scale are fewer than may commonly be seen in educational research questionnaires (L. Cohen et al., 2007); however, Grohmann and Kauffeld (2013) drew on recommendations and recent discussion within the psychology and marketing fields to justify this approach.

Grohmann and Kauffeld (2013) established the scale structure of the Q4TE using exploratory and confirmatory factor analysis. The internal consistency reliability (Cronbach's α) ranged from 0.79 to 0.96 for the different scales, which is widely considered to be good (see, for example, L. Cohen et al., 2007; Nunnally, 1978); the Q4TE also showed preliminary indications of discriminant validity. The design

principles guiding the development of the Q4TE and its demonstrated psychometric properties strongly supported the selection of the Q4TE for use in my study.

As the Q4TE had not been developed or used previously in educational contexts, the scales of the questionnaire were mapped to Desimone (2009) and Guskey's (2000) frameworks for evaluating teacher professional development (which were selected to provide the theoretical foundation for my study; see Chapter 2). Five of the six scales of the Q4TE were found to align to one or both of these education-specific frameworks and were, therefore, retained; one scale (organisational results / individual) did not align with either framework and was removed. Two new scales, organisational support and student outcomes, were added as these concepts were present in Desimone (2009) and Guskey's (2000) frameworks for evaluating teacher professional development.

Having determined the scale structure of the draft questionnaire, the wording of each item in the retained scales was modified to reflect an educational context. For example, the original Q4TE item, 'The training is very beneficial to my work', was changed to 'This professional development has been very beneficial to my teaching'. Two new items were created to measure each of the two new scales, in keeping with the number of items for the retained scales. In developing these new items, the style of the other items from the retained scales was replicated as closely as possible.

Altogether, this process resulted in a draft questionnaire that comprised 14 items measuring seven scales. For each scale of the questionnaire, Table 4.4 summarises the origin of the scale within the Q4TE, the name of the modified scale for the draft questionnaire, and how the modified scale aligns with the frameworks for evaluating teacher professional development presented by Desimone (2009) and Guskey (2000).

The response format for all items was changed from the 11-point response format used in the Q4TE to a five-point response format, ranging from *strongly disagree* to *strongly agree*. This simplified response format was selected to make the survey faster and more straightforward for teachers to complete (L. Cohen et al., 2007). It also allowed the full range of response categories to fit across the screen of a smartphone, thereby encouraging a greater response rate.

Table 4.4. Scale structure and literature alignment for the draft questionnaire

Original Q4TE scale	Scale for draft questionnaire	Alignment to theoretical frameworks for evaluating teacher professional development	
		Desimone (2009)	Guskey (2000)
Reaction / satisfaction	Teacher reaction (satisfaction)		Participants' reactions
Reaction / utility	Teacher reaction (usefulness)		Participants' reactions
Learning / knowledge	Teacher learning	Increased teacher knowledge and skills[23]	Participants' learning
Behaviour / application to practice	Classroom implementation	Change in instruction	Participants' use of new knowledge and skills
Organisational results / individual	*[Removed—not aligned to literature frameworks]*		
Organisational results / global	Organisational change	Context	Organisational support and change
	Organisational support	Context	Organisational support and change
	Student learning	Student learning	Student learning outcomes

In addition to modifying the scales and items of the Q4TE as described above, an optional open-ended item was added at the end of the questionnaire—namely, 'Please enter any additional comments'. It was anticipated that this qualitative data would add greater richness and scope to the findings of the main survey (Bazeley, 2009; L. Cohen et al., 2007).

[23] Partial alignment: The full construct at this stage of Desimone's (2009) framework is "Increased teacher knowledge and skills; change in attitudes and beliefs" (p. 185).

4.4.2 Expert Panel Review of the Questionnaire

Prior to the administration of the newly developed questionnaire, an expert panel comprised of six members was invited to review the items of the questionnaire, as recommended by Check and Schutt (2012). The panel members all held doctoral degrees and had multiple years' experience in teacher professional development and school improvement within the ADEC public school reform project. One member of the panel was an Emirati national. Panel members were asked to consider each of the following: (a) whether the scales aligned appropriately to Desimone (2009) and Guskey's (2000) theoretical models for evaluating teacher professional development; (b) whether the items measured the proposed scales; (c) whether the modifications made to ensure that the wording was suited to the educational context were appropriate; and (d) whether the questionnaire, overall, was suitable for the purpose and context that it was intended for. A copy of the information provided to the expert panel is available in Appendix 8; a copy of the review form each panel member was asked to complete is available in Appendix 9.

The feedback from the panel members was highly favourable and resulted in only one minor typographical amendment. A summary of the reviewers' feedback is available in Appendix 10. This expert panel review procedure contributed to establishing the face, content, and construct validity of the questionnaire prior to its administration (Trochim, 2000).

4.4.3 Translation of the Questionnaire

Given that the sample involved both Arabic- and English-speaking teachers, it was necessary to develop an Arabic language version of the questionnaire. Therefore, following the expert panel review, the questionnaire was translated into Arabic using a process of back-translation (as recommended by Brislin, 1970; P. S. Jones, Lee, Phillips, Zhang, & Jaceldo, 2001).

In using back-translation, it was acknowledged that effective and appropriate translation of instruments for cross-cultural research is a complex task involving "implicit assumptions about language, translation, and quality" (Harkness, Villar, &

Edwards, 2010, p. 118; see also Harkness & Schoua-Glusberg, 1998) and a task that is not informed by a well-established literature base. Although a range of survey translation philosophies and procedures have been reported, there is, as yet, no consensus regarding best practice for translating surveys in social science fields (Harkness et al., 2010). As such, back-translation (detailed below) was selected for my study on the basis that it is, at least, widely used in social science survey research, despite the associated critique (Chapman & Carter, 1979; Douglas & Craig, 2007; Harkness & Schoua-Glusberg, 1998; Harkness et al., 2010). Back-translation was also practicable for my study due to my ability to access suitable people to complete the stages of the back-translation process.

The back-translation procedure involved several steps. First, the questionnaire was translated into Arabic by a bilingual native Arabic speaker who was employed as a translator in the ADEC context. Second, the resulting Arabic version was back-translated into English by a bilingual native English speaker who did not have access to the original English text. I then compared the original and back-translated English versions and discussed discrepancies with the original translator. As a result, minor modifications were made to the Arabic version so that it matched the English version as closely as possible.

Having been developed (as outlined in Section 4.4.1), reviewed by an expert panel (Section 4.4.2), and translated (Section 4.4.3), the main survey was administered to teachers. The next section (Section 4.4.4) describes the administration of the main survey.

4.4.4 Administration of the Main Survey

As described in Section 4.3.2, data collection for the main survey was conducted in two stages: initially online, followed by paper-based data collection. For the online administration, two separate online surveys—one in Arabic and one in English—were created using the Survey Monkey[24] platform. The Arabic version was checked prior to use by the native Arabic speaking translator who had worked on the

[24] www.surveymonkey.com

translation of the questionnaire and was, therefore, familiar with the items and the study.

The main survey was anonymous, so there was no need to use personalised links or access codes for the teachers responding. However, a set of preliminary items was created to collect demographic data from the respondents. These items were also used to filter out respondents who were outside the sample space and who might, if they had completed the survey, have reduced the reliability and validity of the findings (L. Cohen et al., 2007; Creswell, 2008). Hereafter, the 14 items associated with the impact scales are referred to as the 'scale items' to distinguish them from the preliminary, demographic items.

To capture the broadest possible picture of teachers' experiences of professional development, it was decided that teachers would be asked to complete the main survey scale items in relation to *all* of the professional development that they had experienced in the 2013–2014 academic year. However, given ADEC's professional development provision for the teachers in the sample space (as described in Section 1.1.5 of Chapter 1), this was able to be divided into two categories: subject-specific and whole-school professional development[25]. The matrix functionality within the Survey Monkey platform was used to create two response rows for each item, corresponding to these two types of professional development. Copies of the online survey are provided in Appendices 11 (English language) and 12 (Arabic language).

For the paper administration of the main survey, the English and Arabic surveys were exported from the Survey Monkey platform in a printable format. Directly exporting the questionnaire from the Survey Monkey platform ensured consistency between the online and paper forms of the survey in terms of items, instructions, and formatting. The paper versions of the survey are provided in Appendices 13 (English) and 14 (Arabic).

[25] Finer-grained descriptions of individual professional development activities were captured through the interviews and the interviewee survey (detailed in Section 4.5). However, the selection of these two broad categories for the main survey was in keeping with the overall desire to keep the main survey brief in order to encourage a maximum response rate.

Following the administration of the main survey, the qualitative comments that had been written in Arabic were translated into English to allow for analysis. These qualitative comments were extracted and placed (along with a unique numeric code representing the associated questionnaire, for identification purposes) into a table ready for translation. The comments were then translated into English by the same native Arabic-speaking translator who had previously assisted with the translation of the questionnaire.

This section (Section 4.4) has detailed the development and administration of the questionnaire that was used for the main survey. This complements the information regarding the sample obtained for the main survey, which was reported in Section 4.3.2, and completes the description of the main survey. The next section (Section 4.5) describes the remaining data collection methods used for the study: the interviews and interviewee survey.

4.5 Interview Protocol and Interviewee Survey

In-depth semi-structured interviews were conducted with 35 teachers to complement the broad data gathered using the main survey. In line with the interpretivist stance taken for the study, interviews allowed teachers "to discuss their interpretations of the world in which they live, and to express how they regard situations from their own point of view" (L. Cohen et al., 2007, p. 349). Further, given that my study aimed to contribute to the lack of existing literature related to the ADEC reform project and the associated teacher professional development, interviews were considered to be highly appropriate:

> The primary way a researcher can investigate an educational organization, institution, or process is through the experience of the individual people, the 'others' who make up the organization or carry out the process. Social abstractions like 'education' [or, in the case of my study, education reform and teacher professional development] are best understood through the experiences of the individuals whose work and lives are the stuff on which the abstractions are built. (Seidman, 2006, p. 10)

During the interviews, participating teachers completed a questionnaire, referred to throughout this thesis as the 'interviewee survey'. The interviews lasted, on average, 90 minutes; this time included completing the interviewee survey, which took approximately 30 minutes. The following sections describe the interview protocol (Section 4.5.1) and the interviewee survey instrument (Section 4.5.2).

4.5.1 Interviews

Semi-structured, in-depth interviews were selected for my study. Although the study had clear objectives that could focus the interviews (informed by the reviews of literature and my prior knowledge of the professional development occurring in schools—and, to some extent, teachers' responses to it), it was important to retain a sense of openness and to suspend judgement so that the messages and topics that teachers felt were most important could emerge. As such, the use of semi-structured interviews ensured that the data from each interview was clearly related to the research objectives, yet still allowed this open exploration of each participant's unique experience of professional development (L. Cohen et al., 2007).

I conducted all of the interviews myself. This allowed me to avoid the standardisation and inter-rater reliability problems that can constitute limitations of semi-structured interviews where more than one interviewer is used (Conway, Jako, & Goodman, 1995). Conducting the interviews myself also allowed me to remain close to the data, to identify and pursue emerging themes in subsequent interviews (informed by the use of constant comparative analysis), and to gauge when saturation had been reached (L. Cohen et al., 2007; Seidman, 2006).

Interviewing cross-culturally is a complex undertaking. Verbal and non-verbal factors that characterise the communication styles of participants from different cultures can result in misunderstandings for either the interviewer or the interviewee and faulty interpretations on the part of the researcher (Kvale, 2007). Having been immersed in the culture and education system of the UAE for over five years prior to data collection and having examined literature related to cultural differences and cross-cultural communication (see Chapter 3), I was, to some extent, equipped to overcome such issues. By conducting the interviews myself, I took responsibility for

maintaining awareness of and sensitivity to these issues throughout data collection, analysis, and interpretation. Any errors in this regard are, therefore, my own.

To suit the semi-structured interview format, an interview guide (reproduced in Appendix 15) was developed that provided a common, overarching framework for the interviews. Each interview followed the same basic structure:

1. Exploring the teacher's understanding of what professional development means and its purpose and value;
2. Identifying all of the forms of professional development that the teacher participated in during the 2013–2014 academic year;
3. Gathering detailed descriptions of particular professional development experiences (as recommended by Kvale, 2007);
4. Having the teacher complete the interviewee survey, inviting them to comment or ask questions as they wish, and discussing any matters arising; and, finally,
5. Asking a selection of follow-up questions exploring: specific types of professional development; the teacher's perceptions of 'good' and 'bad' professional development; or the teacher's overall response to the professional development that they had experienced in 2013–2014.

I had originally intended to interview all teachers individually. Although this occurred for many teachers, some teachers requested to be interviewed in pairs or small groups. When these requests arose, I felt that it was important to respect teachers' wishes, particularly as I realised that cultural factors were involved: Most Muslim male teachers would not be interviewed one-on-one by a female researcher. Teachers who requested non-individual interviews were informed that the interview process may take somewhat longer and were asked to confirm their willingness to participate in that format. Altogether, 14 interviews were conducted with individual teachers, three interviews were conducted with pairs of teachers, and three larger group interviews were conducted.

The interview protocol was unchanged regardless of the number of teachers being interviewed. As such, and given that the original intention had been to conduct semi-

structured interviews rather than focus groups (which differ from other forms of group interviewing in that the interviewer assumes more of a facilitation role and the primary phenomenon of interest is the interaction between participants; see Gibbs, 1997; Morgan, 1997), the data collected through both individual and group interviews was treated as a single data set. Therefore, the description of the sample of interviewed teachers (provided in Section 4.3.3) and the analysis of the interview data (described in Section 4.6 and Chapters 5 to 7) do not differentiate between teachers who were interviewed individually and those who were interviewed in pairs or groups.

All interviews were audio-recorded using a laptop to preserve the original data and to allow me to "work most reliably with the words of participants" (Seidman, 2006, p. 114). The recordings were backed up to a secure Dropbox site immediately after the interviews were held. Written notes were also taken during each interview in case there were any problems with the recordings, and these notes were scanned and saved electronically after each interview to provide a secure backup copy.

All interviews were transcribed in full. Transcripts included important information about each interview including participant details (such as their gender and school type), and the interview date (as recommended by Widodo, 2014). I transcribed the first eight interviews myself immediately after the interviews were conducted. This allowed me to reflect closely on the data obtained to date, which was invaluable for informing ongoing interviewing. The remaining interviews were conducted over a short space of time so were not able to be immediately transcribed. Instead, during this time, I focused on recruiting participants and conducting the interviews to ensure that saturation and sufficiency would be reached (Seidman, 2006). I also spent time after each interview reflecting on the major themes I was noticing within the interviews; identifying areas to pursue further in each subsequent interview; and analysing the composition of the sample to date and, hence, identifying the types of teachers I still needed to interview. The recordings of the interviews that I had not transcribed myself were sent for professional transcription; I then checked the resulting transcripts to ensure accuracy. All participants were offered the opportunity to review their transcripts, as recommended by Creswell and Miller (2000) and Widodo (2014).

4.5.2 Interviewee Survey

The purpose of the interviewee survey was to gather quantitative data that could be used to compare the various professional development activities that teachers had experienced in terms of both their design and their impact (research objective 2) and investigate relationships between the design features of professional development activities and the resulting impacts (research objective 3). As such, the interviewee survey was a questionnaire comprising two sets of items. To measure teachers' perceptions of the *impact* of professional development, the items developed for the main survey (see Section 4.4) were repeated. To examine the *design* of the professional development teachers had experienced, a new set of items was developed; the development of these items is described in this section.

The selection of the specific design features to be examined was informed by the theoretical frameworks for evaluating teacher professional development that were selected to inform my study (see Section 2.5 of Chapter 2). Although Guskey's (2000) framework does not address the design of professional development activities, Desimone's (2009) framework specifies five core features of the design of high-quality professional development that can and should be measured: content focus (that is, whether the professional development had a subject-specific focus), active learning, coherence, duration, and collective participation. These design features were examined in the interviewee survey.

Literature was reviewed to inform the development of new items to measure these design features. Desimone's (2009) definitions of the features were examined to identify key components within each design feature. Further, three large-scale studies were identified that had used questionnaires to measure most or all of Desimone's five design features (Garet et al., 2001; Ingvarson et al., 2005; Penuel et al., 2007). The items and response methods used to measure each design feature in these three studies were analysed and compared. The findings of this analysis are presented in Table 4.5.

In developing items to measure the five design features, it was considered desirable to limit the total number of items, given that interviewees were required to respond

Table 4.5 Analysis of component elements and response methods associated with Desimone's (2009) five core features of effective professional development

Core feature defined by Desimone (2009)	Component elements defined by Desimone (2009)	Component elements and response formats used within existing research questionnaires		
		Garet et al (2001)	Penuel et al (2006)	Ingvarson (2005)
Content focus	• Subject matter content • How students learn that content	• Degree of emphasis on deepening content knowledge Measured using a 3-point response format for the degree of emphasis.	Not measured.	• Content / subject knowledge • How students learn content • Methods of teaching content • Models to illustrate those methods of teaching that content Measured using 4-point response scales for the degree of emphasis.
Active learning	• Observing / being observed • Reviewing student work • Leading discussions	• Observing / being observed (including in-class coaching & mentoring) • Planning classroom implementation • Reviewing student work • Presenting, leading, writing Measured using 4 or 5 sub-items per category (total of 18 items). *Yes*/*no* responses counted and weighted to produce an index from 0 to 20.	Not measured using this specific name and construct. However, the questionnaire included three lists of instructional approaches: • Overall pedagogical strategies • Approaches designed to support implementation of new practices • Approaches designed to promote student inquiry. In each case, the *n* items were measured with *yes*/*no* responses, which were then summed to create an index from 0 to *n*.	• Reflecting actively on practice • Identifying specific areas to develop • Opportunities to test new practices Measured using 4-point response format for the degree of engagement in these types of learning. Other practices that could be considered active learning were measured as stand-alone features (feedback on classroom practice, collaborative examination of student work, ongoing follow-up). These were also measured using the same 4-point response format.

Core feature defined by Desimone (2009)	Component elements defined by Desimone (2009)	Component elements and response formats used within existing research questionnaires		
		Garet et al (2001)	Penuel et al (2006)	Ingvarson (2005)
Coherence	• Consistency with teacher knowledge and beliefs • Consistency with school, district, and state reforms and policies	• Connection with goals and other activities • Alignment with state / district standards and assessment • Encouraged professional communication Measured using 2 or 3 sub-items each, with 5-point response formats. Responses weighted and summed to produce an index from 0 to 9.	• Coherence with teachers' professional development goals • Coherence with existing reform ideas within the school • Follow-up activities Measured using a 6-item factor.	Not measured.
Duration	• Time span • Total number of hours	• Time span • Total number of contact hours Measured using specific durations in hours, days, weeks, or months.	• Time span Measured using an index ranging from 0–24 months.	• Time span • Total number of contact hours Measured using category variables with specific durations (e.g. '*less than 10 hours*', '*10 to 20 hours*' ...).
Collective participation	• Participation of teachers from same school, grade, or department	• Participation of all teachers from same school, grade, or department Measured as a *yes*/*no* variable; collective participation in any other grouping (e.g. one teacher from each grade) was counted as '*no*'.	• All teachers in respondent's grade level / department • All teachers from school (or multiple schools) Measured using two *yes/no* items. Responses summed to give an index between 0 and 2.	• More than one teacher from a school participated Measured as a *yes*/*no* variable.

to each survey item multiple times (once for each type of professional development that they had participated in). Further, although the questionnaires reviewed in Table 4.5 used a range of response formats, a five-point Likert-style response scale was used for the majority of the interviewee survey items, consistent with the format of the items being used to measure the impact of the professional development. It was hoped that using a simple and consistent response format would minimise potential confusion for respondents.

To measure the first design feature, content focus, two items were developed. These items examined whether professional development focused on the two aspects identified within Desimone's (2009) definition of content focus: (a) the teacher's own subject knowledge and (b) their pedagogical content knowledge. It was not expected that professional development would focus on both of these aspects simultaneously; rather, a high score on either one of these items would indicate a subject-specific content focus. Therefore, the *maximum* response given across the two content focus items was used as the overall content focus score.

To measure the second design feature, active learning, four items were developed. These items were based on the four aspects used to measure active learning by Garet et al. (2001), which, although similar to the three aspects identified by Desimone (2009), were more comprehensive in that they incorporated additional forms of active learning. As for content focus, it was not expected that all of these aspects should occur simultaneously; therefore, the *maximum* response given across the four active learning items was used as the overall active learning score.

To measure the third design feature, coherence, three items were developed. Across the literature reviewed, it appeared that there were three possible levels of coherence: personal, school, and system levels. Therefore, one item was written to probe each of these possible types of coherence. This design feature differed from content focus and active learning as it was considered that effective professional development would show coherence at all three levels. Therefore, the *mean* of the responses given across the three coherence items was used as the overall coherence score.

To measure duration, three items were developed. Two of the items asked teachers to estimate the total number of hours and the total time span[26] of the professional development within the academic year, aligning directly to the elements of duration identified within the literature examined in Table 4.5. For these two items, the standard Likert-style response format was not used; rather, teachers were asked to write a specific estimate of the time (such as 'three days', '30 hours', or 'all year'). A third item was also developed to measure teachers' satisfaction with the time allocation for the professional development. This was not an aspect identified in the literature reviewed in Table 4.5, but it was considered to be of interest for my study. Based on the premise that effective professional development should satisfy all three areas (that is, substantial contact hours and time span as well as sufficient duration), the *mean* of the responses given across the three duration items was used as the overall duration score.

A single item was used to measure collective participation. The questionnaires used by Garet et al. (2001) and Penuel et al. (2007) both asked whether *all* teachers from the respondent's grade level, department, or school participated in professional development (see Table 4.5); however, this stricter criterion goes beyond Desimone's (2009) original definition of collective participation. It seemed reasonable that collective participation could still be beneficial even if only some of the teachers within a department, grade level, or school shared in a professional development activity; therefore, the item written for the interviewee survey included any type of collective participation, without the restrictive 'all'.

Altogether, 13 items were developed to measure the design of professional development. For each of the five design features, Table 4.6 provides a description of the feature, a sample item, and the way that the overall score was obtained.

The 13 items measuring the five design features were then combined with the 14 impact items (repeated from the main survey; see Section 4.4) to form the interviewee survey. In assembling the questionnaire document, several factors were

[26] The total time span measured the overall time across which the contact hours were spread. For example, six contact hours of professional development might have occurred on a single day (giving a time span of one day) or been spread over six weekly one-hour sessions (giving a time span of six weeks).

Table 4.6 Descriptions and sample items for the five design features examined in the interviewee survey

Design feature (Desimone, 2009)	Description	Scoring	Sample item
Content focus	The degree to which professional development involved a subject-specific content focus.	Maximum score from 2 items	This professional development focused on how students learn specifically within my teaching subject (for example, common misconceptions about fractions).
Active learning	The degree to which professional development engaged teachers in active learning.	Maximum score from 4 items	This professional development included time for me to look at student work samples.
Coherence	The degree to which professional development activities were coherent with influences at individual, school, and system levels.	Mean of 3 items	This professional development was consistent with other professional development activities and goals in my school.
Duration	The amount of time that professional development involved and teachers' perception of whether this time was sufficient.	Mean of 3 items	Enough time was allocated to this professional development in the 2013–2014 academic year.
Collective participation	The degree to which teachers engaged in professional development alongside other teachers they worked with.	Score for 1 item	In this professional development, I collaborated with other teachers from my subject area, grade level, or school.

considered. A matrix format (illustrated in Figure 4.2) was used to create multiple response columns so that teachers could provide separate data regarding each form of professional development that they had experienced in the 2013–2014 academic year. Because it was crucial that teachers recorded their responses accurately for each distinct type of professional development, the questionnaire was printed in colour with each response column shaded in a different colour. Within the questionnaire, items relating to the same design feature or scale were placed together, and subheadings were used to indicate the focus of each group of questions. The more objective items relating to the design of the professional development were placed first to help teachers to begin to remember and reflect on each type of professional

TEACHERS' EXPERIENCES OF PROFESSIONAL DEVELOPMENT

Please consider only the professional development you received in the 2013-2014 academic year.

For questions 1-25, please write a number from 1 to 5 in each box. For questions 26-27, please write an amount of time in each box.

	Lesson observation & feedback by school administration	Peer observation	Whole-school "Tamkeen" workshops	... (etc)
Activities within the professional development (1 = never; 2 = rarely; 3 = occasionally; 4 = a moderate amount; 5 = a great deal)				
1. This professional development included **lesson observation** (I was observed teaching AND/OR I observed others teaching)				
2. This professional development included time for me to **plan lessons** implementing what I was learning.				

Figure 4.2. Layout of interviewee survey with columns for different types of professional development (column headings are illustrative only)

development before responding to the later impact items, which required teachers to make more subjective value judgements and reveal aspects of their personal practice. The exception was the duration items: Since two of these items deviated from the five-point response scales used for all other items, the duration items were placed at the very end of the questionnaire.

4.5.3 Piloting of Interview Protocol and Interviewee Survey

The interview protocol and interviewee survey were pilot-tested with one teacher to:

- Determine whether my estimates of the interview and survey durations were reasonable;
- Examine the face validity of the 13 new items developed to measure the design features of professional development; and
- Examine the suitability of the layout of the interviewee survey.

The pilot interview confirmed that my time estimates were reasonable, with the interview and interviewee survey, together, taking about 90 minutes. The pilot

teacher took around 30 minutes to complete the interviewee survey (a substantial proportion of the interview time), but valuable and highly informative qualitative data was collected through the verbal comments made by the teacher while completing the survey.

Feedback from the pilot teacher resulted in several refinements to the interviewee survey. First, items were re-ordered so that the content focus items were not at the beginning since these seemed difficult for the pilot teacher to understand. Second, the active learning items were modified to clarify the emphasis on activities that had occurred *during* the professional development and not as follow-up after the professional development ended. Third, throughout the survey, key words were formatted in bold to help teachers to focus on the key concepts within each item. Fourth, the response scale for some items was changed from the original Likert scale that had been used for all items (1 = *strongly disagree* to 5 = *strongly agree*) to an alternate scale (1 = *never* to 5 = *a great deal*). Items with the same response scale were grouped together, and, at the beginning of each section of the survey, the response scale for that section was clearly shown. The final interviewee survey instrument—used in all subsequent interviews—is reproduced in Appendix 16.

This section (Section 4.5) has detailed the development and piloting of the interview protocol and interviewee survey. This complements the information provided in Section 4.3.3 about the sample of teachers for the interviews and interviewee survey. The next section (Section 4.6) details the data analyses that were conducted for the study.

4.6 Data Analysis

Data from the main survey, interviews, and interviewee survey were used to address the five research objectives of the study (see Table 4.1 on page 102). This section reports how the data were prepared for analysis (Section 4.6.1) and details the data analyses that were used to address each of the five research objectives (Sections 4.6.2 to 4.6.6).

4.6.1 Preliminary Data Preparation

This section reports on the procedures that were used to prepare the main survey data (Section 4.6.1.1) and the interviewee survey data (Section 4.6.1.2) for analysis. No such preparation was necessary for the interview data.

4.6.1.1 Main Survey Data

Data collected during the online and paper administrations of the main survey were compiled into a single spreadsheet. The online survey responses were exported directly from the Survey Monkey website, combining the data from the Arabic- and English-language surveys. Data entry services were used to enter the data from the paper administration.

All paper questionnaires were indexed and labelled with unique codes before being sent for data entry. The codes and total numbers of questionnaires were recorded to ensure that all of the questionnaires were returned and to allow for checking the accuracy of the data entry. After data entry, 10% of the entered data were checked for accuracy. Nine data entry errors were found among the 665 data values checked, representing an error rate of 1.35%. This was considered to be a low data entry error rate for a questionnaire of this nature; therefore, data cleaning and analysis proceeded without further checking or re-entry of data.

Although questionnaires that were missing more than 10% of the scale item data had been removed from the data set at the time of data collection (see Section 4.3.2), 28 questionnaires were missing responses to fewer than 10% of the scale items. For missing values, each individual survey that was missing data was examined carefully and patterns within that teacher's responses and scale means were used to interpolate replacement values. The procedure that was used to determine these replacement values is detailed in Appendix 17.

4.6.1.2 Interviewee Survey Data

Manual entry of the interviewee survey data was carried out by the same technicians who had entered the data for the main survey (see Section 4.6.1.1). However, when

10% of the entered data were checked for accuracy, a substantial number of data entry errors were identified. As a result, I manually checked all of the interviewee survey data and corrected all errors found.

There were very few missing values in the interviewee surveys. For missing impact items, replacement values of 3 (*neutral*) were entered. For missing design feature items, estimated replacement values were entered based on my knowledge of the design of professional development activities within ADEC schools and the responses of other teachers regarding that professional development (using, where possible, teachers from the same school).

Teachers had been asked to identify the duration and time span of professional development activities in hours (for example, “2 hours per week” or “30 hours”). These responses were reviewed and classified into 1 to 5 scales so that the duration and time span items would share the same response range as all other items.

A final stage of preparing the interviewee survey data for analysis involved categorising the various professional development activities that teachers had reported participating in. During the interviews, I had invited teachers to describe the forms of professional development that they had experienced in their own words; across the 35 interviews, this resulted in 154 unique, teacher-generated descriptions of professional development activities. To ensure that the data were manageable, these descriptions needed to be synthesised into a set of meaningful categories for subsequent analysis.

Thematic analysis was used to synthesise these professional development descriptions into categories, following the procedure recommended by Braun and Clarke (2006). Through several iterations of synthesis and review, I initially organised the 154 raw professional development descriptions into 17 professional development categories. This preliminary synthesis was then verified by one of the interview participants (a form of member checking; see Creswell & Miller, 2000; Lincoln & Guba, 1985) as well as by my supervisor, both of whom agreed with my preliminary categorisations and made suggestions for further reduction of categories. As a result, the professional development descriptions were synthesised into 11

categories that could be used for subsequent analysis; these categories are reported in Section 5.2.1 of Chapter 5.

The spreadsheet of interviewee survey data was then updated to reflect the 11 professional development categories. Some teachers had reported more than one professional development activity that fell into a single professional development category. In such cases, the mean of the teacher's responses to each survey item for the professional development activities falling into the same category was calculated; these means were considered to reflect the teachers' overall survey responses for the relevant professional development category. This approach ensured that each teacher's opinions were equally weighted in subsequent quantitative analyses.

Following the preliminary data preparation detailed in this section (Section 4.6.1), the next five sections (Sections 4.6.2 to 4.6.6) describe the analyses that were conducted to investigate each of the research objectives. Although this account of the analysis is organised in a particular order, it should be noted that all analyses were, in fact, iterative and interdependent rather than proceeding one objective or data source at a time. This reflected the triangulation mixed methods design of the study (see Section 4.2) and allowed the findings emerging from one element of analysis to inform ongoing analysis elsewhere.

The qualitative analyses detailed throughout the following sections were conducted using NVivo 10, Microsoft Excel, Microsoft OneNote, and Microsoft Word. The quantitative analyses were conducted using the Statistical Package for Social Sciences (Version 23) and Microsoft Excel.

4.6.2 Validity and Reliability of the New Questionnaire (Research Objective 1)

The first research objective was to develop and validate a questionnaire to examine teachers' perceptions of the impact of professional development. A draft questionnaire, comprising 14 items assessing seven scales, was developed for this purpose (as detailed in Section 4.4). To assess the reliability and validity of the newly-developed questionnaire, statistical analyses were carried out to examine its factor structure, internal consistency reliability, and ability to differentiate between

groups. As indicated in Table 4.1 (on page 102), these analyses drew on the quantitative data collected from the main survey sample (N = 393 teachers). Given that teachers had responded to the questionnaire twice—once with respect to whole-school professional development and once for subject-specific professional development—the analyses were conducted separately for the two sets of responses, allowing for verification of the findings.

First, the factor structure of the questionnaire was examined. Principal components factor analysis has been used extensively as a data reduction technique in research involving the evaluation of scales (Tabachnick & Fidell, 2007) and is recommended by Stevens (1996) as a psychometrically sound technique. As such, principal components factor analysis was selected as an appropriate means of examining the underlying structure and groupings within the variables of the main survey. Oblique rotation was used to afford understanding of the constructs included in the questionnaire, given that these constructs were expected to be correlated or overlapping (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Ford, MacCallum, & Tait, 1986). The criteria for the retention of an item was that it should load at .40 or more on its *a priori* scale and at less than .40 on each of the other scales (as recommended by Stevens, 1996).

To provide evidence to support the convergent validity of the questionnaire, the internal consistency reliability (Cronbach's alpha coefficient) was calculated for each scale using the revised scale structure confirmed by the factor analysis. Nunnally's (1978) recommended minimum of .70 was used to indicate the suitability of the internal consistency reliability of different scales.

Finally, a one-way analysis of variance (ANOVA) was computed for the different scales to examine the ability of the questionnaire to differentiate between the experiences of teachers of different nationalities, of different subject areas (English, mathematics, and science), and with different lengths of teaching experience. Due to the large number of different nationalities reflected in the sample and the differing numbers of teachers of each nationality, the eta^2 statistic (rather than F values) was used to describe effect sizes and identify statistically significant differences (L. Cohen et al., 2007; Levine & Hullett, 2002).

The results of these analyses were used in two ways. First, the factor analysis and internal consistency reliability results were used to inform revision of the structure of the questionnaire. Second, the results of all the quantitative analyses reported in this section were reviewed, along with the theoretical alignment of the scale structure of the finalised questionnaire and the feedback of the expert panel, to make a holistic assessment of the validity of the newly developed questionnaire. These results are reported in Section 5.1 of Chapter 5 and discussed in Section 7.1.1 of Chapter 7.

4.6.3 The Design and Impact of the Professional Development Experienced by Teachers in the Study (Research Objective 2)

The second research objective was to examine teachers' perceptions of the design and the impact of the professional development that they had experienced in Abu Dhabi public schools. As indicated in Table 4.1 (on page 102), quantitative data collected using the interviewee survey (297 sets of responses from $N = 35$ teachers, related to 11 categories of professional development) were used to examine both the design and the impact of professional development. Qualitative data from the interviews ($N = 35$ teachers) and main survey ($n = 96$ teachers) were then used to explain the quantitative findings.

In terms of *design*, the interviewee survey examined the extent to which the professional development experienced by teachers reflected five literature-based features of high-quality professional development: content focus, active learning, coherence, duration, and collective participation (Desimone, 2009; see Section 4.5.2). For each individual set of data (reflecting one teacher's reports about one professional development type), scores for each of the five design features were calculated as well as an overall design effectiveness index, which aggregated the five design feature scores. Although different numbers of items had been used to examine each design feature, equal weightings were given to each design feature in the design effectiveness index through summing the overall scores for each design feature. As each overall design feature score ranged from 1 to 5, this produced a set of combined scores with possible values from 5 to 25. For ease of interpretation, these scores were then reduced by 5 to produce a final design effectiveness index with possible values ranging from 0 to 20, with higher scores representing professional development with

greater alignment to the literature-based design features. The way that the data were brought together to construct the design effectiveness index is represented visually in Figure 4.3.

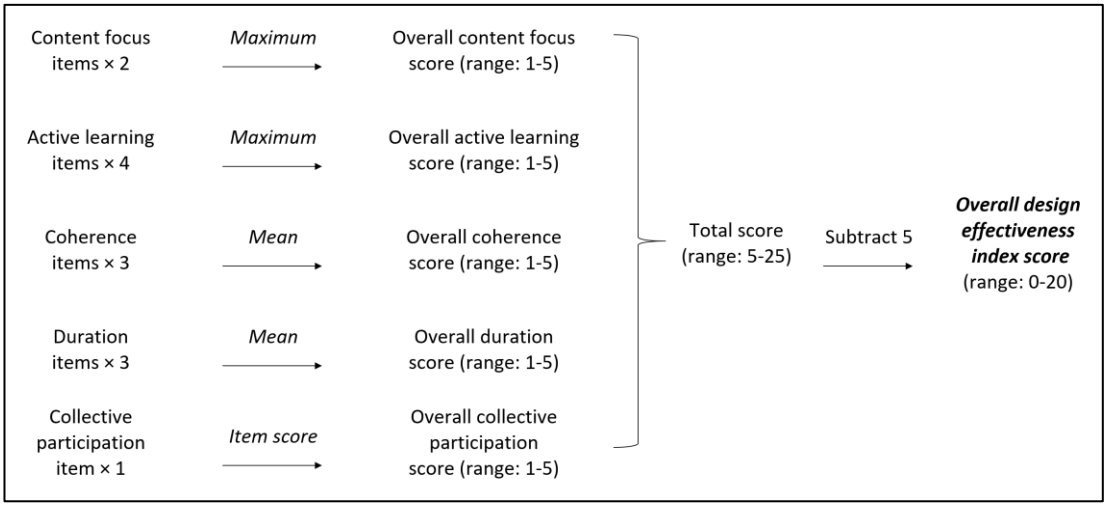

Figure 4.3. Synthesis of the design feature data to generate the overall design effectiveness index

In terms of *impact*, a similar process was followed using the impact items of the interviewee survey. For each individual set of data (reflecting one teacher's reports about one professional development type), scores for each impact scale (using the scale structure identified through the factor analysis; see Section 4.6.2) as well as a total impact score were calculated. The mean scores for each impact scale were then summed, resulting in a total impact score that gave equal weighting to each scale.

For both the design and the impact data, the scores were brought together across the 35 teachers for each of the 11 professional development categories that were used for the data analysis (see Section 4.6.1.2). Means, standard deviations, and 95% confidence intervals[27] (calculated using the formula $M \pm 1.96 \times \frac{SD}{\sqrt{n}}$) were used to

[27] Given that different numbers of teachers participated in each of the 11 professional development categories (as reported in Chapter 5), it was important to acknowledge the impact of this variation in sample size on the reliability of the results reported. As such, confidence intervals, which take into account the sample size as well as the variation in scores, were considered an appropriate way to represent this information.

compare the 11 professional development categories in terms of each individual design feature, the overall design effectiveness indices, each individual impact scale, and the total impact score. Bar graphs with the confidence intervals overlaid were used to present the results.

Qualitative data from the teacher interviews and the main survey were examined to confirm and explain the results obtained through the quantitative analyses described above. To provide an audit trail for the use of qualitative evidence, the qualitative data provided by each teacher was assigned a unique but anonymous code. The first part of the code indicated whether the teacher had provided data through an interview (Int) or the main survey (Ms). The second part of the code indicated whether the teacher was Arab (Ar) or Western (We). The final part of the code was a unique numeric identifier. For example, the code Int-We-054 represents qualitative data drawn from a Western teacher who participated in an interview; the code Ms-Ar-121 represents qualitative data drawn from an Arab teacher who provided written comments on the main survey.

To draw overall conclusions related to research objective 2, the results of all of the analyses described in this section were considered holistically, as recommended by Bazeley (2009) and R. K. Yin (2006) for mixed methods research. These results and conclusions are reported in Section 5.2 of Chapter 5 and discussed in Section 7.1.2 of Chapter 7.

4.6.4 Relationships between the Design and Impact of Professional Development (Research Objective 3)

The third research objective was to investigate relationships between teachers' perceptions of the design and the impact of the professional development that they had experienced in Abu Dhabi public schools. As indicated in Table 4.1 (on page 102), both quantitative and qualitative data were used to address this objective.

First, drawing on the quantitative interviewee survey data (297 sets of responses from $n = 35$ teachers), the nature of the relationship between the overall design effectiveness indices and the total impact scores for the 11 professional development

categories was examined using a scatterplot. This provided an indication of the extent to which professional development that more strongly reflected the literature-based design features was associated with greater impacts. A further level of detail was provided by making the size of each point on the scatter plot proportional to the number of teachers (within the interviewee survey sample of $N = 35$ teachers) who reported participating in the corresponding category of professional development; this allowed for examination of whether the most effective forms of professional development—in terms of both design and impact—were being accessed by the majority of teachers.

Second, multiple correlation and regression analyses were carried out to examine the finer-grained relationships between the scores for each possible combination of one design feature and one impact scale. Cohen et al.'s (2007) recommended minimum value of .35 was used to determine whether the correlations were sufficiently strong to be used for prediction purposes. The goodness of fit of each regression model was evaluated using the adjusted R^2 values (as recommended by L. Cohen et al., 2007; Muijs, 2004) since the data came from a sample and not from the whole population. Muijs's (2004) criteria were used to determine whether each regression model demonstrated a poor ($R^2 \leq .10$), modest ($.11 \leq R^2 \leq .30$), moderate ($.31 \leq R^2 \leq .50$), or strong ($R^2 > .50$) fit with the data.

Having completed the above quantitative analyses, the qualitative data from the interviews ($N = 35$ teachers) and the main survey ($n = 96$ teachers) were reviewed in search of comments related to the relationships between the design and impact of professional development. The prevalence and nature of such comments were used to provide additional insight into teachers' perceptions of the relationships between the design and impact of professional development. An audit trail (using unique teacher codes, as described in Section 4.6.3) was provided to support findings related to the qualitative data.

The results of the quantitative and qualitative analyses described in this section were considered holistically in order to draw overall conclusions related to research objective 3 (as recommended by Bazeley, 2009 and R. K. Yin, 2006 for mixed

methods research). These results and conclusions are reported in Section 5.3 of Chapter 5 and discussed in Section 7.1.3 of Chapter 7.

4.6.5 Non-Design-Related Factors Affecting the Impact of Professional Development (Research Objective 4)

During the analysis of the qualitative data related to the design and impact of professional development (research objectives 2 and 3), a number of additional themes emerged. Although not related to the design of professional development, these themes, nonetheless, appeared to influence the impact of professional development. In keeping with the inductive stance described in Section 4.2, these themes were recognised as an important element of the findings of the study. A further research objective was, therefore, added: to investigate factors, other than the design of professional development, that influenced teachers' perceptions of the impact of professional development. Because these factors emerged inductively during data analysis, no corresponding quantitative data had been collected; as such, this objective was addressed using qualitative data only: from the interviews ($N = 35$ teachers) and the qualitative comments on the main survey ($n = 96$ teachers; see Table 4.1 on page 102).

Constructivist grounded theory approaches as described by Charmaz (2000, 2003, 2006, 2008)[28] were used to analyse these factors (referred to hereafter as 'non-design-related factors'). Charmaz modified traditional grounded theory methodology by advocating a constructivist epistemology that involves consideration of the underlying motivations, beliefs, and other influences that affect people's observable behaviour and speech. Further, Charmaz moved away from grounded theory's traditional search for universally applicable theories, arguing that "understanding must be located in the studied specific circumstances of the research process" (Charmaz, 2008, p. 398). Whereas traditional grounded theory (as defined by Glaser & Strauss, 1967; Strauss & Corbin, 1994) has drawn much criticism for its post-positivistic stance, its complex sampling requirements, and its superficial focus on

[28] In her earlier publications, Charmaz referred to her method as *constructivist* grounded theory (Charmaz, 2000, 2003, 2006). In her more recent work, she has modified the name to *constructionist* (Charmaz, 2008). For consistency with the language used to describe the conceptual paradigm and epistemology that guided my study (outlined in Section 1.2), I have chosen to refer to Charmaz's method using her original term.

“the immediately apparent and observable” (Thomas & James, 2006, p. 769), Charmaz’s (2000, 2003, 2006, 2008) constructivist grounded theory approach has, equally, been criticised by Glaser (2002) as undermining the objectivity and abstraction of classic grounded theory. However, given that my study was undertaken within a constructivist epistemology and involved an interpretivist research paradigm (see Section 1.2 of Chapter 1 and Section 4.2 of Chapter 4), Charmaz’s (2000, 2003, 2006, 2008) constructivist grounded theory methods—which “plac[e] priority on the phenomena of study and [see] both data and analysis as created from the shared experiences of researcher and participants” (Charmaz, 2003, p. 313) and, further, acknowledge the essential influence of context on the phenomenon being investigated—were considered to be appropriate for investigating research objective 4.

Based on Charmaz’s (2000, 2003, 2006, 2008) recommendations, data analysis began while the interviews were occurring and involved a constant comparison of the non-design-related factors being raised by teachers (see also L. Cohen et al., 2007). This ongoing analysis informed subsequent interviewing as I sought to test out my initial suppositions and check for any further factors not yet identified. In order to immerse myself in the data, I listened to each interview recording and read each transcript multiple times (as recommended by Creswell, 2008; Widodo, 2014). This deep engagement with the data supported both the inductive identification of emerging themes and, later, the more focused searching and listening for particular points of interest (Widodo, 2014). Iterative coding (using inductive code names taken directly from the data) and reflection on the emerging themes continued during the interviews as well as after all interviews had been completed. While seeking to understand teachers’ constructed meaning around professional development, I also drew on my own experience in the Abu Dhabi context and my knowledge of existing research (as reviewed in Chapters 2 and 3) to construct my own understanding of teachers’ responses to professional development. As such, data analysis was seen “as a construction that not only locate[d] the data in time, place, culture, and context, but also reflect[ed] the researcher’s thinking” (Charmaz, 2003, p. 313; see also Willis, 2007).

Following Charmaz's (2003) recommendations, I used memo writing—including excerpts of raw data—to organise and document my developing understanding of the major themes and factors expressed by the teachers. I also triangulated the emerging factors across the two sets of qualitative data, developing lists of the teachers from both the main survey and interview data who had expressed each factor. This allowed me to verify that the themes I had identified were, indeed, prominent across all of the data gathered.

The final product of this analysis was a contextually situated grounded theory, summarised in a visual depiction of a conceptual model that reflected my construction of meaning related to the non-design-related factors that affected teachers' experiences of professional development within the specific context of Abu Dhabi public schools. Although not directly generalisable to other contexts—as the product of classic grounded theory research would be—this type of contextually situated theory was considered valuable because "sometimes a theory is useful precisely because it is narrow, not broad. It gives us a rich, complex way of looking at a particular situation" (Willis, 2007, p. 308).

The results of the analyses described above are reported in Section 6.1 of Chapter 6 and discussed in 7.1.4 of Chapter 7.

4.6.6 Differences between Arab and Western Teachers' Perceptions (Research Objective 5)

The final research objective was to investigate whether Arab and Western teachers differed in terms of their perceptions of and responses to professional development. As indicated in Table 4.1 (on page 102), both qualitative and quantitative data were used for this purpose. The data from Arab and Western teachers were compared to identify differences in their perceptions of the design and the impact of professional development as well as the non-design-related factors that affected their experiences of professional development.

To compare Arab and Western teachers' perceptions of the *design* of professional development, quantitative data from the interviewee survey (297 sets of responses

from $n = 35$ teachers) were used. Double bar graphs were constructed to allow comparison of the mean scores (with variation indicated on the graphs by 95% confidence intervals) provided by Arab and Western teachers for the 10 of the 11 professional development categories. The remaining category (mentoring other teachers) had not been reported by any of the Arab teachers who were interviewed; as such, only 10 of the 11 categories were able to be used when comparing the responses of Arab and Western teachers. For these 10 categories, separate graphs were constructed for each individual design feature and for the overall design effectiveness index.

To compare Arab and Western teachers' perceptions of the *impact* of professional development, quantitative data from both the main survey (786 responses from $N = 393$ teachers) and the interviewee survey (297 sets of responses from $n = 35$ teachers) were used. Using the main survey data (with the whole-school and subject-specific professional development being examined separately), a multivariate analysis of variance (MANOVA) was carried out to examine the direction and magnitude of any differences between the Arab and Western teachers' scores for each of the impact scales. Where statistically significant results were detected (based on Wilks' lambda criterion), univariate ANOVAs were conducted for each impact scale (dependent variable). Effect sizes were calculated[29] in addition to the F values to provide an indication, independent of sample size, of the strength of the difference between the mean scores for each scale, as recommended by Muijs (2004). Using the interviewee survey data, the individual impact scale scores and the total impact scores given by Arab and Western teachers were compared for the 10 categories of professional development that both groups of teachers had participated in. Although less statistically rigorous than the MANOVA used for the main survey data, this examination of the interviewee survey impact data allowed for verification, triangulation, and finer-grained investigation of the differences identified in the MANOVA results.

[29] Effect sizes expressed the difference between the Arab and Western teachers' mean scores in standard deviation units. They were calculated using Cohen's d, with the formula $\frac{M_1 - M_2}{\sqrt{\frac{\sigma_1^2 + \sigma_2^2}{2}}}$.

In terms of the *non-design-related factors* that teachers indicated had affected their experiences of professional development, the themes that had been identified within the Arab and Western teachers' data were compared. Differences were examined both in terms of the presence or absence of specific factors and in terms of the nature of teachers' experiences of the factors that were common to both groups.

Final conclusions for research objective 5 were drawn by examining the qualitative and quantitative results as a holistic body of evidence, as recommended by Bazeley (2009) and R. K. Yin (2006) for mixed methods research. These findings are reported in Section 6.2 of Chapter 6 and discussed in 7.1.5 of Chapter 7.

This section (Section 4.6, with sub-sections 4.6.1 to 4.6.6) has detailed the data analyses that were used to address the five research objectives of my study, showing how these analyses reflected the mixed methods design, interpretive paradigm, and social constructivist epistemology of the study. The next section (Section 4.7) now discusses the quality considerations that informed my study.

4.7 Quality Considerations

This section details the quality criteria that were used to underpin the study. Although various quality criteria for mixed methods research have been proposed, these often reflect a post-positivist worldview in which qualitative and quantitative data are used to develop a single, definitive, and generalisable understanding of the research topic (see, for example, Howe, 2012; Torrance, 2012). In contrast, quality criteria for my study needed to reflect the interpretivist research paradigm and the social constructivist epistemology that informed the collection and analysis of both quantitative and qualitative data in the study (see Section 1.2 of Chapter 1 and Section 4.2 of this chapter).

The work of Willis (2007) and Creswell and Miller (2000) was used to inform the selection of appropriate quality criteria for my study. Willis (2007) has proposed six techniques through which interpretivist researchers can "conduct research in such a way that the consumer has some confidence in what you say" (Willis, 2007, p. 220): member checks, participatory research methods, extended experience in the

environment, peer review, researcher journaling, and audit trails. On the other hand, Creswell and Miller (2000) have classified nine common "validity procedures" (p. 126) according to the paradigm that they each reflect, concluding that the three most appropriate approaches for studies involving a constructivist perspective are the use of disconfirming evidence, prolonged engagement in the field, and thick, rich qualitative description. Table 4.7 shows how the quality criteria identified by Willis (2007) and Creswell and Miller (2000) were reflected in my study, with the exception of participatory research methods, which were not considered appropriate in the Abu Dhabi context.

This section (Section 4.7) has identified the quality criteria that were used in my study and described how these were addressed. The next section (Section 4.8) discusses ethical considerations.

4.8 Ethical Considerations

This section reports on the ethical considerations that were pertinent to my study. Considerations relating to permissions, informed consent, and accuracy and confidentiality are reported in Section 4.8.1. Additional considerations arising from the cross-cultural nature of the study are discussed in Section 4.8.2. Finally, the overall cost/benefit ratio for the study, given all of these considerations, is assessed in Section 4.8.3.

4.8.1 Permissions, Informed Consent, and Confidentiality

Ethics approval for my study was obtained from Curtin University's Human Research Ethics Committee. This approval was updated when the scope of the study increased (due to the conversion of my research and enrolment from MPhil to PhD level), and progress and compliance updates were submitted as required. Copies of these ethics approvals are provided in Appendix 18.

Permission to conduct the study was also obtained from the ADEC research office. As was standard practice for that office at the time, this permission took the form of

Table 4.7. Alignment of my study with the quality considerations for interpretivist and constructivist research identified by Willis (2007) and Creswell and Miller (2000)

Research consideration	Recommended by Willis (2007) for interpretivist research	Paradigm classification by Creswell and Miller (2000)	Incorporation in my study
Extended experience in the research environment	Yes	Constructivist	I lived in Abu Dhabi and worked in Abu Dhabi public schools from 2009 to 2015, giving me extended, in-depth experience in the research environment.
Member checks	Yes	Post-positivist	Teachers were given the opportunity to review their interview transcripts (see Section 4.5.1). One teacher reviewed and contributed to the synthesis of the professional development categories (see Section 4.6.1.2). (Similar member checking was not carried out for the results of subsequent data analyses as these were not completed until after I left Abu Dhabi.)
Participatory research	Yes	Critical	(Not incorporated)
Peer review	Yes	Critical	The contributions of my research supervisor throughout the study provided one form of peer review. Four conference presentations related to the study allowed me to receive peer feedback from educational researchers (both Arab and Western) in New Zealand, Australia, and Abu Dhabi (McChesney, 2015, 2016; McChesney & Aldridge, 2015a, 2015b).
Researcher journaling	Yes	Critical	Memos were used to record research methods, decisions, thoughts during data collection, and the emerging data analysis. This was particularly important for the grounded theory investigation of additional factors affecting teachers' experiences of professional development (see Section 4.6.5).

Research consideration	Recommended by Willis (2007) for interpretivist research	Paradigm classification by Creswell and Miller (2000)	Incorporation in my study
Audit trails	Yes	Post-positivist	In addition to research memos (above), other documentation including emails, analysis spreadsheets, and thesis drafts was regularly saved and backed up, with new versions being created each time a document was modified to ensure past versions remained available for review. Raw data—including hard copy questionnaires, data spreadsheets, interview notes, interview audio recordings, and interview transcripts, and signed consent forms–were retained and stored in accordance with Curtin University data management policies. Anonymised individual teacher codes were used within the presentation of results (see Chapters 5 and 6) to demonstrate the way that the conclusions are grounded in the qualitative data.
Disconfirming evidence		Constructivist	Data analysis (particularly qualitative) included deliberate searching for disconfirming evidence. Examples of disconfirming evidence are reported in the presentation of results (Chapters 5 and 6).
Thick, rich description		Constructivist	Extended description of the Abu Dhabi context is provided in Chapter 1 to support interpretation of the results and determination of the transferability of findings to other contexts. Direct quotations from teachers are used throughout the presentation of results (Chapters 5 and 6), and the reporting of the grounded theory results (Section 6.1 of Chapter 6) is particularly detailed.

an email sent to principals directing them to cooperate with my study. A copy of this permission email is provided in Appendix 19.

Informed consent has been described as “the bedrock of ethical procedure” (L. Cohen et al., 2007, p. 51) and involves participants “choos[ing] whether to participate in an investigation after being informed of facts that would be likely to influence their decision” (Diener & Crandall, 1978, p. 34). To ensure that teachers were able to give informed consent before participating in my study, all of the teachers who were invited to complete the main survey were provided with a bilingual (English and Arabic) information sheet. This sheet, available in Appendix 20, explained the purpose of the study; notified teachers that their participation was voluntary and anonymous; and stated that completion of the survey would be taken to mean that they consented to their involvement in the study.

Similar processes were followed to obtain informed consent for the interviews and interviewee survey. All teachers were provided with an information sheet, available in Appendix 21, which explained the purpose of the study, notified teachers that their participation was voluntary and confidential, informed them that they could withdraw from the study at any time, and stated that the interview process included completion of a written survey. After teachers had read the information sheet, their written consent was obtained before interviewing commenced. A copy of the consent form is provided in Appendix 22.

Some interviews were conducted at school sites. In these cases, school principals were also given an information letter (provided in Appendix 23), and their written consent was obtained (using the form provided in Appendix 24) for the school visit and teacher interviews.

To ensure confidentiality, the interview transcripts and the questionnaires from both the main survey and the interviewee survey were assigned anonymous codes, which were stored separately from the data. This ensured that participants and their schools could not be identified during translation or data entry. Assurances of confidentiality were obtained from those involved in translation and data entry before data was

provided to them. Apart from the data entry personnel, only my research supervisor and I had access to the questionnaires, interview transcripts, and electronic data.

4.8.2 Cross-Cultural Research Considerations

Unique ethical considerations arise when conducting research cross-culturally, as in the case of my study (L. Cohen et al., 2007). Cultural issues can jeopardise the validity of research and, therefore, need to be carefully considered at all stages of such a study. My own cultural background as a Pākehā (white) New Zealander meant that for the purpose of this study, I was primarily engaged in cross-cultural research when working with Arab (rather than Western) teachers.

Drawing on personal communications with Joy (2003), L. Cohen et al. (2007, p. 139) report twelve considerations that are intended "to ensure that research is culture-fair and culturally sensitive". These considerations address a broad range of features of a research study, including the purpose, researcher, participants, theoretical foundations, methods, beneficence, and communication during and following the research. As shown in Table 4.8, the majority of the twelve cultural considerations reported by L. Cohen et al. (2007) were addressed in the planning, execution, and reporting of my study. Those considerations that were not able to be fully addressed are identified in the table, with associated reasons provided. Overall, I hope that my research has been conducted in a way that was respectful towards and appropriate for the context and the participants involved.

4.8.3 Costs/Benefits Ratio for the Study

As a final ethical consideration, the overall costs/benefits ratio for my study was examined. A costs/benefits ratio is a means of comparing the "likely social benefits of [a research study] against the personal costs to the individuals taking part" (L. Cohen et al., 2007, p. 52); it is also referred to as the "beneficence" (Creswell, 2008, p. 158) of a study.

In terms of the potential costs, the use of teacher questionnaires and teacher interviews for data collection meant that participating in the study did not involve

Table 4.8. Alignment of my study with the twelve considerations for cross-cultural research reported by L. Cohen et al. (2007)

Research consideration	Incorporation in my study
1. Understandability and importance of the research question to the target group	The purpose of the study was communicated to all participants through the information sheets described in Section 4.8.1. This purpose was considered to be important to Abu Dhabi teachers as professional development is a mandatory and substantial element of their work.
2. Appropriateness of the researcher to conduct the research	I lived in Abu Dhabi and worked in the ADEC education system for five years before beginning data collection. This meant that I had extensive contextual understanding and had developed effective strategies for building working relationships with Arab teachers. As a result of my work across a number of schools, as well as the collectivist, family network-oriented nature of Arab society (see Chapter 3), I and my work were known 'by association' to many teachers in the ADEC system. This gave me a degree of 'insider' status, an important consideration for earning the respect of research participants from high-context Arab cultures.
3. Appropriateness of the theories underpinning the research for the target culture	This was not known *a priori* but, rather, contributed to the selection of the research topic and objectives. As such, I conducted the study with a sense of 'suspended judgement'. It was hoped that the contributions of my study in this area could help inform the cultural appropriateness of future research. The expert panel review during the development of the main survey supported the appropriateness for the Abu Dhabi context of the theoretical frameworks that had been drawn from the existing, Western professional development literature.
4. Treatment of issues related to the research question by researchers in the target culture AND 5. Ethical alignment and suitability of the research design and instruments according to the standards of the target culture	The suitability of the design and theorisation of my study for the target culture was reviewed by the ADEC research office as part of the rigorous application process associated with obtaining their approval to conduct the study. This office is headed by a leading Emirati researcher, Professor Masood Badri[30]. The work of Emirati educational researchers also provided specific support for the design of my study as follows: • The use of surveys (including online surveys) and quantitative approaches (including factor analysis, ANOVA, and correlation analysis) is strongly supported by the educational research conducted by Professor Badri and the other staff of the ADEC Research Office. • The use of mixed methods (including focus group interviews and quantitative surveys), thematic analysis, and the integration of descriptive statistics with direct quotes from teachers in communicating findings were all supported by Emirati researcher Al Hassani's (2012) investigation of ADEC teachers' perceptions of professional development within an earlier professional development programme in Abu Dhabi public schools.

[30] For further information about the ADEC research office and Professor Badri, see https://www.adec.ac.ae/en/AboutADEC/Pages/ExecutiveManagement.aspx (Office of Research and Planning) and https://www.adec.ac.ae/en/ResearchDevelopment/Pages/PresentationAndResearch.aspx.

Research consideration	Incorporation in my study
6. Appropriateness of gatekeepers and informants[31]	Teachers with whom I had previously worked and subject advisors working across ADEC schools helped to promote participation in the main survey and to identify and approach potential interview participants. Their insider status and broad networks made these individuals appropriate gatekeepers for my study. For the main survey, the two-stage sampling process (described in Section 4.3.2) was intended to recruit appropriate informants both through including any teachers who wished to share their views and through constructing a representative sample. For the interviews and interviewee survey, participating teachers served as both informants and gatekeepers: During interviews, the participating teachers were asked to suggest either areas of the sample space that needed to be incorporated or individual teachers who might be suitable for inclusion in the sample.
7. Interpretation of the salient terms of the research by members of the target culture	All interview participants were asked to describe what teacher professional development meant to them. It was considered that if there were substantial differences in teachers' understanding of this concept, the interview data would reveal this and allow informed interpretation of other data, such as the responses to the main survey. The prior study by Al Hassani (2012) and my knowledge of ADEC policy around professional development contributed further to my understanding of how Arab teachers were likely to understand professional development.
8. Cultural appropriateness of translation of documents and other information	Back-translation, with the selection of appropriate personnel to conduct translation, was selected as the most appropriate technique for my study, as detailed in Section 4.4.3.
9. Potential value and benefit of the possible results of the research to the target culture	The potential significance of the research, both to the participants themselves and to ADEC teachers more generally, was detailed in Section 1.4 of Chapter 1; the costs/benefits ratio for the study was considered in Section 4.8.3. Overall, the emphasis on teacher professional development within the ADEC reform meant that there was potential for the results of my study to influence an important aspect of teachers' working lives.

[31] Gatekeepers are those who control or facilitate a researcher's access to participants and research sites (L. Cohen et al., 2007). Informants are those who contribute data to the research.

Research consideration	Incorporation in my study
10. Incorporation of the opinions and views of members of the target culture in the interpretation of results AND 11. Availability of the results to members of the target culture for review and comment	By the time that data analysis occurred, I had left Abu Dhabi and returned to New Zealand. This meant that it was not possible to consult with members of the target culture about the emerging results. However, in this thesis, care has been taken to incorporate direct quotes from teachers, including fair representation of Arab teachers, in an attempt to ensure that the reporting accurately reflected their views. After this thesis is examined, a summary of the results of the study will be provided to ADEC (as required as part of their approval for the study) to be placed on the ADEC website along with other similar reports. The entire thesis will also be made publicly available via Curtin University's online research repository. In these ways, the results of the study will be available to interested participants and other stakeholders.
12. Accurate and fair communication of the results within their original cultural context	Within this thesis, it was considered of primary importance to provide ample background and contextual information about the UAE, the ADEC reform project, and the nature of Arab cultures. This information was provided in Chapters 1 and 3 and used to inform the discussion and interpretation of results in Chapter 7. At all times, my intention has been to communicate respectfully, reporting cultural differences without making value judgements.

any disruption to teaching and learning. The main survey required only a small commitment of time on the part of teachers; however, the interviews were of longer duration, so it is acknowledged that participating in the study involved a greater time cost for interview participants. The anonymity and confidentiality of data (see Section 4.8.1) protected teachers from any potential negative consequences of speaking honestly about their experiences. The steps taken to ensure the cultural validity of the study were also intended to protect participants against social or emotional costs (see Section 4.8.2).

In terms of the potential benefits, my study investigated an important topic for teachers, and many of the teachers who participated expressed their appreciation at being offered an opportunity to express their opinions in a safe but potentially significant context. Further, I hoped that the findings of the study would contribute to improvements in ongoing professional development practice in Abu Dhabi public schools through the identification of practices that could be either replicated or modified.

Overall, therefore, the costs/benefits ratio for participating teachers and schools was considered to be acceptable. Relatively minimal costs for participants were offset by the potential benefits for participants themselves as well as for the wider body of ADEC public school teachers and the ADEC reform effort as a whole.

4.9 Chapter Summary

This chapter has provided a detailed account of the methods that were used in my study to investigate the five research objectives defined in Section 1.3 of Chapter 1. Because of the unique and under-researched context of the study, a triangulation mixed methods design was selected (as described in Section 4.2) in order to maximise the usefulness of the contribution made by the study.

Data were collected for the study in three ways (summarised in Table 4.1 on page 102): (a) through a broad, main survey of teachers with a large sample size (786 responses from $N = 393$ teachers, including qualitative comments from $n = 96$ teachers); (b) through a series of in-depth, semi-structured teacher interviews ($N = 35$

teachers); and (c) through a quantitative interviewee survey (297 responses from N = 35 teachers). The composition of the sample space and the samples obtained for each data collection technique were detailed in Section 4.3. The development and administration of the main survey were described in Section 4.4, and the development and use of the interview protocol and interviewee survey were described in Section 4.5.

The data analyses used in the study were reported in Section 4.6. For research objectives 2, 3, and 5, qualitative and quantitative data were integrated in order to reflect a true mixed methods design, as recommended by Bazeley (2009) and R. K. Yin (2006).

The quality criteria used throughout the study were defined in Section 4.7. Based on the recommendations of Willis (2007) and Creswell and Miller (2000) for interpretivist and constructivist research, a number of techniques were employed to maximise the quality and accuracy of the results obtained in my study.

Finally, the ethical considerations relevant to the study were reported in Section 4.8. In addition to those considerations that are typical of many educational research studies (namely, permissions, informed consent, accuracy and confidentiality, and the costs/benefits ratio), ethical considerations for my study also included twelve factors that are particular to cross-cultural research.

The remaining chapters of this thesis present (Chapters 5 and 6) and then discuss and interpret (Chapter 7) the results and findings of the study. As such, Chapters 5, 6, and 7 are based on the implementation of the methods described in the current chapter and are informed by the context of the study (as described in Chapter 1) and the reviews of literature provided in Chapters 2 and 3.

Chapter 5

RESULTS – PART ONE

This chapter and the following chapter report the results that were obtained in my study using the methods described in Chapter 4. This chapter presents the results for the first three research objectives, and Chapter 6 presents the results for the remaining two objectives.

In this chapter, Section 5.1 provides evidence to support the validity of the new questionnaire that was developed to examine teachers' perceptions of the impact of professional development (research objective 1). Section 5.2 describes teachers' perceptions of the design and impact of the professional development that teachers had experienced in Abu Dhabi public schools (research objective 2); these results are then extended in Section 5.3, which examines the relationships between the design and impact of professional development (research objective 3). Section 5.4 then provides a summary of these findings.

Because my study involved two surveys (in addition to the teacher interviews; see Table 4.1 on page 102), it is important to recognise the different focuses and levels of detail that each survey provided. The main survey ($N = 393$ teachers) examined teachers' perceptions of the impact of two broad categories of professional development: whole-school and subject-specific. With its larger sample size, the main survey afforded statistical analysis of the validity of the questionnaire (research objective 1; see Section 5.1) and the differences between Arab and Western teachers' perceptions of professional development (research objective 5; see Section 6.2 of Chapter 6). The interviewee survey ($N = 35$ teachers), on the other hand, provided finer-grained information about specific professional development activities: Teachers responded to the interviewee survey separately for each form of professional development that they had experienced during the 2013–2014 academic year, and these activities were synthesised into 11 professional development categories (reported in Section 5.2.1) for the purpose of data analysis. The interviewee survey examined both the design and the impact of these professional development activities, thus contributing to research objectives 2 (see Section 5.2), 3

(see Section 5.3), and 5 (see Section 6.2 of Chapter 6). The main survey and the interviewee survey were, therefore, complementary data sources.

5.1 Validity and Reliability of the New Questionnaire

The first research objective was to develop and validate a questionnaire to examine teachers' perceptions of the impact of professional development. Whereas Section 4.4 of Chapter 4 described the development of the questionnaire, this section reports its validation, drawing on the quantitative main survey data (two data sets, representing whole-school and subject-specific professional development; $N = 393$ teachers). Section 5.1.1 reports the item analysis and factor structure, and Section 5.1.2 describes the revised questionnaire. Using this revised version of the questionnaire, Section 5.1.3 reports the internal consistency of the scales, and Section 5.1.4 reports the ability of the questionnaire to differentiate between groups of teachers.

5.1.1 Factor Structure

Item and factor analyses were carried out separately for the two main survey data sets, which related to whole-school and subject-specific professional development. Principal components factor analysis with oblique rotation led to a refined four-factor structure (reported in Table 5.1) that was confirmed for both data sets.

Item analysis indicated that two items—item 9, from the organisational change scale, and item 12, from the organisational support scale—did not meet the criteria for retention, so these items were omitted from all further analysis. The remaining items from these two scales (items 10 and 11) loaded on the same factor. Given that these items both related to the way in which the organisation—that is, the school and education system—responded to the professional development, a decision was made to keep these two items and to name the new scale *Organisational response*.

In two cases, the items of two scales loaded onto a single factor (confirmed in each data set). This was the case for (a) the items for teacher reaction (satisfaction) and teacher reaction (usefulness), and (b) the items for classroom implementation and

Table 5.1. Factor structure and percentage of variance explained for the new questionnaire

Item	Factor loading							
	Teacher reaction		Teacher learning		Outcomes		Organisational response	
	Subject-specific	Whole-school	Subject-specific	Whole-school	Subject-specific	Whole-school	Subject-specific	Whole-school
1	0.97	0.98						
2	0.89	0.84						
3	0.69	0.59						
4	0.67	0.64						
5			0.57	0.91				
6	0.41		0.49	0.90				
7					0.74	0.84		
8					0.74	0.97		
13					0.94	0.40		
14					0.85	0.44		
10							0.48	0.41
11							0.99	1.01
% variance	71.41	72.15	3.71	3.65	4.23	4.51	6.49	5.59

N = 393 teachers.

Loadings less than 0.40 omitted.

The item numbering shown reflects the draft instrument used in the trial study.

student learning. For the first two scales (satisfaction and usefulness), all of the items were related to teachers' reactions to professional development. Given this overlap between the item content and the fact that Guskey's (2000) framework defines participants' reactions as a single level of evaluation, a decision was made to keep the items and to rename the combined scale *Teacher reaction*. The new, four-item scale assessed teachers' reactions to professional development in terms of their satisfaction and their perceptions of the usefulness of the professional development.

For the second two scales that loaded together (classroom implementation and student learning), the results of the factor analysis did not align with the theoretical frameworks for evaluating teacher professional development that underpinned my study (see Section 2.5 of Chapter 2). Both of the theoretical frameworks suggested that these two scales represent distinct constructs, separately describing teacher practice and student outcomes: Desimone (2009) calls the two constructs (a) change in instruction and (b) improved student learning, and Guskey (2000) uses the terms

(a) participants' use of new knowledge and skills and (b) student learning outcomes. However, given that for both data sets, the items loaded on a single factor at above 0.40 and loaded below 0.40 for all other factors, a decision was made to retain the four items as a single scale, renamed *Outcomes*, which assessed outcomes of professional development in terms of both teachers' classroom practice and students' learning.

For both data sets (whole-school and subject-specific professional development), all but one of the remaining items loaded at 0.40 or above on their own scale and below 0.40 on all other scales. The exception was item 6 from the teacher learning scale, which loaded above 0.40 for both its own and the teacher reaction scales for data related to the subject-specific professional development. Given the importance placed on teacher learning in the theoretical structure of both Desimone's (2009) and Guskey's (2000) frameworks, the high loading of this item on its own scale for both data sets, and the fact that this item met the criteria for retention based on the whole-school data set, a decision was made to keep this item.

In summary, the four scales identified through item and factor analysis were teacher reaction, teacher learning, outcomes, and organisational response. This refined four-factor structure explained 86% of the variance in both the whole-school and the subject-specific professional development data, exceeding Hair, Black, Babin, and Anderson's (2014) recommendation that an acceptable factor analysis solution should account for at least 60% of the total variance in the data.

5.1.2 Refined Questionnaire

Given the findings outlined above, the questionnaire was refined to include 12 items in four scales. The resulting instrument, named the *Impact of Teacher Professional Development (ITPD) Questionnaire*, is shown in Table 5.2; the Arabic version is provided in Appendix 25.

To examine the literature alignment of the questionnaire, its scale structure was mapped against the two literature frameworks for evaluating teacher professional

Table 5.2 The Impact of Teacher Professional Development (ITPD) Questionnaire

No.	Item	Scale
1	I have positive memories of this professional development.	Teacher reaction
2	I enjoyed this professional development very much.	
3	This professional development has been very beneficial to my teaching.	
4	Participating in this kind of professional development is very useful for my teaching.	
5	As a result of this professional development, I know substantially more than I did before.	Teacher learning
6	I have learned a lot of new things from this professional development.	
7	In my daily classroom practice, I often apply what I learned from this professional development.	Outcomes
8	I successfully apply the content of this professional development in my daily classroom practice.	
9	As a result of this professional development, my students' learning has improved.	
10	My students have benefited from me receiving this professional development.	
11	Overall, the culture and procedures in my school have improved due to this professional development.	Organisational response
12	My school encouraged and supported teachers in implementing what they learned from this professional development.	

All items are measured using a five-point response scale: (1) *Strongly Disagree*, (2) *Disagree*, (3) *Neutral*, (4) *Agree*, (5) *Strongly Agree*.

development that underpinned the study (Desimone, 2009; Guskey, 2000), indicating that:

- The first scale of the ITPD Questionnaire, teacher reaction, aligned to Guskey's first level of evaluation (participants' reactions);
- The second scale, teacher learning, aligned to Guskey's second level (participants' learning) and Desimone's second stage (increased teacher knowledge and skills);
- The third scale, outcomes, combined Guskey's fourth and fifth levels (participants' use of new knowledge and skills; student learning outcomes) and Desimone's third and fourth stages (change in instruction; improved student learning); and

- The final scale, organisational response, aligned to Guskey's third level (organisational support and change).

The alignment of the scales of the ITPD Questionnaire to the original Q4TE instrument as well as to the theoretical frameworks for evaluating teacher professional development is summarised in Table 5.3.

Table 5.3. Scale structure and literature alignment for the ITPD Questionnaire

Original Q4TE scale	ITPD Questionnaire scale	Alignment to theoretical frameworks for evaluating teacher professional development	
		Desimone (2009)	Guskey (2000)
Reaction / satisfaction AND Reaction / utility	Teacher reaction	—	Participants' reactions
Learning / knowledge	Teacher learning	Increased teacher knowledge and skills	Participants' learning
Behaviour / application to practice	Outcomes	Change in instruction Student learning	Participants' use of new knowledge and skills AND Student learning outcomes
Organisational results / global	Organisational response	—	Organisational support and change

5.1.3 Internal Consistency

Using the four-factor solution described above, the internal consistency (Cronbach's alpha coefficient) was calculated for each scale of the ITPD Questionnaire. For both data sets (whole-school and subject-specific professional development), the results (reported in Table 5.4) were similar. For both types of professional development, the internal consistency reliability for three of the four scales (teacher reaction, teacher

learning, and outcomes) was above .90. The internal consistency reliability for the remaining scale (organisational response) was .78 for the whole-school professional development and .76 for the subject-specific professional development. Using the criteria suggested by L. Cohen et al. (2007, p. 506), these results indicate that the organisational response scale was "reliable", and the other three scales were "very highly reliable".

Table 5.4. Internal consistency (Cronbach's alpha coefficient) and ability to differentiate between groups of teachers for the ITPD Questionnaire

Scale	Professional development type	Internal consistency (Cronbach's alpha)	ANOVA (eta^2)		
			Nationality	Subject	Years of experience
Teacher reaction	Subject-specific	.94	.04	.01	.02
	Whole-school	.94	.23**	.03**	.05**
Teacher learning	Subject-specific	.92	.05	.00	.02
	Whole-school	.93	.24**	.02*	.04*
Outcomes	Subject-specific	.92	.05	.00	.02
	Whole-school	.93	.21**	.03**	.08**
Organisational response	Subject-specific	.78	.09**	.01	.02
	Whole-school	.76	.18**	.02*	.06**

** $p < .01$; * $p < .05$

N = 393 teachers.

5.1.4 Ability to Differentiate between Groups

Separate ANOVAs were performed to examine whether the scales of the ITPD Questionnaire could distinguish between the views of teachers (a) of different nationalities, (b) of different subject areas, and (c) with different lengths of teaching experience. It was expected that teachers in different subgroups would have different perceptions of the same professional development as a result of differing cultural expectations and norms for teaching, learning, and professional development; the unique needs of individual subject areas; and the professional learning that teachers

had already experienced in their prior careers. The eta^2 statistic (an effect size measure calculated as the ratio of 'between' to 'total' sums of squares) was used to represent the proportion of variance explained by the independent variables (teachers' nationalities, subject areas, or number of years' teaching experience). Each ANOVA, therefore, provided estimates of the strength of the associations between an independent variable and the scales of the ITPD Questionnaire.

For the whole school professional development, the ANOVA results (reported in Table 5.4) showed statistically significant ($p < .05$) differences for all of the groups of teachers and for all scales. The eta^2 values ranged from .18 to .24 for differences between nationalities; from .02 to .03 for differences by subject area; and from .04 to .08 for differences by years of experience.

For the subject-specific professional development, only one statistically significant difference was observed, this being for the responses of teachers from different nationalities to the organisational response scale ($eta^2 = .09$, $p < .01$). For all other scales across the three ANOVAs that used the subject-specific data, no significant differences were detected.

The eta^2 values that were statistically significant confirmed that there were (to a measurable extent) differences between the responses of different groups of teachers. More importantly, in terms of research objective 1, the statistically significant results indicated that the ITPD Questionnaire was able to detect these differences, providing further evidence of the validity of the questionnaire.

Section 5.1 (with sub-sections 5.1.1 to 5.1.4) has reported the results for the first research objective: the development and validation of the new questionnaire. Overall, the factor analysis, internal consistency, and ANOVA results indicated that the data collected using the ITPD Questionnaire in both the main survey and the interviewee survey could be considered valid and reliable for the purpose of my study. The next section (Section 5.2) reports the results for the second research objective.

5.2 The Design and Impact of the Professional Development Experienced by Teachers in the Study

The second research objective was to examine teachers' perceptions of the design and the impact of the professional development that they had experienced in Abu Dhabi public schools. First, the qualitative interview data were used to establish a comprehensive picture of the range of professional development activities that teachers had experienced; this information is reported in Section 5.2.1, along with the grouping of the distinct professional development activities into 11 categories for the purpose of subsequent analysis. Next, using data from the interviews (qualitative) and interviewee survey (quantitative), teachers' perceptions of the design (reported in Section 5.2.2) and impact (Section 5.2.3) of each of these 11 categories of professional development were examined.

5.2.1 The Types of Professional Development Experienced by Teachers

During the interviews, teachers identified all of the professional development activities that they had participated in during the 2013–2014 academic year. The 35 teachers who were interviewed each reported participating in between 6 and 13 different forms of professional development. These raw descriptions (in teachers' own words) of professional development activities were synthesised into 11 categories of professional development using thematic analysis, as detailed in Section 4.6.1.2 of Chapter 4. The 11 categories are listed in Table 5.5, along with a brief description of each category and the number of teachers within the interviewee survey sample of 35 teachers who reported participating in that category. Appendix 26 provides further details of the specific activities that were grouped into each of the 11 categories.

The most widespread categories of professional development were system-wide generic professional development (35 teachers, 100%), formal lesson observation (34 teachers, 97%), and receiving support from subject advisors (33 teachers, 94%). On the other hand, three categories were reported by less than half of the teachers interviewed: engaging with exemplars and resources (14 teachers, 40%), study and research (11 teachers / 31%), and mentoring others (7 teachers, 20%).

Table 5.5. The 11 professional development categories identified from the interview data and used for analysis of the interview and interviewee survey data

Professional development category	Description	Teachers participating (of *N* = 35 teachers)
System-wide generic professional development	System-wide, non-subject-specific professional development activities organised by ADEC (including the *Tamkeen* programme described in Chapter 1)	35 (100%)
Formal lesson observation	Teachers' lessons being observed by senior school staff (with or without feedback from the observer to the teacher).	34 (97%)
Support from a subject advisor	Subject-specific advice, guidance, coaching, and support provided to teachers by visiting subject advisors.	33 (94%)
Formal department activities	Meetings and training sessions involving teachers within a subject department at a school.	31 (89%)
Peer lesson observation	Teachers observing each other's lessons (with or without feedback from the observer to the teacher).	30 (86%)
School activities	Activities initiated by and based within individual schools (such as staff meetings, school committees, and interactions between teachers and school administrators).	30 (86%)
Informal interactions with colleagues	Teachers' informal collaboration and communication with their peers.	27 (77%)
ADEC subject-specific professional development	System-wide, subject-specific professional development activities organised by ADEC.	22 (63%)
Engaging with exemplars and resources	Teachers' engagement with classroom-ready exemplars or resources (including ADEC-supplied material, teacher-to-teacher sharing, and online materials).	14 (40%)
Study and research	Teachers' engagement in formal courses of study or research projects.	11 (31%)
Mentoring others	Teachers' involvement in mentoring other staff (typically new teachers).	7 (20%)

5.2.2 The Design of Professional Development

Quantitative data from the interviewee survey (*N* = 35 teachers) were used to examine the extent to which the 11 professional development categories identified in Table 5.5 reflected five literature-based features of high-quality professional

development design: content focus, active learning, coherence, duration, and collective participation (Desimone, 2009; see Section 2.3 of Chapter 2). Teachers responded to survey items that examined the degree to which each professional development activity reflected these design features. Using the teachers' responses, means, standard deviations, and 95% confidence intervals were calculated to examine the alignment of each of the 11 professional development categories with each of the five literature-based design features. An overall design effectiveness index, which aggregated the five design features, was also calculated for each professional development category, as detailed in Section 4.6 of Chapter 4. Qualitative data from the interviews (N = 35 teachers) and the main survey (n = 96 teachers) were then examined to identify explanations for the trends that were observed in the quantitative data. This section presents results related to the design of the 11 professional development categories, first in terms of the overall design effective index (Section 5.2.2.1) and then in terms of each individual design feature (Sections 5.2.2.2 to 5.2.2.6).

5.2.2.1 Overall Design Effectiveness Indices

Based on the quantitative interviewee survey data, an overall design effectiveness index—aggregating five design features—was calculated for each teacher's responses in relation to each of the 11 professional development categories identified in the previous section (see Table 5.5). The design effectiveness index had possible values ranging from 0 to 20, with higher scores indicating that professional development reflected the literature-based design features to a greater extent.

Figure 5.1 shows the design effectiveness indices for the 11 professional development categories, including the contributions of the five design features within each index and the mean total index (M) for each category. Figure 5.1 also shows the 95% confidence intervals for the mean total index scores, providing an indication of the reliability of these indices as estimates for the population scores. In Figure 5.1, as in all subsequent figures, the 11 professional development categories are presented in descending order according to the number of teachers who reported participating in each category (as reported in Table 5.5). For example, the system-wide generic professional development, in which 100% of the interviewed teachers reported

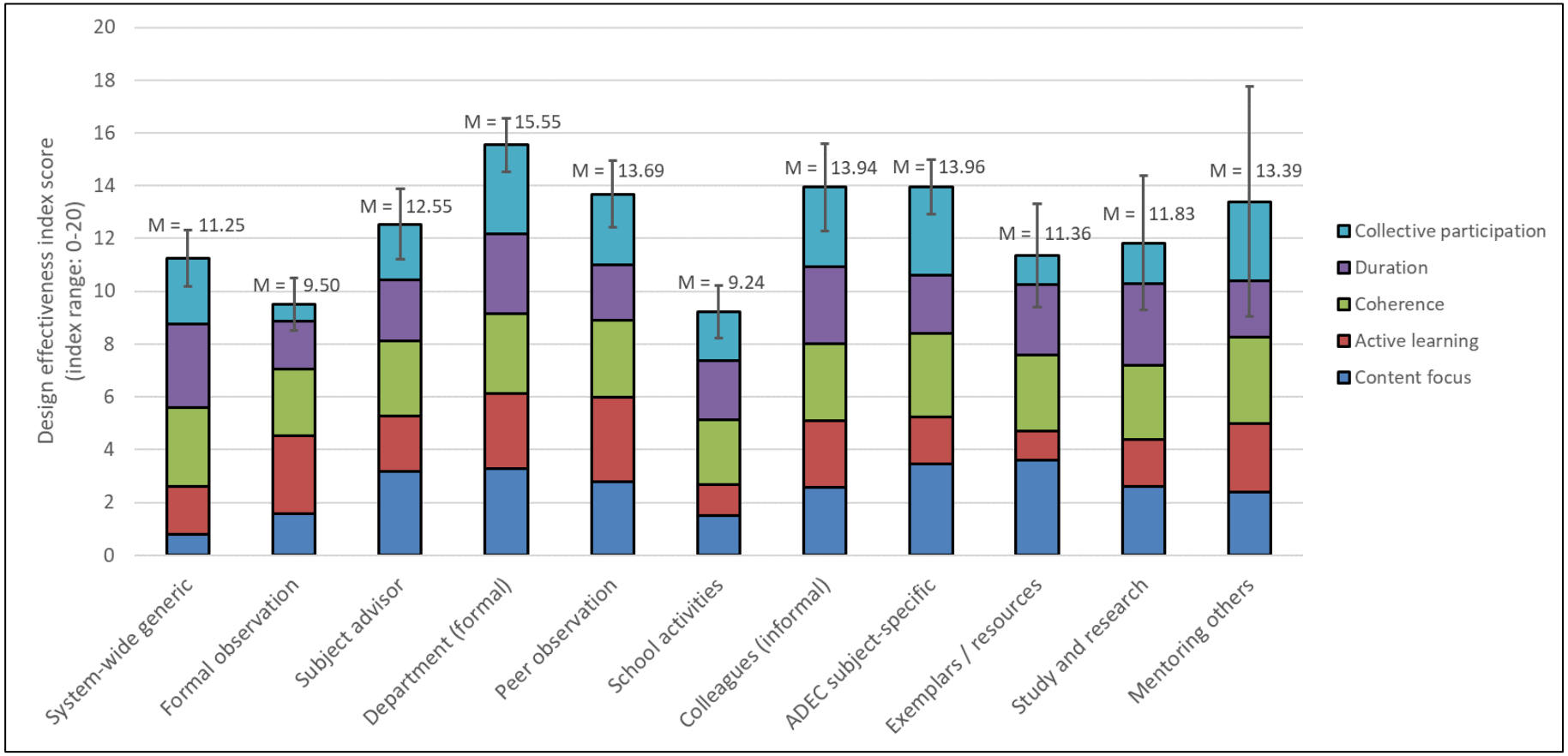

Figure 5.1. Mean overall design effectiveness indices (showing the contributions of the five design features) and 95% confidence intervals (for the overall indices) for 11 professional development categories

participating, appears at the far left of each figure, whereas mentoring others, in which only 20% of teachers reported participating, appears at the far right.

Within the design effectiveness index range of 0 to 20, the highest mean scores were reported for formal department activities (M = 15.55, SD = 2.75), informal interactions with colleagues (M = 13.94, SD = 4.68), and the ADEC subject-specific professional development (M = 13.96, SD = 2.99). This indicates that of the 11 professional development categories, these categories demonstrated the greatest alignment with the literature-based characteristics of effective professional development design. However, given that the maximum possible value of the index was 20, the results indicated that there was further scope for these professional development categories to be better aligned to the design features recommended in the literature.

The professional development categories that received the lowest mean design effectiveness indices were school activities (M = 9.24, SD = 3.43) and formal lesson observation (M = 9.50, SD = 2.79). These results indicate that of all the professional development occurring in Abu Dhabi public schools, formal lesson observation and school activities were the least closely aligned with the literature-based recommendations for effective professional development design.

The next five sub-sections report the results for each of the five design features that were examined, namely, content focus (Section 5.2.2.2), active learning (5.2.2.3), coherence (Section 5.2.2.4), duration (Section 5.2.2.5), and collective participation (Section 5.2.2.6).

5.2.2.2 Content Focus

The first design feature, content focus, examined the extent to which professional development had a subject-specific rather than a generic content focus. The results, reported in Figure 5.2, show that all but three of the 11 professional development categories had mean content focus scores above 3.0 (the midpoint of the 1 to 5 response scale). These scores indicate that teachers generally felt that professional development reflected a subject-specific content focus, in line with recommendations

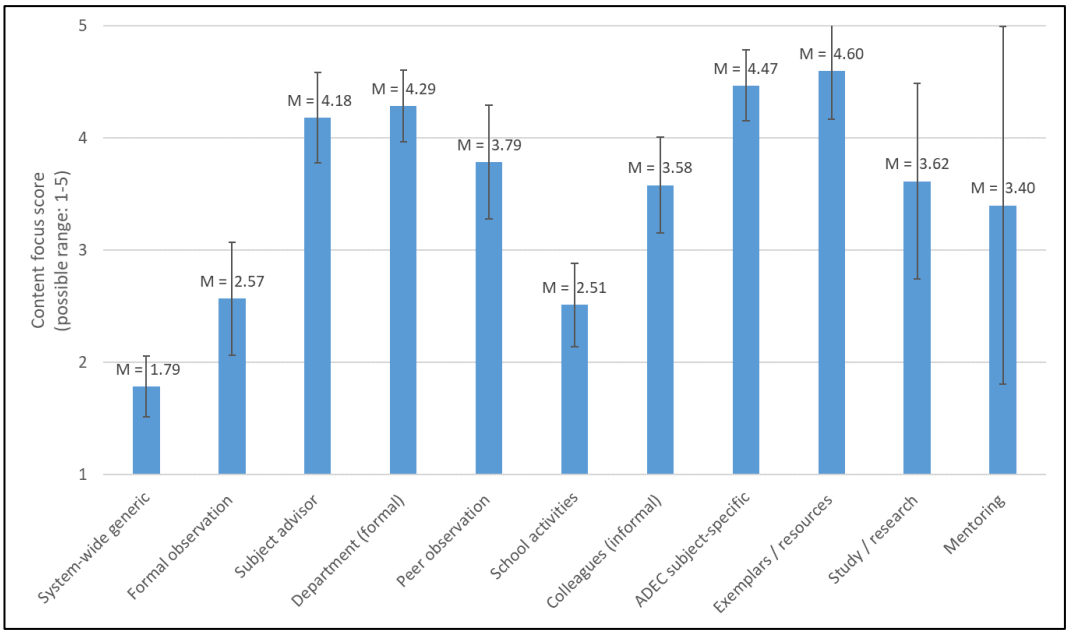

Figure 5.2. Mean content focus scores (with 95% confidence intervals) for 11 professional development categories

from the literature (see Section 2.3 of Chapter 2). The exceptions, with mean scores below 3.0, were the system-wide generic professional development, formal lesson observation, and school activities (discussed further below).

The professional development categories that were reported to have the strongest subject-specific focuses were engaging with exemplars and resources (M = 4.60, SD = 0.70), the ADEC subject-specific professional development (M = 4.47, SD = 0.92), and formal department activities (M = 4.29, SD = 0.85). These three categories also had some of the lowest standard deviations for this design feature, indicating that teachers consistently felt these forms of professional development reflected a subject-specific content focus. The high content focus scores for the exemplars and resources category were supported by teachers' qualitative accounts of accessing subject-specific materials from the ADEC staff web portal (Int-Ar-02[32], Int-Ar-14, Int-We-06, Int-We-07, Int-We-13, Int-We-14, Int-We-15) and searching

[32] As detailed in Section 4.6.3 of Chapter 4, codes such as this one are used to provide an audit trail for the qualitative results in Chapters 5 and 6. Each teacher's data was assigned a unique code. The first part of each code indicates whether the data came from an interview (Int) or from qualitative comments on the main survey (Ms). The second part of the code indicates whether the teacher was Arab (Ar) or Western (We).

online for teaching resources and lesson plans for their teaching subjects (Int-Ar-02, Int-Ar-14, Int-We-01). The high content focus scores for the ADEC subject-specific professional development and formal department activities made intuitive sense, given that these categories of professional development involved groups of teachers who all taught the same subject.

Teachers reported the lowest content focus scores for the system-wide generic professional development (*M* = 1.79, *SD* = 0.90). This result is not surprising, given that, as detailed in Section 1.1.5.1 of Chapter 1, the *Tamkeen* training, which formed a large component of the system-wide generic category, was designed to be generic rather than subject-specific so as to be suitable for whole-staff professional development.

Two further categories received relatively low content focus scores: formal lesson observation (*M* = 2.57, *SD* = 0.85) and school activities (*M* = 2.51, *SD* = 1.27). The qualitative data provided explanations for these results. For formal lesson observation, only one teacher reported receiving subject-specific feedback (Int-We-03). Five teachers (Int-Ar-01, Int-Ar-02, Int-Ar-14, Int-We-14, Int-We-15) reported receiving no feedback related to formal lesson observations, which may have led these teachers to give low assessments of the associated content focus. The remaining teachers reported that the feedback that they had received after formal lesson observations had focused on generic matters, such as wall displays (Int-We-01), whether the teacher had followed their written lesson plan (Int-We-03), behaviour management (Int-Ar-03, Int-We-05, Int-We-10), use of the whiteboard (Int-We-07), or the physical layout of the classroom (Int-We-07). One teacher (Int-Ar-03) noted that her school principal was not able to give subject-specific feedback because the principal was not a specialist in the teacher's subject area.

In terms of the low content focus scores for school activities, teachers described participating in two main types of school activities, both of which were generic. First, teachers attended whole-staff sessions that addressed generic topics such as health and safety (Int-Ar-03), using technology for teaching and learning (Int-Ar-09-

13[33], Int-Ar-15-19, Int-We-11, Int-We-12), differentiation (Int-We-01), lesson structure (Int-We-05, Int-We-11, Int-We-12), teacher performance appraisal (Int-Ar-09-13), co-teaching (Int-Ar-14), multiple intelligences (Int-We-13), or students with special educational needs (Int-Ar-01 Int-Ar-15-19). Second, committees of teachers representing a range of subject areas worked on generic goals such as environmental awareness (Int-Ar-02), a school-wide approach to improving students' literacy levels (Int-We-03, Int-We-06), or monitoring progress towards the school improvement plan (Int-We-07, Int-We-08).

Across the content focus scores for the 11 categories, the greatest variation was associated with mentoring others (M = 3.40, SD = 1.82) and study and research (M = 3.62, SD = 1.61), suggesting that the level of content focus associated with these categories of professional development may have varied between schools. For mentoring others, teachers' qualitative descriptions indicated that whereas some teachers had conducted subject-specific mentoring (Int-We-01, Int-We-03, Int-We-06, Int-We-08), other teachers had focused on helping supporting teachers with generic matters, such as learning about the context and systems at the school (Int-We-11, Int-We-12). Likewise, for study and research, whereas some teachers described their involvement in generic tertiary study or research projects (Int-We-02, Int-We-04), others described engaging in subject-specific study (Int-Ar-02, Int-We-01, Int-We-06), research (Int-We-03), or professional reading (Int-Ar-01). The large standard deviations, combined with the small numbers of teachers who participated in these two categories (reported in Table 5.5 on page 162), made the 95% confidence intervals for these categories particularly wide; as such, the results for these two categories should be interpreted with caution.

Overall, the results reported in this section indicated that the majority of the professional development that the teachers experienced had involved a subject-specific content focus, in line with the recommendations of the literature (as outlined in Section 2.3 of Chapter 2). It was noteworthy, however, that the two professional

[33] As detailed in Section 4.5.1 of Chapter 4, some teachers were interviewed in pairs or groups. In some of these cases, the individual teachers who made certain remarks were not able to be distinguished within the audio recordings of the interview. Teacher codes such as Int-Ar-09-13 reflect this situation; in this case, teachers Int-Ar-09, Int-Ar-10, Int-Ar-11, Int-Ar-12, and Int-Ar-13 participated in an interview together and reported attending whole-staff professional development on using technology for teaching and learning.

development categories that involved the largest numbers of teachers—namely, the system-wide generic professional development and formal lesson observation—did not reflect subject-specific content focuses. Although it may seem reasonable and is probably typical (across a range of contexts including but not limited to Abu Dhabi) for these two forms of professional development to have generic rather than subject-specific focuses, the literature-based recommendation is that teacher professional development be subject-specific (Desimone, 2009; Garet et al., 2001).

5.2.2.3 Active Learning

The second design feature, active learning, examined whether teachers participated actively in professional development activities, such as through lesson observation, planning lessons, reviewing student work samples, giving presentations, or leading discussions. The results, reported in Figure 5.3, show that six professional development categories received mean active learning scores above the neutral score of 3.0, indicating that teachers felt that they had primarily been active rather than passive participants in these professional development categories. These six categories were formal lesson observation ($M = 3.97$, $SD = 0.71$), support from subject advisors ($M = 3.09$, $SD = 1.04$), formal department activities ($M = 3.86$, $SD = 1.01$), peer lesson observation ($M = 4.21$, $SD = 0.74$), informal interactions with colleagues ($M = 3.52$, $SD = 1.29$), and mentoring others ($M = 3.60$, $SD = 1.67$). Formal and peer lesson observation also had the lowest standard deviations of the 11 categories, indicating that teachers consistently felt that these two categories of professional development involved active learning approaches. The consistent, high scores for these two categories are not surprising, given that one of the active learning survey items asked whether the professional development involved lesson observation.

The above-neutral mean scores for the subject advisor and mentoring categories were less conclusive as the confidence intervals for both of these categories included 3.0, indicating that we cannot say with 95% confidence that the population mean was, in fact, above 3.0. Teachers' qualitative accounts provided further insight into the nature of these two professional development categories. In terms of the support of subject advisors, some teachers described mostly passive forms of participation such

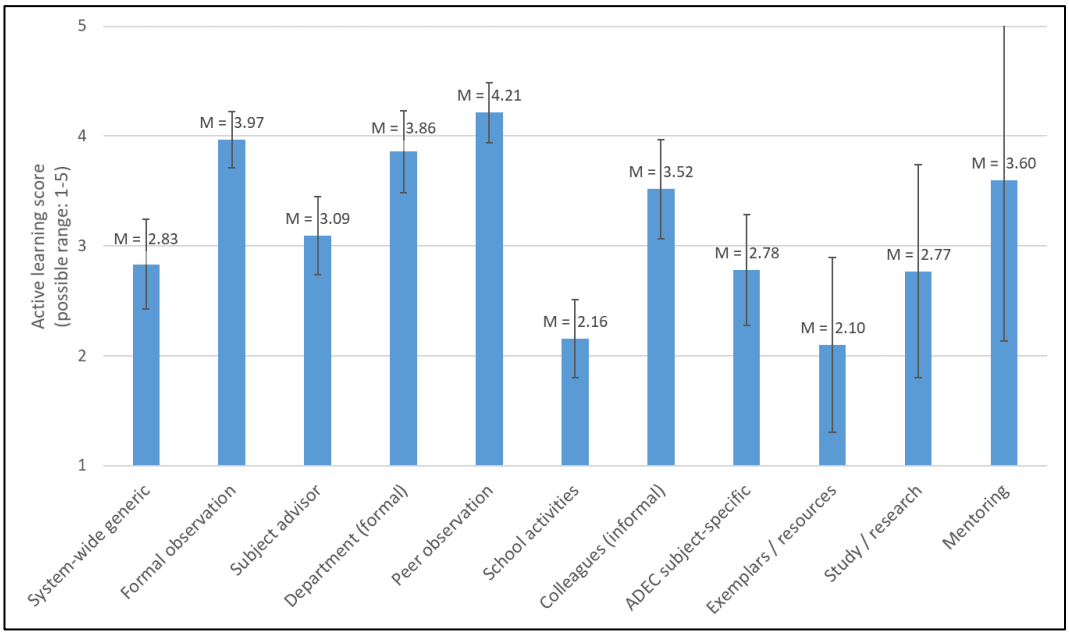

Figure 5.3. Mean active learning scores (with 95% confidence intervals) for 11 professional development categories

as attending lecture-style workshops (Int-Ar-01, Int-Ar-02), being provided with information or resources (Int-Ar-01, Int-Ar-03, Int-We-03, Int-We-11, Int-We-12), speaking with their advisor (Int-Ar-01, Int-Ar-03, Int-Ar-08), or being observed teaching for evaluative rather than formative purposes (Int-We-08, Int-We-16). Other teachers, however, engaged in more active forms of learning as they worked with their advisor, including formative lesson observation and feedback (Int-Ar-04-07, Int-Ar-14, Int-Ar-15-19, Int-We-05, Int-We-06), data analysis (Int-Ar-14), lesson planning (Int-We-06, Int-We-07), and interactive workshops (Int-Ar-04-07, Int-Ar-14, Int-We-06, Int-We-07, Int-We-14, Int-We-15). Likewise, in terms of mentoring others, one teacher reported taking a highly active role in leading a structured mentoring programme, holding weekly meetings in which she presented information and facilitated discussion on prescribed topics (Int-We-01), whereas other teachers described more passive involvement in less structured mentoring through casual, spontaneous discussions that occurred on an as-needed basis (Int-We-03, Int-We-06 Int-We-11, Int-We-12). As such, teachers' experiences of subject advisors and mentoring others differed in relation to the degree of active learning involved.

Five categories had mean active learning scores below 3.0, indicating that they involved primarily passive learning approaches. Of these, school activities (*M* = 2.16, *SD* = 1.21) and engaging with exemplars and resources (*M* = 2.10 and *SD* = 1.29) had the lowest mean scores. The qualitative accounts of school activities indicated that school-wide workshops and staff meetings were conducted in a traditional presentation style, meaning that teachers formed a passive audience (Int-Ar-01, Int-Ar-03, Int-Ar-15-19, Int-We-01, Int-We-05, Int-We-13). For example, one teacher recalled that when the principal held training sessions for the whole staff,

> That type of training would just be her talking at us for two hours; we didn't break up into groups and do anything … They were all just her talking … and even if it's new and interesting topics, no one's going to absorb that [because of the format]. (Int-We-01)

The qualitative accounts related to the exemplars and resources category mainly involved teachers reading existing materials, which was not considered to be a form of active learning (Int-Ar-02, Int-Ar-14, Int-We-01, Int-We-07, Int-We-13, Int-We-14, Int-We-15). However, the potential for more active engagement with exemplars and resources was illustrated by two teachers, who reported modifying the materials that they had located (Int-Ar-02) or using exemplar materials in their classroom practice (Int-We-06).

Of concern was the finding that the system-wide generic professional development (*M* = 2.83, *SD* = 1.36), which was the most widespread category of professional development reported by teachers, did not reflect the literature-based guidance in terms of active learning as the mean active learning score for this category was below 3.0. The qualitative accounts related to this category indicated that teachers' experiences of this professional development category varied. Some teachers had taken a particularly active role in the delivery of the *Tamkeen* sessions (Int-Ar-03, Int-Ar-04, Int-Ar-14, Int-We-11) and others reported the sessions being conducted in a highly hands-on manner (Int-We-08, Int-We-09, Int-We-10); however, other teachers indicated that in their schools, the *Tamkeen* sessions involved a transmissive, lecture format with little or no opportunity for active participation by teachers (Int-Ar-08, Int-We-05, Int-We-06, Int-We-14, Int-We-15). Interestingly, one

teacher described how, at his school, the *Tamkeen* training facilitator had tried to incorporate hands-on activities and discussions, but found that the participating teachers were unwilling to engage in these active learning opportunities because they were "approaching PD as 'this is a thing I have to do'" and simply wanted the session to end so that they could go home (Int-We-13).

For one category, the ADEC subject-specific professional development, the qualitative data did not provide clear support or explanations for the quantitative results. Whereas the quantitative scores had a low mean (2.78) and a high standard deviation (1.45), the qualitative data clearly indicated that, without exception, the ADEC subject-specific professional development had involved a high degree of active learning. As such, it was surprising that the quantitative mean score was not higher and that the standard deviation was not lower. Table 5.6 provides a selection of teacher descriptions of ADEC subject-specific professional development activities; these descriptions reflect a consistently high degree of active learning.

Overall, the results reported in this section indicated that much of the professional development that teachers had experienced in Abu Dhabi public schools may not have aligned with the literature-based recommendation of incorporating active learning approaches (see Section 2.3 of Chapter 2).

5.2.2.4 Coherence

The third design feature, coherence, examined the extent to which professional development was consistent with (a) teachers' personal knowledge, beliefs, and professional goals; (b) other professional development activities and goals within the teacher's school; and (c) ADEC curriculum, policy, and assessment. Overall, coherence received the highest and most consistent scores of any design feature. The results, reported in Figure 5.4, show that all 11 professional development categories received mean scores above 3.0, indicating that, in general, teachers felt that the professional development that they had experienced was aligned with personal-, school-, and system-level influences. The qualitative data supported the high quantitative scores, with teachers generally speaking positively of the coherence of the professional development that they had experienced in Abu Dhabi public schools.

Table 5.6. Sample descriptions of ADEC subject-specific professional development showing high levels of active learning

Professional development activity	Teacher description
Workshop for English teachers on 'Seven traits of writing'	"The [presenter] started with explaining the seven traits of writing, and then she had [writing] samples which were differentiated, and she asked groups [of teachers] to discuss what they read and give feedback." (Int-Ar-02)
Various subject-specific curriculum projects	"I was involved with ADEC [headquarters] staff with assessment writing and other curriculum tasks. It was voluntary group work for assessment writing, for curriculum evaluation, for resource evaluation, just participation in various groups. Resources got created that helped classrooms." (Int-We-02)
Single-subject curriculum review focus group	"I was asked to work with a team that were looking at the development of the [curriculum] scope and sequence from kindergarten through to grade seven. I was asked to work with the group that were looking at the transition between cycle one and cycle two and how the outcomes from cycle one fed in (or didn't feed in) to cycle two and vice versa." (Int-We-03)
Single-subject curriculum training day	"We did a training for the grade seven curriculum, and that was mostly hands-on … we were definitely interacting with the standards and participating like students in the lesson, so that was more hands-on. I liked it because I got to play with plastic shapes!" (Int-We-07)
Final examination writing for a single subject	"The exam writing was great because you could talk to other teachers and understand the standards better. Within the exam writing, I was able to think about what each outcome was asking—really looking at it and breaking it apart and then writing those questions." (Int-We-07)
Subject network meetings	"We had to go and write new schemes of work and lesson plans and things like that. They got us to write ideas for how we would teach certain lessons and the afternoon was spent on writing worksheets." (Int-We-12)
Single-subject curriculum development project	"There was a group of teachers that really rewrote all three [Grades 10, 11, and 12] curriculums. We were at ADEC headquarters—we would meet up and work for two days at a time for each grade level … Everybody was bringing in things that they had either developed or their staff had developed—teacher-authored pieces. We were actually doing something; we were actually involved in doing something instead of being lectured." (Int-We-16)

The highest coherence scores were reported for mentoring others (M = 4.27, SD = 0.43) and the ADEC subject-specific professional development (M = 4.15, SD = 0.77). For mentoring others, this result made sense, given that the teachers who mentored others were presumably able to impart guidance consistent with their own beliefs as well as the school- and ADEC-level expectations. For the ADEC subject-

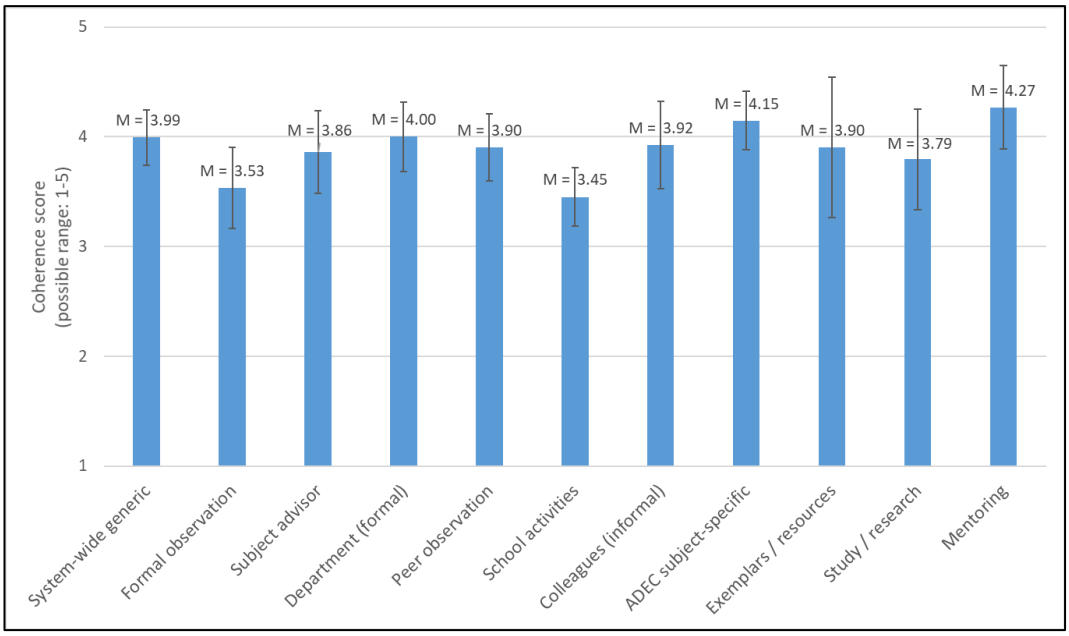

Figure 5.4. Mean coherence scores (with 95% confidence intervals) for 11 professional development categories

specific professional development, the high coherence scores were supported by the majority of the teachers' qualitative accounts; only three teachers criticised the coherence of this professional development (Int-Ar-02, Int-We-11, Int-We-12).

The categories that received the lowest mean coherence scores were formal lesson observation (M = 3.53, SD = 1.04) and school activities (M = 3.45, SD = 0.92). The qualitative data suggested that teachers only participated in these categories of professional development because they were mandatory (Int-Ar-03, Int-We-03, Int-We-05). In terms of formal lesson observation, teachers reported that they or their colleagues tended to present artificial lessons when they were being observed (Int-Ar-08, Int-We-03), and several teachers argued that the feedback they received after these observations was unrealistic or not of value (Int-Ar-08, Int-We-01, Int-We-02, Int-We-07). In terms of school activities, teachers raised concerns about the productivity of school committees (Int-We-03, Int-We-06, Int-We-11, Int-We-12), with one teacher noting that: "The focus of the committee or the reason for it being established is consistent with the goals [of ADEC or the school], but the output isn't" (Int-We-03).

Some teachers noted that although the content of professional development aligned with their theoretical beliefs about educational best practice and school- and ADEC-level aims, they felt that there was a mismatch between the theoretically good content and the actual school environment (Int-We-02, Int-We-05, Int-We-08, Int-We-14, Int-We-15, Int-We-16). For example, one teacher wrote on the main survey that:

> The enforcement of the strategies [presented during the *Tamkeen* professional development] is rigid and conflicts with the goals already in place for my curriculum … I had to choose a very specific strategy that did not fit in with my curriculum instead of being able to choose one that actually complemented what I was already doing. The reason that was given was the strategies had to be done in order, but no reason was given for why the order was important. Why? 'Because that is the way they want it'. (Ms-We-035)

This mismatch between the content and context of professional development is examined further in Chapter 6.

Overall, the results reported in this section indicated that teachers felt that the professional development that they had experienced had reflected coherence at personal, school, and system levels, as recommended in the literature (see Section 2.3 of Chapter 2). Therefore, coherence was a particular strength of the professional development that teachers had experienced in Abu Dhabi public schools.

5.2.2.5 Duration

The fourth design feature, duration, examined the time spent on the various professional development activities in terms of (a) the contact or activity duration, (b) the total time span across which that contact time was spread, and (c) whether, in teachers' views, the amount of time spent on the professional development had been sufficient. The results, reported in Figure 5.5, show that all but one—namely, formal observation—of the professional development categories received mean scores above 3.0 (neutral), indicating that teachers generally felt that the professional

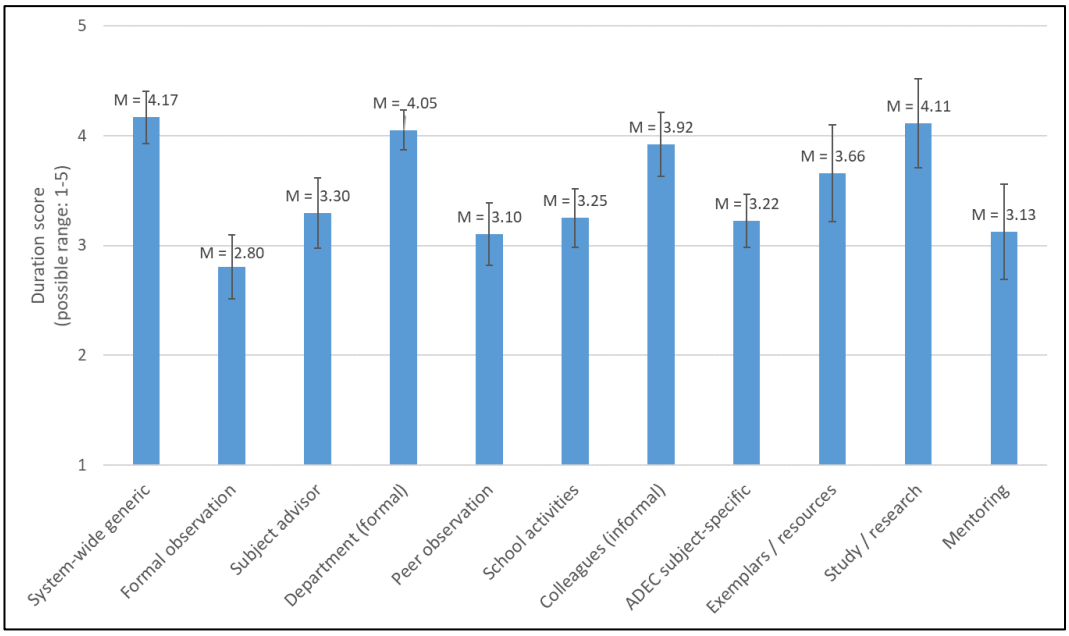

Figure 5.5. Mean duration scores (with 95% confidence intervals) for 11 professional development categories

development that they had received was of substantial and satisfactory duration. The standard deviations for the duration scores were lower than those for the other design features, indicating that the duration of the various professional development categories was more consistent across schools than other aspects of the professional development's design.

The highest duration scores were reported for the system-wide generic professional development (M = 4.17, SD = 0.78), study and research (M = 4.11, SD = 0.74), and formal department activities (M = 4.05, SD = 0.49). The qualitative data supported these high scores; in fact, for the system-wide generic professional development, teachers described the time spent on the *Tamkeen* training as excessive (Int-Ar-02, Int-Ar-04-07, Int-We-03, Int-We-05, Int-We-16).

Formal lesson observation (M = 2.80, SD = 0.81) was the only professional development category that received a mean duration score below 3.0. This finding was supported by teachers' qualitative accounts of having few (no more than three) formal lesson observations during the academic year (Int-Ar-02, Int-Ar-03, Int-Ar-09-13, Int-We-01, Int-We-02, Int-We-03, Int-We-05, Int-We-06, Int-We-08, Int-We-

09, Int-We-13). These observations did not always involve full class periods; for example, one teacher (Int-We-01) estimated that the total combined duration of her (sole) formal observation for the year and the associated feedback was 35 minutes.

The greatest variation was observed in the scores related to the support from subject advisors ($M = 3.30$, $SD = 0.93$) and school activities ($M = 3.25$, $SD = 0.91$), indicating that the duration of these professional development categories varied between teachers or schools. In terms of the support from subject advisors, teachers' qualitative accounts confirmed the large variation in the duration scores, with teachers reporting very different experiences. For example, some teachers reported that their advisor worked with them every time they were in the school, normally weekly or fortnightly (Int-Ar-01, Int-Ar-03, Int-Ar-04-07, Int-Ar-15-19, Int-We-06, Int-We-07, Int-We-10); on the other hand, other teachers reported almost no interaction with their assigned advisor (Int-Ar-02, Int-Ar-08, Int-Ar-09-13, Int-We-01, Int-We-03, Int-We-08, Int-We-09, Int-We-11, Int-We-12, Int-We-16). Some Arab teachers also noted that subject advisors had been instructed to work primarily with the Western teachers who were responsible for New School Model grade levels, creating a further source of variation in teachers' experiences of subject advisor support (Int-Ar-04-07, Int-Ar-14).

The variation in the duration scores for school activities was not addressed in the qualitative data. Although teachers had estimated and evaluated the duration of these activities within the interviewee survey, there were no qualitative comments related to this design feature for this professional development category; as such, the quantitative results were not able to be explained further.

Overall, the results reported in this section indicated that with the exception of formal lesson observation, the professional development that teachers experienced in Abu Dhabi schools involved substantial and satisfactory duration, as recommended in the literature (see Section 2.3 of Chapter 2).

5.2.2.6 *Collective Participation*

The final design feature, collective participation, measured the degree to which teachers participated in professional development alongside their colleagues. The results, reported in Figure 5.6, show that seven of the 11 professional development categories received mean scores above 3.0, indicating that teachers participated in these categories of professional development alongside their colleagues.

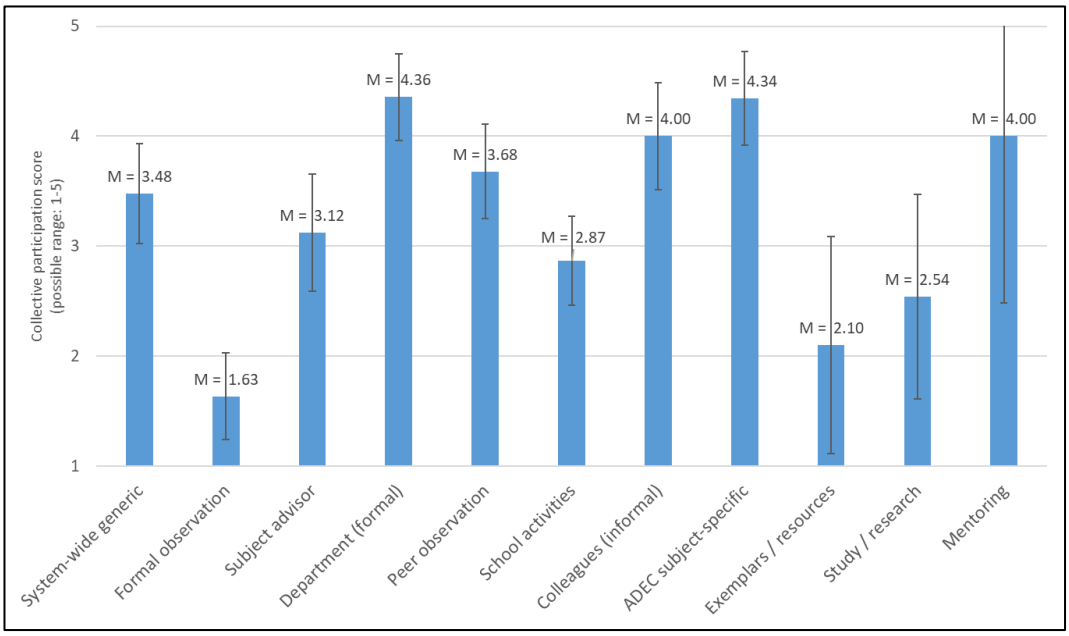

Figure 5.6. Mean collective participation scores (with 95% confidence intervals) for 11 professional development categories

Formal department activities (*M* = 4.36, *SD* = 1.06) and the ADEC subject-specific professional development (*M* = 4.34, *SD* = 1.23) received the highest mean scores for collective participation. That teachers predominantly participated in these types of professional development alongside their colleagues was to be expected, given that these activities, by definition, involved groups of teachers.

Four categories received mean scores below 3.0 (neutral), indicating individual participation in professional development: school activities (*M* = 2.87, *SD* = 1.39), study and research (*M* = 2.54, *SD* = 1.71), engaging with exemplars and resources (*M* = 2.10, *SD* = 1.60), and formal lesson observation (*M* = 1.63, *SD* = 1.10). Of

these, individual participation was to be expected for formal lesson observation as, typically, only the teacher being observed and a school administrator would be present. Teachers' qualitative accounts of study and research (Int-Ar-01, Int-Ar-02, Int-We-01, Int-We-02, Int-We-03, Int-We-04, Int-We-06) and engaging with exemplars and resources (Int-Ar-02, Int-Ar-14, Int-We-01, Int-We-06, Int-We-07, Int-We-13, Int-We-14, Int-We-15) supported the low scores for collective participation, with accounts of teachers engaging in these activities individually.

The low mean score for school activities, however, was unexpected. According to teachers' qualitative descriptions, all of the 45 professional development activities[34] that were synthesised into this category involved collective participation by more than one teacher. The qualitative data were, therefore, reviewed in search of possible explanations for the quantitative scores. As discussed in Section 5.2.2.3 in relation to the active learning design feature, the interview data indicated that many school activities—particularly workshops and staff meetings—involved a traditional lecture or presentation format. As such, it may be that although teachers were physically present alongside other colleagues at such activities, they did not consider that they had participated in a collective or collaborative manner and, hence, gave low scores for the collective participation items on the interviewee survey.

Overall, the results reported in this section indicated that there was much variation in the extent to which the various professional development categories incorporated collective participation by teachers, as recommended in the literature (see Section 2.3 of Chapter 2).

More broadly, Section 5.2.2 has examined the extent to which the 11 categories of professional development that teachers had participated in reflected five literature-based features of effective professional development design. The results indicate that the professional development in Abu Dhabi schools aligned with the literature-based recommendations in terms of its coherence with personal-, school-, and system-level influences (Section 5.2.2.4) and its substantial and satisfactory duration (Section

[34] Whereas 30 of the 35 interviewed teachers reported participating in school activities, the total number cited here (45 professional development activities) reflects the total number of distinct activities that were reported by these 30 teachers. For example, teacher Int-We-13 reported three distinct activities that were all synthesised into the school activities category: whole staff meetings, staff trips, and meetings of all English medium teachers with the school principal.

5.2.2.5). Most of the professional development also involved a subject-specific content focus, as recommended in the literature (see Section 5.2.2.2), but this was not the case for the two professional development categories that involved the largest numbers of teachers: the system-wide generic professional development and formal lesson observation. Much of the professional development did not reflect the literature-based recommendation to use active learning approaches (Section 5.2.2.3), and the degree of teachers' collective participation in professional development varied (Section 5.2.2.6).

The next section (Section 5.2.3) now examines teachers' perceptions of the impact of the 11 categories of professional development.

5.2.3 The Impact of Professional Development

Whereas Section 5.2.2 reported on the design of the professional development experienced by teachers in Abu Dhabi public schools, this section reports on the impact of that professional development. This section draws on qualitative data from the teacher interviews and quantitative data from the interviewee survey (both of which involved $N = 35$ teachers). The interviewee survey items that captured the quantitative results in this section were the items of the ITPD Questionnaire (which had been validated and revised as reported in Section 5.1). These items measured the impact of professional development in four areas, corresponding to the four scales of the questionnaire: teachers' affective reactions, teacher learning, outcomes (encompassing teacher classroom practice and student outcomes), and organisational response. The total impact scores for the 11 professional development categories are presented first (Section 5.2.3.1), then the scores for each of the four impact scales are examined separately in Sections 5.2.3.2 to 5.2.3.5.

5.2.3.1 Total Impact Scores

Using the quantitative interviewee survey data, a total impact score aggregating the four impact scales of the ITPD Questionnaire was calculated for each teacher's responses in relation to each of the 11 professional development categories. These total impact scores had possible values ranging from 4 to 20, with higher scores

indicating that teachers perceived that professional development had resulted in greater levels of impact. The midpoint of the scale—equivalent to professional development receiving neutral responses on all four impact scales—was 12.0.

The results, reported in Figure 5.7, show that the means of the total impact scores for the 11 professional development categories ranged from a minimum of 12.01 (*SD* = 4.16) for the system-wide generic professional development to a maximum of 15.67 (*SD* = 2.18) for study and research. As such, all of the total impact scores were above the midpoint or neutral score (12.0), indicating that the teachers generally agreed that impacts had occurred as a result of the professional development. It was noted, however, that the categories of professional development that the largest numbers of teachers had participated in—namely, the system-wide generic professional development, formal lesson observation, and support from subject advisors (see Table 5.5 on page 162)—received the lowest mean impact scores. Moving from left to right on the graph (that is, from the professional development that involved the greatest number of teachers to the professional development that involved the fewest teachers), an upward trend is apparent, suggesting that there may be an inverse relationship between the prevalence of professional development and its impact.

The next four sub-sections provide more detailed analyses of the scores for each impact scale: teachers' affective reactions to the professional development (Section 5.2.3.2); teacher learning (Section 5.2.3.3); changes in teachers' classroom practice or student outcomes (Section 5.2.3.4); and the organisational response to professional development (Section 5.2.3.5).

5.2.3.2 Teachers' Affective Reactions to Professional Development

The first scale of the ITPD Questionnaire measured teachers' affective reactions to professional development. The results for this scale, reported in Figure 5.8, show that the mean scores were above 3.0 (neutral) for all professional development categories, indicating that teachers generally had positive reactions to the professional development that they had experienced in Abu Dhabi public schools. The highest mean scores for the teacher reaction scale were reported for study and research

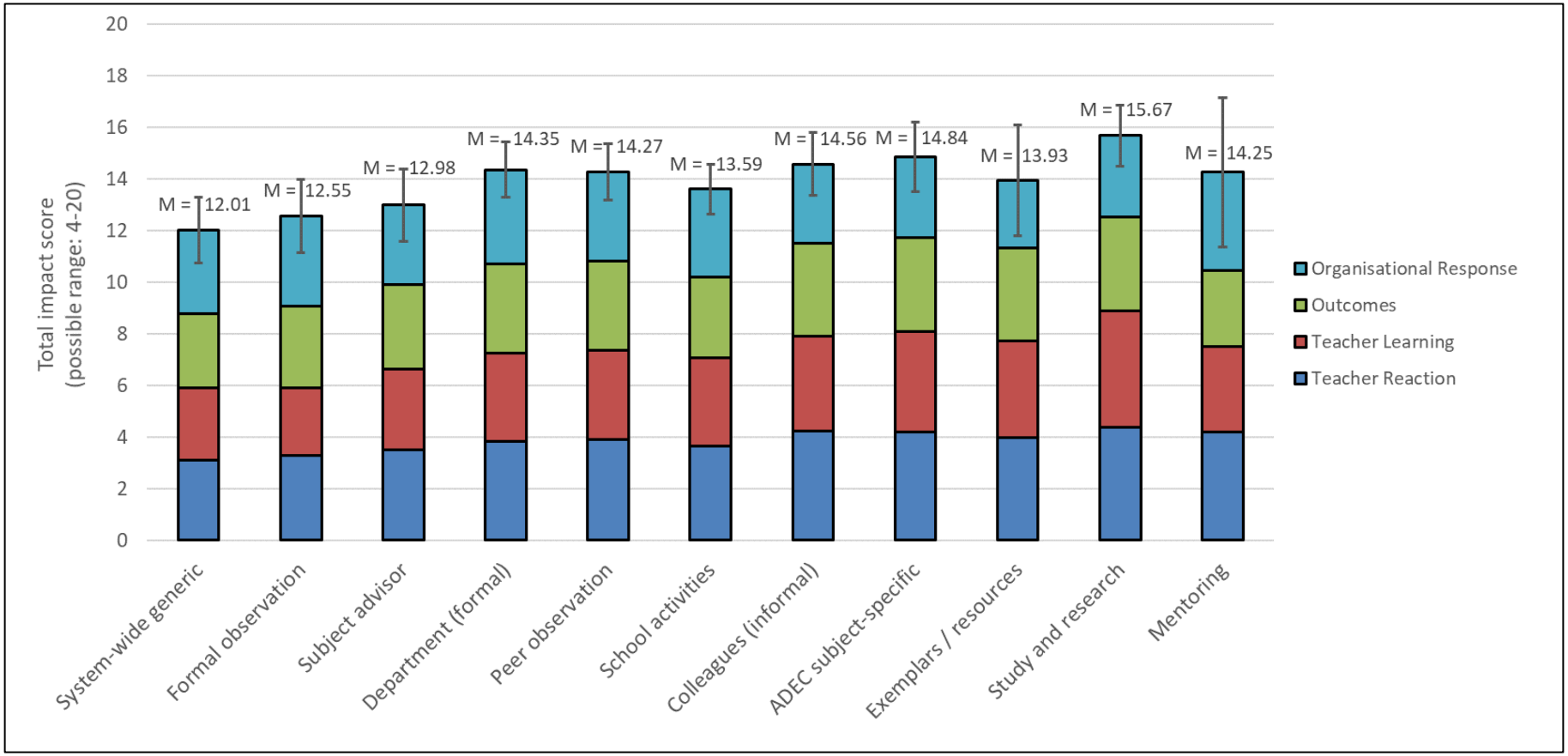

Figure 5.7. Mean total impact scores (showing the contributions of the four impact scales) and 95% confidence intervals (for the total scores) for 11 professional development categories

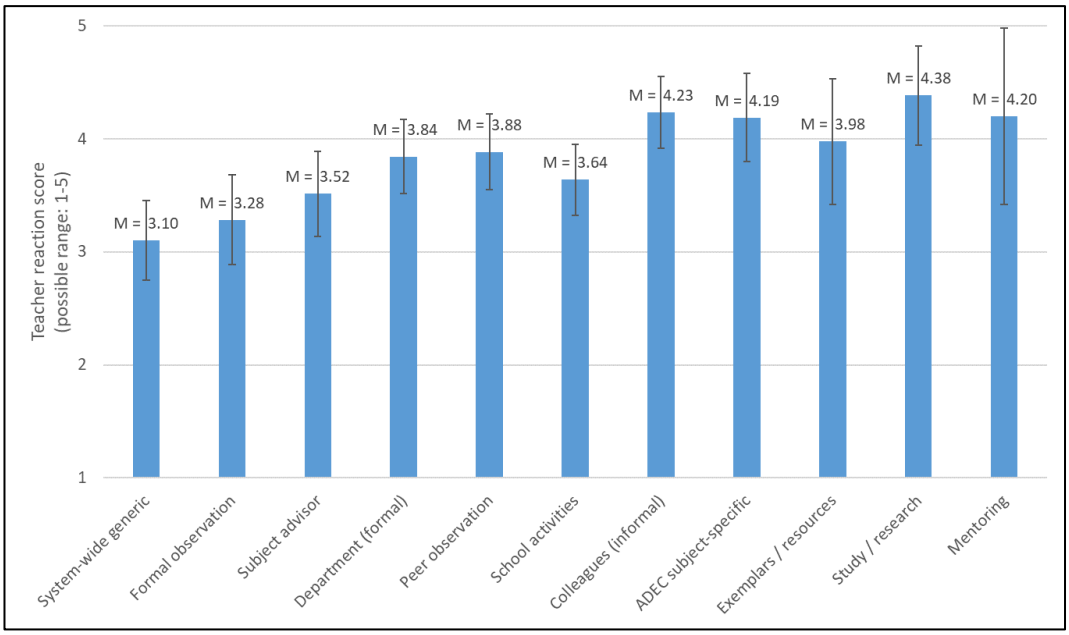

Figure 5.8. Mean teacher reaction scores (with 95% confidence intervals) for 11 professional development categories

(*M* = 4.38, *SD* = 0.81), informal interactions with colleagues (*M* = 4.23, *SD* = 0.90), and mentoring others (*M* = 4.20, *SD* = 0.89). These results indicate that teachers had particularly positive reactions to these professional development categories. The qualitative data supported these findings, with teachers describing these three professional development categories as "useful" (Int-We-01), "interesting" (Int-We-01, Int-We-02, Int-We-03, Int-We-05), "beneficial" (Int-Ar-01, Int-Ar-08, Int-We-02, Int-We-06, Int-We-08), "helpful" (Int-We-07, Int-We-11, Int-We-12), and "valuable" (Int-We-02, Int-We-13).

The lowest mean teacher reaction scores were reported for the system-wide generic professional development (*M* = 3.10, *SD* = 1.16), formal lesson observation (*M* = 3.28, *SD* = 1.11), and working with a subject advisor (*M* = 3.52, *SD* = 1.10). Consistent with these low scores, there were a large number of negative comments within the qualitative data related to the system-wide generic professional development and, to a lesser extent, formal lesson observation and the support from subject advisors. For example, teachers described the *Tamkeen* professional development as a "waste of time" (Int-Ar-14, Int-We-05, Int-We-06, Ms-Ar-185, Ms-Ar-215, Ms-We-013, Ms-We-059, Ms-We-063, Ms-We-067, Ms-We-070, Ms-

We-081, Ms-We-103, Ms-We-107, Ms-We-137, Ms-We-139), “boring” (Ms-We-013, Ms-We-056), “pointless” (Int-We-07, Ms-We-081, Ms-We-138), “frustrating” (Int-We-07, Ms-We-024, Ms-We-059, Ms-We-098), and “not useful” (Int-We-05, Ms-Ar-190, Ms-Ar-242, Ms-Ar-244, Ms-We-012, Ms-We-016, Ms-We-017, Ms-We-035, Ms-We-056, Ms-We-067, Ms-We-104, Ms-We-111).

Overall, the results reported in this section indicate that whereas teachers generally had positive reactions to most of their professional development experiences, teachers’ reactions to some of the most common professional development categories—namely, the system-wide generic professional development and, to a lesser extent, formal lesson observation and the support from subject advisors—were more negative. Moving from left to right on the graph (Figure 5.8), an upward trend is apparent, indicating that there may be an inverse relationship between teachers’ affective reactions to professional development and the prevalence of professional development.

5.2.3.3 Teacher Learning

The second impact scale measured the extent to which the professional development had resulted in teacher learning. The results, reported in Figure 5.9, show that nine of the 11 professional development categories had mean teacher learning scores above 3.0, indicating that teachers felt that they had learned new things as a result of the professional development; the exceptions were the system-wide generic professional development and formal lesson observation (discussed below).

The highest mean score was reported for study and research (M = 4.50, SD = 0.58); this mean score was substantially higher than the next highest mean score, which was reported for the ADEC subject-specific professional development (M = 3.89, SD = 1.31). Although only three teachers provided qualitative descriptions of study and research, the teachers’ accounts of this category generally (with one exception: Int-Ar-02) supported the high mean score for teacher learning (Int-Ar-01, Int-We-02, Int-We-04, Int-We-06).

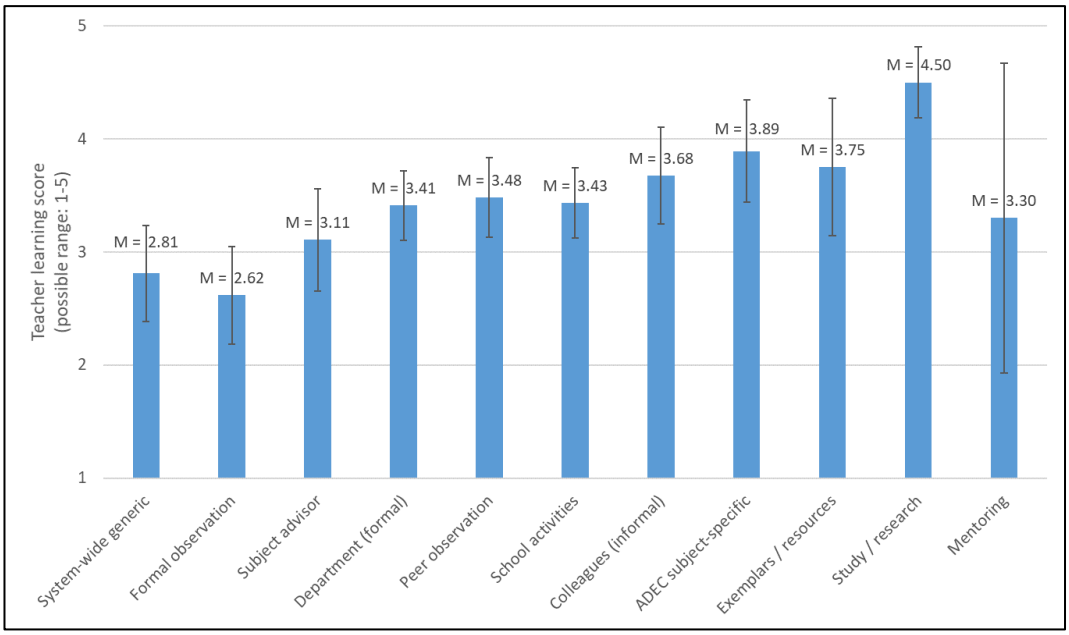

Figure 5.9. Mean teacher learning scores (with 95% confidence intervals) for 11 professional development categories

The mean teacher learning scores for the system-wide generic professional development (M = 2.81, SD = 1.41) and formal lesson observation (M = 2.62, SD = 1.20) were both below 3.0 (neutral), indicating that teachers disagreed that they had learned from these categories of professional development. The qualitative data indicated that, in terms of the system-wide generic professional development, a large number of teachers reported that they had not learned from the *Tamkeen* sessions because the content that was presented was not new for them (Int-Ar-15-19, Int-We-01, Int-We-05, Int-We-07, Int-We-11, Int-We-13, Int-We-16, Ms-Ar-184, Ms-Ar-190, Ms-Ar-194, Ms-Ar-196, Ms-Ar-217, Ms-Ar-244, Ms-We-012, Ms-We-013, Ms-We-017, Ms-We-018, Ms-We-043, Ms-We-051, Ms-We-060, Ms-We-063, Ms-We-070, Ms-We-081, Ms-We-087, Ms-We-103, Ms-We-111). In terms of formal lesson observation, some teachers reported receiving either no feedback on their teaching (Int-Ar-01, Int-Ar-02, Int-Ar-14, Int-We-14, Int-We-15) or feedback that was trivial, unrealistic, or not useful (Int-Ar-08, Int-We-01, Int-We-02, Int-We-07); this lack of robust feedback may explain why many teachers indicated that they had not learned as a result of their experiences of formal lesson observation.

The mean score for the subject advisor category ($M = 3.11$, $SD = 1.32$) was only slightly above 3.0 (neutral), making the positive result for this category inconclusive. The qualitative data for this category indicated that teachers' experiences had varied greatly in terms of the amount of professional development that they received from their subject advisor. Some teachers had received extensive input from their subject advisor and, consequently, reported learning a great deal (Int-Ar-01, Int-Ar-04, Int-Ar-07, Int-We-06, Int-We-07, Int-We-10). Other teachers, however, reported having limited contact with their advisors, precluding a greater degree of teacher learning (Int-Ar-02, Int-Ar-03, Int-Ar-05, Int-Ar-08, Int-Ar-14, Int-We-01, Int-We-08, Int-We-09, Int-We-11, Int-We-12, Int-We-16, Ms-Ar-028, Ms-Ar-030, Ms-Ar-037, Ms-Ar-081, Ms-Ar-148, Ms-Ar-234, Ms-Ar-242, Ms-We-104). Further, some teachers felt that their advisors had primarily functioned as a conduit for the provision of information from ADEC (Int-Ar-03, Int-Ar-14, Int-We-03, Int-We-11, Int-We-12). For example, one teacher stated that:

> She [the advisor] met with me, as the [department] coordinator, whenever she came [to the school]. She asked me if we needed help with any of our staff or had any questions, any requirements; she updated me regarding ADEC exams, ADEC [assessment] tasks, timing, things like this. (Int-Ar-14)

When I then asked this teacher, "Did you do much work with her about your actual teaching and teaching strategies, or was it more the information for the department?" the teacher responded: "Just information."

Overall, the results reported in this section indicated that teachers felt that they had learned new things from many categories of professional development. However, an upward (left-to-right) trend was, again, noted on the graph in Figure 5.9, suggesting that the most widespread forms of professional development (shown to the left of the graph) may not have been associated with the greatest degrees of teacher learning. The limited teacher learning associated with the system-wide generic professional development, formal lesson observation, and the work of the subject advisors was of particular concern, given that these were the three categories that the largest numbers of teachers reported participating in and, further, that the system-wide generic

professional development and the support from subject advisors were the two main components of ADEC's teacher professional development strategy (as outlined in Section 1.1.5 of Chapter 1).

5.2.3.4 Outcomes: Teacher Classroom Practice and Student Outcomes

The third impact scale measured the extent to which teachers felt that professional development had resulted in changes in either their classroom practice or student outcomes[35]. As shown in Figure 5.10, the mean scores for this scale were all relatively close to the neutral value of 3.0: The means ranged from 3.64 (*SD* = 1.16) for the ADEC subject-specific professional development to 2.87 (*SD* = 1.11) for the system-wide generic professional development. These results suggest that the teachers did not feel strongly that the professional development that they had experienced in Abu Dhabi public schools had impacted either their classroom practice or student outcomes.

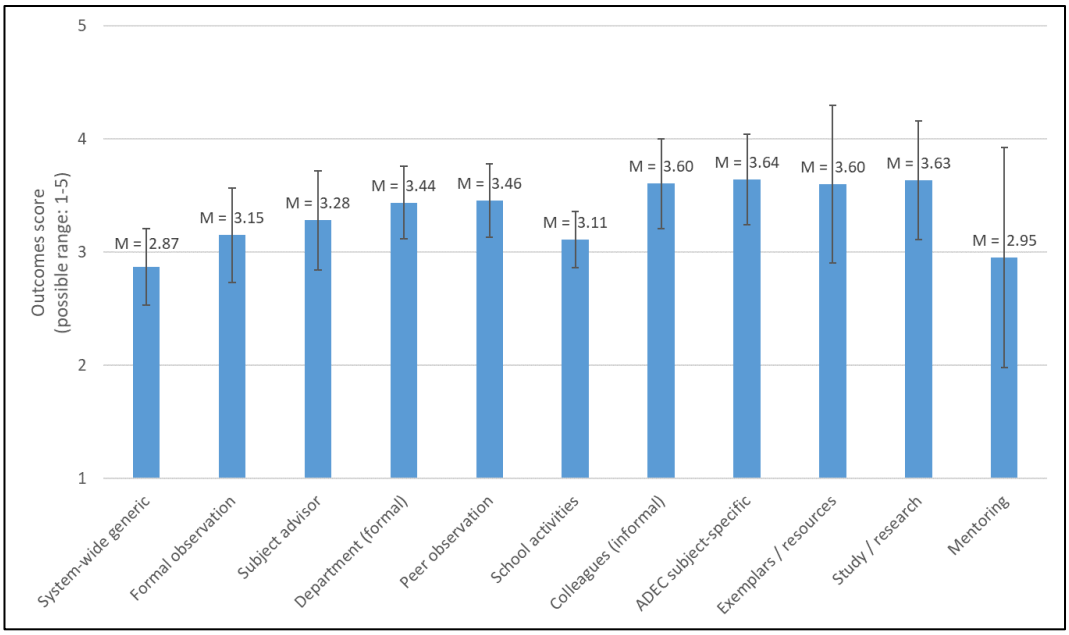

Figure 5.10. Mean outcomes scores (with 95% confidence intervals) for 11 professional development categories

[35] The double-barrelled nature of this scale was not originally intended, based on examination of the literature related to the forms of impact associated with professional development. However, the factor analysis of the main survey data (reported in Section 5.1.1) indicated that in this study, the items related to teachers' classroom practice and student outcomes functioned together as a single scale.

The scores for the four categories with the highest reported impacts were very similar; these categories were the ADEC subject-specific professional development (M = 3.64, SD = 1.16), study and research (M = 3.63, SD = 0.97), informal interactions with colleagues (M = 3.60, SD = 1.12), and engaging with exemplars and resources (M = 3.60, SD = 0.97). The larger confidence interval shown on the graph for exemplars and resources was caused by the smaller sample size for that category.

Two categories received mean scores below 3.0: the system-wide generic professional development (M = 2.87, SD = 1.11) and mentoring others (M = 2.95, SD = 1.11). For the system-wide generic professional development, these results make sense in light of the poor impact scores reported earlier for the teacher reaction and teacher learning scales: If teachers did not have positive perceptions of the professional development and did not learn new things from it, then it seems unlikely that changes in the teachers' classroom practice or in student outcomes would result. For mentoring, the qualitative data indicated that mentoring others was often a one-way relationship in which the mentors functioned as experts who provided information and ideas to other teachers (Int-We-01, Int-We-03, Int-We-06, Int-We-09, Int-We-11, Int-We-12). As such, the mentoring process may have reinforced the mentor teachers' existing classroom practices, leading to the low outcomes scores for mentoring. Two teachers, however, were able to identify small ways in which their own classroom teaching had changed as a result of their involvement in mentoring others (Int-We-03, Int-We-09).

Overall, the results reported in this section indicate that the professional development in Abu Dhabi public schools had modest impacts on teachers' classroom practice and student outcomes. As was observed for the teacher reaction and teacher learning scales, the system-wide generic professional development was reported to have poorer impacts than other categories of professional development, and, in general, there appeared to be an inverse relationship between the outcomes and the prevalence (in terms of teacher participation rates) of the professional development categories.

5.2.3.5 *Organisational Response to Professional Development*

The final impact scale examined the extent to which the school, as an organisation, had responded in ways that facilitated or acknowledged the impact of professional development. The results, reported in Figure 5.11, show that all but one—namely, engaging with exemplars and resources—of the professional development categories received mean scores above 3.0 for this scale. These scores indicate that, overall, teachers felt that their schools had responded to the professional development that had occurred. However, the mean scores for the support from subject advisors (M = 3.08, SD = 0.89), informal interactions with colleagues (M = 3.05, SD = 1.14), and the ADEC subject-specific professional development (M = 3.13, SD = 1.12) were very close to the neutral value of 3.0. Surprisingly, the highest mean score for this category was reported for mentoring others (M = 3.80, SD = 1.15). The qualitative data related to this category indicated that some of the teacher mentoring relationships had been initiated by the school administration (Int-We-01, Int-We-03), which may have contributed to the higher organisational response scores for this category.

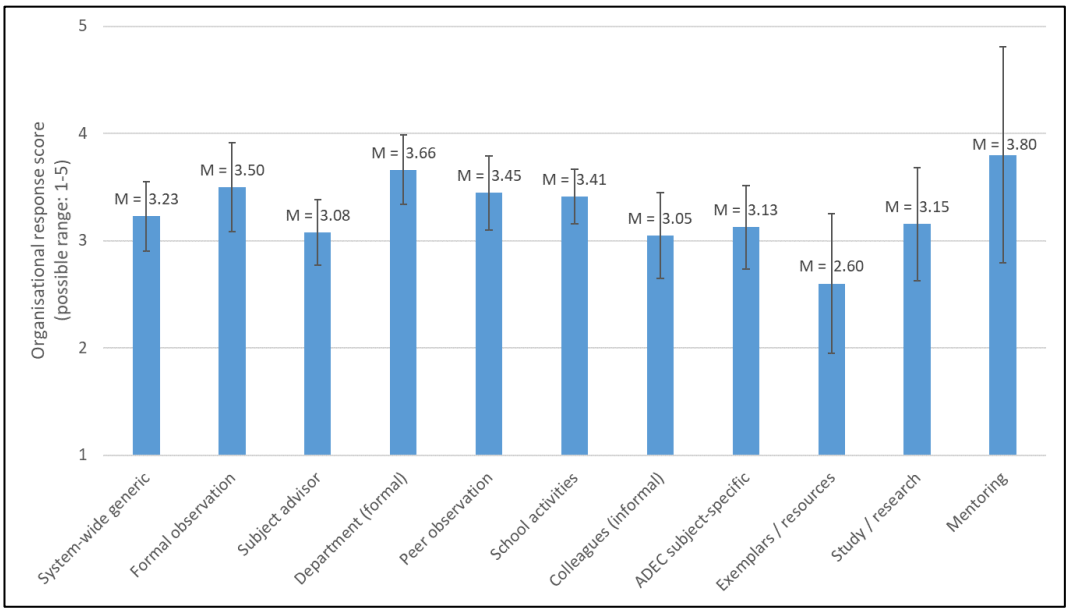

Figure 5.11. Mean organisational response scores (with 95% confidence intervals) for 11 professional development categories

The qualitative data indicated that teachers' experiences varied greatly in terms of their schools' responses to professional development. At the positive end of the spectrum, four teachers indicated that their school administrators actively followed up on professional development in various ways, including speaking with staff and monitoring teachers' classroom practice and lesson planning (Int-Ar-02, Int-We-06, Int-We-11, Int-We-12). On the other hand, a number of teachers reported either no follow up related to professional development (Int-We-08, Int-We-09, Int-We-11, Int-We-12, Int-We-13, Int-We-14, Int-We-15) or follow up that was either superficial (Int-We-04, Int-We-07, Int-We-08, Int-We-09) or punitive (Int-We-03).

Overall, the results reported in this section indicated that the response of schools to the professional development that occurred was relatively modest. The results for this scale did not reflect the trend that was reported for the other three impact scales (for which the impact of professional development was inversely associated with its prevalence); rather, there was no apparent relationship between the prevalence of professional development and the organisational response.

This section (Section 5.2) has reported results related to research objective 2, in terms of teachers' perceptions of the design (Section 5.2.2) and impact (Section 5.2.3) of the professional development that they had experienced in Abu Dhabi public schools. These perceptions have been examined in relation to 11 categories of professional development, which were identified through thematic analysis of teachers' accounts of the professional development activities they had experienced (Section 5.2.1). Section 5.2.3 now extends these results by examining the relationships between teachers' perceptions of the design and the impact of professional development.

5.3 Relationships between the Design and Impact of Professional Development

The third research objective was to investigate the relationships between teachers' perceptions of the design of professional development and their perceptions of the impact of that professional development. The quantitative interviewee survey data were analysed to investigate such relationships in terms of the 11 professional

development categories defined in Section 5.2.1; these results are reported in Section 5.3.1. The results of qualitative data analyses, which were used to inform the interpretation of the quantitative results, are then reported in Section 5.3.2.

5.3.1 Quantitative Analysis of Relationships between the Design and Impact of Professional Development

The interviewee survey (completed by $N = 35$ teachers) had two parts, as detailed in Section 4.5.2 of Chapter 4. The first part measured teachers' perceptions of the *design* of professional development activities, whereas the second part measured teachers' perceptions of the *impact* of those activities using the validated ITPD Questionnaire items. This section reports on the analysis of this quantitative data to examine the relationships between the design and impact scores for the 11 professional development categories defined in Section 5.2.1.

First, a scatter plot was constructed using the total design effectiveness index and the total impact score for each of the 11 professional development categories. This provided an overview of the nature of the relationships between the design and impact scores. Varying point sizes were used to represent the number of teachers who reported participating in each professional development category.

The resulting scatter plot, shown in Figure 5.12, suggested that there may be a positive association between design and impact. That is, the professional development categories that were most closely aligned with literature-based design principles were also the categories that received the highest impact scores.

Consideration of the rates of teacher participation in the various categories of professional development, however, indicated that there was a significant amount of participation in professional development that showed relatively low design effectiveness as well as relatively low impact. For example, the scatter plot shows that school activities, formal lesson observation, the system-wide generic professional development, and the support from subject advisors all fell in the bottom left area of the graph, indicating low design effectiveness and low impact scores—yet over 85% of the interviewed teachers participated in each of these forms of

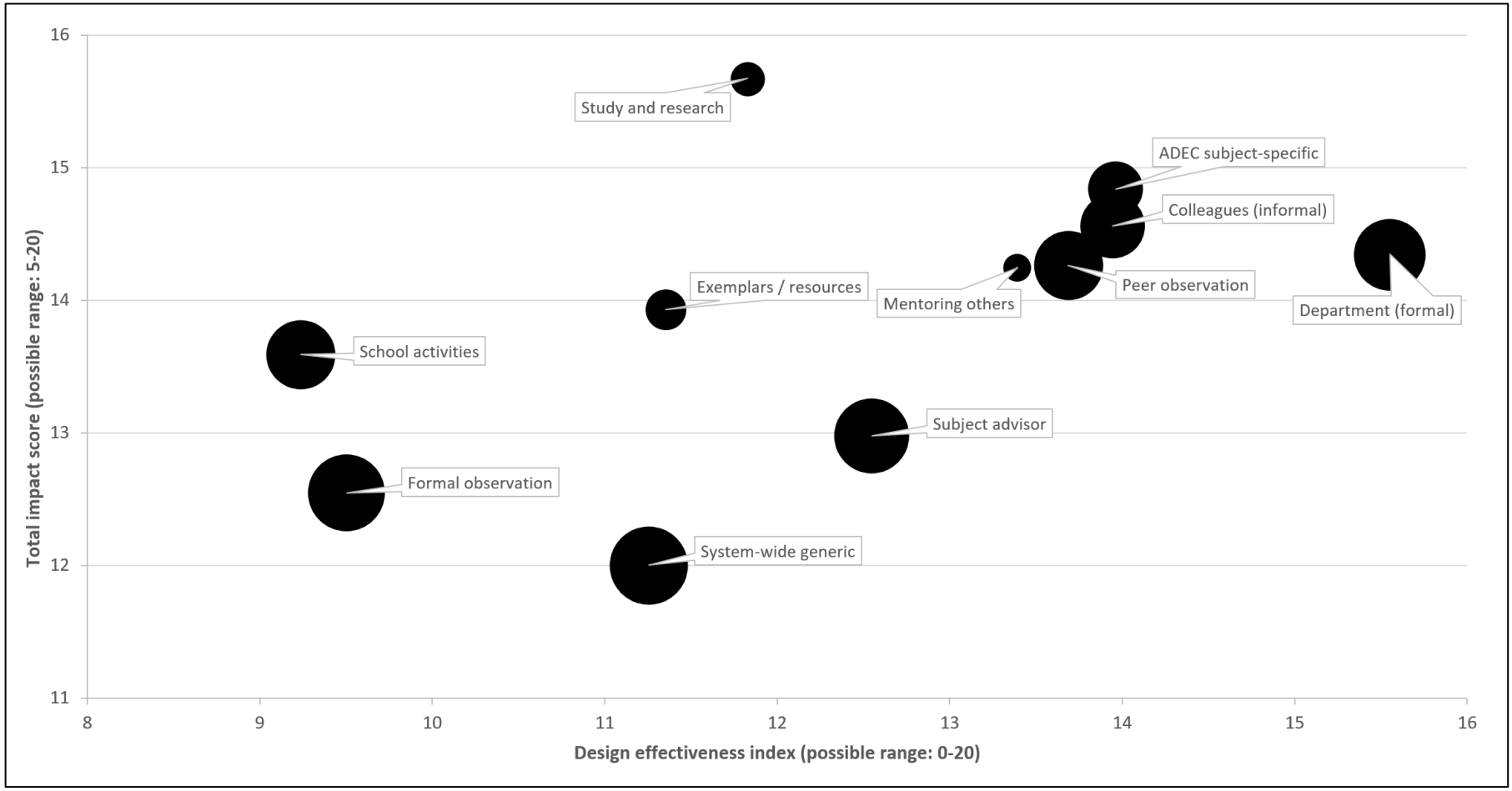

Figure 5.12. Relationship between the design effectiveness indices and total impact scores of 11 professional development categories (with teacher participation rates indicated by the size of each point)

professional development (as reported in Table 5.5 on page 162). Conversely, the four forms of professional development that had the lowest teacher participation rates—namely, mentoring others (20% of teachers), study and research (31% of teachers), engaging with exemplars and resources (40% of teachers), and the ADEC subject-specific professional development (63% of teachers)—all fell higher and to the right on the scatterplot, indicating that these less widespread forms of professional development reflected both better design and greater impacts. Formal department activities received the highest design effectiveness index score and a relatively high impact score, making this the most successful form of professional development that was undertaken by a large number of teachers.

Having examined these overall findings, finer-grained simple correlation and multiple regression analyses were then conducted using the mean scores for the five design features (content focus, active learning, coherence, duration, and collective participation) and the four impact scales (teachers' affective reactions, teacher learning, outcomes, and organisational response). The results of these analyses are reported in Table 5.7 and discussed below with respect to each impact scale.

For the teacher reaction scale, the simple correlation results indicated that the teachers' affective reactions to the professional development were positively and statistically significantly ($p < .01$) related to the teachers' perceptions of all five literature-based features of effective professional development design. The multiple correlation (R) was positive and statistically significant ($p < .01$). The beta values, examined to determine which design features were independent predictors of teacher reaction, indicated that three of the five design features were positively and statistically significantly related to teacher reaction: content focus ($p < .01$); coherence ($p < .01$); and duration ($p < .05$). The adjusted R^2 value—used in accordance with the recommendations of L. Cohen et al. (2007) and Muijs (2004), given that the data came only from a sample and not from the whole population—indicated that 38% of the variance in the teacher reaction scores was explained by these three design features. Overall, these results indicate that in the Abu Dhabi context, for professional development activities to be effective in terms of teacher reaction, a subject-specific content focus, coherence, and duration are important.

Table 5.7. Simple correlation and multiple regression results for the design and impact of teacher professional development

Design features	Impact scales (from the ITPD Questionnaire)							
	Teacher reaction		Teacher learning		Outcomes		Organisational response	
	r	β	*r*	β	*r*	β	*r*	β
Content focus	0.405**	0.244**	0.290**	0.173**	0.464**	0.376**	0.131*	0.019
Active learning	0.261**	0.054	0.150**	−0.023	0.270**	0.065	0.242**	0.146*
Coherence	0.538**	0.408**	0.492**	0.417**	0.440**	0.279**	0.271**	0.175**
Duration	0.242**	0.120*	0.236**	0.149**	0.353**	0.286**	0.289**	0.215**
Collective participation	0.360**	0.084	0.252**	−0.014	0.297**	−0.039	0.217**	0.046
Multiple correlation (*R*)		0.626**		0.539**		0.636**		0.397**
Adjusted R^2		0.381**		0.278**		0.394*		0.143**

*$p < .05$; **$p < .01$.

Results are based on 297 teacher responses (from 35 teachers)

For the teacher learning scale, the simple correlation results indicated that the extent to which teachers perceived that they had learned through the professional development was positively and statistically significantly ($p < .01$) related to all five design features. The multiple correlation was positive and statistically significant ($p < .01$). As for the teacher reaction scale, the beta values for the regression analysis indicated that content focus, coherence, and duration were independent predictors of teacher learning ($p < .01$); together, these design features explained 28% of the variation in the teacher learning scores. These results indicate that for professional development activities in Abu Dhabi to generate teacher learning, they should reflect a subject-specific content focus, coherence, and duration.

For the outcomes scale, the simple correlation results indicated that teachers' perceptions of the extent to which the professional development had resulted in changes in their classroom practice or benefits to students were positively and statistically significantly ($p < .01$) related to all five design features. The multiple correlation was also positive and statistically significant ($p < .01$). The beta values indicated that the same three design features that were independent predictors for the teacher reaction and teacher learning scores—content focus, coherence, and duration—also predicted the outcomes scores ($p < .01$). Together, these three design features explained 39% of the variance in the outcomes scores. These results indicate that for professional development activities to change Abu Dhabi teachers' classroom practice and improve student outcomes, a subject-specific content focus, coherence, and duration are important.

The final impact scale, organisational response, measured the extent to which teachers perceived that there had been school-level changes or responses to the professional development. The simple correlation results indicated that this form of impact was positively and statistically significantly ($p < .01$) related to all five design features; the multiple correlation was also positive and statistically significant ($p < .01$). However, the regression analysis identified a slightly different combination of design features than those that predicted the scores for the other three impact scales: Active learning (not content focus), along with coherence and duration, were the independent predictors of the organisational response scores ($p < .05$). The adjusted R^2 value indicated that 14% of the variance in the organisational response

scores was explained by these three design features. Therefore, in the Abu Dhabi context, whereas coherence and duration appear to be important in order for professional development activities to result in all four forms of impact examined in the ITPD Questionnaire, active learning appears to be important for ensuring that professional development leads to a positive organisational response.

Across all four impact scales, although the associations between design and impact were positive and statistically significant, the correlations were generally weak. Of the 20 correlations between a design feature and an impact scale, just six exceeded L. Cohen et al.'s (2007) recommended minimum value of 0.35 for a correlation to be useful for prediction. Further, according to Muijs's (2004, p. 166) criteria for interpreting adjusted R^2 values, the regression models for the teacher reaction and outcomes scales showed only "moderate fit" with the data, and the regression models for the teacher learning and organisational response scales showed "modest fit" with the data. The results reported in this section, therefore, indicate that although there were associations between the design and impact of professional development, these associations did not explain the majority of the variance in the impacts that result from professional development. This finding is explored further in Chapter 6.

5.3.2 Qualitative Insights into the Relationships between the Design and Impact of Professional Development

The qualitative data from the teacher interviews ($N = 35$ teachers) were also examined in terms of the relationships between the design and impact of professional development. Although teachers had provided extensive description of the design of various forms of professional development, very little qualitative data directly linked the description of a design feature with a statement indicating whether that design had contributed to the professional development having some form of impact. The only design feature that teachers consistently described as important was content focus; Vignette 1[36] illustrates teachers' views in this respect.

[36] In the reporting of qualitative results for research objectives 3 (Section 5.3) and 4 (Chapter 6), a number of vignettes are used to highlight teacher voice and demonstrate the way that the findings are grounded in the qualitative data. All vignettes are drawn directly from real teacher data (that is, they are not fictionalised nor are they amalgams of multiple teachers' experiences).

Vignette 1:

On teachers' preference for subject-specific professional development

Teacher (Int-We-14): There's definitely a need for subject-specific professional development instead of generic professional development that's related to whole school issues. I think that's something that teachers don't appreciate that much, is the generic professional development. Whereas when you focus on subject-specific things, I definitely feel that, as a teacher, I valued that more.

Interviewer: Is that across your teaching career, or specifically in this [Abu Dhabi] context here that you're speaking about?

Teacher (Int-We-14): Across my teaching career.

Teacher (Int-We-15): Yeah, I agree. Across my teaching career, it's always been that way.

Interviewer: Okay. Why is subject-specific preferable?

Teacher (Int-We-14): Because things change and you teach in different curriculums throughout your career. You need to know as much as possible about the specific curriculum and the requirements of the curriculum.

Teacher (Int-We-15): I mean for us, where we teach one subject—other teachers teach English, math, and science possibly integrated; but for us as math teachers, we want to know how to improve our *math* teaching—how to incorporate manipulatives, how to incorporate resources, how to incorporate technology. So, you want to learn how better to serve your students.

Interviewer: Is there a place for generic? Do you need both? Or should it be primarily one or the other?

Teacher (Int-We-14): I think there's definitely a place for generic professional development, especially when you start working in a new school system where you're not fully aware of the policies and procedures that are in place or that you need to follow as a new teacher. So, there's definitely a place for that.

Teacher (Int-We-15): Yeah, there's definitely a place for generic, but if you were to place an importance of one over the other, I think to me personally it would be subject-specific.

Apart from this type of support for subject-specific professional development, teachers' comments relating to professional development's design and impact tended to express two types of messages, both of which diminished the importance of the design features. First, some teachers acknowledged a way in which the design of professional development reflected one or more of the literature-based design features, but then described an additional factor as being more important. For example, one teacher stated that although the ADEC subject-specific professional development reflected a subject-specific content focus, active learning, and collective participation, it was nonetheless:

> boring because the content's not necessarily engaging … It just feels repetitive, like I've done this before. It's not new, so it's not like I'm learning … I know about jigsaw activities; I know about differentiation—I know about those things so it's really more of the same. (Int-We-03)

Another teacher reported that the ADEC subject-specific and ADEC non-subject-specific professional development had both had equal impacts on her teaching practice because they had each supported her desire to learn more about inquiry-based teaching approaches:

> They [both] gave us new ways—how to introduce the curriculum to the students. And they gave us ideas about activities. They are the same, both of them are the same, but this [subject-specific health professional development] was concentrating on the [health] curriculum and this [*Tamkeen*] was in general. So both of them were good. (Int-Ar-08)

Thus, for both of these teachers (and others), the positive design of professional development activities was often overshadowed by another factor.

Second, some teachers described the absence of a particular aspect of positive professional development design but then indicated that this was not problematic.

For example, one teacher reported having minimal interactions with his subject advisor (that is, low duration for this professional development type) but remarked:

> She came in my classroom and, I mean, it was pretty clear, she was only coming because she's got to … Which was fine because, you know, if she's not going to be helpful I'd prefer to never see her than to see her every week. (Int-We-05)

Vignette 2 further illustrates this perspective in relation to another professional development category, formal lesson observation.

Vignette 2:

On the lack of duration for professional development

Interviewer: Was there any feedback on the pop-ins [unscheduled lesson observations by school administrators], or was that just them [administrators] monitoring what was happening?

Teacher (Int-We-05): There was some feedback, but it was just a short thing.

Interviewer: Very brief?

Teacher (Int-We-05): The teachers who wanted to follow it up and schedule a meeting with the vice principal did. But I knew I was doing a—what I would consider a good job, and I didn't feel like I could gain anything by going to sit with him for a while.

Interviewer: And he didn't proactively say, "We need to meet"?

Teacher (Int-We-05): No. Thank goodness. [laughs]

This section (Section 5.3, with subsections 5.3.1 and 5.3.2) has reported results related to the relationships between the design and impact of professional development as perceived by teachers in my study. Overall, the quantitative results reported in Section 5.3.1 may be interpreted in light of the qualitative data reported in Section 5.3.2. The quantitative results showed that there were positive associations between design and impact, indicating that incorporating the design features recommended in the literature contributed to professional development having

increased impacts. However, although these associations were important, they did not explain the majority of the variance in impact scores. The qualitative data suggested that the design of professional development may not have been of primary importance to the teachers in my study as the teachers did not necessarily speak favourably of well-designed professional development or criticise poorly-designed professional development; this suggested that additional factors may have been at play. Given these findings, a further research objective was added to the study to specifically investigate these additional factors (research objective 4). Chapter 6 presents results related to the remaining two objectives; now, however, Section 5.4 summarises the results presented in Chapter 5.

5.4 Chapter Summary

This chapter has reported the results related to research objectives 1, 2, and 3. These findings are summarised in this section and discussed in Chapter 7.

The first research objective was to develop and validate a questionnaire to evaluate the impact of professional development from the perspective of teachers. Having developed the questionnaire as detailed in Section 4.4 of Chapter 4, Section 5.1 of this chapter reported the results related to the validation of the questionnaire. The new questionnaire was completed by 393 teachers in the main survey, yielding two data sets that related to two broad types of professional development commonly used in Abu Dhabi public schools: whole-school and subject-specific. Through item and factor analysis using these data sets, a refined four-factor structure was identified with strong internal consistency reliability for each factor. The factors, which became the scales of the refined ITPD Questionnaire, were teacher reaction, teacher learning, outcomes, and organisational response. These scales aligned satisfactorily to the theoretical frameworks for evaluating teacher professional development defined by Desimone (2009) and Guskey (2000), although the way that both teacher and student outcomes came together onto the single outcomes factor was unexpected. For each of the two data sets, three ANOVAs were conducted to test the ability of the new questionnaire to distinguish between the responses of different groups of teachers. In each ANOVA for the whole-school professional development data, the questionnaire detected statistically significant ($p < .05$) differences for all scales; however, such

differences were not consistently detected within the subject-specific professional development ANOVAs. Overall, the results supported the validity of the ITPD Questionnaire when used with Arab and Western teachers in the context of this study.

The second research objective was to examine teachers' perceptions of the design and the impact of the professional development that they had experienced in Abu Dhabi public schools; results related to this objective were reported in Section 5.2. Based on the interview data, the professional development activities reported by teachers were synthesised into 11 categories. For each of these categories, scores for five design features (content focus, active learning, coherence, duration, and collective participation) and an overall design effectiveness index were calculated using the interviewee survey data. Similarly, scores for the four impact scales of the ITPD Questionnaire (teacher reaction, teacher learning, outcomes, and organisational response) as well as a total impact score were calculated. Qualitative data were used to explain the quantitative findings related to both design and impact. Overall, the design effectiveness scores indicated that although the professional development reflected much alignment with the literature-based design features, there was also room to improve. The impact scores indicated that teachers generally felt that professional development had resulted in impacts, with the greatest impacts being reported at the teacher reaction and teacher learning levels.

The third research objective was to investigate the relationships between teachers' perceptions of the design and impact of professional development; results related to this objective were reported in Section 5.3. Quantitative analysis of the interviewee survey data indicated that in the Abu Dhabi context, professional development that was better aligned with the five literature-based design features (content focus, active learning, coherence, duration, and collective participation) could be expected to have greater impact. However, despite this positive association, the greatest rates of teacher participation were related to the professional development categories that had the lowest scores for both design and impact.

The quantitative analyses for research objective 3 also indicated that the design feature data only partially explained the variance in the impact scores, suggesting

that factors other than the design of professional development may have affected teachers' perceptions of the resulting impacts. Analysis of the qualitative interview data suggested that the design of the professional development may not have been the most important factor in determining teachers' perceptions of the impact of the professional development. Given this finding, a new objective (research objective 4) was added to examine additional factors that could affect the impact of professional development. The results related to research objective 4 are presented in Chapter 6, as are the results related to the differences between Arab and Western teachers' perceptions and experiences of professional development (research objective 5).

Chapter 6

RESULTS – PART TWO

Whereas the previous chapter reported the results for research objectives 1, 2, and 3, this chapter reports the results for research objectives 4 and 5. Section 6.1 describes the non-design-related factors that, according to teachers, influenced the impact of the professional development in Abu Dhabi public schools (research objective 4). Section 6.2 reports on the ways in which the Arab and Western teachers differed in terms of their experiences and perceptions of professional development (research objective 5). Section 6.3 then summarises the findings presented in this chapter.

6.1 Non-Design-Related Factors Affecting the Impact of Professional Development

The results reported in Chapter 5 indicated that although the design of the professional development in Abu Dhabi public schools was statistically significantly and positively related to teachers' perceptions of the associated impact, the design of the professional development did not explain the majority of the variance in the impact scores. That is, although professional development that reflected the literature-based design features was associated with increased impact, other factors may also have been at play. As such, a new research objective (research objective 4) was added to examine factors other than the design of professional development that influenced teachers' perceptions of the impact of professional development.

Although such factors were not anticipated when the study was designed, investigating them proved to be important. Whereas the quantitative data confirmed the importance of the design features, the non-design-related factors were discussed more extensively by teachers in the interviews, suggesting their importance to teachers. The addition of a research objective that examined these non-design-related factors was also consistent with the interpretivist principle of "understanding the complex world of lived experience from the point of view of those who live it" (Schwandt, 1998, p. 221).

This section begins with an overview of the conceptual model that was developed to represent the non-design-related factors that teachers perceived as having an important effect on the impact of professional development (Section 6.1.1). Given this overview, the specific factors that emerged from the data analysis are then described in detail and their respective roles in the conceptual model are discussed. These factors were: structural factors that affected teachers' access to professional development (Section 6.1.2); teachers' cognitive access to the content of professional development (Section 6.1.3); the perceived contextual 'fit' of professional development content for the environments in which teachers worked (Section 6.1.4); and teacher agency (Section 6.1.5).

6.1.1 Conceptual Model for the Professional Development Impact Trajectory

As described in Chapter 4, constructivist grounded theory approaches (Charmaz, 2000, 2003, 2006, 2008) were used to identify and synthesise the non-design-related factors that teachers indicated had affected the impact of professional development. First, thematic content analysis was conducted using the qualitative data obtained from the interviews (N = 35 teachers) and the written comments on the main survey (n = 96 teachers[37]). This analysis resulted in the identification of various non-design-related factors that influenced teachers' perceptions of the impact of professional development. A conceptual model was then developed to represent these factors and my interpretation (based on the data provided by teachers) of the ways in which these factors intersected with traditional conceptualisations of the professional development impact trajectory (that is, the process by which professional development activities result in teaching and learning impacts; see Section 2.4 of Chapter 2). The resulting model is depicted in Figure 6.1.

Whereas the literature reviewed in Section 2.4 of Chapter 2 indicated that the impact trajectory for professional development involved *professional development activity—teacher learning—teacher classroom implementation—student impacts*, my findings suggested that in the Abu Dhabi context, this trajectory was influenced by a number of barriers. These barriers formed four filters, shown in the conceptual model in

[37] Whereas 393 teachers provided complete and useable responses to the quantitative items of the main survey, only 96 of these teachers chose to provide a written comment in addition to their quantitative responses (see Table 4.1 on page 102).

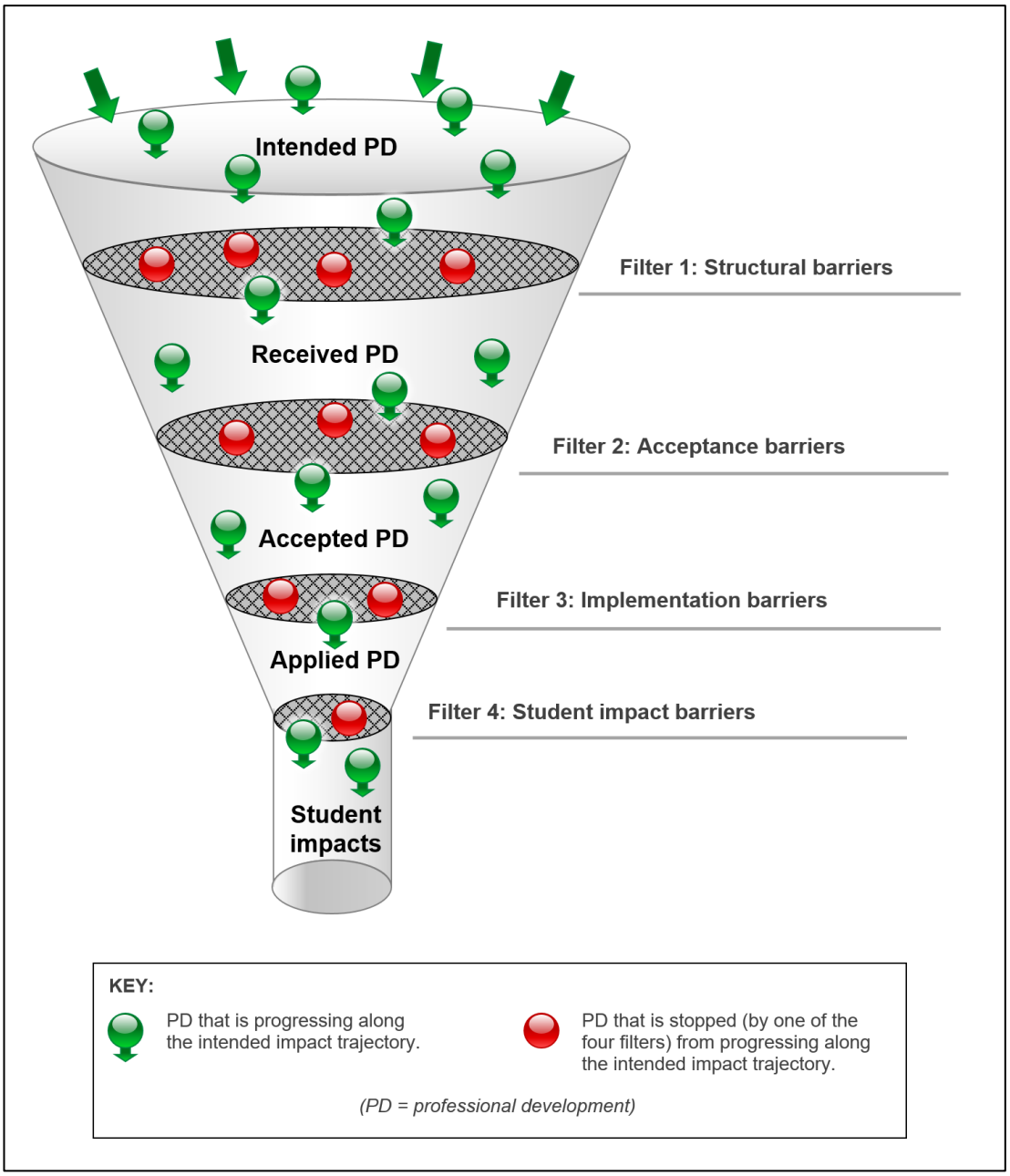

Figure 6.1. Conceptual model of the professional development impact trajectory and the filters that restrict progression through the intended trajectory

Figure 6.1, that successively reduced the amount of professional development that progressed through the intended impact trajectory.

The remainder of this section (Section 6.1.1) provides an overview of the professional development impact trajectory and the intervening filters that were identified in my study. The description below proceeds in order from the top of the

conceptual model diagram to the bottom. The specific barriers that comprise filters one and two are then discussed in more depth in Sections 6.1.2 to 6.1.5.

Stage one: Intended professional development. The first stage of the conceptual model in Figure 6.1 refers to the planned professional development that teachers were intended to experience. In the Abu Dhabi context, this corresponds to ADEC's policy perspective on professional development provision for public school teachers.

Filter one: Structural barriers. Two types of structural barriers—namely, language issues and school-related factors—affected teachers' access to the intended professional development. These barriers are described further in Section 6.1.2. By preventing some teachers from engaging in some of the intended professional development, these structural barriers formed the first filter in the conceptual model.

Stage two: Received professional development. This stage represents the professional development that teachers actually experienced. Some, but not all, of the intended professional development (stage one) progressed past filter one and became received professional development.

Filter two: Acceptance barriers. When teachers received professional development, three types of factors affected whether they accepted the ideas and approaches that were presented[38] therein. These acceptance barriers (which are described in detail in Sections 6.1.3 to 6.1.5, respectively) involved: (a) teachers' cognitive access to professional development (that is, their ability to construct meaning related to the content being presented, given their existing knowledge, experience, and worldviews); (b) teachers' perceptions of the appropriateness or 'fit' of the professional development content for the contexts in which they taught; and (c) matters related to teacher agency. Some, but not all, of the received professional development (stage two) was accepted by teachers and progressed beyond filter two.

[38] It is acknowledged that the use of the word "presented" implies a transmissive professional development model and may not fully represent the ways in which teachers encountered new ideas and approaches across the full range of professional development activities that teachers experienced. However, the word "presented" is used here and elsewhere in this chapter for convenience and, further, because the transmissive model of professional development was the approach that was implicitly adopted by ADEC in their policy and practice related to professional development provision.

Stage three: Accepted professional development. The third stage in the conceptual model represents the professional development that teachers had both received and accepted. Although the existing literature refers, at this stage, to teacher *learning* (see, for example, Desimone, 2009; Guskey, 2000; F. King, 2014; Timperley et al., 2007), in my study it appeared that this stage related more clearly to teachers' *acceptance* of professional development content; this acceptance was a pre-requisite for any subsequent impact on teaching or learning.

Filter three: Implementation barriers. Not all of the professional development that teachers accepted was subsequently implemented in their classroom teaching. The third filter in the conceptual model, therefore, represents barriers to teachers' classroom implementation of professional development content that they had received and accepted. The information supplied by the teachers in my study did not provide clear indications related to what these implementation barriers (or enablers) might be[39]. However, existing literature acknowledges that teachers' cognitive engagement with new ideas does not automatically lead to classroom implementation (Timperley et al., 2007), supporting the presence of this filter within the conceptual model in Figure 6.1.

Stage four: Applied professional development. The fourth stage of the conceptual model represents the professional development that, having been received and accepted by teachers, was implemented in their classroom practice. This stage aligns with literature-based frameworks that identify changes in teachers' classroom practice as a key stage in the professional development impact trajectory (see, for example, Desimone, 2009; Guskey, 2000; F. King, 2014; Timperley et al., 2007). Only professional development that teachers had received, accepted, and applied had the potential to achieve impacts on students.

Filter four: Student impact barriers. The final filter in the conceptual model represents the various factors that, in some cases, prevent changes in teachers' classroom practice from improving student learning and achievement. Again, although my study did not provide specific insight into the factors that affect this

[39] The barriers contributing to filters three and four were not able to be deliberately explored during the interviews as the significance of the non-design-related factors only became clear after all of the data had been collected.

progression, existing literature confirms that not all applied professional development is necessarily associated with student impacts (Timperley et al., 2007), suggesting that barriers act as a filter at this stage of the professional development impact trajectory.

Stage five: Student impacts. The final stage of the conceptual model reflects the "ultimate goal" (Guskey, 2000, p. 207) of professional development efforts: namely, positive impacts on student learning and achievement. Although the four filters that were identified within the conceptual model appeared to prevent some forms of professional development (for some teachers) from reaching the student impact stage, this stage remains the final—and, arguably, the most important—determinant of whether professional development has been successful.

Drawing on this overarching framework, the rest of this chapter describes the major themes that emerged from the qualitative data. These themes make up the elements of the first two filters in the conceptual model, which are the essence of how my conceptual model differs from existing models of the professional development and teacher change process (as reviewed in Section 2.4 of Chapter 2). First, Section 6.1.2 discusses the structural barriers to professional development (filter one in the conceptual model). Then, Sections 6.1.3 to 6.1.5 discuss the three types of acceptance barriers that were identified (filter two in the conceptual model): teachers' cognitive access to professional development (Section 6.1.3), the perceived contextual fit of professional development (Section 6.1.4), and matters associated with teacher agency (Section 6.1.5).

6.1.2 Filter One: Structural Barriers to Professional Development

Despite the system-wide policies that established broadly consistent professional development approaches across ADEC schools (see Section 1.1.5 of Chapter 1), the qualitative data obtained in my study suggested that two types of barriers had compromised teachers' ability to participate in some forms of professional development. These issues, termed structural barriers in the conceptual model (depicted in Figure 6.1 on page 205), related to (a) the language that was used in

professional development (described in Section 6.1.2.1) and (b) school-related factors (described in Section 6.1.2.2).

6.1.2.1 Structural Barrier: Language Issues

The first structural barrier identified in my study involved the way that, in some schools, the language used in professional development prevented some teachers from accessing the information and ideas that were being presented. Language issues appeared to be particularly problematic for two forms of professional development: school activities[40] and the *Tamkeen* sessions (a major component of the ADEC non-subject-specific category). These two categories of professional development occurred at individual school sites and, in most cases, involved all teaching staff. In some schools, these forms of professional development were conducted in Arabic with English language translation provided for Western teachers (Int-We-01, Int-We-03, Int-We-05, Int-We-07, Int-We-13, Int-We-14, Int-We-15, Int-We-16, Ms-We-059). However, the extent of this translation ranged between complete, parallel translation (Int-We-01, Int-We-03, Int-We-07) to only brief summaries of the key content (Int-We-05, Int-We-13, Int-We-16). Further, some teachers reported that in their schools, some school-wide professional development activities were delivered entirely in Arabic, with no English translation (Int-We-05, Int-We-07, Int-We-08, Int-We-11, Int-We-12, Int-We-13, Ms-We-051, Ms-We-113).

These experiences made professional development "inaccessible" (Ms-We-113) to teachers who did not speak Arabic, creating a source of frustration for Western teachers. For example, when asked to describe an ideal professional development experience, one Western teacher exclaimed: "It's presented in the language that you speak!" (Int-We-16). Another teacher commented: "The *Tamkeen* sessions have been extremely frustrating and felt like a waste of time. Most of the time we [Western teachers] did not know what was going on, with random photocopies, some translated, others not" (Ms-We-059). Vignette 3 further illustrates Western teachers' frustration at language restricting access to professional development.

[40] As summarised in Section 5.2.1 of Chapter 5 (and detailed further in Appendix 26), school activities were initiated by and based within individual schools. These activities included staff meetings, school committees, and interactions between teachers and school administrators.

Vignette 3:

On language restricting teachers' access to professional development

Teacher (Int-We-16): We've had a few dust-ups during meetings—both from my side, mostly me, and from the Arab staff—about the language that the meeting is being delivered in.

Teacher (Int-Ar-18): I think that was the result of bad organisation of the groups, because, at least on one occasion, the group was a mixture of Western and Arab teachers. So, when the presenter spoke English, the Arab teachers did not understand; and when we spoke Arabic, those three Western teachers were angry. And that was … I think that they should have placed English-speaking teachers in one group and Arabic-speaking teachers in another group.

Teacher (Int-We-16): I mean, the typical [staff] meeting here is, let's say an hour, all in Arabic; and then we [Western teachers] get a minute, or a minute and a half summary. And, as I've always said to the administration here, "the devil's in the detail." So, I want that whole—I mean, I want to know *all* of what these guys are saying. I mean, are they angry? Are they happy? Are they—you know? It's like … aaah! Are they, like—I don't know! It would be nice to know!

Teacher (Int-Ar-18): There should be two meetings. One English, one in Arabic.

Whereas language barriers most commonly affected the *Tamkeen* training and school activities, the impact of language barriers on other categories of professional development varied. Two Western teachers, both of whom spoke no Arabic, each reported that they had nonetheless been able to learn a great deal from peer lesson observations (Int-We-11) and school activities (specifically, school leadership team meetings; Int-We-04) that had been conducted entirely in Arabic, simply by interpreting body language and other cues to construct meaning. On the other hand, one Western teacher was frustrated by language issues within formal lesson observation, saying that: "You just get observed, and she [the principal] didn't even translate the report into English for me—she just gave it to me. So my report's all in Arabic" (Int-We-06).

It appeared that language issues predominantly affected Western, but not Arab, teachers' access to professional development. Whereas a large number of Western

teachers reported that they had encountered language barriers in professional development (Int-We-01, Int-We-03, Int-We-05, Int-We-06, Int-We-07, Int-We-08, Int-We-09, Int-We-11, Int-We-12, Int-We-13, Int-We-14, Int-We-15, Int-We-16, Ms-We-051, Ms-We-059, Ms-We-113), just two Arab teachers made language-related remarks. Specifically, one Arab teacher stated that Arab teachers (collectively) struggled when professional development was conducted in English (Int-Ar-18); another Arab teacher reported that when looking at exemplars and resources posted online by ADEC curriculum staff, she had struggled to understand the materials because they were written in English (Int-Ar-01).

Overall, the findings in this section (Section 6.1.2.1) suggested that the language used in the delivery of professional development in Abu Dhabi affected teachers' access to the intended professional development. As such, language was depicted as a structural barrier within the first filter in the conceptual model (shown in Figure 6.1 on page 205).

6.1.2.2 Structural Barrier: School-Related Factors

In addition to language issues, factors specific to individual schools affected some teachers' access to the intended professional development. These school-related factors were further structural barriers within filter one in the conceptual model (shown in Figure 6.1 on page 205). The specific factors that affected teachers' access to professional development included school timetabling, the school's physical location, and teachers' assigned grade levels or teaching subjects. Each of these factors is discussed below.

School timetabling affected some teachers' access to professional development, either through restricting their access to professional development activities or due to professional development being conducted at times when teachers were too tired or busy to engage fully. First, some teachers reported that they were not able to participate in professional development activities because they were teaching when the professional development occurred. This situation affected teachers' access to the *Tamkeen* sessions (Int-Ar-08, Int-We-08, Int-We-09) as well as their ability to meet

with their assigned subject advisor (Int-Ar-08, Int-Ar-09-13[41]), participate in peer lesson observation (Int-We-01, Int-We-11, Int-We-12), or participate in formal subject department meetings (Int-Ar-04-07, Int-We-16). Second, some teachers commented that their overall teaching load meant that they did not have the time or energy to pursue professional development (Int-We-08, Int-We-09, Int-We-11, Int-We-12, Int-Ar-03, Int-Ar-08, Int-Ar-09-13). The large *Tamkeen* participation requirement (30 hours per year; see Section 1.1.5 of Chapter 1) may also have contributed to 'professional development fatigue'; for example, one teacher reported that teachers in his school were reluctant to agree to meet for planning or other activities on days when *Tamkeen* sessions were scheduled (Int-We-15). Finally, teachers noted that they were too tired to benefit from professional development sessions that were held after school (Int-We-04, Int-We-07, Ms-Ar-110, Ms-Ar-153, Ms-Ar-184, Ms-Ar-244). One teacher shared the following anecdote:

> I can recall an incident—it was approaching Eid[42]. The management had realised that we hadn't met the minimum [*Tamkeen*] requirement for that trimester; it was a Thursday[43], and they put on three hours of PD on a Thursday afternoon. Everybody—well, I'm going to speak for myself—I attended 'in body only'! (Int-We-04)

Another school-related factor, schools' physical locations, was reported by a smaller number of teachers as affecting their access to professional development. Teachers from remote rural schools (Int-Ar-04-07, Int-We-08, Int-We-09) felt that they had received less support than their counterparts in urban schools. For example, a group of teachers from a school in an outlying suburb of Abu Dhabi city observed that when teachers were being selected to participate in ADEC subject-specific forms of professional development such as examination writing or focus groups, "They choose teachers from Abu Dhabi, not from outside of Abu Dhabi". I queried this as, in my mind, their suburb was still part of Abu Dhabi city, despite being located off Abu Dhabi Island. In response, the teachers stated that: "Any meeting about

[41] As detailed in Section 5.2.2.2 of Chapter 5, codes such as this one represent a group of teachers (in this case, Int-Ar-09, Int-Ar-10, Int-Ar-11, Int-Ar-12, and Int-Ar-13) who participated in an interview as a group. Aggregate codes are used when the individual teachers who were speaking were not able to be distinguished in the audio recordings of such interviews.
[42] An Islamic holiday.
[43] In the UAE, Thursday is the end of the working week.

curriculum, they choose from the island schools" (Int-Ar-04-07). Vignette 4 further illustrates teachers' perception that being placed in a desert school was associated with receiving less professional development and support.

Vignette 4:

On how schools' physical location affected professional development

Teacher (Int-We-08): I know just from talking to friends, their experience with PD was way different, being in a city Al Ain school, than my experience, being in a rural Al Ain school. And I would imagine that comparing Al Gharbia region versus Abu Dhabi region versus Al Ain region[44], it'd be very different as well.

Teacher (Int-We-09): Yeah. Or even just the idea of desert school versus city school, in any region.

Teacher (Int-We-08): Yeah, right. Because a lot of us in the desert schools—we feel like we're just kind of out in the middle of nowhere, just left to figure it out on our own. [laughs]

Teacher (Int-We-09): Yeah, I think that's very true. Even the difference between my old [desert] school and my new [inner-city] school is just—it's night and day. I do feel more supported here.

Teacher (Int-We-08): And, you know, we were only 45 minutes out of town, and there are people who were an hour and a half out!

A final school-related factor that affected teachers' access to professional development was teachers' assigned teaching subjects and grade levels. This appeared to particularly affect the professional development provided by subject advisors. To support ADEC's staged roll-out of the New School Model reform initiative (see Section 1.1.3 of Chapter 1), subject advisors were expected to focus on supporting the grade levels that were part of the New School Model. Teachers of other grade levels described the resulting lack of support that they had experienced (Int-Ar-03, Int-Ar-05, Int-Ar-14, Int-We-01, Int-We-09, Ms-Ar-028, Ms-Ar-030, Ms-Ar-037, Ms-Ar-081, Ms-Ar-148, Ms-Ar-234, Ms-Ar-242, Ms-We-104). For example, one teacher commented: "I think we needed more time with our advisor. I

[44] See Section 1.1.2 of Chapter 1.

didn't meet with him so much because his focus was on the teachers in the New School Model, teachers of Grade 6" (Int-Ar-05). Further, even teachers who were assigned to New School Model grades noted that their advisors, at times, needed to focus on teachers in other schools who were in greater need of support. For example, one teacher recalled that:

> At the start of the year, the advisor was very busy with other schools because there were science teachers placed in other schools who weren't [trained as] science teachers, whereas I think she thought that we were very proficient; we're both science teachers; so she just kind of left us to it. (Int-We-11)

Finally, teachers commented that the level of support provided varied from subject to subject. In regard to subject advisors, teachers at one school reported that whereas they had seen their mathematics advisor frequently, their science advisor had visited far less (Int-Ar-09-13). Similarly, teachers commented that the extent of the exemplars and resources provided by the ADEC curriculum teams varied markedly between subjects (Int-We-11, Int-We-12).

Overall, the findings in this section (Section 6.1.2.2) indicate that despite ADEC's standardised, system-wide expectations and policies for professional development provision (see Section 1.1.5 of Chapter 1), a number of factors affected teachers' access to professional development within individual schools. Together, the structural barriers reported in Sections 6.1.2.1 (language issues) and 6.1.2.2 (school-related factors) comprised the first filter in the conceptual model shown in Figure 6.1. These barriers prevented some of the intended professional development (stage one of the model) from becoming received professional development (stage two).

6.1.3 Acceptance Barrier: Cognitive Access to Professional Development

The second filter depicted in the conceptual model in Figure 6.1 determined whether the content of the received professional development (stage two) became accepted professional development (stage three). My interpretation of the qualitative data provided by teachers in my study led to the identification of three components that

comprised this second filter: teachers' cognitive access to the professional development that they received (described in this section); the perceived 'fit' of professional development for the contexts in which teachers worked (described in Section 6.1.4); and matters related to teacher agency (Section 6.1.5).

The first component of filter two involved teachers' cognitive access to professional development—that is, their ability to understand and construct meaning related to the ideas and approaches that they encountered within professional development activities. For the Arab teachers in particular, a significant cultural and conceptual gap appeared to exist between the teachers' existing worldviews, practices, and professional knowledge and the new approaches that were described in professional development. This gap affected these teachers' cognitive access to the professional development that they received: In general, the Arab teachers appeared to struggle to construct sufficient meaning related to the ideas presented in some forms of professional development (particularly the *Tamkeen* programme). This section illustrates how Arab teachers: (a) described professional development as too theoretical and not sufficiently linked to classroom practice; (b) expressed a need for the provision of more practical guidance and modelling of new approaches; (c) struggled to interpret how the approaches that were described during professional development could be implemented in their own teaching subject or grade level; (d) appreciated professional development that was subject-specific; and (e) felt overwhelmed by the pace of change that was expected and the number of new ideas that they were being presented with.

Many of the Arab teachers in my study indicated that they had found professional development activities (primarily the *Tamkeen* sessions) to be too theoretical and not sufficiently linked to classroom practice (Int-Ar-01, Int-Ar-03, Int-Ar-14, Ms-Ar-015, Ms-Ar-170, Ms-Ar-178, Ms-Ar-179, Ms-Ar-187, Ms-Ar-209, Ms-Ar-228). As a result, these teachers felt that they did not fully understand how the new teaching approaches covered in professional development might look in practice. Highlighting the extent of the shift in pedagogical thinking and practice that was being demanded of Arab teachers, one teacher remarked: "We try to understand, but it is a new thing for us" (Int-Ar-14). Another teacher, after attending 30 hours of *Tamkeen* training on differentiation, commented that: "Actually, I still need more [professional

development] about differentiation even now, because I think that [my understanding of differentiation] is still theoretical, not practical" (Int-Ar-01).

The Arab teachers said that they wanted more practical support such as model lessons (Int-Ar-04-07, Int-Ar-08), specific teaching resources or instructions (Int-Ar-04-07, Ms-Ar-209), and in-class coaching (Int-Ar-02, Int-Ar-03, Int-Ar-09-13, Ms-Ar-192) to help them to see how to implement the new approaches. Further, the Arab teachers praised forms of professional development that *had* incorporated these types of specific, practical support, including the work of subject advisors (Int-Ar-01, Int-Ar-03, Int-Ar-14) and interactions with their peers (Int-Ar-02, Int-Ar-14). One Western teacher who had supported the Arab teachers at her school agreed that Arab teachers needed more practical support, recommending that ADEC should: "Get people to come into the schools and show—you know, demonstrate how you want it done!" (Int-We-06). Vignette 5 further illustrates Arab teachers' desire for more practical support within professional development. Overall, it appeared that Arab teachers found practical forms of professional development more helpful than theoretical approaches in allowing them to develop mental constructs of the new teaching strategies.

The Arab teachers also appeared to have difficulty when professional development was not directly aligned to their particular teaching subject or grade level: They struggled to see how such professional development could be relevant to, or could be modified to suit, their own teaching context (Int-Ar-01, Int-Ar-08, Int-Ar-09-13, Ms-Ar-242). These teachers dismissed generic (that is, non-subject-specific) forms of professional development, saying that the content was not relevant for their specific teaching subject (Int-Ar-01, Int-Ar-08, Int-Ar-13) or grade level (Int-Ar-01, Int-Ar-02). For example, one teacher remarked: "Some [strategies] are not beneficial to me because I'm a science teacher; maybe it's good for other teachers, but not for science" (Int-Ar-08); similarly, a mathematics teacher stated that: "I am still looking for someone to give me their experience, to tell me 'I do that [technique] and it matched with math', because it [what professional development recommends] mostly matches with Arabic and Islamic studies" (Int-Ar-01).

Vignette 5:

On Arab teachers' need for practical support and demonstration

Teacher (Int-Ar-04): It's good with *Tamkeen*, but the main thing we want—every time, they come to the teachers and [just] give us some information. But if there is some ...

Teacher (Int-Ar-05): Some resources, instructions.

Teacher (Int-Ar-04): Yes, or if he [the *Tamkeen* trainer] can come and make a period for the teachers—

Teacher (Int-Ar-06): To demonstrate for the teachers.

Teacher (Int-Ar-05): Demonstrate, yeah. Observe.

Teacher (Int-Ar-04): Observation.

Teacher (Int-Ar-05): And we can give our feedback.

Interviewer: So you want them to observe you? Or you want the chance to observe them demonstrating?

Teacher (Int-Ar-05): We want to observe.

Interviewer: So you want them to model in the class so that you can see?

Teacher (Int-Ar-04): Model, yes.

Teacher (Int-Ar-06): Give a demonstration lesson.

Teacher (Int-Ar-05): As a trainer, if he can make a model lesson and let us see this lesson. He [has] talked about differentiation, about assessment for learning—let us see what is good differentiation, what is good assessment. We want to learn from them.

Not surprisingly, given the findings outlined above, the Arab teachers requested more subject-specific professional development (Ms-Ar-030, Ms-Ar-110, Ms-Ar-170, Ms-Ar-242) and spoke positively of the subject-specific input they had received from both subject advisors (Int-Ar-01, Int-Ar-03, Int-Ar-14) and the ADEC subject-specific professional development activities (Int-Ar-08). One Arab teacher also spoke positively of the effort that had been made at her school to adapt the

standardised *Tamkeen* training material in order to provide each teaching subject with subject-specific examples, saying:

> Miss Jane[45] did great work on 'twisting the neck' of this professional development so that it suited all subjects. It was great work, really; dealing with English as a language, and dealing with history, chemistry ... Really, she did a great job. (Int-Ar-02)

Overall, it appeared that subject-specific forms of professional development helped the Arab teachers to access, and construct meaning with respect to, the new teaching approaches being presented.

Given the cognitive access challenges that the Arab teachers faced in trying to make meaning of new educational approaches that were very different from what they were used to, some teachers reported feeling overwhelmed or exhausted as a result of the pace and scale of the change required (Int-Ar-02, Int-Ar-08, Int-Ar-14). For example, one teacher remarked that in the case of the *Tamkeen* programme:

> It was a rush of information, with no time to implement, to apply, to test. Every month, we had a number of ideas, and there were too many to choose from. We need to focus on something, and we need to have some time to understand, to apply, to test, to evaluate, to reflect, before going to another [topic]. (Int-Ar-14)

Other teachers, though not reporting the same sense of being overwhelmed, nonetheless acknowledged the scale of the learning and change being expected of them (Int-Ar-01, Int-Ar-02, Int-Ar-03, Int-Ar-08, Int-Ar-09-13). For example, one teacher stated:

> We need professional development because teaching today is not the same as the old way—the students are changing; the way they are learning is different. So, professional development should be

[45] Pseudonym.

> continuous for the teacher … We have to change our ways of teaching, so we need professional development. (Int-Ar-09-13)

Overall, the findings in this section suggest that there was a cognitive and cultural gap between the Arab teachers' existing knowledge and skills and the pedagogical approaches that were being presented through professional development. Because of this cognitive and cultural gap, accessing and constructing meaning related to these radically different approaches presented a conceptual challenge for the Arab teachers. Cognitive access to professional development was, therefore, one of the acceptance barriers within filter two (which determined whether received professional development became accepted professional development) in the conceptual model depicted in Figure 6.1 (on page 205).

6.1.4 Acceptance Barrier: The Contextual 'Fit' of Professional Development

A second acceptance barrier that contributed to filter two in the conceptual model (presented in Figure 6.1) involved teachers' perceptions of the 'fit' between the content of professional development and the contexts in which they taught. This section (Section 6.1.4) discusses teachers' indications that for professional development to be accepted, the content needed to 'fit' their contexts at student, school, and wider cultural levels.

At a student level, some teachers rejected the ideas and strategies that were advocated during professional development on the grounds that the characteristics of their students made those ideas and strategies unsuitable. Teachers said that their students' poor English language proficiency (Int-We-05, Int-We-09, Int-We-13, Int-We-16, Ms-We-016, Ms-We-067, Ms-We-076, Ms-We-098) and low academic abilities (Int-Ar-08, Int-Ar-15-19, Int-We-02, Int-We-13, Ms-Ar-238, Ms-We-148) meant that the approaches covered in professional development sessions—particularly the *Tamkeen* training—were not suitable for use with their students. Further, teachers reported that students' attitudes (Int-Ar-08, Int-Ar-15-19, Ms-Ar-123) and behaviour (Int-We-02, Int-We-05, Int-We-08, Int-We-09, Ms-We-052, Ms-We-067) restricted their ability to implement recommended teaching strategies in

their lessons. Vignette 6 illustrates how such student characteristics affected the fit of professional development with one teacher's practice.

Vignette 6:

On student characteristics affecting the fit of professional development

Teacher (Int-We-13): I feel like every single day, behaviour-wise, last year, was the worst day of my entire teaching career. From a behaviour standpoint. Sometimes we'd laugh about, "Let's go listen to all the stuff at PD" where they show a video of someone doing an activity in their classroom, and it's a classroom with four students in it and everyone is listening and quiet and raising their hand—and we're going, "Yeah, well, we can do that too, in *that* scenario." Or, say, you learn in theory some of the assessment for learning tasks—like, let's take as an example, exit slips; okay, that's a good assessment for learning tool. So, in one PD, you learn about exit slips, and how important they are, and how to use them. And then you go through the week trying to implement exit slips—and you can't get your kids in their seats, they can't write their names on them, they don't turn them in … So, when the PD company or your school or whatever says, "this [strategy] impacts learning", everybody can get behind that and say, "Yeah, we completely understand that, we agree—but how we do it *here*?"

As well as student-level factors, school-level factors also affected teachers' perceptions of the contextual fit—and, therefore, their acceptance—of professional development content. Teachers reported rejecting the ideas advocated in professional development due to a lack of support from school leadership in regard to behaviour management (Int-We-02, Int-We-13, Ms-We-052, Ms-We-063, Ms-We-095), school leaders' insufficient understanding of the pedagogical approaches involved in the New School Model (Int-We-01, Int-We-03, Ms-Ar-163, Ms-We-013), and school leaders being unaware of professional development focuses or expectations (Int-We-08, Int-We-11, Int-We-12, Int-We-13). For example, one teacher (Int-We-05) reported that his principal "is very focused on whether or not your students are fairly quiet. He doesn't mind if they work in groups, but he wants a well-structured classroom." This teacher went on to admit that his decisions about which teaching strategies to implement were, to some extent, compromised by "the reality, which is, I have to control these students and not let them run wild." As was the case for the

student-level factors, these school-level factors led teachers to feel that the strategies presented in some professional development did not fit their school contexts; consequently, the received professional development did not progress to become accepted (or, consequently, applied) professional development (see Figure 6.1 on page 205).

Teachers expressed the view that given the differences between schools, professional development needed to be tailored to suit the nature and needs of individual school contexts. For example, one teacher argued that: "Each school is different, so it shouldn't be a cookie-cutter PD, a cookie-cutter solution" (Int-We-09). Interestingly, teachers did not agree on whether this customisation of professional development to ensure appropriate fit between professional development and the school situation was currently occurring (Int-We-08, Int-We-09, Int-We-13, Int-We-14, Int-We-15) or not (Int-We-04, Ms-Ar-033, Int-Ar-01). Only one teacher contradicted this general preference for contextual tailoring of professional development, stating that: "We would like the PD to be the same in all schools at the same time" (Ms-Ar-064).

Finally, the teachers expected professional development to demonstrate adequate fit with the cultural context of Abu Dhabi. Both Arab and Western teachers indicated that given the unique cultural context of Abu Dhabi, it was inappropriate to simply transfer teaching approaches or professional development content from other parts of the world (Int-We-02, Int-Ar-01, Int-Ar-08, Ms-We-056, Ms-We-063, Ms-We-093, Ms-Ar-021, Ms-Ar-033). Teachers also indicated that some professional development providers—particularly those involved in the *Tamkeen* programme—lacked the cultural and contextual knowledge necessary to inform their work (Int-Ar-08, Int-We-02, Int-We-06, Int-We-07, Ms-We-076). This affected teachers' perceptions of the associated professional development; for example, teachers stated that the *Tamkeen* professional development, in particular, was "totally inapplicable" (Int-We-02) and "not real[istic]" (Int-Ar-08) for Abu Dhabi public schools.

Teachers appreciated professional development that, in their opinion, was appropriately tailored to the cultural context of the UAE. For example, one Western teacher reported that: "I have thoroughly enjoyed the [ADEC subject-specific] mathematics professional development because it has relevance, and it is practical in

that it applies to the unique group of learners here in the UAE" (Ms-We-016). One Emirati teacher stated that, overall, she felt that the professional development occurring in ADEC schools was sufficiently aligned to UAE cultural values: When asked, "Do you think that the PD you receive is suitable for UAE and the culture and the way that the society is here?" she responded: "Yes. I think because it comes from ADEC, [so] every workshop, they know, they have to make reference to the culture" (Int-Ar-03).

The Western teachers emphasised the importance of targeted professional development for helping them to better understand the cultural context of the UAE (Int-We-05, Int-We-10, Int-We-11, Int-We-12, Int-We-13, Ms-We-012, Ms-We-063, Ms-We-100). This reflected their position as cultural outsiders, trying to find ways of living and working in a context that was vastly different to their country of origin. In this regard, there may have been a gap between the Western teachers' educational capital (based on their training and experience in Western countries) and the culture that they were now working within. For example, one teacher remarked:

> The cultural difference, the attitude difference here is something new. I was prepared for there to be cultural differences, but I don't think I realised the personality differences that would come with it. There's this completely different attitude to learning here than at home. (Int-We-12)

Another teacher reflected on the progress he had made in terms of addressing his cultural outsidership after a year teaching in an ADEC school, saying:

> I think I'm a better teacher for here [that is, for the unique requirements of the Abu Dhabi context] than I was 12 months ago, in the sense that I understand the culture, I understand the students better. I understand more how the system works, so I understand how to operate in that system. (Int-We-09)

This section (Section 6.1.4) has described the student, school, and cultural levels at which teachers evaluated the 'fit' of professional development material for their

teaching contexts. My study indicated that when the contextual fit was not adequate, the teachers dismissed professional development as being irrelevant. As such, matters of fit were a potential barrier to teachers' acceptance of the received professional development.

6.1.5 Acceptance Barrier: Teacher Agency

Matters related to teacher agency formed the third and final component of filter two, which determined whether received professional development became accepted professional development (see Figure 6.1 on page 205). Analysis of the qualitative data indicated that within professional development, both Arab and Western teachers valued being respected as professionals and having opportunities to exercise professional agency. Where teacher agency was not adequately acknowledged, this was a barrier to teachers' acceptance of the received professional development. This section describes the role of teacher agency in relation to: teachers' conceptions of their existing professional expertise (Section 6.1.5.1); teachers' active critiquing and filtering of professional development content against their existing beliefs (Section 6.1.5.2); and teachers' attitudes regarding compulsory and self-selected professional development (Section 6.1.5.3).

6.1.5.1 Teacher Agency: Teachers' Perceptions of their Existing Professional Expertise

Many of the teachers in my study appeared to have a strong sense of their existing professional expertise. This affected their perceptions of and responses to professional development. It appeared that teachers were likely to reject professional development that they did not feel was relevant for them or that did not extend their existing expertise. As such, teachers' perceptions of their existing professional expertise constituted one of the ways in which teacher agency contributed to filter two in the conceptual model (presented in Figure 6.1 on page 205). This section describes how Arab and Western teachers described their existing expertise then reports teachers' accounts of professional development that did not appropriately acknowledge their existing expertise and describes the types of professional development that teachers wanted, given their perceptions of their existing expertise.

When talking about professional development, both Arab and Western teachers referred to their existing expertise. However, subtle differences were observed between Arab and Western teachers' descriptions of and attitudes related to this expertise. The Western teachers—including those with just a few years' teaching experience—supported claims about their existing expertise with reference to their professional qualifications and their prior experience with the pedagogical approaches that were presented in ADEC professional development (Int-We-07, Int-We-08, Int-We-09, Int-We-11, Int-We-13, Int-We-16, Ms-We-012, Ms-We-013, Ms-We-017, Ms-We-018, Ms-We-043, Ms-We-057, Ms-We-060, Ms-We-063, Ms-We-067, Ms-We-070, Ms-We-087, Ms-We-109, Ms-We-111, Ms-We-138). The Arab teachers, on the other hand, referred to their years of teaching experience to establish their professional expertise; as such, it was only the Arab teachers with long teaching careers who expressed this sense of professional expertise (Int-Ar-02, Int-Ar-04-07, Int-Ar-14, Int-Ar-15-19, Ms-Ar-217).

Further, even the Arab teachers who had extensive teaching experience nonetheless tended to acknowledge their need to learn new educational approaches (Int-Ar-01, Int-Ar-09-13, Int-Ar-14, Ms-Ar-133). Western teachers, on the other hand, had a much more robust view of the sufficiency of their existing knowledge (Int-We-05, Int-We-08, Int-We-11, Int-We-12, Int-We-13, Int-We-15, Ms-We-056, Ms-We-060, Ms-We-063, Ms-We-067, Ms-We-070, Ms-We-103, Ms-We-137, Ms-We-138); for example, one teacher wrote on the main survey: "We KNOW how to teach!" (Ms-We-056). This difference may reflect the Western teachers' insider status and the Arab teachers' outsider status in relation to the body of knowledge that was the focus of much professional development—in particular, the themes of differentiation and assessment for learning emphasised in the *Tamkeen* programme.

Both Arab and Western teachers in my study indicated that for professional development to result in teaching and learning impacts, it needed to acknowledge their existing professional expertise. Teachers' sense of their existing expertise led to them being frustrated by professional development that involved content that was not new for them, as well as by school leaders' and professional development providers' failure to acknowledge their existing expertise. Teachers also raised concerns about

the suitability of professional development facilitators. These issues are described below.

Many teachers criticised and rejected (through disengagement and the dismissal of any potential value) professional development that, in their opinion, was not new for them. This was particularly apparent for the *Tamkeen* professional development (Int-Ar-15-19, Int-We-01, Int-We-05, Int-We-07, Int-We-11, Int-We-13, Int-We-16, Ms-Ar-184, Ms-Ar-190, Ms-Ar-194, Ms-Ar-196, Ms-Ar-217, Ms-Ar-244, Ms-We-012, Ms-We-013, Ms-We-017, Ms-We-018, Ms-We-043, Ms-We-051, Ms-We-060, Ms-We-063, Ms-We-070, Ms-We-081, Ms-We-087, Ms-We-103, Ms-We-111). In these cases, the teachers did not disagree with the content being presented; rather, they felt that it was not relevant for their professional learning. For example, a Western teacher remarked that: "The professional development covers material that is already familiar to me and part of daily practice in Canadian classrooms" (Ms-We-013); an Arab teacher commented: "Most of the time, it [professional development] may not be very effective or very useful because they are repeating things that I already know" (Int-Ar-15-19). Because the content of some professional development was not new, both Arab and Western teachers reported that they had not learned anything (Int-Ar-15-19, Int-We-01, Ms-Ar-244, Ms-We-035, Ms-We-043, Ms-We-051, Ms-We-060, Ms-We-063, Ms-We-137), that their classroom practice had not changed (Int-Ar-15-19, Int-We-05, Ms-We-043, Ms-We-109), and that any improvement in their students' outcomes was not due to the professional development but, rather, due to their own existing expertise (Ms-We-043, Ms-We-060).

As well as the content of some professional development not being new, some teachers felt that they had not been treated in ways that respected their existing expertise (Int-We-02, Int-We-06, Int-We-08, Int-We-09, Int-We-13, Ms-Ar-217, Ms-We-018, Ms-We-063, Ms-We-076, Ms-We-111). For example, some Western teachers said that trainers from the *Tamkeen* provider companies had been rude, patronising, or disrespectful towards them (Int-We-08, Int-We-09, Ms-We-018, Ms-We-076); Vignette 7 illustrates this for teachers from two different schools).

Vignette 7:

On respect for teachers' existing expertise within professional development

Teacher (Int-We-09): Yeah, those *Tamkeen* ones were really brutal—

Teacher (Int-We-08): Were really bad.

Teacher (Int-We-09): It just felt demoralising, it felt degrading, the way that they addressed those.

Interviewer: What made them 'brutal'?

Teacher (Int-We-09): It was just the way that the presenter came in; it was just the 'air' about the entire thing. It was a very negative environment.

Teacher (Int-We-08): Demeaning. Even the way our presenter would say stuff, like, [in patronising tone of voice] "Do you know how to write a learning outcome? Let me give you a definition"—I guess she's trying to be perky, but I didn't go to teachers' college for four years and come out not knowing what a learning outcome was.

Teacher (Int-We-09): Yeah, I think that was a big part of it—we *are* professionals, and I felt like they assumed that we weren't professionals. We know these things, because we *are* professionals; because we've been in a classroom; we've had experiences; we have our Master's degrees—and they treated us as if we'd never set foot in a classroom before.

Teachers likewise reported that Arab teachers' opinions and expertise were not respected within professional development. For example, one teacher observed that:

> Generally, the unspoken assumption is that the Westerners are the people with the answers, and the Arabic teachers are the ones with something to learn. It's that transfer from the West to here that's seen as beneficial, and I don't necessarily see what the Arabic teachers have to offer as being valued. (Int-We-08)

Teachers described feeling frustrated when their existing expertise or that of their colleagues was not utilised to contribute to professional development and school improvement. Four Western teachers (Int-We-02, Int-We-06, Int-We-08, Int-We-09)

suggested that progress in solving the problems faced by Abu Dhabi schools was being hindered due to the failure to draw on the existing expertise and contextual knowledge amongst teachers and, instead, the reliance on the advice of professional development providers who were seen as cultural and contextual outsiders. Vignette 8 further illustrates this perspective.

Vignette 8:

On the value of existing teacher expertise

Teacher (Int-We-09): You've got these Arabic teachers who've been in the school, some of them for 10, 15, 20 years, and they know the school inside out: they know these students; they know their brothers, their older brothers, you know; they know these schools. And I feel like the answers for these schools are found in those teachers, not in the person who comes in from the West and walks into the room for the first day. I think if a lot of those solutions, a lot of those PDs were driven by those people with the proper experience within the school—I guess what I'm saying is that the schools are equipped to come up with their own solutions, and I think ADEC should utilise that as a resource.

Teachers' sense of their own professional expertise also affected their perceptions of the expertise of those involved in delivering professional development. Some teachers expressed their feeling that having school staff deliver the *Tamkeen* training was not appropriate (Ms-Ar-061, Ms-Ar-198, Ms-We-076); for example, one teacher stated: "I wish the trainers could do the job instead of asking teachers to do it because they [teachers] are not well qualified and don't have enough experience" (Ms-Ar-016). (On the other hand, the teachers at one school reported that this approach had worked very successfully; Int-Ar-04-07.) Other teachers criticised the expertise of the *Tamkeen* provider staff (Int-We-07, Ms-We-076). Teachers also made general remarks about the importance of professional development being facilitated by experienced and qualified people (Int-Ar-09-13, Int-We-10, Int-We-14, Ms-Ar-178, Ms-Ar-179), and three teachers spoke positively about the expertise of ADEC curriculum staff who had provided the ADEC subject-specific professional development (Int-We-11-12, Ms-We-024, Ms-We-137).

Given the issues described above, teachers made several suggestions as to how the mismatch between professional development and teacher expertise could be addressed. Teachers called for differentiation of professional development according to teachers' existing expertise, and they requested professional development that either allowed them to learn from their colleagues or involved content that reflected recent advances in educational theory or practice. These points are discussed below.

Both Arab and Western teachers called for professional development provision to be differentiated according to teachers' needs and proficiencies (Int-We-05, Int-We-08, Ms-We-012, Ms-We-019, Ms-We-057, Ms-We-063, Ms-We-067, Ms-We-109). One teacher remarked: "Ironically [as the topic of the *Tamkeen* professional development was differentiation], there was no differentiation involved in the learning. Not once has the *Tamkeen* PD been delivered in a fashion that reflected what they were telling us to do" (Int-We-05). Further, one Western teacher suggested that having completed the 30-hour *Tamkeen* programme one year, Western teachers should be exempt from having to repeat it in subsequent years (Ms-We-018). A smaller number of teachers, however, acknowledged that professional development on familiar topics could, nonetheless, provide a useful opportunity to "refresh" (Int-Ar-04-07, Int-We-07, Int-We-13, Ms-Ar-211, Ms-We-092), "revise" (Ms-We-038), or be "remind[ed]" (Int-Ar-15-19, Ms-We-109) of their existing professional knowledge and skills.

Teachers particularly valued learning through informal interactions with their colleagues (Int-Ar-01, Int-Ar-02, Int-Ar-03, Int-Ar-04-07, Int-Ar-08, Int-Ar-14, Int-Ar-15-19, Int-We-01, Int-We-02, Int-We-04, Int-We-05, Int-We-06, Int-We-07, Int-We-08, Int-We-11, Int-We-12, Int-We-13, Int-We-14, Int-We-15, Int-We-16, Ms-Ar-015, Ms-We-038, Ms-We-063, Ms-We-146). This was interpreted as a further expression of teachers' sense of the significant expertise that they and their peers already held. Interestingly, teachers also indicated that the more structured forms of professional development were primarily of value in that they created time and space for teachers to engage in these informal collegial conversations. This perspective was expressed in relation to the system-wide generic professional development (Int-Ar-15-19, Int-We-07), the ADEC subject-specific professional development (Int-We-06), peer lesson observation (Int-We-14, Int-We-15), and cluster meetings organised by subject advisors (Int-We-06, Int-We-07, Int-We-11, Int-We-12, Int-We-14, Int-

We-15). For example, one teacher recounted that, at a system-wide training session for ADEC's electronic student management software:

> We collaborated with other teachers, but not on the training topic. We felt kind of bad, because the trainer kept saying, "You know, we need to focus on *this*"—but even our advisors said, "This is the only time they get to talk to each other." (Int-We-07)

Vignette 9 provides a further example of this phenomenon.

Vignette 9:

On formal professional development affording teacher collaboration

Teacher (Int-We-06): Do you know who we learned the most from [at an ADEC subject-specific mathematics professional development day]? It was Maryam[46], our Arab maths teacher from our school. You know the manipulatives and those little games we were learning about at the PD? Honestly, she knew before we started—we [Western teachers] were all going, "Could you show us that again?" Everybody was writing down what Maryam did.

Interviewer: That's interesting. I mean, you work with her every day; what was it about that moment, that you suddenly learned all of that from her, that you hadn't got out of her in the year that you'd been working together?

Teacher (Int-We-06): Because we hadn't been at a PD! Maryam was too busy with her own classes, which were Grade 7, so officially she was teaching old school [not New School Model], but in her class, she wasn't. She had differentiated learning groups. She had students problem solving.

Interviewer: So just because there was a time and a space created at the maths day, that [knowledge] was able to come out?

Teacher (Int-We-06): Yes, yes. And that's what PDs are supposed to do—they're supposed to create space for us to actually learn.

Interviewer: So it's not always just about the content being poured in; it's about that space and that time?

Teacher (Int-We-06): Yeah, yeah. Definitely.

[46] Pseudonym

Teachers also appeared to be most interested in professional development that reflected recent advances in educational theory or practice. Teachers frequently indicated that they felt they had already embedded older practices and understandings into their teaching, but wanted to remain abreast of new ideas and practices in a profession that, in their view, was constantly changing (Int-Ar-01, Int-Ar-03, Int-Ar-08, Int-Ar-09-13, Int-Ar-14, Int-We-02, Int-We-08, Int-We-09, Int-We-10, Int-We-13, Int-We-14, Int-We-15, Ms-Ar-187, Ms-Ar-211, Ms-Ar-230, Ms-Ar-234). Vignette 10 illustrates this view and the way that teachers felt that the *Tamkeen* training failed to provide this type of up-to-date professional information.

Vignette 10:

On the professional currency of professional development

Interviewer: What does professional development mean to you?

Teacher (Int-We-08): I think professional development is anything that's going to help me become a better teacher, and I think a good PD is a PD that provides you with a lot of new ideas—what's up and coming in education, because now I've been out of university for five, six years, so it's nice to know what's new.

Teacher (Int-We-09): Yeah. That sounds like a lot of what I would say as well; professional development is all about improvement, so it's all about taking what you've got to take in order to remain current in your field.

…

Interviewer: Was the PD you experienced consistent with your personal knowledge, beliefs, and professional development goals?

Teacher (Int-We-09): A lot of it—a lot of the studies they'd use, a lot of the things they would cite in the *Tamkeen* sessions were dated. They'd go back to the 80s. So, of course we agree with it, but it's really nothing new, either.

Teacher (Int-We-08): Each time, we had to read an article on our own, then we talked about them in the *Tamkeen* session. And that was our biggest complaint—I think the newest one was from 2001. I don't mind going and reading an article if it's going to teach me something new, but I did this when I was in university.

Teacher (Int-We-09): And part of remaining current with the field is what I included in my definition of professional development—and that's not happening if it's all old.

Although the findings reported in this section have highlighted teachers' strong sense of their existing expertise, it is important to acknowledge that teachers' perceptions of their own expertise may not be accurate. With its interpretivist stance, my study deliberately focused on teachers' perceptions; however, two teachers expressed more critical views of teachers' existing experience, which add another dimension to the findings reported above. A Western teacher commented that:

> A lot of the things that we were getting in PD, we thought were sort of basic teachers' college stuff—things that we would have already learned or should already know. But just because you've heard them in university doesn't mean that you're implementing them or that there hasn't been new information on that [topic] since. (Int-We-13)

Similarly, an Arab teacher who had been involved in delivering the *Tamkeen* training at her school described other teachers' resistance to learning about a topic that they felt they had already mastered:

> They had misunderstandings, for example, about differentiation—they said, "Yes, we know, we've had it before, we've talked about it so many times before"—but when you visit their classrooms, there is no differentiation in the classrooms. So, they don't understand it, and they don't think they need to know more. (Int-Ar-14)

These two comments, although isolated, highlight the complexity associated with this aspect of teacher agency. Regardless of teachers' objective knowledge, skills, or classroom practice, their perceptions—accurate or otherwise—of these aspects of their expertise affected the teachers' attitudes toward (and, therefore, the impact of) professional development.

The results reported in this section (Section 6.1.5.1) illustrate how teachers' perceptions of their existing expertise affected their attitudes toward and responses to professional development. In terms of the conceptual model presented in Figure 6.1 (on page 205), these considerations were among the acceptance barriers that comprised filter two. When teachers felt that professional development did not align

with their existing expertise or professional development goals, or when they felt that the quality or currency of the training material or facilitators were not adequate, they were more likely to reject the received professional development, thus stopping the progression toward the desired teaching and learning impacts.

6.1.5.2 Teacher Agency: Teachers' Filtering and Critiquing of Professional Development Content

In addition to matters related to teachers' sense of their existing expertise, analysis of the qualitative data indicated that when teachers participated in professional development, they actively critiqued its content against their existing knowledge, beliefs, and practices before accepting it. This critiquing of professional development content was interpreted as a further manifestation of teachers' professional agency, which was one of the acceptance barriers within filter two of the conceptual model (shown in Figure 6.1 on page 205).

Teachers filtered professional development on varying bases. First, teachers filtered professional development in terms of the contextual fit issues described in Section 6.1.4 (Int-Ar-01, Int-Ar-08, Int-We-02, Int-We-08, Int-We-09, Ms-Ar-063, Ms-We-016, Ms-We-024, Ms-We-056, Ms-We-063, Ms-We-076, Ms-We-093, Ms-We-148). For example, teachers made comments like: "Professional development ideas are not relevant to the students' level of ability" (Ms-We-148) and "Not all of the strategies we've discussed in PD work in the UAE because of the nature of the culture" (Ms-We-067).

Second, teachers evaluated professional development content against their existing philosophies of teaching (Int-Ar-01, Int-Ar-02, Int-Ar-08, Int-Ar-15-19, Int-We-01, Int-We-07, Int-We-11, Int-We-12, Int-We-13, Ms-We-098). For example, one teacher (Int-We-01) stated that she observed her colleagues' lessons voluntarily and with a specific focus. Although she had expected to gain useful ideas from the experience, ultimately, she would only take away and apply a new strategy "If I agreed with how I thought they were doing it."

Finally, teachers indicated that they filtered professional development content based on their perceptions of the suitability of the strategies recommended in terms of their specific teaching subject (Int-Ar-01, Int-Ar-02, Int-Ar-08, Ms-We-013, Ms-We-035, Ms-We-067); for example, one teacher commented that the strategies presented in the *Tamkeen* sessions were "rigid and conflict[ed] with the goals already in place for my curriculum" (Ms-We-035). This type of filtering was mostly described in relation to ADEC non-subject-specific professional development (Int-We-07, Ms-We-013, Ms-We-016, Ms-We-035, Ms-We-056, Ms-We-063, Ms-We-076, Ms-We-093, Ms-We-098). However, there were also instances of teachers filtering ideas and strategies that they had encountered through peer lesson observation (Int-We-01); ADEC subject-specific professional development (Ms-We-016, Ms-We-024, Ms-We-063); and engaging with exemplars and resources (Int-Ar-02).

Vignette 11 shows one Arab teacher's description of this filtering process and this teacher's perception of the role of professional development as providing a bank of ideas for teachers to select from autonomously[47].

Vignette 11:

On teachers filtering professional development content

Teacher (Int-Ar-02): We are the ones who are teaching, and we are dealing with students, and curriculum, and books, and so on—so there are ideas which can be reviewed. And that's why we have professional development—just to see what is new; and then we think, "What can I apply in my classroom?" Because we have to be selective. We have many theories in teaching, such as the communicative approach and views of linguistics—so which ones will we take to apply?

Interviewer: And how does PD help you make that selection?

Teacher: I think that's—you know, it's teachers' "sixth or seventh sense". [laughs]

[47] This is noteworthy as this perception appears to differ from ADEC's perspective, which was that professional development would equip teachers to make the necessary changes to bring their teaching practice into line with ADEC's expectations, including through implementing the specific strategies being presented through professional development activities (Abu Dhabi Education Council, 2009a, 2012a, 2012b, 2012c, 2012d, 2014; Badri & Al Khaili, 2014).

One teacher (Int-We-13) noted that this practice of filtering professional development comes with the danger that if teachers' filtering becomes increasingly negative, rejecting all new ideas may become teachers' default response (described further in Vignette 12). This possibility illustrates the importance of attending to teachers' internal filtering processes in order to maximise the desired impacts of professional development.

Vignette 12:

On an extreme result of teachers' filtering of professional development

Teacher (Int-We-13): This happens everywhere—I know this was happening in the [United] States before I left, where older teachers that trained, you know, twenty-plus years ago would take in PD from a defensive standpoint. And it happened here in Abu Dhabi with not only veterans; there were things we saw in professional development—when we looked at our students, it was very easy to say, "Well, this doesn't work because—" or "Well, I can't do that because—"; those sorts of things. And when that ends up being the main conversation point at your PD, no one learns anything. Or it's hard to learn things. I don't know if it's necessarily older teachers here or just people who have taught in different cultures and so this is new culturally, but overall, I think that there is a lot of defensiveness about PD and just, you know, "I can't try that" or "That won't work for me" or "That won't work for our students" and that kind of stuff. Then that basically changes your PD time into just complaining and griping, and not actually about learning.

Overall, the findings in this section suggest that the teachers were actively involved in managing their professional learning in terms of the ideas they chose to accept, regardless of whether their attendance at professional development or the topics that were covered were externally-determined.

6.1.5.3 Teacher Agency: Teachers' Attitudes toward Compulsory and Self-selected Professional Development

A third and final way that teacher agency contributed to the acceptance barriers within filter two of the conceptual model (shown in Figure 6.1 on page 205)

concerned teachers' attitudes regarding compulsory and self-selected professional development. Although a minority of teachers indicated that, given the choice, they would prefer not to participate in professional development at all (Int-Ar-15-19, Int-We-07, Int-We-10), most of the teachers indicated that they valued and wanted professional development—provided that they could have input into both the types and the topics of professional development that they would participate in. However, teachers reported that, in the Abu Dhabi context, they were not able to have this type of input into their professional learning. Teachers identified two factors that prevented their input into professional development: ADEC's standardised policies for professional development provision, especially with respect to the *Tamkeen* programme, and school-based factors that restricted teachers' ability to engage in forms of professional development that they believed would be most beneficial. These factors are described below.

At a system level, ADEC's standardised policies for professional development provision—especially with regard to the *Tamkeen* programme—meant that teachers were required to participate in professional development that, in many cases, they did not perceive to be relevant or necessary (Int-Ar-15-19, Int-We-01, Int-We-05, Int-We-07, Int-We-11, Int-We-13, Int-We-16, Ms-Ar-184, Ms-Ar-190, Ms-Ar-194, Ms-Ar-196, Ms-Ar-217, Ms-Ar-244, Ms-We-012, Ms-We-013, Ms-We-017, Ms-We-018, Ms-We-043, Ms-We-051, Ms-We-060, Ms-We-063, Ms-We-070, Ms-We-081, Ms-We-087, Ms-We-103, Ms-We-111). Although issues associated with the relevance of professional development for teachers have been discussed already (see Sections 6.1.2.2, 6.1.4, and 6.1.5.1), they are highlighted here specifically in relation to the impact of the associated policies for mandatory participation. According to the teachers in my study, where professional development was not relevant or necessary for teachers, making that professional development mandatory compounded the problem and added to teachers' frustration. As such, the results of my study suggested that although ADEC was able, at a system level, to mandate participation in professional development, teachers nonetheless retained the ability and agency to reject the received professional development at a cognitive level, thus blocking the possibility of any subsequent teaching and learning impacts.

At the school level, principals played a significant role as professional development 'gatekeepers'. Teachers reported that school administrators were responsible for selecting the school-wide focuses for *Tamkeen* professional development (Int-Ar-04-07, Int-Ar-09-13, Int-We-06, Int-We-07, Int-We-08); as a result, some teachers perceived that the professional development topics were irrelevant for them. Vignette 13 illustrates teachers' frustration at the *Tamkeen* topics being selected by administrators and indicates that, in teachers' opinions, the professional development they received was not the professional development they really needed.

Vignette 13:

On teachers' lack of choice regarding professional development

Teacher (Int-We-07): The Arab staff that I talk to—like us [Western teachers], they're split in that they understand that training is good and they understand that they can improve; but with the way that the training's set up, they just don't like it—and so they kind of just write it off, like some of the Western staff do as well. You know, "It's after school; I'm tired; this topic isn't what I'm actually struggling with in my classroom—I don't want to do this!" They [ADEC / school administration] say they'll give us choice, you know, "You get to vote on what PD you want"—well, that's not really true. We're doing differentiation this year, just like we were doing differentiation last year. The administration chooses it. And then—"Well, we'll break up into smaller groups." Well, no, you personally don't get to choose; your department head chose where all the math teachers would be. It's like if it was truly—"There are five topics, we're going to talk about these five topics; there are these five rooms; you go to the one you want to go to"—*that's* choice! But when your department head chooses what all the math teachers need to work on, that's not choice. And so I think that's where a lot of teachers are frustrated, if you're told you have choice and then you're not actually able to choose. I know I need training, but *this* training's not helping me. We all had the same frustration about the training. I don't think anyone is against training. We all want to be good teachers! We want to do a good job at what we do. I think it's just how it's set up—people get frustrated, because we want choice.

Principals also acted as gatekeepers through their role in giving permission for teachers to participate in non-mandatory forms of professional development. Such activities included cluster meetings organised by subject advisors (Int-We-06), visits

to other schools (Int-We-01), off-site training courses (Int-We-01, Ms-We-013), ADEC subject-specific activities (Int-We-06, Ms-We-139), and school activities involving outside presenters (Int-Ar-09-13, Int-We-13). When principals refused permission for teachers to engage in these activities, the teachers felt that they had missed out on potentially beneficial professional development. In one sense, this could be seen as a *structural* barrier to teachers' access to professional development (and, as such, more relevant to filter one than filter two in the conceptual model). However, principals' gatekeeping role is included here among the matters of teacher agency (filter two) because the qualitative data indicated that teachers were primarily concerned about this phenomenon because of the way in which it blocked their intentions and wishes in terms of accessing professional development.

Although in many situations teachers were not given autonomy with respect to professional development, there were some exceptions. For example, teachers spoke positively of instances where they had been given input into informal professional development activities such as peer lesson observation (Int-We-01, Int-We-08), formal department activities (Int-We-01, Int-We-05), and engaging with exemplars and resources (Int-We-16, Int-Ar-15-19). Vignette 14 illustrates this, showing how one teacher used this opportunity—and exercised professional agency—to pursue specific professional development goals.

Vignette 14:

On professional development involving teacher choice

Teacher (Int-We-01): Probably the most useful professional development was swapping with other teachers, coming in and observing each other's lessons, which was very useful. We chose who we wanted to go and observe. For me, there was a teacher that was particularly passionate about teaching grammar and the 'nitty-gritties' of English; and, although I teach it, that's the one area that I don't find particularly exciting, so I'm always interested in interesting and fun ways to teach that area. So I went and observed another teacher. That was helpful; probably observing other teachers was the most useful—*if* we were allowed to choose the teacher. Because they had, in the past, tried to team us up without any choice, and I didn't find that as effective as when I was able to choose the particular teacher or the particular topic that I was interested in developing.

Overall, my findings indicated that teachers felt frustrated when they did not have agency or autonomy over their professional development. Teachers expressed a preference for having input into their professional development and believed that they knew the areas in which they needed support. Teachers also felt that, in many cases, the professional development that they received in their schools—particularly the *Tamkeen* programme—did not address their professional development needs. As one teacher summarised it:

> We can't forget that we are adults and there has to be a choice in order to engage the learner within the teacher. A teacher has to be able to have a choice in the learning they want to engage in. (Int-We-04)

When the teachers in my study did not have agency in terms of selecting their professional development, they exercised their agency (at filter two in the conceptual model) by rejecting professional development. This prevented the professional development from progressing along the intended impact trajectory.

This section (Section 6.1.5, with subsections 6.1.5.1 to 6.1.5.3) has described how three issues related to teacher agency affected teachers' acceptance of professional development. Teachers' perceptions of their existing professional expertise (Section 6.1.5.1), their practice of filtering and critiquing the new ideas they encountered in professional development (Section 6.1.5.2), and their attitudes toward compulsory and self-selected professional development (Section 6.1.5.3) all appeared to affect the impact of professional development for the teachers in this study by contributing to the acceptance barriers that comprised filter two of the conceptual model (presented in Figure 6.1 on page 205). When teachers felt that professional development did not align with their existing expertise or their professional development needs, they were less likely to accept the new ideas involved in that professional development. In these cases, the received professional development was not able to progress to become accepted (or, subsequently, applied) professional development.

More broadly, Section 6.1 has presented results related to the non-design-related factors that were identified within the qualitative data as having affected teachers' perceptions and experiences of professional development. The themes that emerged from the qualitative data involved both structural barriers (language and school-related factors; filter one of the conceptual model) and acceptance barriers (cognitive access, contextual fit, and teacher agency; filter two) to the impact of professional development. These findings are discussed in Section 7.1.4 of Chapter 7; the next section of this chapter reports results related to the final research objective.

6.2 Differences between Arab and Western Teachers' Perceptions of the Professional Development

Given that both Arab and Western teachers were employed in Abu Dhabi public schools, the fifth research objective was to investigate whether Arab and Western teachers differed in terms of their perceptions of and responses to professional development. In line with the interpretivist stance taken for this study (see Section 1.2 of Chapter 1), it was acknowledged that teachers were likely to have multiple and divergent constructions of reality in regard to professional development (Willis, 2007). However, informed by the review of literature related to culture and cultural differences (Chapter 3), it was anticipated that, to some extent, there would be similarities in the perceptions of teachers from similar cultural backgrounds and differences between the perceptions of teachers from different cultural backgrounds. Therefore, this section reports on whether Arab and Western teachers had different perceptions of professional development in terms of its design (Section 6.2.1); its impact (Section 6.2.2); and the non-design-related factors that affected its impact (Section 6.2.3).

Sections 6.2.1 and 6.2.2 draw on the quantitative data collected through the interviewee survey. Although this data related to 11 categories of professional development (defined in Table 5.5 on page 162), only 10 of these categories had involved both Arab and Western teachers: No Arab teachers reported being involved in mentoring other teachers. As such, the comparisons in Sections 6.2.1 and 6.2.2 relate to the results for the 10 categories that both groups of teachers had participated in.

6.2.1 Perceptions of the Design of Professional Development

Arab and Western teachers' perceptions of the design of professional development were compared using the quantitative design feature data collected through the interviewee survey (N = 35 teachers: 19 Arab and 16 Western). First, the total design effectiveness indices reported by Arab and Western teachers were compared; these indices aggregated the scores for the five design features as detailed in Section 4.6.3 of Chapter 4.

The results, shown in Figure 6.2, indicate that Arab and Western teachers' perceptions differed to some extent in regard to the overall design effectiveness of all 10 categories of professional development that were compared. The largest differences were observed for the system-wide generic professional development ($M_{Arab} - M_{Western} = 2.77$), the ADEC subject-specific professional development ($M_{Arab} - M_{Western} = -2.90$), engaging with exemplars and resources ($M_{Arab} - M_{Western} = -3.23$), study and research ($M_{Arab} - M_{Western} = -2.98$), and support from subject advisors ($M_{Arab} - M_{Western} = -2.12$). Overall, Arab teachers had more positive perceptions than Western teachers for four categories: the system-wide generic professional development, formal department activities, formal lesson observation, and school activities. These categories were the most formal professional development categories and would have been directed by school administrators[48]. It appeared, therefore, that Arab teachers favoured more formal professional development, whereas Western teachers favoured more informal professional development.

Having compared the total design effectiveness indices reported by Arab and Western teachers, the scores for the individual design features were then examined. Figures 6.3 to 6.7 compare Arab and Western teachers' reports of the extent to which the 10 professional development categories reflected each of the five literature-based design features: subject-specific content focus, active learning, coherence, duration, and collective participation.

[48] Although the ADEC subject-specific professional development was also relatively formal, school administrators had minimal involvement in this category as it generally involved teachers of a selected subject attending off-site meetings.

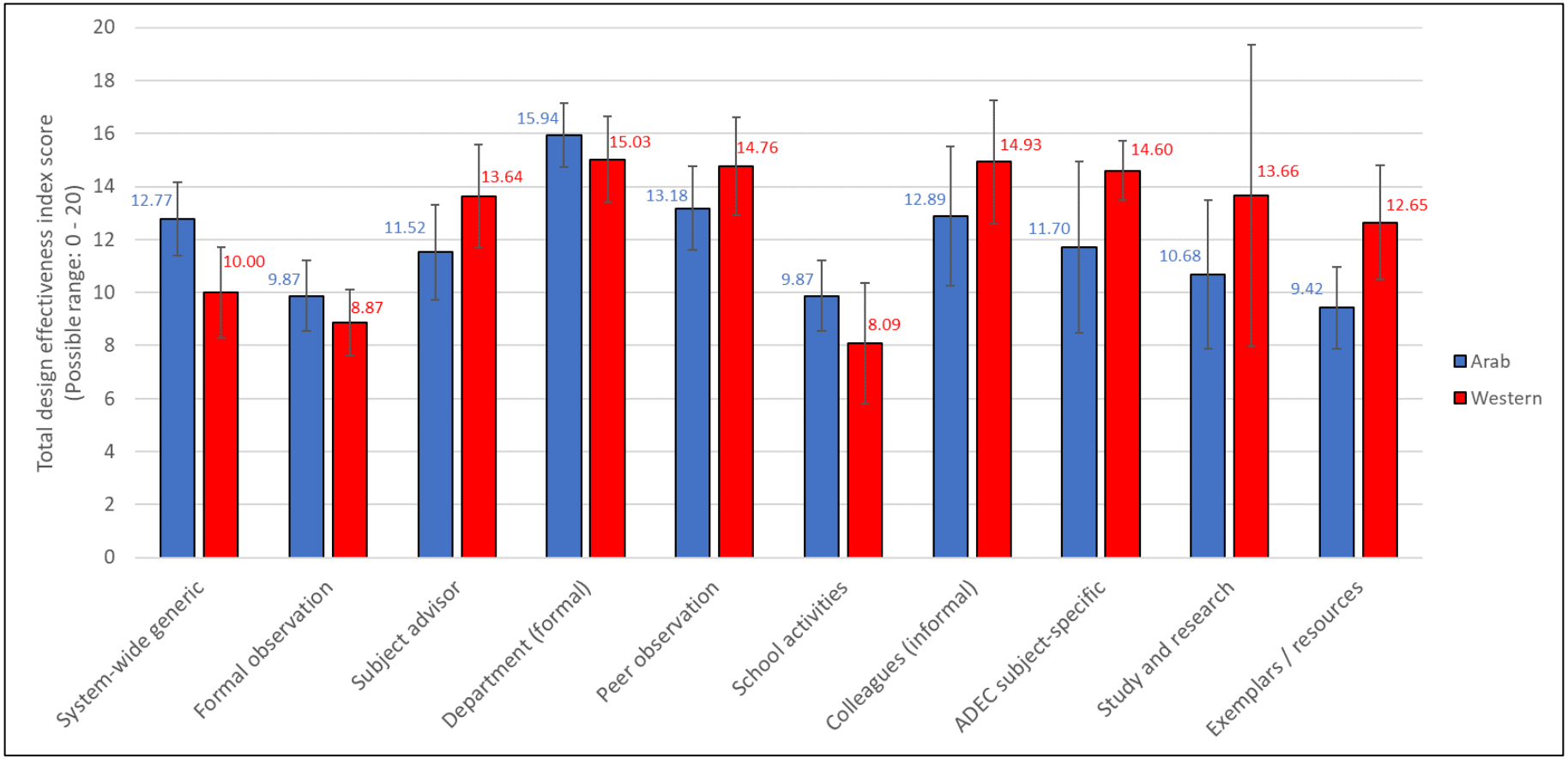

Figure 6.2. Comparison of Arab and Western teachers' perceptions of the overall design effectiveness of 10 categories of professional development (mean scores and 95% confidence intervals)

The first design feature examined whether the content focus of the professional development was subject-specific (represented by scores above 3.0) or generic (scores below 3.0). Figure 6.3 indicates that the Arab teachers had more positive perceptions of the content focus of the four formal, school administrator-directed professional development categories: namely, the system-wide generic professional development ($M_{Arab} - M_{Western} = 0.68$), formal lesson observation ($M_{Arab} - M_{Western} = 0.47$), formal department activities ($M_{Arab} - M_{Western} = 0.21$), and school activities ($M_{Arab} - M_{Western} = 0.50$). The Arab teachers also had more positive perceptions of peer lesson observation ($M_{Arab} - M_{Western} = 0.01$) and study and research ($M_{Arab} - M_{Western} = 0.68$). However, these latter two findings are inconclusive: the means for peer lesson observation are very similar, and the confidence intervals for study and research are very large (due to the small sample sizes) and overlap substantially, meaning that we cannot be 95% confident that the population means are, in fact, different. Overall, while the Arab teachers reported higher degrees of content focus for the more formal professional development categories in particular, the overarching finding was that there were frequent differences between the two groups' perceptions.

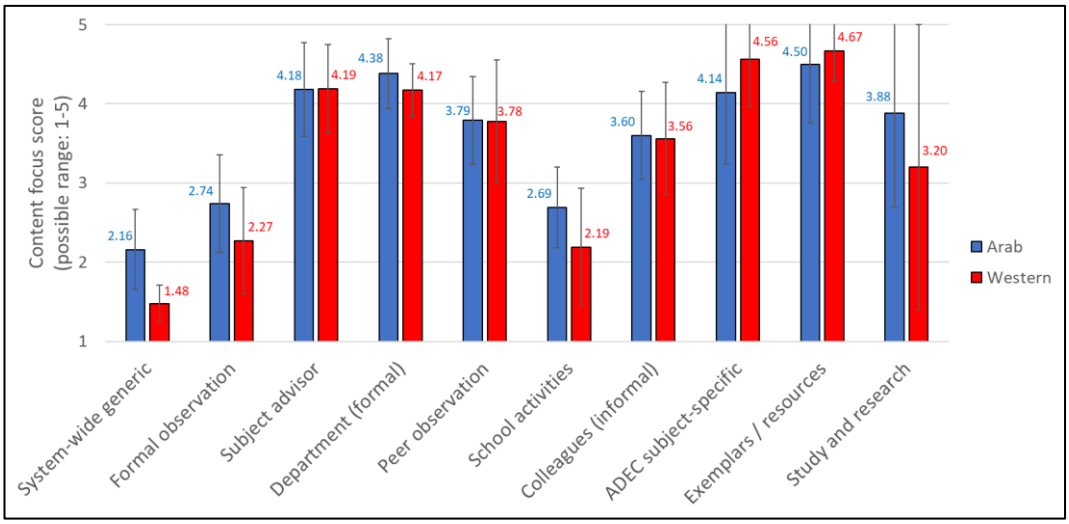

Figure 6.3. Comparison of Arab and Western teachers' perceptions of the content focus of 10 categories of professional development (mean scores and 95% confidence intervals)

The second design feature examined whether the professional development involved active (represented by scores above 3.0) or passive (scores below 3.0) learning approaches. Figure 6.4 indicates that Arab teachers had more positive perceptions of the degree of active learning involved in the system-wide generic professional development ($M_{Arab} - M_{Western}$ = 1.07), formal department activities ($M_{Arab} - M_{Western}$ = 0.33), and school activities ($M_{Arab} - M_{Western}$ = 0.72) categories; again, these are three of the most formal, school administrator-directed categories. On the other hand, Western teachers had much more positive perceptions of engaging with exemplars and resources ($M_{Arab} - M_{Western}$ = –1.00) and study and research ($M_{Arab} - M_{Western}$ = –1.67), although, again, the confidence intervals for study and research were wide. Western teachers also favoured (albeit to a lesser extent): the work of subject advisors ($M_{Arab} - M_{Western}$ = –0.43); peer lesson observation ($M_{Arab} - M_{Western}$ = –0.51), informal interactions with colleagues ($M_{Arab} - M_{Western}$ = –0.23), and the ADEC subject-specific professional development ($M_{Arab} - M_{Western}$ = –0.45). Overall, therefore, there were frequent differences between the perceptions of Arab and Western teachers, with the Arab teachers favouring more formal professional development and the Western teachers favouring more informal, subject-specific professional development.

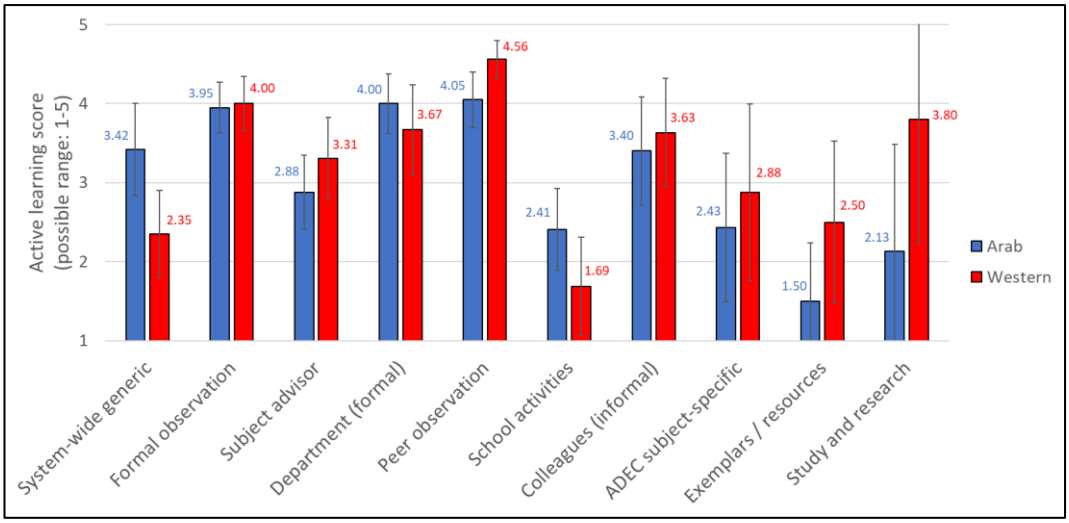

Figure 6.4. Comparison of Arab and Western teachers' perceptions of the degree of active learning of 10 categories of professional development (mean scores and 95% confidence intervals)

The third design feature examined whether teachers felt that professional development was coherent (represented by scores above 3.0) with personal-, school-, and system-level beliefs, values, and goals. Figure 6.5 indicates that Arab teachers had slightly more positive perceptions of the system-wide generic professional development ($M_{Arab} - M_{Western} = 0.14$) and school activities ($M_{Arab} - M_{Western} = 0.02$). However, more marked differences were observed for four categories of which Western teachers had more positive perceptions, namely: support from subject advisors ($M_{Arab} - M_{Western} = -0.96$), engaging with exemplars and resources ($M_{Arab} - M_{Western} = -0.80$), the ADEC subject-specific professional development ($M_{Arab} - M_{Western} = -0.67$), and formal lesson observations ($M_{Arab} - M_{Western} = -0.40$). Once again, therefore, the Arab teachers were more positive about the coherence of some of the more formal professional development categories whereas the Western teachers were more positive about more informal and subject-specific categories. Further, the overarching finding was that there were frequent differences between the two groups' perceptions.

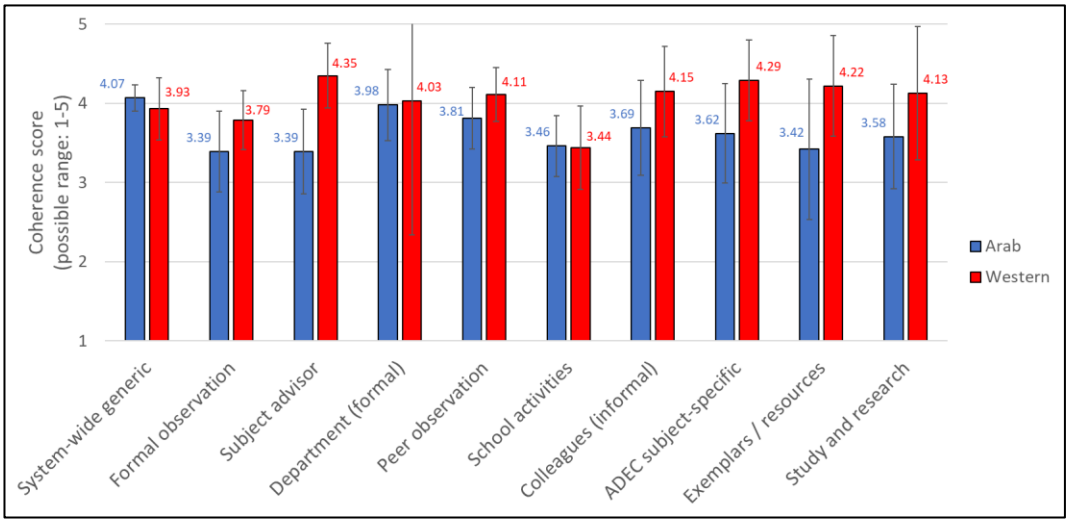

Figure 6.5. Comparison of Arab and Western teachers' perceptions of the coherence of 10 categories of professional development (mean scores and 95% confidence intervals)

The fourth design feature examined the duration of the professional development; scores above 3.0 indicate that teachers perceived professional development as having

substantial and sufficient duration. Figure 6.6 indicates that Arab teachers had more positive perceptions of the duration of three formal, school administrator-directed categories: system-wide generic professional development ($M_{Arab} - M_{Western}$ = 0.68), formal lesson observation ($M_{Arab} - M_{Western}$ = 0.57), and formal department activities ($M_{Arab} - M_{Western}$ = 0.67). Arab teachers also had slightly more positive perceptions of the duration of peer lesson observation ($M_{Arab} - M_{Western}$ = 0.17) and engaging with exemplars and resources ($M_{Arab} - M_{Western}$ = 0.16); this may have been due to ADEC's policy that, whereas Western teachers were assigned 30 teaching periods per week, Arab teachers were only assigned 24, leaving more time for Arab teachers to engage in activities such as peer observation or reviewing exemplars and resources. The only category for which Western teachers reported markedly higher perceptions than Arab teachers was informal interactions with colleagues ($M_{Arab} - M_{Western}$ = –0.49). This result may reflect the fact that, given the remote locations of their assigned schools, many Western teachers travelled together to work on a daily basis resulting in extended time for professional conversations with colleagues. Overall, the results for this design feature generally continue the trend of Arab teachers having more positive perceptions of the more formal, school administrator-directed professional development and Western teachers having more positive perceptions of the more informal, subject-specific professional development.

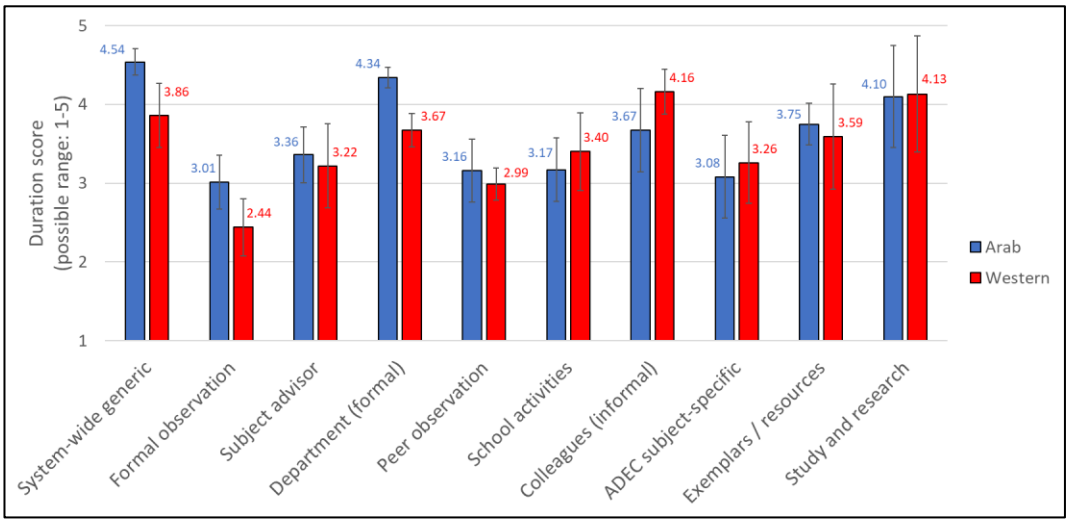

Figure 6.6. Comparison of Arab and Western teachers' perceptions of the duration of 10 categories of professional development (mean scores and 95% confidence intervals)

The fifth and final design feature examined whether teachers participated in professional development alongside colleagues whom they worked with (scores above 3.0) or individually (scores below 3.0). Figure 6.7 indicates that, once again, Arab teachers had more positive perceptions of the design (in terms of collective participation) of three formal, school administrator-directed categories of professional development: the system-wide generic professional development ($M_{Arab} - M_{Western}$ = 0.19), formal lesson observation ($M_{Arab} - M_{Western}$ = 0.43), and school activities ($M_{Arab} - M_{Western}$ = 0.76). In contrast, Western teachers had much more positive perceptions of the degree of collective participation involved in the work of subject advisors ($M_{Arab} - M_{Western}$ = –0.85), peer lesson observation ($M_{Arab} - M_{Western}$ = –0.96), informal interactions with colleagues ($M_{Arab} - M_{Western}$ = –0.91), the ADEC subject-specific professional development ($M_{Arab} - M_{Western}$ = –1.17), engaging with exemplars and resources ($M_{Arab} - M_{Western}$ = –1.42), and study and research ($M_{Arab} - M_{Western}$ = –1.40).

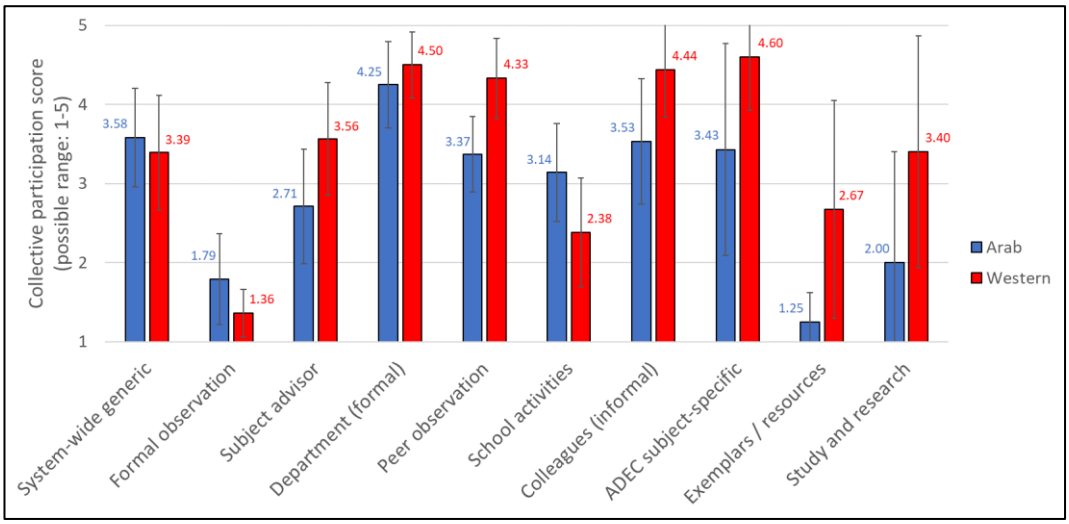

Figure 6.7. Comparison of Arab and Western teachers' perceptions of the degree of collective participation of 10 categories of professional development (mean scores and 95% confidence intervals)

The marked differences between the Arab and Western teachers' collective participation scores for peer observation and informal interactions with colleagues were surprising, given that, by definition, these forms of professional development

involve working with other teachers. However, given the collectivist nature of Arab societies, a possible explanation for this finding may be that the Arab teachers gave lower scores to instances where they had only collaborated with one or two other teachers rather than a larger group, whereas Western teachers may have given positive scores for any collaboration, regardless of the number of teachers involved. Overall, for this design feature, there were once again frequent differences between Arab and Western teachers' perceptions, with the Arab teachers favouring the more formal professional development and the Western teachers favouring the informal, subject-specific professional development.

Together, the results reported in this section (Section 6.2.1) indicate that there were frequent differences between Arab and Western teachers' perceptions of the design of the 10 professional development categories that both groups of teachers had participated in. It was noteworthy that the Arab teachers generally had more positive perceptions of professional development that was more formal and directed by school administrators, whereas the Western teachers had more positive perceptions of informal or out-of-school professional development as well as professional development that was subject-specific.

Having compared Arab and Western teachers' perceptions of the *design* of professional development, the next section (Section 6.2.2) reports on similar comparisons of the teachers' perceptions of the *impact* of professional development.

6.2.2 Perceptions of the Impact of Professional Development

The Arab and Western teachers' perceptions of the impact of professional development were compared using the quantitative data from both the main survey and the interviewee survey as these were complementary data sets that provided different information. Analysis of the main survey data, which involved a larger sample size (N = 393 teachers) but only classified professional development into two broad categories (whole-school and professional development), indicated whether, overall, there were statistically significant differences between Arab and Western teachers' perceptions of the impact of professional development. Analysis of the interviewee survey data, which involved a smaller sample size (N = 35 teachers) but

a greater level of detail (through the finer-grained classification of professional development into 11 categories), provided details of how Arab and Western teachers differed in terms of their response to particular categories of professional development. The main survey and interviewee survey results are reported in Sections 6.2.2.1 and 6.2.2.2, respectively.

6.2.2.1 Results Obtained using the Main Survey Data

First, the data collected using the main survey were used to investigate differences between the Arab and Western teachers' perceptions of the impact of professional development. Examination of the mean scores (reported in Table 6.1) revealed two noteworthy trends. First, comparing horizontally-adjacent means in the table, for all impact scales and for both whole-school and subject-specific professional development, the mean impact scores reported by Arab teachers were higher—that is, more favourable—than those reported by Western teachers. Second, comparing vertically-adjacent means in the table, the Western teachers consistently reported higher scores for subject-specific professional development than for whole-school professional development, whereas, for three of the four impact scales, the Arab teachers reported higher scores for whole-school professional development than they did for subject-specific professional development. That is, although the Arab teachers were consistently more positive than the Western teachers about the impact of all forms of professional development, the Arab teachers generally reported greater impacts for whole-school professional development whereas the Western teachers reported greater impacts for subject-specific professional development.

A MANOVA was then used to examine the statistical significance of these differences in terms of the two types of professional development (whole-school and subject-specific professional development; comparing horizontally-adjacent means in Table 6.1). Because the MANOVA produced statistically significant results (using Wilks' lambda criterion), the univariate ANOVA results were interpreted for each impact scale (dependent variable). The results, reported in Table 6.1, showed that the differences between the Arab and Western teachers' scores were statistically significant ($p < .01$) for all impact scales and for both professional development

Table 6.1. Effect size and ANOVA results for differences between Arab and Western teachers' perceptions of the impact of whole-school and subject-specific professional development

Scale	Professional development type	Average item mean		Average item standard deviation		Difference	
		Arab	Western	Arab	Western	Effect size (Cohen's *d*)	*F*
Teacher reaction	Subject-specific	3.58	3.47	0.96	1.11	0.11	1.09
	Whole-school	3.62	2.67	0.85	1.08	0.98	92.08**
Teacher learning	Subject-specific	3.38	3.07	1.01	1.19	0.28	7.73**
	Whole-school	3.49	2.50	0.92	1.06	1.00	94.80**
Outcomes	Subject-specific	3.61	3.36	0.86	1.06	0.26	6.85**
	Whole-school	3.60	2.80	0.77	1.00	0.90	79.99**
Organisational response	Subject-specific	3.58	3.08	0.84	1.05	0.53	27.83**
	Whole-school	3.65	2.84	0.79	1.03	0.88	75.63**

**$p < .01$

N=393 teachers (241 Arab and 152 Western)

types, with one exception (namely, the teacher reaction scale for the subject-specific professional development). The effect sizes (Cohen's *d*), calculated to provide an indication of the magnitude of these differences, ranged from 0.88 to 1.00 for the whole school professional development and from 0.11 to 0.53 for the subject-specific professional development. According to the guidelines given by J. Cohen (1992), for the whole-school professional development, the effect sizes for all four impact scales were large. For subject-specific professional development, the effect sizes for the differences for the teacher learning and outcomes scales were small, and the effect size for organisational response was moderate.

Overall, the results from the main survey data indicated that Arab and Western teachers had different perspectives on the respective value and impact of whole-school and subject-specific professional development and, further, that these differences were statistically significant. Given these findings, the interviewee survey data (N = 35 teachers) were examined to provide finer-grained information regarding differences between the Arab and Western teachers' perceptions of the impact of 10 categories of professional development.

6.2.2.2 Results Obtained using the Interviewee Survey Data

The interviewee survey used the same four impact scales as the main survey—teacher reaction, teacher learning, outcomes, and organisational response. However, the interviewee survey was more specific in that it captured data related to 11 professional development categories (listed in Table 5.5 on page 162). Of these categories, 10 were reported by both Arab and Western teachers, so were able to be compared. Figure 6.8 provides a visual comparison of the mean total impact scores (which aggregated the scores for the five design features; see Section 4.6.3 of Chapter 4) reported by the Arab and Western teachers for each professional development category, with 95% confidence intervals indicating the reliability of the sample means as estimates of the corresponding population means.

The results reported in Figure 6.8 provide an interesting comparison to the main survey results that were reported in the previous section. Whereas the main survey indicated that Arab teachers were consistently more positive than Western teachers

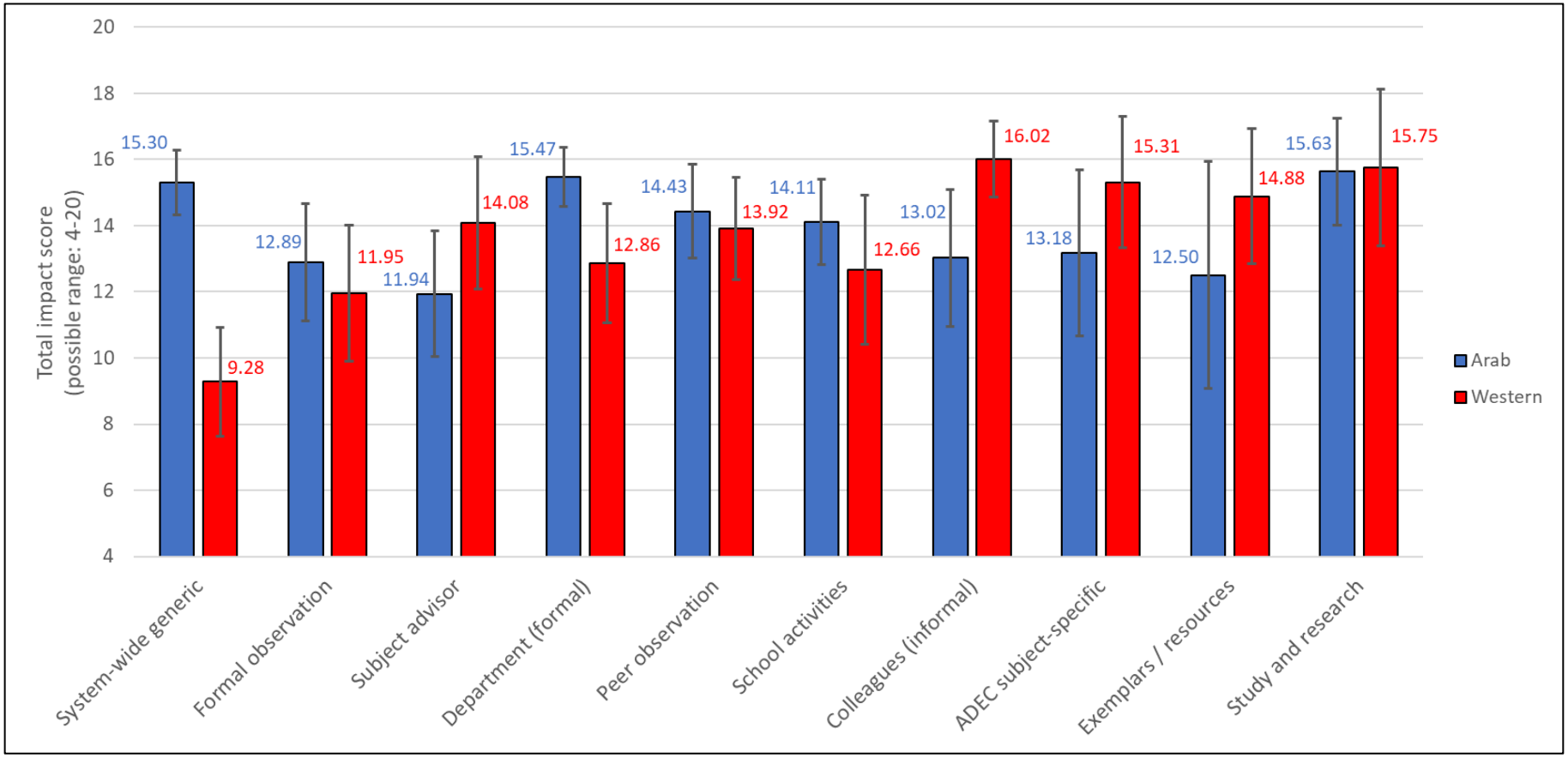

Figure 6.8. Comparison of Arab and Western teachers' perceptions of the impact of 10 categories of professional development (mean scores and 95% confidence intervals)

about the impact of professional development, the finer-grained interviewee survey data indicated that this trend was not consistent across all of the 10 professional development categories that were compared. Rather, Arab teachers had more positive perceptions than Western teachers of the impact of only five of the 10 categories, namely: the system-wide generic professional development ($M_{Arab} - M_{Western} = 6.02$), formal lesson observation ($M_{Arab} - M_{Western} = 0.94$), formal department activities ($M_{Arab} - M_{Western} = 2.61$), peer lesson observation ($M_{Arab} - M_{Western} = 0.51$), and school activities ($M_{Arab} - M_{Western} = 1.45$). Notably, these were the same formal, school administrator-directed categories of professional development for which Arab teachers had also reported more positive perceptions of the design features (see Section 6.2.1). It is possible that, when completing the main survey, the Arab teachers conceptualised professional development primarily in terms of these more formal professional development activities and that this resulted in their more favourable scores.

Of the five categories for which Arab teachers had more positive perceptions than Western teachers, three (the system-wide generic professional development, formal lesson observation, and school activities) involved generic rather than subject-specific content focuses. Arab teachers' positive perceptions of these generic categories (as indicated in the interviewee survey data reported in Figure 6.8) may help to explain the finding from the main survey data (see Table 6.1) that Arab teachers generally had more positive perceptions of whole-school rather than subject-specific professional development.

Western teachers, on the other hand, reported more positive perceptions than Arab teachers of the impact of: support from subject advisors ($M_{Arab} - M_{Western} = -2.14$), informal interactions with colleagues ($M_{Arab} - M_{Western} = -3.00$), the ADEC subject-specific professional development ($M_{Arab} - M_{Western} = -2.13$), and engaging with exemplars and resources ($M_{Arab} - M_{Western} = -2.38$). Given that all four of these categories involved a high level of subject-specific content focus (as reported in Section 5.2.2.2 of Chapter 5), these results support the main survey results, which indicated that Western teachers favoured subject-specific forms of professional development.

Having compared the total impact scores reported by Arab and Western teachers, the scores for the individual impact scales were then examined. Figures 6.9 to 6.12, respectively, compare Arab and Western teachers' reports of the extent to which the 10 professional development categories that were compared resulted in positive teacher reactions, teacher learning, classroom or student impacts, and organisational response.

The first impact scale examined teachers' affective reactions to the professional development. Figure 6.9 indicates that the Arab teachers had markedly more positive affective reactions to the system-wide generic professional development ($M_{Arab} - M_{Western} = 1.52$) and somewhat more positive reactions to formal department activities ($M_{Arab} - M_{Western} = 0.55$) and school activities ($M_{Arab} - M_{Western} = 0.46$). These results reflect the trend noted in relation to the design feature data (reported in Section 6.2.1), wherein Arab teachers gave more positive responses for the more formal, school administrator-led forms of professional development.

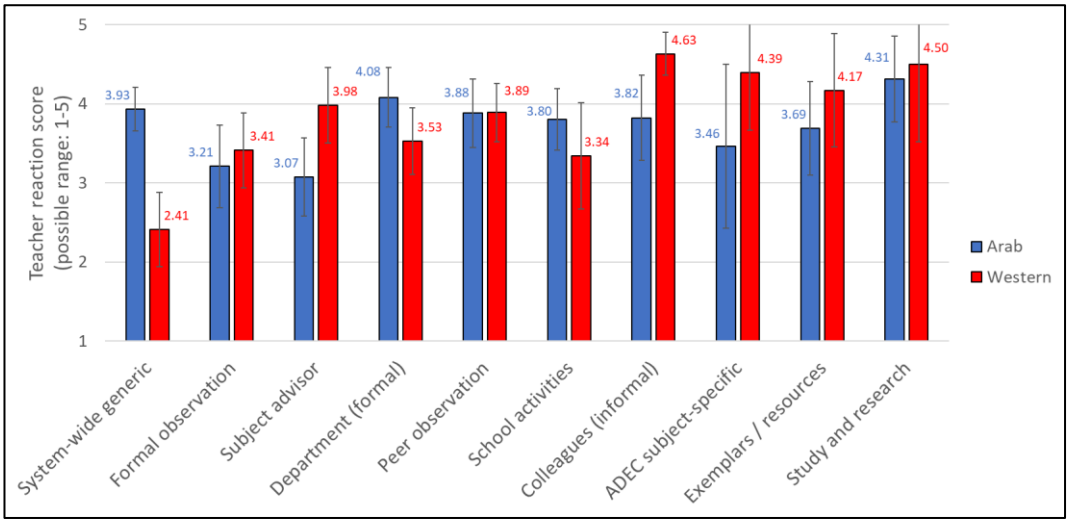

Figure 6.9. Comparison of Arab and Western teachers' affective reactions to 10 categories of professional development (mean scores and 95% confidence intervals)

On the other hand, Western teachers reported more positive affective reactions to the support from subject advisors ($M_{Arab} - M_{Western} = -0.91$), informal interactions with colleagues ($M_{Arab} - M_{Western} = -0.81$), and the ADEC subject-specific professional

development ($M_{Arab} - M_{Western} = -0.93$), supporting the Western teachers' general preference for subject-specific forms of professional development. Overall, then, there were frequent differences between the Arab and Western teachers' perceptions of this impact scale, with the Arab teachers generally favouring more formal professional development and the Western teachers generally favouring more informal and subject-specific professional development.

The second impact scale examined the extent of teacher learning that occurred as a result of the professional development. The results reported in Figure 6.10 indicate that, again, Arab and Western teachers had markedly different perceptions of the system-wide generic professional development ($M_{Arab} - M_{Western} = 1.59$), with the Arab teachers agreeing, but the Western teachers disagreeing, that they had learned from this professional development. The Arab teachers also reported more learning than the Western teachers did from formal department activities ($M_{Arab} - M_{Western} = 0.65$), peer lesson observation ($M_{Arab} - M_{Western} = 0.55$), and school activities ($M_{Arab} - M_{Western} = 0.38$). These results were consistent with the Arab teachers' more positive perceptions of other aspects of these professional development categories.

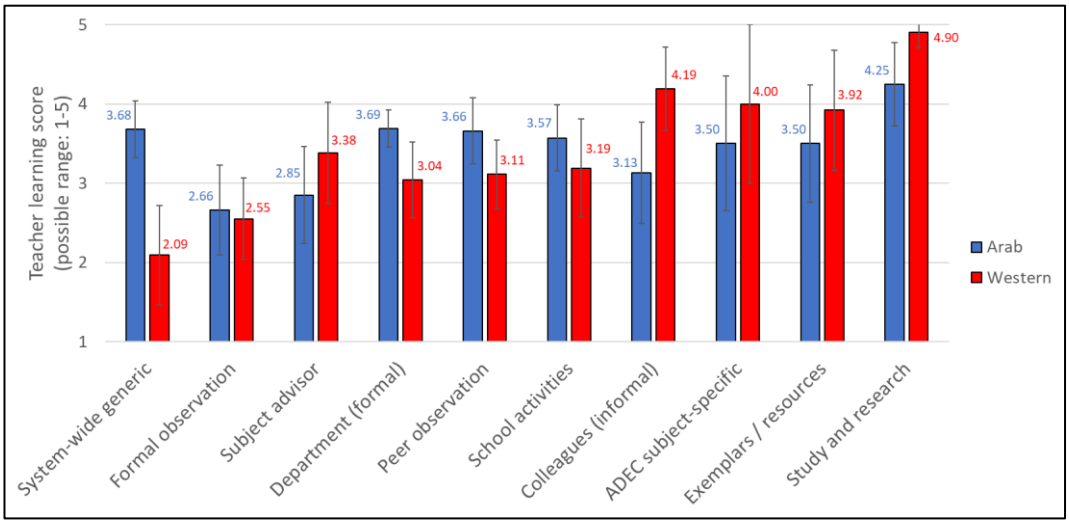

Figure 6.10. Comparison of Arab and Western teachers' perceptions of their learning related to 10 categories of professional development (mean scores and 95% confidence intervals)

The Western teachers, on the other hand, reported more learning than the Arab teachers did in relation to the work of subject advisors ($M_{Arab} - M_{Western}$ = –0.53), informal interactions with colleagues ($M_{Arab} - M_{Western}$ = –1.06), the ADEC subject-specific professional development ($M_{Arab} - M_{Western}$ = –0.50), engaging with exemplars and resources ($M_{Arab} - M_{Western}$ = –0.42), and study and research ($M_{Arab} - M_{Western}$ = –0.65). These results were, likewise, consistent with the Western teachers' positive perceptions of other aspects of these categories of professional development. Overall, then, there were frequent differences between the Arab and Western teachers' perceptions of their learning from professional development, with Arab teachers again favouring more formal, school administrator-led professional development and Western teachers favouring more informal, subject-specific professional development.

The third impact scale examined two important outcomes of professional development: changes in teachers' classroom practice and improvements in student outcomes. The results reported in Figure 6.11 indicate that Arab teachers were markedly more positive about the classroom and student outcomes associated with the system-wide generic professional development ($M_{Arab} - M_{Western}$ = 1.59) and somewhat more positive about the outcomes associated with formal lesson observation ($M_{Arab} - M_{Western}$ = 0.31), formal department activities ($M_{Arab} - M_{Western}$ = 0.69), and school activities ($M_{Arab} - M_{Western}$ = 0.31). These results were consistent with the Arab teachers' positive perceptions of other aspects of these professional development categories. However, the Arab teachers also reported higher outcomes than the Western teachers did for study and research ($M_{Arab} - M_{Western}$ = 0.79); this was unexpected, given that the Arab teachers had reported less positive perceptions (compared to the Western teachers) of other aspects of the design and impact of this professional development category.

Western teachers, on the other hand, reported more positive perceptions of the classroom and student outcomes associated with the support from subject advisors ($M_{Arab} - M_{Western}$ = –0.49), informal interactions with colleagues ($M_{Arab} - M_{Western}$ = –0.98), the ADEC subject-specific professional development ($M_{Arab} - M_{Western}$ = –0.45); and engaging with exemplars and resources ($M_{Arab} - M_{Western}$ = –0.90). Once again, then, there were frequent differences between the Arab and Western teachers'

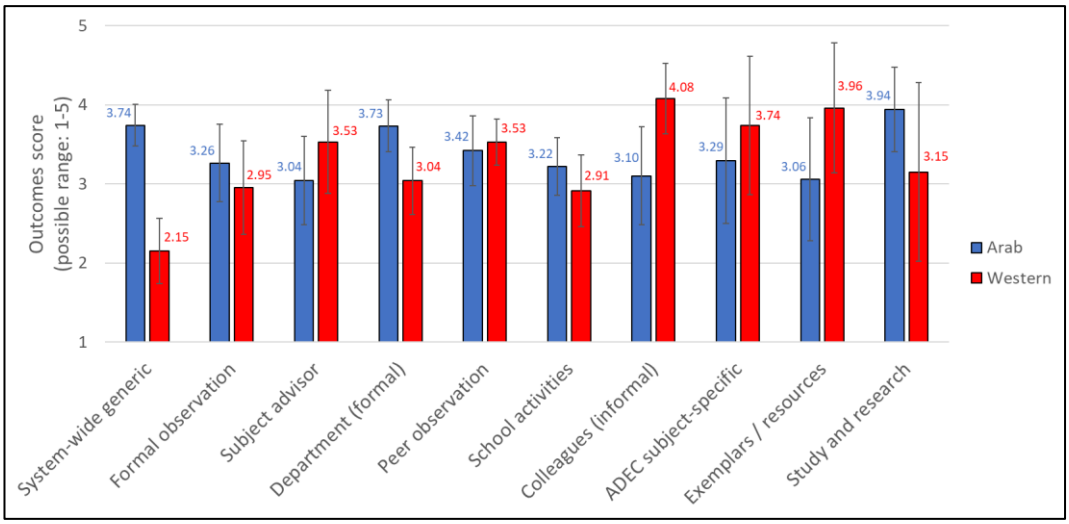

Figure 6.11. Comparison of Arab and Western teachers' perceptions of classroom and student outcomes related to 10 categories of professional development (mean scores and 95% confidence intervals)

perceptions of this impact scale, with the Arab teachers largely favouring more formal, school administrator-led professional development and the Western teachers favouring more informal, subject-specific professional development.

The fourth and final impact scale examined the organisational response associated with professional development. Figure 6.12 indicates that the Arab teachers were more positive than the Western teachers about the organisational response associated with the system-wide generic professional development ($M_{Arab} - M_{Western}$ = 1.32), formal lesson observation ($M_{Arab} - M_{Western}$ = 0.71), formal department activities ($M_{Arab} - M_{Western}$ = 0.72), and school activities ($M_{Arab} - M_{Western}$ = 0.30), continuing the trend of Arab teachers favouring the more formal, school administrator-directed professional development. On the other hand, there was only one category for which the Western teachers had markedly more positive perceptions of the organisational response than the Arab teachers, namely, engaging with exemplars and resources ($M_{Arab} - M_{Western}$ = –0.58).

Notably, the largest mean organisational response score reported by the Western teachers for any category was 3.39 (for peer lesson observation); this value was relatively close to the neutral value of 3.0. Overall, then, while there continued to be

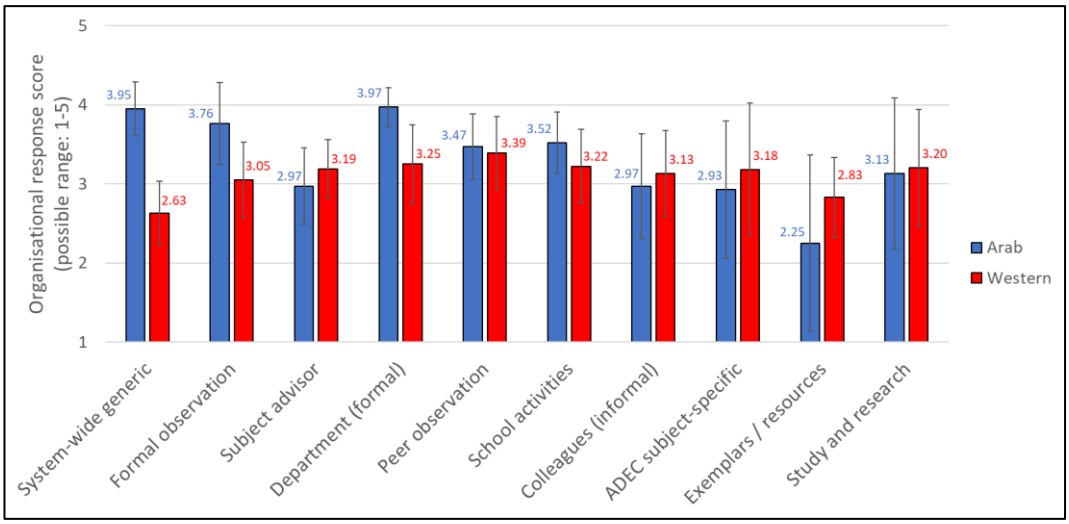

Figure 6.12. Comparison of Arab and Western teachers' perceptions of the organisational response related to 10 categories of professional development (mean scores and 95% confidence intervals)

frequent differences between the perceptions of Arab and Western teachers for this impact scale, the results indicate that the Western teachers did not have strong positive perceptions of the organisational response associated with any category of professional development.

Overall, the results reported in this section (Section 6.2.2) indicated that there were frequent differences between Arab and Western teachers' perceptions of the impact of the 10 professional development categories that both groups of teachers had participated in. These differences were most pronounced for the system-wide generic professional development, which the Arab teachers consistently viewed much more favourably than the Western teachers did. Further, consistent with the trend observed in the design feature data (reported in Section 6.2.1), the results in this section indicated that the Arab teachers had more favourable perceptions than the Western teachers of the impact of more formal professional development that was directed by school administrators, whereas the Western teachers favoured professional development that was less formal and more subject-specific.

6.2.3 Perceptions of the Effects of Non-Design-Related Factors on the Impact of Professional Development

The final area in which the Arab and Western teachers' perceptions of professional development were compared was the non-design-related factors that affected the impact of professional development. New analyses were not conducted for this aspect of research objective 5 for two reasons. First, among the themes that emerged from the grounded theory analysis (which informed the conceptual model shown in Figure 6.1 on page 205), key areas in which the perceptions and experiences of Arab and Western teachers appeared to differ had already been identified. Second, there were no quantitative data related to the non-design-related factors that affected the impact of professional development, thus precluding the types of analyses presented in Sections 6.2.1 and 6.2.2. As such, this section provides a brief review of the differences that were detailed in Section 6.1 in terms of the Arab and Western teachers' perceptions and experiences of the non-design-related factors that affected professional development.

Overall, the conceptual model shown in Figure 6.1 aligned with the qualitative data provided by both Arab and Western teachers, and both structural barriers (filter one) and acceptance barriers (filter two) were significant for both groups of teachers. However, within this broad framework, the Arab and Western teachers' perceptions differed in relation to three areas: language issues, cognitive access to professional development content, and teachers' perceptions of their existing expertise. These areas are reviewed in this section.

First, language issues appeared to primarily affect Western teachers' access to professional development (see Section 6.1.2.1). Although my own experience in Abu Dhabi schools indicated that many forms of professional development were conducted in English—including most ADEC subject-specific professional development, the work of subject advisors, and the exemplars and resources that were provided to teachers—the Arab teachers in my study did not highlight this as a concern. In contrast, when categories such as the ADEC non-subject specific professional development and school activities were conducted solely or partly in Arabic, the Western teachers expressed much concern and frustration. As such,

although there were likely to have been instances in which teachers from both groups encountered professional development that was not in their native language, the responses of Arab and Western teachers to this situation were markedly different. On one hand, this finding may be explained by, first, the widespread promotion of the importance and use of English within the ADEC reform project (for example, through requiring English, mathematics, and science subjects[49] to be taught in English) and, second, the fact that, in practice, most Arab teachers had at least some level of English language proficiency. On the other hand, the UAE is an Arab country and, as such, Arabic is the host language. Given this, it is noteworthy that Western teachers were not more accepting of the role of Arabic in professional development as a component of school life in Abu Dhabi.

The differing professional and cultural backgrounds of Arab and Western teachers meant that it was specifically the Arab teachers in my study who encountered a significant conceptual and cultural gap between their existing educational understandings and practices and those that were advocated in professional development (see Section 6.1.3). In some cases, this gap made it difficult for the Arab teachers to construct meaning in relation to the new ideas and strategies that were presented in professional development, whereas Western teachers felt highly confident in their understanding and expertise related to the same topics (see also Section 6.1.5.1). As such, it would appear that whereas Western teachers were cultural outsiders in geographical, linguistic, and social domains, Arab teachers found themselves to be cultural outsiders in the educational domain that professional development involved.

Finally, differences were observed in the Arab and Western teachers' discussion of their existing expertise (see Section 6.1.5.1). Although some Arab teachers identified themselves as having extensive teaching experience, they, nonetheless, acknowledged their need to learn new educational theories and practices. The Western teachers, on the other hand, had a much more robust view of the sufficiency of their existing knowledge (even when this was paired with limited prior teaching experience), presumably due to their 'insider' status in relation to the body of knowledge that was the central focus of professional development.

[49] The subjects involved in the sample space for the study; see Section 4.3.1 of Chapter 4.

This section (Section 6.2.3) has highlighted the differences that were observed between Arab and Western teachers' perceptions and experiences of the non-design-related factors that affected the impact of professional development. This adds to the results reported in Sections 6.2.1 and 6.2.2, which demonstrated that there were, likewise, differences in Arab and Western teachers' perceptions of the design and the impact of professional development. As such, the results reported across Section 6.2 provide a clear indication that there were, indeed, differences between the perceptions and experiences of Arab and Western teachers (research objective 5). These results are discussed in Section 7.1.5 of Chapter 7. The next section (Section 6.3) now provides a summary of the results reported in this chapter.

6.3 Chapter Summary

This chapter has reported the results obtained in relation to the non-design-related factors that affected the impact of professional development (research objective 4) and the differences between Arab and Western teachers' perceptions and experiences of professional development (research objective 5).

In terms of research objective 4, a conceptual model was developed for the teacher professional development impact trajectory (see Figure 6.1 on page 205), based on grounded theory analysis of the qualitative data supplied by the teachers in the study (N = 35 teacher interviews and n = 96 written comments on the main survey). The conceptual model depicted the progression from intended professional development to received, accepted, and applied professional development, culminating in impacts on students.

The conceptual model drew on the existing literature; however, it also extended existing literature by highlighting four filters that affected the progression of professional development through these successive levels of impact. The first two of these four filters were described in detail in this chapter, based on the qualitative accounts provided by the teachers in my study. The first filter, which lay between intended and received professional development, involved structural barriers that affected teachers' access to professional development: namely, issues related to the language used in professional development and school-related factors (Section

6.1.2). The second filter, which determined whether received professional development progressed to become accepted professional development, was more complex, involving three types of barriers to teachers' acceptance of professional development content. These barriers were teachers' cognitive access to the content of professional development (Section 6.1.3), the perceived fit of professional development for the contexts in which teachers worked (Section 6.1.4), and matters related to teacher agency (Section 6.1.5).

Given that the identified within Sections 6.1.2 to 6.1.5 emerged through inductive analysis, and, further, given that teachers had much freedom to express their views in both the interviews and the main survey, I argue that these factors are those that the teachers perceived as being most significant in affecting the impact of professional development. These factors were distinct from the design-to-impact relationship that had originally been expected to be of primary importance, based on the review of literature in Chapter 2; as such, identifying these non-design-related factors and their effects on the professional development process was a significant contribution of my study.

In terms of research objective 5, the Arab and Western teachers' perceptions and experiences of professional development were compared in terms of the design and impact of professional development as well as the non-design-related factors that were identified as affecting the impact of professional development. Using the quantitative interviewee survey data, frequent differences were identified between the Arab and Western teachers' perceptions of the design (Section 6.2.1) and the impact (Section 6.2.2) of the 10 professional development categories that had been reported by both groups of teachers. Overall, Arab teachers tended to report more favourable perceptions of the formal professional development that was heavily influenced by school administrators, whereas Western teachers tended to favour less formal and more subject-specific professional development. Whereas these findings emerged from the smaller interviewee survey sample, analysis of the main survey data (reflecting the larger sample of 393 teachers) confirmed that there were statistically significant differences between the Arab and Western teachers' perceptions of the impact of professional development, providing support for the validity of the findings from the interviewee survey data.

In terms of the non-design-related factors that affected professional development (Section 6.2.3), it was found that language issues predominantly affected Western teachers, whereas cognitive access issues predominantly affected Arab teachers. Further, Arab and Western teachers appeared to conceptualise teacher expertise differently. Overall, it appeared that Arab and Western teachers' perceptions and experiences predominantly differed due to their varying pre-existing educational, cultural, and linguistic knowledge and skills. That is, whereas the Western teachers were cultural outsiders in geographical, linguistic, and social domains, the Arab teachers were cultural outsiders in the educational domain that professional development involved.

Through the implementation of the research methods detailed in Chapter 4, sufficient and valid results were obtained, and have been reported in Chapters 5 and 6, to address the five research objectives that framed my study. The final chapter of this thesis, Chapter 7, discusses the significance of the results presented in Chapters 5 and 6 and then reviews the major contributions, limitations, and directions for future research associated with the study.

Chapter 7

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

My study investigated teachers' experiences of professional development within a major educational reform in Abu Dhabi, UAE. Having developed and validated a new questionnaire for examining teachers' perceptions of the impact of professional development (research objective 1), my study investigated both the design and the impact of the professional development that teachers experienced within Abu Dhabi public schools (research objective 2) and examined the relationships between the design and impact of professional development (research objective 3). The study also identified non-design-related factors that affected the impact of professional development (research objective 4) and compared Arab and Western teachers' experiences and perceptions of professional development (research objective 5).

Within the overarching framework of an interpretivist research paradigm and a social constructivist epistemology (Willis, 2007), a triangulation mixed-methods design was used for the study (as detailed in Section 4.2 of Chapter 4). As such, *teachers' experiences* of professional development were the primary phenomena of interest. Data collection, analysis of both qualitative and quantitative data, and reporting were informed by this interpretivist perspective.

Teachers of English, mathematics, and science subjects in Abu Dhabi public schools provided data for my study in three ways. First, 393 teachers completed a survey that collected predominantly quantitative data but also invited qualitative comments[50]. Second, 35 teachers participated in in-depth, semi-structured interviews, during which they also completed a quantitative interviewee survey (the third data collection technique) that was an extended version of the survey administered to the larger sample. Table 4.1 (on page 102) summarised how these data collection techniques were used to address the five research objectives of the study.

This chapter concludes the reporting of my research. First, Section 7.1 summarises the results that were reported in Chapters 5 and 6, discussing these in relation to the

[50] Of the $N = 393$ teachers who completed the quantitative items of the main survey, $n = 96$ chose to also provide qualitative comments.

specific context of Abu Dhabi public schools as well as the wider fields of teacher professional development and cultural differences. In doing so, recommendations arising for future practice and research are identified. Section 7.2 then acknowledges the limitations of the study, and Section 7.3 summarises the recommendations arising from Sections 7.1 and 7.2. The significance of the study in terms of various stakeholders and contexts is considered in Section 7.4. Finally, Section 7.5 provides concluding remarks.

7.1 Summary and Discussion of Major Findings

This section summarises and discusses the major findings of my study. The section has five subsections, corresponding to each of the five research objectives for the study (introduced in Section 1.3 of Chapter 1): the validation of the new survey instrument (Section 7.1.1); teachers' perceptions of the design and impact of professional development in Abu Dhabi public schools (Section 7.1.2); the relationships between the design and impact of professional development (Section 7.1.3); the non-design-related factors that affected the impact of professional development (Section 7.1.4); and the comparison of Arab and Western teachers' perceptions of and responses to professional development (Section 7.1.5).

7.1.1 Validity and Reliability of the New Questionnaire

The first research objective was to develop and validate a questionnaire to examine teachers' perceptions of the impact of professional development. A draft questionnaire was developed by modifying an existing instrument that was developed for use in general (that is, not education-specific) workplaces (Grohmann & Kauffeld, 2013).

The draft questionnaire was reviewed by an expert panel, and then the responses from the main survey ($N = 393$ teachers) were analysed to examine the questionnaire's factor structure, internal consistency reliability, and ability to differentiate between groups. This analysis was conducted separately for two data sets obtained using the main survey—one for whole-school and another for subject-

specific professional development. The major findings (reported in Section 5.1 of Chapter 5) were:

- The expert panel endorsed the theoretical basis of the draft instrument and the operationalisation of theoretical constructs for the purpose and context of my study.
- Factor analysis indicated a four-factor structure, involving:
    - teachers' affective reactions to professional development;
    - teacher learning;
    - outcomes, comprising both changes in teachers' classroom practice and student outcomes; and
    - the organisational response to professional development.
- Together, these factors explained 86% of the variance in each of the whole-school and subject-specific data sets.
- The final version of the questionnaire, named the Impact of Teacher Professional Development (ITPD) Questionnaire, mapped satisfactorily onto Desimone (2009) and Guskey's (2000) theoretical frameworks for evaluating teacher professional development.
- The internal consistency reliability (Cronbach's alpha) coefficients were above .75 for all scales and for both data sets (whole-school and subject-specific professional development), which was considered satisfactory.
- The ANOVA results for the whole-school data set indicated that the ITPD Questionnaire was able to distinguish between the experiences of teachers: of different nationalities, of different teaching subjects, and with different years of experience. However, for the subject-specific data set, statistically significant differences were not consistently detected.

Below, three aspects of these findings are discussed: the significance of the expert panel's endorsement of the draft questionnaire, the unexpected way that two scales came together to form the outcomes scale, and the contrasting ANOVA results for the whole-school and subject-specific data sets.

The favourable feedback from the expert panel who reviewed the questionnaire was significant in terms of demonstrating the appropriateness of the questionnaire for the

Abu Dhabi context. Although the theoretical frameworks that were selected to underpin this study (Desimone, 2009; Guskey, 2000) are widely respected internationally, it was important to avoid making assumptions about the suitability of these theoretical frameworks, which are of Western origin, for use in a non-Western context. Given the expert panel members' knowledge of and experience within the Abu Dhabi context, their endorsement of the theoretical basis for the study was important for contextual (rather than theoretical or methodological) reasons, reflecting the contextually-situated, interpretive stance taken in this study. Before the ITPD Questionnaire is used in other cultural contexts, its underpinning theoretical foundations should be similarly examined to evaluate their cultural and contextual appropriateness (*Recommendation P1*[51]).

In terms of the factor structure of the ITPD Questionnaire, the factor analysis and internal consistency results, along with the overall alignment of the factor structure to the theoretical frameworks for evaluating teacher professional development (Desimone, 2009; Guskey, 2000), supported the suitability of the questionnaire for its intended purpose of capturing teachers' perceptions of the impact of professional development. The finding that the same structure emerged from both the whole-school and subject-specific data sets further supported the appropriateness of this factor structure.

The factor analysis indicated that the items related to both changes in teachers' classroom practice and student learning outcomes functioned together as a single factor. This contradicted the distinct roles of these concepts within the theoretical frameworks defined by Desimone (2009) and Guskey (2000). It seems unlikely that teachers' classroom practice and student outcomes were so closely related as to be a single construct; for example, Timperley et al. (2007) have noted that the presence of a metaphorical "'black box' between acts of teaching and associated student outcomes" is well-documented (p. xxiii). Rather, teachers may have found it difficult to accurately judge the impact of the changes that they had made in their classroom

[51] The recommendations made in this chapter are summarised in Section 7.3, where they are categorised into three groups: recommendations for future research (*Recommendations R1 to R11*); recommendations for professional development policy makers, practitioners and evaluators (*Recommendations P1 to P8*); and recommendations for professional development policy and practice in the Abu Dhabi context (*Recommendations A1 to A10*).

practice on students' learning, or may have assumed that because they had implemented something new, students *must* have benefited. Interestingly, a similar issue was encountered in a recent large-scale analysis of OECD-wide data related to the impact of professional development (Opfer, 2016); in that study, teachers' perceptions of *three* theoretically-distinct constructs—namely, teacher learning, teacher classroom practice, and student outcomes—all functioned together as a single factor.

As discarding the items related to teachers' classroom practice and student outcomes would have meant omitting constructs that are of much importance within research-based frameworks for evaluating teacher professional development, a decision was made to retain the items that had functioned as a single scale. This decision resulted in an aggregate scale that incorporated both changes in teachers' classroom practice and student learning impacts. This was the same approach taken by Opfer (2016) in the study described above.

The interpretivist stance taken in my study meant that the primary focus was on teachers' experiences and constructions of meaning (rather than purely objective measures). As such, the strong association between teachers' accounts of their classroom practices and student outcomes—which led to the associated items forming the aggregate scale described above—was assumed to reflect the teachers' perceptions of what happened in their classrooms. Future research, however, could further investigate the nature of teachers' constructions of meaning in relation to the connection between their practice and student outcomes (*Recommendation R1*). Based on such research, new items or measures could be developed and validated that would allow distinct data to be collected from teachers about their classroom practice and student learning (*Recommendation R2*).

The discriminant validity of the ITPD Questionnaire was examined using a series of ANOVAs. For each of the two data sets from the main survey (reflecting whole-school and subject-specific professional development), three ANOVAs were conducted, using teachers' nationalities, teaching subjects, and years of teaching experience as the independent variables. For the whole-school professional development, the ANOVA results indicated that the ITPD Questionnaire was able to

distinguish between groups of teachers that, theoretically, it should differentiate. Similar differentiation was not observed, however, for subject-specific professional development, except for one scale. In the context of teacher professional development in Abu Dhabi public schools, these results make sense given that the whole-school professional development, which centres on the *Tamkeen* programme, is highly standardised, involving scheduled and monitored delivery of identical training activities to all teachers in all schools, whereas subject-specific professional development is more needs-based and, therefore, involves more variation (as described in Section 1.1.5 of Chapter 1). As such, it is recommended that the ITPD Questionnaire is used in situations where teachers are known to have had comparable experiences of professional development in order to ensure that variation in the professional development itself does not cloud the interpretation of results (*Recommendation P2*).

Overall, the results provided support for the validity and reliability of the ITPD Questionnaire as used in Abu Dhabi. Although areas for further refinement have been identified, particularly in relation to the outcomes scale, the findings indicated that the data gathered using the questionnaire (within the main survey and the interviewee survey) could be interpreted with confidence. Further, the development of the questionnaire provides a sound and reliable instrument for future research into teachers' perceptions of the impact of professional development.

7.1.2 The Professional Development Experienced by Teachers in the Study

The second research objective was to examine teachers' perceptions of the design and the impact of the professional development that they had experienced in Abu Dhabi public schools. Quantitative data from the interviewee survey ($N = 35$ teachers) were used to evaluate the design and the impact of 11 categories of professional development[52]. The design of the professional development was examined in terms of five literature-based features: content focus, active learning, coherence, duration, and collective participation (Desimone, 2009). The impact of professional development was examined using the ITPD Questionnaire, which

[52] These categories (reported in Table 5.5 on page 162) were developed by synthesising teachers' accounts of the various forms of professional development that they had experienced in the 2012–2013 academic year.

examined teachers' affective reactions to professional development, teacher learning, outcomes (changes in teachers' classroom practice and student outcomes), and the organisational response to professional development. Qualitative data from the teacher interviews ($N = 35$ teachers) and the main survey ($n = 96$ teachers) were examined to identify explanations for the quantitative results.

Sections 7.1.2.1 and 7.1.2.2 summarise and discuss the results related to the design and the impact of professional development, respectively. Section 7.1.2.3 then provides further discussion based on consideration of the design and impact of the professional development in Abu Dhabi public schools.

7.1.2.1 The Design of the Professional Development

In terms of the design of the professional development, the major findings of my study (reported in Section 5.2.2 of Chapter 5) were:

- The mean overall design effectiveness indices (which incorporated all five design features and had possible values from 0 to 20) ranged from 9.24 ($SD = 3.43$) for school activities to 15.55 ($SD = 2.75$) for formal department activities. These scores indicated that although there was scope for further improvement, the professional development that the teachers had experienced was generally aligned with the literature-based recommendations.
- The professional development activities that reflected the greatest alignment with the literature-based design features were formal department activities, informal interactions with colleagues, and the ADEC subject-specific professional development.
- The professional development activities that reflected the least alignment with the literature-based design features were formal lesson observation and school activities; both of these categories, however, involved over 85% of the teachers interviewed.
- Overall, five categories were reported to have reflected all five literature-based design features: support from subject advisors, formal department activities, peer lesson observation, informal interactions with colleagues, and mentoring others.

- In contrast, the two categories in which the largest numbers of teachers had participated—namely, the system-wide generic professional development and formal lesson observation—reflected only two and three of the five literature-based design features, respectively.
- Across the 11 categories of professional development examined, the results indicated that:
    - Coherence and duration were areas of relative strength;
    - Much of the professional development reflected a subject-specific content focus, but this was not the case for the two professional development categories that involved the largest numbers of teachers (namely, the system-wide generic professional development and formal lesson observation); and
    - The extent to which professional development involved active learning and collective participation varied.
- The qualitative data generally confirmed and provided explanations for the quantitative design feature scores, supporting the validity and reliability of the quantitative results.

Overall, these findings show that teachers generally felt that the professional development that they had experienced had reflected literature-based recommendations in terms of its design, although not all design features were equally well reflected. Although there is room for improvement—particularly in relation to the extent and consistency of a subject-specific content focus, active learning approaches, and collective teacher participation—these results, on balance, are encouraging and may be attributed to ADEC's extensive efforts to learn from other education systems around the world and incorporate internationally recognised approaches into their strategic planning (Badri & Al Khaili, 2014). It is noteworthy that it was the teachers themselves, rather than policy makers and professional development providers, who reported that, overall, the professional development in Abu Dhabi schools was well designed.

7.1.2.2 The Impact of the Professional Development

In terms of the impact of the professional development experienced by teachers in the study, the major findings (reported in Section 5.2.3 of Chapter 5) were:

- The mean total impact scores (which combined the four impact scales and had possible values from 4 to 20) ranged from 12.01 (*SD* = 4.16) for the system-wide generic professional development to 15.67 (*SD* = 2.18) for study and research. The scores were all above the midpoint or neutral score (12.0), indicating that the teachers generally agreed that impacts had occurred as a result of the professional development.
- The three professional development categories with the greatest impacts were study and research, the ADEC subject-specific professional development, and informal interactions with colleagues.
- The three professional development categories with the lowest impacts were the system-wide generic professional development, formal lesson observation, and the support from subject advisors. This was of concern given that these three categories of professional development involved the largest numbers of teachers.
- Of the 11 professional development categories, teachers reported that:
    - They had positive affective reactions to all categories of professional development;
    - They had learned from all but two categories of professional development, the exceptions being the system-wide generic professional development and formal lesson observation;
    - All but two categories—namely, the system-wide generic professional development and mentoring others—had resulted in some changes to teachers' classroom practice or student learning, although the mean scores were all relatively close to the neutral score (3.0); and
    - There had been a positive organisational response related to all but one category of professional development (namely, engaging with exemplars and resources), although, again, the mean scores were all relatively close to the neutral score (3.0).

- The qualitative data confirmed and provided explanations for the quantitative impact scores, supporting the validity and reliability of the quantitative results.

Overall, these results indicated that the teachers felt that most professional development had resulted in some degree of impact. This is encouraging and is consistent with other research into teachers' perceptions of the impact of professional development both in Abu Dhabi (Badri et al., 2016) and internationally (OECD, 2009).

It was noteworthy that, overall, the strongest impacts were reported for the teacher reaction and teacher learning scales. This finding supported my conceptual model of the professional development impact trajectory (reported in Section 6.1.1 of Chapter 6), in which I proposed that a greater number of barriers affected the teaching and learning impacts of professional development (because of the cumulative effect of successive filters), compared to the number of barriers affecting teachers' affective reactions or teacher learning.

7.1.2.3 Overarching Remarks

My results for research objective 2 indicated that the effectiveness of the professional development, in terms of both design and impact, varied across the 11 categories that were examined. This finding highlights the importance of evaluating the professional development that is currently offered in Abu Dhabi to identify areas for improvement. As such, it is recommended that my results be examined by those involved in professional development provision in Abu Dhabi to facilitate evaluation of current practice and identification of areas for improvement (*Recommendation A1*).

My findings highlighted that in the Abu Dhabi context, some of the least effective categories of professional development—in terms of both design and impact—were the categories in which the largest numbers of teachers participated: namely, school activities, formal lesson observation, and the system-wide generic professional development. Though far from ideal, this finding is consistent with international

trends (OECD, 2009; Opfer, 2016) and with other reports of professional development in Abu Dhabi (Badri et al., 2016; Opfer, 2016). Therefore, it appears that aligning teacher participation with the quality of professional development may be challenging for schools and education systems in a range of contexts, including but not limited to Abu Dhabi. Given that international research has indicated for some time that workshop-based professional development programmes are not always effective (see, for example, Clarke & Hollingsworth, 2002; Darling-Hammond et al., 2009; Desimone, 2009; Guskey, 1986; Little, 1993), the position expressed by Gibson and Brooks (2012), reporting on teacher professional development in Canada, appears to be equally relevant for Abu Dhabi:

> While formal professional development programs can assist in [teacher professional development], finding prescribed experiences that meet the needs of all teachers can be formidable and indeed may not always be the best option for promoting change in practice. (p. 1)

It is recommended, therefore, that in the Abu Dhabi context, the system-wide teacher participation rates for the various types of professional development be reviewed and appropriate modifications be made. Such modifications could either involve increasing teacher participation in activities that already have higher design and impact scores or modifying the nature of activities that have high participation rates in order to improve the design and impact of those activities (*Recommendation A2*).

My study identified particular issues related to the design and impact of the system-wide generic professional development, which was the most prevalent of all the categories examined (involving 100% of the interviewed teachers). Of the 11 professional development categories, the system-wide generic professional development received the fourth-lowest design effectiveness index (11.25 out of 20) and the lowest total impact score (12.01 out of 20). Teachers' qualitative comments were, likewise, highly critical of this form of professional development, with particular reference to the *Tamkeen* programme. These findings are consistent with those of two other studies conducted in Abu Dhabi: Augustine (2014) reported teachers' assessment that the *Tamkeen* programme was the least effective or useful of all the forms of professional development that they had experienced in Abu Dhabi

public schools, and Al Hassani (2012) reported teachers' negative perceptions of the generic, whole-school training workshops that they attended weekly[53]. It is recommended, therefore, that ADEC reviews its use of generic, workshop-style professional development and moves toward a greater reliance on forms of professional development that both Abu Dhabi-based and international studies suggest may result in more positive impacts on teaching and learning (*Recommendation A3*).

7.1.3 Relationships between the Design and Impact of Professional Development

The third research objective was to investigate relationships between the design of professional development and teachers' perceptions of the impact of that professional development. Simple correlation and multiple regression analyses of the interviewee survey data (comprising 297 responses from 35 teachers) were used to investigate relationships between the five design features (content focus, active learning, coherence, duration, and collective participation) and the four impact scales (teacher reaction, teacher learning, outcomes, and organisational response) in terms of the 11 distinct categories of professional development. The qualitative teacher interview data was then used to inform the interpretation of the quantitative results.

The major findings (reported in Section 5.3 of Chapter 5) were:

- A positive association was observed between the overall design effectiveness indices and the total impact scores, indicating that professional development that reflected literature-based design principles to a greater extent also resulted in greater levels of impact.
- Positive and statistically significant ($p < .05$) correlations were observed between all combinations of design and impact variables.

[53] Al Hassani (2012) reported on teachers' experiences of professional development within the ADEC Public-Private Partnership (PPP) Programme, which had ended by the time my study took place. In the PPP Programme, private education companies were contracted to coach and mentor staff in Abu Dhabi public schools. Although the *Tamkeen* programme launched after the PPP Programme ended, most PPP companies ran a similar programme of generic, whole-staff workshops in their schools. Al Hassani reported that these sessions addressed topics including "classroom management, school environment, differentiated teaching, cooperative and active learning" (p. 52), making these sessions similar in both topic and format to those involved in the subsequent *Tamkeen* programme.

- The multiple regression analyses indicated that three of the five design features independently predicted each impact scale ($p < .05$). The teacher reaction, teacher learning, and outcomes scores were all predicted by content focus, coherence, and duration; the organisational response scores were predicted by active learning, coherence, and duration.
- Overall, the positive and statistically significant associations between design features and impact variables supported the importance of the literature-based design features within the Abu Dhabi context. However, given that the correlations were weak and the regression models explained only a relatively small proportion of the variance in the impact scores (between 14% and 39% for the different impact scales), it appeared that there were other factors besides design that also affected the impact of professional development.
- The qualitative data confirmed teachers' preference for subject-specific professional development but indicated that, overall, the design of professional development was not of primary importance in determining professional development's impact.

The presence of positive associations between the design and impact of professional development was consistent with existing literature (Barrera-Pedemonte, 2016; Desimone, 2009; Garet et al., 2001; Hill, 2007; Ingvarson et al., 2005; Penuel et al., 2007; see also Timperley et al., 2007). However, my findings contradicted existing research in three respects, which are discussed below.

First, it was noteworthy that teachers appeared to feel that content focus, coherence, and duration were more important than active learning or collective participation in terms of contributing to the impact of professional development. This contradicted previous research, which has strongly emphasised the importance of both active learning (Barrera-Pedemonte, 2016; Blank, 2013; Garet et al., 2001; Ingvarson et al., 2005) and collective participation (Akiba & Liang, 2016; Barrera-Pedemonte, 2016; Bill & Melinda Gates Foundation, 2014; Blank, 2013; Garet et al., 2001; Opfer, 2016; Penuel et al., 2007; Timperley et al., 2007) for effective professional development. Considering my findings, it is possible that active learning and collective participation were influential but only in indirect ways, as was the case for

collective participation in the study by Garet et al. (2001); the regression analyses used in my study did not allow any such indirect effects to be identified.

Given that the research cited above was conducted in predominantly Western contexts, however, it is also possible that cultural norms in Abu Dhabi may have contributed to teachers' preferences for the degree of active learning and collective participation within professional development activities. For example, the high power distance and uncertainty avoidance that characterise Arab cultures (as outlined in Section 3.3 of Chapter 3) may have led the Arab teachers in my study to prefer professional development that involved a one-way transfer of knowledge from an 'expert' presenter to the audience of teachers (see also Hofstede, 1986). My results in relation to research objective 5 (discussed in Section 7.1.5 below) suggested that this was the type of professional development that the Arab teachers preferred, and other research has confirmed this trend in the UAE context (Stephenson, 2010; Von Oppell, 2016). This traditional style of professional development, however, is in contrast with the Western literature-based recommendations that teachers should participate actively and collaboratively in professional development (Desimone, 2009), illustrating the need for caution around international policy borrowing in education reform efforts (Harris, 2012). It is recommended, therefore, that, when drawing on Western educational literature to inform practice in non-Western contexts, the suitability of the literature-based recommendations be carefully examined in light of the target culture and context (*Recommendation P3).*

Second, it was noteworthy that the amount of variance in the organisational response scores that was explained by the design features regression model was low (only 14%). This finding suggests that organisational behaviour may not be influenced primarily by features of the professional development itself, as is implicit in Guskey's (2000) theoretical framework for professional development evaluation. Rather, other contextual factors—for example, school leaders' knowledge, skills, beliefs, or leadership styles, as well as policy and supervisory expectations—may determine the degree to which schools actively support professional development or modify existing practices in response to professional development (Holton, 1996). Coldwell and Simkins (2011) and Holton (1996) have argued that the treatment of organisational change as an outcome within causal, sequential path models for the

evaluation of the impact of professional development (such as that presented by Guskey, 2000) is inappropriate; my findings support their position.

Finally, although the associations between the design features and levels of impact were positive and statistically significant, my qualitative findings suggested that there were other factors at play besides the design of professional development. During the interviews, few of the teachers linked the design of professional development to its impact, either generally or in terms of specific design features or impact scales. When such links were discussed, teachers indicated that the design of professional development was overridden by other, non-design-related factors. As such, although my findings confirmed existing literature insofar as the design of professional development contributed to its impact, I recognised the potential for my study to extend the existing literature, which has provided limited clarification of how other factors, besides the design of professional development, affect the resulting impacts (Timperley et al., 2007). To this end, the study was extended to incorporate investigation of the non-design-related factors that teachers indicated had important influences on the impact of professional development in Abu Dhabi; the results of that investigation are discussed in the next section (Section 7.1.4).

7.1.4 Non-Design-Related Factors Affecting the Impact of Professional Development

The fourth research objective was to investigate factors, other than the design of professional development, that influenced teachers' perceptions of the impact of professional development. This objective was added based on the indications from both quantitative and qualitative data that although the design of professional development contributed to the resulting impacts, other factors were also at play.

Constructivist grounded theory approaches were used to allow themes and theory to emerge inductively from the qualitative data that were obtained through the interviews (N = 35 teachers) and the main survey (n = 96 teachers). This led to the development of a conceptual model depicting my interpretation of how, for the teachers in my study, non-design-related factors affected the impact of professional development. The major findings (reported in Section 6.1 of Chapter 6) were:

- The conceptual model developed for my study depicted professional development as (ideally) progressing through four stages before, potentially, resulting in student-level impacts[54]. These stages were:
    - Intended professional development;
    - Received professional development;
    - Accepted professional development; and
    - Applied professional development.
- The conceptual model also depicted filters between each of these levels; these filters determined whether professional development progressed through the stages of impact.
- The first filter, structural barriers, prevented some of the intended professional development from being received by teachers. Two types of structural barrier contributed to this filter:
    - School-related factors that prevented teachers from attending professional development; and
    - Language issues in schools where professional development was presented in a language that teachers were not able to understand.
- The second filter, acceptance barriers, prevented some of the received professional development from being accepted by teachers. Three types of acceptance barriers contributed to this filter:
    - Teachers' cognitive access to professional development (that is, their ability to construct meaning related to the content being presented, given their existing knowledge, experience, and worldviews);
    - Teachers' perceptions of the appropriateness or 'fit' of the content of professional development for the contexts in which they taught; and
    - Matters related to teacher agency.
- Two further filters were depicted in the conceptual model:
    - Implementation barriers, which prevented received professional development from being applied in teachers' classroom practice; and
    - Student learning barriers, which prevented teachers' classroom changes from affecting student learning.

[54] A visual representation of the conceptual model is provided in Figure 6.1 on page 205.

- Although the data provided by teachers in my study did not provide insights regarding the nature of the implementation and student learning barriers, these two filters were included in the conceptual model for completeness, based on the existing literature reviewed in Chapter 2.

This section (Section 7.1.4) discusses the specific non-design-related factors that were identified as contributing to filters one and two in the conceptual model. The structural barriers—school-based factors and language issues—are discussed in Section 7.1.4.1, then Sections 7.1.4.2 to 7.1.4.4, respectively, discuss the three types of acceptance barriers: cognitive access to professional development content, the perceived 'fit' of professional development for teachers' working contexts, and teacher agency. Section 7.1.4.5 then provides overarching remarks related to these non-design-related factors and their influence on the impact of teacher professional development in Abu Dhabi.

7.1.4.1 Structural Barriers

The first structural barrier involved school-related factors (specifically, school timetabling, the school's physical location, and teachers' assigned grade levels or teaching subjects) that prevented teachers from accessing the intended professional development. These practical barriers have received little attention in the existing literature, although the US National Institute for Excellence in Teaching (2012) has noted that teacher participation in professional development can vary considerably from teacher to teacher and from school to school, and Badri et al. (2016) have reported that conflicts with work schedules posed barriers to participation in professional development for over 40% of Abu Dhabi teachers. My findings suggest that it is important for schools and education systems to explicitly examine teachers' participation in professional development rather than assuming that policy intentions for professional development provision are implemented with consistency and fidelity for all teachers (*Recommendation P4*).

The second structural barrier involved the language in which professional development was conducted. To date, there is a lack of research related to the impact of language on professional development; as such, my study highlights a previously

under-examined issue. It is recommended that future research is conducted to investigate this matter, both in Abu Dhabi and in other international contexts (*Recommendation R3*). Such research should consider the relative sensitivity or robustness of various forms of professional development to language issues, given that language issues appeared to be particularly problematic for selected forms of professional development in my study (such as the system-wide generic professional development and school activities) yet did not pose problems for other activities (such as peer lesson observation and working with subject advisors).

7.1.4.2 Acceptance Barrier: Cognitive Access to Professional Development

Teachers' cognitive access to professional development was the first of the three types of acceptance barrier that were identified in my study. My identification of cognitive access as a barrier to effective professional development is consistent with Von Oppell's (2016) concurrent research in which Arab public school teachers were found to retain highly traditional beliefs about their roles as teachers and the nature of learning, despite their sustained involvement in the ADEC reform initiative. In Von Oppell's research, these traditional worldviews restricted the teachers' ability to understand the constructivist pedagogies that were being expected by ADEC: The teachers genuinely believed that they were implementing constructivist teaching practices, whereas lesson observations, lesson plans, and student feedback clearly indicated that this was not the case. In line with my identification of a cultural and cognitive gap that affected teacher professional development, Von Oppell concluded that Arab teachers in Abu Dhabi "were ill equipped to implement aspects of the reform … [and] lacked knowledge and understanding of the constructivist approach" (p. 200).

Although Von Oppell's (2016) findings support my conceptualisation of cognitive access issues affecting professional development, none of the professional development literature that was reviewed in Chapter 2 addressed the possibility that teachers may not have the necessary cultural or educational capital to be able to construct meaning related to the content of professional development. In education more broadly, the importance of cognitive readiness for new learning has been recognised since the time of Piaget and Vygotsky; however, it appears that, hitherto,

this principle has not been explicitly considered in relation to the specific case of teacher professional development. As such, my findings extended the existing professional development literature by highlighting the potential existence of a cognitive gap that may prevent professional development activities from resulting in the desired impacts for some teachers. Future research is needed to examine this phenomenon further, including investigating whether it is particularly associated with professional development that crosses cultural boundaries, as was the case in Abu Dhabi (*Recommendation R4*).

7.1.4.3 Acceptance Barrier: The Contextual 'Fit' of Professional Development

The second acceptance barrier identified in my study was the perceived 'fit' of professional development for the contexts in which teachers worked. The broad importance of context has been highlighted in past literature related to both professional development (Badri et al., 2017; Bill & Melinda Gates Foundation, 2014; Desimone, 2009; Harris & Jones, 2017; Loucks-Horsley & Matsumoto, 1999; Loucks-Horsley, Stiles, Mundry, Love, & Hewson, 2010; Song, 2008; Webster-Wright, 2009) and education reform (Akiba, 2013a; Coburn, 2001; McLaughlin, 1993; Spillane, 1999). However, my findings provide a greater degree of specificity by delineating the particular aspects of teachers' contexts—including at student, school, and cultural levels—that affected the impact of professional development. My conceptual model also highlights how, for the teachers in my study, these contextual factors primarily affected professional development through influencing teachers' assessments of the suitability (that is, the perceived contextual 'fit') of the professional development content. The filtering function that is depicted in my conceptual model in cases where teachers deem that professional development lacks contextual 'fit' and, therefore, reject its content parallels Coburn's (2001, p. 154) description of teachers' "gatekeeping" response to the policies and messages that they receive associated with educational reforms.

In terms of the specific aspects of context that were important for teachers, my findings are consistent with other literature at student, school, and cultural levels. First, at a student level, concerns related to the academic and English-language proficiencies of students in Abu Dhabi public schools are well documented and,

indeed, formed part of the initial impetus for the ADEC reform effort (Badri & Al Khaili, 2014; Martin et al., 2016; Mullis et al., 2016; OECD, 2016; UAE Ministry of Education Assessment Department, 2013). Issues related to the attitudes and behaviour of Abu Dhabi students have also been documented by Augustine (2014).

Second, at a school level, my findings corroborate international studies that have emphasised the role of school leadership in creating an organisational climate that facilitates optimal results following professional development (Edmonds & Lee, 2002; Gibson & Brooks, 2012; Harris & Jones, 2017; National Institute for Excellence in Teaching, 2012; Opfer, 2016; Timperley et al., 2007). My findings also support previous Abu Dhabi-based studies that have highlighted issues with the quality of public school leadership as principals grapple with the demands of the new reforms (Badri & Al Khaili, 2014; Botes, 2012; Stephenson, 2010).

Finally, at a cultural level, my findings are consistent with other Abu Dhabi-based studies that have documented teachers' dissatisfaction with educational practices and philosophies from international contexts being 'imported' into this unique cultural context (Al-Taneiji & McLeod, 2008; Augustine, 2014; Thorne, 2011) and, further, have highlighted the deep embeddedness of Arab teachers' traditional cultural views of education (Albon, 2009; Bond, 2014; Von Oppell, 2016). Internationally, there is limited research directly related to cross-cultural professional development, but recent studies have indicated that teacher professional development is affected by the local cultural context in China (Gu, 2005a, 2005b, 2010), Japan (Watanabe, 2017), and South America (J. Johnson, 2010).

Overall, although the importance of student-, school-, and cultural-level factors has been documented previously, my study extended past research by specifically elucidating how these contextual factors affected teachers' experiences of professional development and influenced teachers' willingness to accept the content of the professional development that they had experienced. It is recommended that future professional development practice in Abu Dhabi, as well as in other cross-cultural contexts, incorporate increased consideration of the alignment between professional development content and the student-, school-, and cultural-level characteristics of the local context (*Recommendation P5 / A4*).

7.1.4.4 Acceptance Barrier: Teacher Agency

The third and final type of acceptance barrier that was identified in my study involved teacher agency. My findings corroborate much existing literature that has emphasised the importance of acknowledging and promoting teacher agency within professional development (see, for example, Akiba, 2013a; Bill & Melinda Gates Foundation, 2014; Boylan et al., 2017; Coburn, 2001; Edmonds & Lee, 2002; C. Fraser et al., 2007; Gibson & Brooks, 2012; Harris & Jones, 2017; Hustler et al., 2003; A. Kennedy, 2005, 2014; F. King, 2014; Richardson & Placier, 2001). My findings also align with ADEC's recent report that teachers in Abu Dhabi "are not meaningfully involved in the processes of professional development planning, implementation, and evaluation" (Badri et al., 2016, p. 11). However, my results extend the existing literature in that they demonstrate, for the first time, that matters of agency are, indeed, important to teachers in the Abu Dhabi context. Further, my findings clarify that for the teachers in my study, matters of agency affected the impact of professional development specifically through influencing whether teachers accepted the content of the professional development that they had experienced.

My finding that the professional development approaches being used in Abu Dhabi offered limited teacher agency aligns with the work of A. Kennedy (2014), who has examined the degree of teacher agency that different professional development approaches afford. Kennedy argues that traditional, top-down professional development approaches (such as those used in Abu Dhabi), which are based on deficit models (discussed in Section 2.1 of Chapter 2) and the one-way delivery of 'training', offer the least degree of teacher agency and, therefore, are unlikely to be as effective as alternative professional development approaches (such as collaborative teacher inquiry) that allow teachers "autonomy and the ability and space to exert agency" (A. Kennedy, 2014, p. 691). More broadly, my finding is consistent with recent calls to re-establish teacher agency within the field of education as a whole (Evers & Kneyber, 2016; Fullan & Quinn, 2016; Harris & Jones, 2017; Hargreaves & Fullan, 2012).

In terms of the Abu Dhabi context, however, it must be acknowledged that the current top-down, standardised approaches to professional development align with cultural norms in terms of the high power distance, high uncertainty avoidance, and strong sense of collectivism that characterise Arab cultures (as described in Section 3.3 of Chapter 3). As such, to increase opportunities for teacher agency in the area of teacher professional development may be problematic due to this conflict with Arab cultural norms. It is recommended, therefore, that ADEC system leaders engage in a careful examination of the potential costs and benefits associated with models of professional development that involve greater and lesser degrees of teacher agency in order to reach an informed and contextually-situated decision regarding the most appropriate approach for the Abu Dhabi context (*Recommendation A5*).

Within the broad theme of teacher agency, three specific matters were found to be important: teachers' perceptions of their existing expertise, teachers' practice of filtering professional development, and teachers' attitudes toward compulsory professional development. Each of these matters is discussed below.

In relation to teachers' perceptions of their existing expertise, my results should be interpreted in the light of literature that offers other perspectives besides teachers' own views. Two recent studies conducted in the Abu Dhabi context raise questions about the accuracy of teachers' own assessments of their practice and expertise. First, Von Oppell (2016) found that Abu Dhabi teachers' perceptions of their understanding and implementation of constructivist pedagogies were vastly different from what was observed in their lessons. Second, Badri et al. (2016) identified a strong negative correlation ($\beta = -.705$; *p*-value not reported) between the types of professional development that Abu Dhabi teachers reported that they needed and the types of professional development that the teachers reported had led to the greatest impacts, concluding that this inconsistency "might indicate the [sic] lack of teacher understanding of what professional development is needed" (p. 10). Given these findings, it is important for policy makers and professional development providers to consider ways to respect teachers' perceptions of their existing expertise (in order to prevent teachers rejecting professional development, as was reported in my study) while, nonetheless, recognising that these perceptions may not always be accurate (*Recommendation P6*).

My study highlighted teachers' practice of actively critiquing and filtering the professional development they receive. This phenomenon has been documented within past research both in Abu Dhabi (Von Oppell, 2016) and internationally (Borko & Putnam, 1996; Coburn, 2001; Cotton, 2006; Cronin-Jones, 1991; Gregoire, 2003; Ogborn, 2002; Pajares, 1992; Pintó, 2005; L. K. Smith & Southerland, 2007; Tyack & Cuban, 1995; Yerrick, Parke, & Nugent, 1997), showing that teachers frequently either reject ideas that do not fit with their existing beliefs and understandings or transform new ideas to make them 'fit'. This is potentially problematic, given that previous research has noted the importance of cognitive dissonance for prompting deep change in teachers' beliefs and practice (Allen & Penuel, 2015; Ball & Cohen, 1999; Loucks-Horsley & Matsumoto, 1999; Pajares, 1992; Timperley, 2008; Timperley et al., 2007). Filtering and rejecting professional development may allow teachers to avoid this cognitive dissonance and, as such, may present a barrier to teacher change. It is recommended, therefore, that consideration is given to how professional development efforts in Abu Dhabi can better facilitate teachers' engagement with—rather than their filtering and rejection of—points of cognitive dissonance in order to afford meaningful teacher learning and change (*Recommendation A6*).

Finally, in terms of teachers' attitudes toward compulsory professional development, my findings corroborate research conducted in other contexts that has shown that teachers prefer to be able to contribute to the selection and direction of their own professional learning (Ashdown, 2002; Beavers, 2009; Bill & Melinda Gates Foundation, 2014). Despite the prevalence of this preference on the part of teachers, however, Timperley (2008) has argued based on an extensive review of literature that it is not the voluntary or mandatory nature of professional development that is of primary importance in determining the resulting impact as "prior commitment does not guarantee greater engagement" (p. 16). Rather, Timperley emphasises the importance of ensuring that professional development activities are "meaningful … [and] supported by a rationale for participation that is based on identified student needs" (p. 16) in order to facilitate the deep teacher engagement that is necessary for achieving teaching and learning impacts. Further, comparative research on effective educational reforms has concluded that when education systems are achieving poor student outcomes, prescriptive and centrally-controlled reform approaches are most

effective (Mourshed et al., 2010). As such, my finding in regard to teachers' preference for selecting their own professional development may be less important in terms of implications for future practice than my findings in regard to the other aspects of teacher agency that were discussed above. The interpretivist, teacher-centred nature of my study means that my findings privilege teacher voices, including the voices of teachers who have come to Abu Dhabi from countries whose educational performance is very different from that in Abu Dhabi and where, therefore, less centrally controlled improvement strategies may be appropriate (Mourshed et al., 2010).

7.1.4.5 Overarching Remarks

Research objective 4 sought to identify the non-design-related factors that affected teachers' perceptions of and responses to professional development in Abu Dhabi public schools. Overall, the results related to this objective highlight important issues that, although under-represented in the professional development literature, affected the impact of teacher professional development in Abu Dhabi public schools. Language and school-related factors were found to affect teachers' *access* to professional development, and cognitive access issues, the contextual 'fit' of professional development, and matters of teacher agency were found to affect teachers' *acceptance* of professional development.

All of these non-design-related factors can, arguably, be situated within Desimone's (2009) broad conceptualisation of 'context'. Desimone suggested that context functions "as an important mediator and moderator" (p. 185) of the teacher professional development impact process. The structural and acceptance barriers that were identified in my study all map onto Desimone's explanation that context may include (although it is not limited to) "teacher and student characteristics, curriculum, school leadership, [and] policy environment" (p. 185). As such, although the importance of context in influencing professional development has previously been widely acknowledged (Desimone, 2009; Meiers & Ingvarson, 2005; National Institute for Excellence in Teaching, 2012; Timperley, 2008; Timperley et al., 2007), the findings of my study provide, for the context of Abu Dhabi, a greater level of specificity regarding how the previously poorly defined 'context' variable affects the

outcomes of professional development. Further, my study clarifies the way in which these additional factors act, proposing that they function as limiting or gatekeeping factors—reflected in their depiction as filters in my conceptual model—that determine the degree to which professional development activities lead to successive forms of teacher and student impact.

The access barriers identified in my study—namely, language issues and school-related factors, which comprised filter one—highlight the importance of *school leaders'* role in ensuring that the intended professional development is implemented with fidelity for all teachers. This finding is consistent with the literature reviewed in Section 3.2 of Chapter 3, which indicated that large-scale education efforts have, to date, struggled to achieve replicable changes and outcomes across a large number of sites. My findings also corroborate other educational reform literature that emphasises the crucial role of school leaders in managing change within their school sites (Fullan, 2002; Harris & Jones, 2017; Pont, Nusche, & Moorman, 2008).

On the other hand, the acceptance barriers identified in my study—namely, cognitive access to professional development, the contextual fit of professional development, and matters of teacher agency, all of which comprised filter two—highlight the importance of *teachers'* active role in managing their professional development and the extent to which it results in teaching and learning impacts. This finding is consistent with an emerging body of research that has reconceptualised teacher professional development using sensemaking theory (Allen & Penuel, 2015; Coburn, 2001; McArdle & Coutts, 2010; Rosebery & Puttick, 1998; Spillane, 1999; Wallace & Priestley, 2011). Such research has highlighted the active cognitive process whereby teachers construct meaning (hence the term 'sensemaking') related to policy messages, teaching approaches, and reform initiatives (Wallace & Priestley, 2011) and, further, determine the extent to which they will either accept and act on these constructed meanings or reject them and maintain their existing beliefs and practices (Coburn, 2001). The acceptance barriers that were identified in my study reflect this active process of sensemaking as the teachers constructed meaning, evaluated, and responded to the professional development that they had received.

Overall, my findings suggest that those tasked with leading the educational reform effort in Abu Dhabi face a difficult challenge in terms of balancing, on one hand, strategic priorities and objective assessments of overall reform needs, and, on the other hand, the structural and acceptance barriers that, for individual teachers, affect the extent to which intended professional development is received and accepted. For example, my study, considered in the light of wider literature, suggests that although teachers have strong opinions regarding their existing expertise, these perceptions may not always be accurate, and some teachers may not have the necessary cognitive or cultural capital to be able to accurately identify their professional development needs. As such, it is recommended that in future professional development planning, educational leaders in Abu Dhabi consider the structural and acceptance barriers that were highlighted in my study while, simultaneously, recognising that these factors reflect teachers' constructions of meaning and not absolute truth about what will make professional development 'work' (*Recommendation A7*).

7.1.5 Differences between Arab and Western Teachers' Perceptions

The fifth and final research objective was to investigate whether Arab and Western teachers differed in terms of their perceptions of and responses to professional development. Qualitative and quantitative data were examined in order to compare the views of Arab and Western teachers in terms of (a) the design of professional development, (b) the impact of professional development, and (c) the non-design-related factors that affected the impact of professional development.

The major findings (reported in Section 6.2 of Chapter 6) were:

- There were differences between the Arab and Western teachers' perceptions of the design of the 10 professional development categories that both groups of teachers had participated in[55].
    - The Arab teachers generally had more positive perceptions of the design of professional development that was more formal and directed by school administrators—in particular, the system-wide generic

[55] Only Western teachers had participated in the 11th category, namely, mentoring other teachers.

professional development, formal lesson observation, and school activities.

    - The Western teachers had more positive perceptions of the design of informal and subject-specific professional development—in particular, the work of subject advisors, peer lesson observations, informal interactions with colleagues, the ADEC subject-specific professional development, engaging with exemplars and resources, and study and research.

- There were, likewise, differences between the Arab and Western teachers' perceptions of the impact of the 10 professional development categories.
    - The Arab teachers again favoured more formal professional development that was directed by school administrators.
    - The Western teachers again favoured professional development that was less formal and more subject-specific.
- In terms of the non-design-related factors that affected the impact of professional development, the structural and acceptance barriers identified in my conceptual model affected both Arab and Western teachers. However, language issues (one of the structural barriers) were primarily problematic for the Western teachers, and cognitive access issues (one of the acceptance barriers) were primarily problematic for the Arab teachers.

Overall, my finding that Arab and Western teachers differed in their perceptions of and responses to professional development is consistent with the review of literature in Section 3.2 of Chapter 3, which indicated that education reform—and, by inference, the particular education reform strategy of teacher professional development—is culturally sensitive and contextually bound (Akiba, 2013c; Hallinger & Kantamara, 2001; Hargreaves et al., 2008; Mourshed et al., 2010). Further, the review in Section 3.3 of Chapter 3 identified marked differences in the cultural norms and worldviews of people from Arab and Western cultures (E. T. Hall, 1959, 1969; E. T. Hall & Hall, 1990; Henrich et al., 2010; Hofstede, 1983, 2001; Hofstede et al., 2010). However, given that the specific impact of culture on teacher professional development has—to my knowledge—only been studied in China (Gu, 2005a, 2005b, 2010), Japan (Watanabe, 2017), and South America (J.

Johnson, 2010), my study extends existing research by exploring how culture affected teacher professional development in an Arab context.

Two factors appear to have contributed to the differences that were observed between the Arab and Western teachers' experiences of professional development: the differing cultural norms between these groups of teachers and the differing cultural and cognitive capital related to ADEC's reform priorities. These two factors are discussed below.

Differing cultural norms may contribute to explaining the finding that the Arab teachers in my study were much more positive than the Western teachers about both the design and the impact of the ADEC non-subject-specific professional development, formal department activities, and school activities. These three forms of professional development are, arguably, the most strongly associated with school- and ADEC-level hierarchy. As described in Section 3.3.5 of Chapter 3, Arab cultures have a high power distance, which manifests in a high degree of respect for those in authority and compliance with the directives and decisions that come from those in positions of power. It may have been this cultural norm that led the Arab teachers in my study to accept, prefer, and respect the forms of professional development that were most closely associated with school- and system-level hierarchy and leadership. Western cultures, on the other hand, have low power distances, meaning that Westerners feel more freedom to criticise systems, leaders, and the associated directives and decisions; this may explain the Western teachers' more negative assessments of these formal types of professional development.

Differences in Arab and Western teachers' pre-existing cultural and cognitive capital in relation to the educational reforms being pursued by ADEC also appear to have influenced the teachers' experiences and perceptions of professional development. The Arab teachers' relative unfamiliarity with the pedagogical approaches that were the focus of professional development activities meant that it was difficult for these teachers to construct sufficient meaning related to the new approaches. However, the Arab teachers generally acknowledged their need to learn new approaches and to make changes in their teaching practice, resulting in an overall desire for more professional development. This differed from the results of an earlier study in the

UAE in which Arab teachers were found to under-report their need to learn and develop (Stephenson et al., 2012).

On the other hand, the Western teachers in my study perceived themselves as already having expert status in the types of pedagogical approaches ADEC was pursuing. As such, these teachers were dismissive of the forms of professional development that Arab teachers appreciated—in particular, the *Tamkeen* training. In this respect, my findings are consistent with those of Augustine (2014); for example, in regard to the *Tamkeen* training, one Western teacher in Augustine's case study described "feeling 'insulted' at having to study pedagogic strategies she had mastered years ago" (p. 25).

My finding that there were differences between the Arab and Western teachers' perceptions of and responses to professional development suggests a need for education system leaders in Abu Dhabi to acknowledge that, within their schools, there are two quite different groups of teachers who have different experiences, strengths, and needs (*Recommendation A8*). Whereas a deficit approach is not likely to be helpful for generating change or facilitating staff morale and engagement, a strengths-based perspective on the differences between Arab and Western teachers may indicate productive ways forward. For example, given my finding that Arab and Western teachers both found themselves to be cultural outsiders in different domains (see Section 6.1 of Chapter 6), each group has 'insider knowledge' that the other needs. Finding ways for Arab and Western teachers to interact and facilitate each other's professional learning may boost staff morale and improve education in ways that, to date, the 'one-size-fits-all' approach to professional development has not.

My findings also suggest the importance of strategies to help teachers (and other stakeholders such as school leaders and professional development facilitators) to navigate the cultural and contextual environments at times when they find themselves to be cultural outsiders in a particular domain. In the case of my study, the Western teachers were cultural outsiders in geographic, linguistic, and socio-cultural domains, whereas the Arab teachers were cultural outsiders in educational domains. Regardless of the domains, this cultural outsidership functioned as a limiting factor that restricted the impact of professional development. As such, the

phenomenon of outsidership is of concern, given the importance of professional development as a means to generate educational change (see Section 2.2 of Chapter 2). It is recommended, therefore, that ADEC considers ways to support both Arab and Western teachers in moving beyond their natural outsidership in socio-cultural (for the Arab teachers) and linguistic (for the Western teachers) domains (*Recommendation A9*).

7.1.6 Cross-study Findings

The five research objectives for my study were all intended to address the overarching aim of investigating teachers' experiences of professional development within the ADEC public education reform. It is important, therefore, to consider the findings and implications across the study as a whole as well as considering these in terms of each individual research objective (as addressed in Sections 7.1.1 to 7.1.5). Given that the first research objective—the development and validation of the new questionnaire—was methodological, this section considers the major findings across research objectives 2 to 5 and the associated implications.

My findings related to research objective 2 indicated that both the design and the impact of professional development varied across different forms of professional development. Examining either the design or the impact of professional development may be worthwhile and is supported by the literature reviewed in Section 2.5 of Chapter 2; however, my study, as a whole, suggests the need for a more comprehensive approach to evaluating professional development. For example, much previous research has centred on identifying design features of effective professional development on the premise that, once armed with this knowledge, schools and education systems should be able to implement well-designed professional development and expect the desired teaching and learning impacts to follow naturally (Desimone, 2009; Opfer, 2016). My findings, however, indicated that although improved design was associated with increased impacts, overall, the design of professional development only explained a portion of the variance in the impact scores (research objective 3). Further, my findings indicated that non-design-related factors also affected the impact of professional development (research objective 4). Together, these findings are consistent with past evidence that the progression from

professional development activities to teacher and student impacts is complex and contextually-sensitive (Bates, 2013; Boylan et al., 2017; Guskey, 2000; F. King, 2016; Opfer, 2016; Opfer & Pedder, 2011; Timperley et al., 2007). As such, the results of my study support the argument, presented in Section 2.4 of Chapter 2, that even 'well-designed' professional development does not necessarily lead to improvements in teaching and learning. This means that in Abu Dhabi as well as in other contexts, it is important for the impact of professional development activities to be explicitly measured; schools and education systems should not assume that optimising the design of professional development will ensure that teaching and learning impacts follow (*Recommendation A10*).

My study also indicated that non-design-related factors, which comprised the structural and acceptance barriers in my conceptual model (research objective 4), were at least as important to teachers as the design of professional development (research objective 2). Whereas this finding contradicts previous research that had emphasised the importance of professional development design for generating the desired impacts (Desimone, 2009; Opfer, 2016), my findings support Hill et al.'s (2013) conclusion that recent research has "contradict[ed] conventional wisdom among researchers" (p. 476) in that the anticipated outcomes of professional development have not, in fact, been found to follow reliably from professional development activities that incorporate literature-based design features. As such, the non-design-related factors identified in my study may contribute to explaining this trend for the case of Abu Dhabi and may provide directions for further research in other contexts. It is recommended that future studies in other contexts, which seek to examine the relationships between the design and impact of professional development, likewise investigate whether other, non-design-related factors influence the outcomes of professional development (*Recommendation R5*).

For the purpose of clarity in this thesis, the results related to the differences between Arab and Western teachers' experiences and perceptions of professional development were grouped together in response to a distinct objective (research objective 5). However, in essence, the consideration of cultural differences was a thread that ran through the study as a whole. The original impetus for the study came out of my personal experiences in Abu Dhabi, which suggested that culture mattered

deeply to the effectiveness of professional development (see Chapter 1). The literature reviewed in Chapter 3 clearly indicated, first, that educational reform efforts are fundamentally culturally situated, and, second, that well-documented differences between Arab and Western cultures are known to affect interactions between members of those cultural groups. In my study, differences between Arab and Western teachers were observed in terms of teachers' perceptions of the design and impact of professional development (research objective 2) and the non-design-related factors that also affected professional development (research objective 4). The types of professional development that each group favoured were consistent with the existing literature that describes Arab and Western cultures, respectively (see Section 3.3 of Chapter 3). Further, the sheer frequency of the differences observed between Arab and Western teachers' perceptions of professional development was consistent with the broader indications of the literature with respect to the importance of culture for education reform efforts (see Section 3.2 of Chapter 3). It is, therefore, recommended that increasing research attention be given to the influence of culture and cultural differences on teacher professional development in a range of international contexts (*Recommendation R6*).

Given that the non-design-related factors that were highlighted in my study (research objective 4) may all be considered to fall within Desimone's (2009) broad description of context as "an important mediator and moderator" (p. 185) of the teacher professional development impact process, my study has, overall, highlighted the fundamental importance of both culture and context for professional development efforts. School and education system contexts, linguistic and geographical contexts, cultural contexts, cultural capital, and cultural differences all affected the professional development experiences of the teachers in my study. Although culture and context are more challenging to measure or describe than the design features of professional development, my study suggests that these factors are at least as important as the technical design considerations in influencing the impacts of professional development. As such, it is recommended that in planning for teacher professional development, school and education system leaders consider carefully the ways in which context and culture may affect the outcomes of professional development in order to increase the likelihood of professional development resulting in the desired teaching and learning impacts (*Recommendation P7*).

This section (Section 7.1) has summarised the findings of my study and considered their relationships to existing research and their implications for future research and practice. The next section (Section 7.2) considers the limitations of the study and identifies further directions for future research.

7.2 Limitations

Like all research, my study has limitations that must be acknowledged when interpreting the findings and considering their significance. This section highlights limitations associated with the paradigm, methods, and sample used in the study, as well as those associated with me as the researcher.

My study was conducted within an interpretivist paradigm and focused on understanding and representing teachers' perceptions and experiences. This approach constitutes one of the study's greatest strengths as well as one of its most significant limitations. That is, although the interpretivist approach allowed teachers' voices to be heard and their perceptions of professional development to be examined, it also limited both the potential generalisability of the study beyond the specific context of Abu Dhabi and the objectivity of the research.

In terms of the generalisability of the study, researchers, policy makers, or practitioners who may wish to draw on the findings of my study in other contexts should do so with caution and to the extent that there are similarities between the Abu Dhabi context and the proposed new context (*Recommendation R7 / P8*). For this reason, extensive descriptive detail relating to the Abu Dhabi context and the nature of professional development in Abu Dhabi public schools has been provided in Chapters 1, 5, and 6, as recommended by Willis (2007).

In terms of the objectivity of the study, those wishing to draw on the findings of my study should be mindful that the results are grounded in the subjective accounts and constructions of meaning that were expressed by teachers. For example, teachers' accounts of the design of professional development or their classroom practice may not align with objective observations of these matters; this is presumed to be equally true for both the quantitative and the qualitative data used in my research. The

interpretivist nature of my study meant that my goal has not been to rigorously evaluate the accuracy of teachers' perceptions in relation to professional development (as, for example, was done by Von Oppell, 2016) but, rather, to give voice to the teachers and their experiences and perceptions. However, although teachers' perspectives are of crucial importance, it is recommended that research such as mine be complemented by research that considers teacher professional development in Abu Dhabi from a range of perspectives, including through the use of post-positivist and critical paradigms as well as through consideration of the experiences of other stakeholders such as students, school leaders, professional development providers, and ADEC policy makers (*Recommendation R8*).

In terms of the samples obtained for the study, although every effort was made to obtain comprehensive and relatively representative samples for both the main survey and the interviews (see Section 4.3 of Chapter 4), it is, nonetheless, possible that certain perspectives and experiences of teachers within the sample space were not adequately reflected in the samples obtained. It is perhaps most likely that this would be the case for the interview sample, as the decision to conduct interviews in English effectively excluded some Arab teachers within the sample space from participating in this aspect of the study. Further, the pragmatic decision to restrict the sample space to teachers of English, mathematics, and science subjects in cycle two and three schools (justified in Section 4.3.1 of Chapter 4) may also mean that unique experiences associated with other teaching subjects or cycles have been omitted. Future research into teacher professional development in Abu Dhabi public schools should consider the perspectives of teachers not included in the sample space for my study (*Recommendation R9*).

In terms of the comprehensiveness of the study's findings, as detailed in Section 4.6.5 of Chapter 4, exploring non-design-related factors that affected the impact of teacher professional development was not an original objective of the study; the importance of this aspect only emerged once all of the data had been collected and analysis was relatively advanced. At the time that the data were collected, I had not yet realised how significant these factors would be, nor had I begun to develop the conceptual model shown in Figure 6.1 (on page 205). As such, I did not have the opportunity to deliberately elicit data relating to the third and fourth filters in the

conceptual model. It is, therefore, important for future research to further explore the factors that might contribute to filters three (barriers to teachers' implementation of accepted professional development) and four (barriers to student impacts resulting from changes in teachers' classroom practices; *Recommendation R10*).

The results of my study rely on the authenticity of teachers' accounts of their professional development experiences. I have every reason to trust the integrity of the teachers who participated in the study, but it must be acknowledged that my professional role at the time of data collection—that is, as an ADEC employee working within ADEC head office—may have influenced whether teachers felt that they could speak freely about their experiences, particularly during the interviews where teachers were not anonymous. Standard ethical procedures were undertaken in an attempt to assure teachers of the confidentiality of their responses (see Section 4.8 of Chapter 4), but, as is the case for other aspects of this study, it is acknowledged that teachers would have constructed their own meaning around this matter and formed their own perceptions regarding my interests and intentions. Given the sensitivity of research into aspects of teachers' working lives, it is recommended that future research into professional development in the context of Abu Dhabi continue to incorporate components that are completely anonymous, such as online surveys (*Recommendation R11*).

Finally, the quality and accuracy of this study were limited by my emerging skill as a researcher and my own cultural background. My prior academic and professional journeys meant that I undertook this study without having previously conducted any research, either for a prior tertiary degree or for an employment-related project. Although I have benefited enormously from the advice and guidance of my supervisor (directly) and past scholars (through academic literature), ultimately, it was I—an inexperienced, Western, young, female, novice researcher—who determined what questions to ask during each interview, what thread to 'pull further', and when to move onto a new topic. Likewise, it was I who analysed the data, constructing my own meaning around the accounts and reports provided by teachers and identifying the themes and theory that I believed had emerged as important across the body of data. Finally, it was I who constructed the written account of the research, selecting the exemplars of raw data to incorporate, structuring the

argument, and linking my findings to wider research. This active involvement on the part of the researcher is part of the essence of interpretivist research, in which "personal experience provides data, ideas for theories, contacts for research subjects, it shapes the methodology, conduct of fieldwork and data analysis, and can be an important part of the research report" (Ezzy, 2002, p. 154; see also Willis, 2007). However, I include it here as a limitation of this research, given that a more experienced researcher may have asked better or further questions; been attuned to different parts of teachers' accounts; seen additional or different connections between data or themes; or written a more compelling, authentic, or theoretically grounded account.

7.3 Summary of Recommendations

This section provides a summary of the recommendations that have been identified within Sections 7.1 and 7.2. The recommendations are categorised into those relevant for future research (Section 7.3.1), those relevant for professional development policy makers, practitioners, and evaluators (Section 7.3.2), and those specific to the Abu Dhabi context (Section 7.3.3).

7.3.1 Recommendations for Future Research in Abu Dhabi and Internationally

R1. Future research should further investigate the nature of teachers' constructions of meaning in relation to the connection between their classroom practice and student outcomes.

R2. Based on such research, new items or measures should be developed and validated that allow distinct data to be collected from teachers about their classroom practice and student learning.

R3. Future research should investigate the impact of language on professional development, both in Abu Dhabi and in other international contexts. Such research should include consideration of the relative sensitivity or robustness of various forms of professional development to language issues.

R4. Future research should examine cognitive access issues among teachers that may prevent professional development activities from resulting in the desired impacts. Such research should include investigating whether such issues are particularly associated with professional development that crosses cultural boundaries.

R5. Future studies in international contexts, which seek to examine the relationships between the design and impact of professional development, should also investigate whether other, non-design-related factors influence the outcomes of professional development.

R6. Increasing research attention should be given to the influence of culture and cultural differences on teacher professional development in a range of international contexts.

R7. Researchers who may wish to draw on the findings of my study in other contexts should do so with caution and to the extent that there are similarities between the Abu Dhabi context and the proposed new context.

R8. Research such as mine should be complemented by research that considers teacher professional development in Abu Dhabi from a range of perspectives, including through the use of post-positivist and critical paradigms as well as through consideration of the experiences of other stakeholders such as students, school leaders, professional development providers, and ADEC policy makers.

R9. Future research into teacher professional development in Abu Dhabi public schools should consider the perspectives of teachers not included in the sample space for my study.

R10. Future research should further explore the factors that might contribute to filters three (barriers to teachers' implementation of accepted professional development) and four (barriers to student impacts resulting from changes

in teachers' classroom practices) in the new conceptual model for the teacher professional development impact process.

R11. Given the sensitivity of research into aspects of teachers' working lives, future research into professional development in Abu Dhabi should continue to incorporate components that are completely anonymous, such as online surveys.

7.3.2 Recommendations for Professional Development Policy Makers, Practitioners, and Evaluators

P1. Before the ITPD Questionnaire is used in other cultural contexts, its underpinning theoretical foundations should be reviewed to evaluate their cultural and contextual appropriateness.

P2. The ITPD Questionnaire should be used in situations where teachers are known to have had comparable experiences of professional development in order to ensure that variation in the professional development itself does not cloud the interpretation of results.

P3. When drawing on Western educational literature to inform practice in non-Western contexts, the suitability of the literature-based recommendations should be carefully examined in light of the target culture and context.

P4. Schools and education systems should explicitly examine teachers' participation in professional development and not assume that policy intentions for professional development provision are implemented with consistency and fidelity for all teachers.

P5. Future professional development practice in cross-cultural contexts should incorporate increased consideration of the alignment between professional development content and the student, school, and cultural characteristics of the local context.

P6. Policy makers and professional development providers should consider ways to respect teachers' perceptions of their existing expertise (in order to prevent teachers rejecting professional development) while, nonetheless, recognising that these perceptions may not always be accurate.

P7. In planning for teacher professional development, school and education system leaders should consider carefully the ways in which context and culture may affect the outcomes of professional development in order to increase the likelihood of professional development resulting in the desired teaching and learning impacts.

P8. Policy makers or practitioners who may wish to draw on the findings of my study in other contexts should do so with caution and to the extent that there are similarities between the Abu Dhabi context and the proposed new context.

7.3.3 Recommendations for Professional Development Policy and Practice in the Abu Dhabi Context

A1. My results related to the design and impact of professional development should be examined by those involved in professional development provision in Abu Dhabi to facilitate evaluation of current practice and identification of areas for improvement.

A2. In the Abu Dhabi context, the system-wide teacher participation rates for the various types of professional development should be reviewed, with appropriate modifications made either to increase participation in activities that already have higher design and impact scores or to modify the nature of activities that have high participation rates in order to improve the design and impact of those activities.

A3. ADEC should review its use of generic, workshop-style professional development and move toward a greater reliance on forms of professional

development that both Abu Dhabi-based and international studies suggest may result in more positive impacts on teaching and learning.

A4. Future professional development practice in Abu Dhabi as well as in other cross-cultural contexts should incorporate increased consideration of the alignment between professional development content and the student, school, and cultural characteristics of the local context.

A5. ADEC system leaders should engage in a careful examination of the potential costs and benefits associated with models of professional development that involve greater and lesser degrees of teacher agency in order to reach an informed and contextually situated decision regarding the most appropriate approach for the Abu Dhabi context.

A6. Consideration should be given to how professional development efforts in Abu Dhabi can better facilitate teachers' engagement with (rather than their filtering and rejection of) points of cognitive dissonance in order to afford meaningful teacher learning and change.

A7. In future professional development planning, educational leaders in Abu Dhabi should consider the structural and acceptance barriers that were highlighted in my study while, simultaneously, recognising that these factors reflect teachers' constructions of meaning and not absolute truth about what will make professional development 'work'.

A8. Education system leaders in Abu Dhabi should acknowledge that within their schools there are two quite different groups of teachers who have different experiences, strengths, and needs. Whereas a deficit approach is not likely to be helpful for generating change or facilitating staff morale and engagement, a strengths-based perspective on the differences between Arab and Western teachers may indicate productive ways forward.

A9. ADEC should consider ways to support both Arab and Western teachers in moving beyond their natural outsidership in socio-cultural (for the Arab teachers) and linguistic (for the Western teachers) domains.

A10. In Abu Dhabi, just as in other contexts, the impact of professional development activities should be explicitly measured; schools and education systems should not assume that optimising the design of professional development will ensure that teaching and learning impacts follow.

7.4 Significance of the Study

It is hoped that my study will be of value in a range of contexts and to a range of stakeholders. However, given its interpretivist underpinnings, the primary significance of my study lies in its contribution to the context in which it was conducted: the ADEC education reform in Abu Dhabi public schools. As such, this section begins by outlining the significance of the study for this specific context in terms of both teachers (Section 7.4.1) and the wider ADEC system (Section 7.4.2). The contributions made to education across the Middle East and to educational research more generally are then discussed in Sections 7.4.3 and 7.4.4, respectively.

7.4.1 Contribution to Teachers in ADEC Public Schools

Fullan (2013, p. 1) has noted that "No [education] system in the world has progressed without strong rapport between the government and its teachers" (see also Akiba, 2013a). The existing literature, as well as my own experience working with a large number of teachers in Abu Dhabi, indicated that Abu Dhabi's teachers have, hitherto, been largely unheard, undervalued, and inadequately consulted in policy setting and decision making (Abu Dhabi Education Council, 2009b, 2012e; Al-Taneiji & McLeod, 2008; Badri et al., 2016; Botes, 2012; Thorne, 2011). Participation in my study has given a voice to several hundred ADEC public school teachers, resulting in the documentation and dissemination of teachers' perspectives regarding the professional development that has been imposed on them. To have a voice where one is not normally offered can, in itself, be considered a benefit for the teachers who participated in my study. If the teachers' voices—as represented in this

thesis—are subsequently heard and the results of my research are used by policy makers and professional development providers to inform future practice, teachers could benefit further through the improvement of professional development practice to better meet their needs and wishes.

7.4.2 School- and System-Level Contributions to the ADEC Education Reform

The results of my research also contribute to ongoing work in the ADEC education reform project. It is important for educational system leaders, such as those in Abu Dhabi, to recognise and take into account teachers' perceptions and experiences of professional development because these perceptions and experiences are likely to influence teachers' beliefs and behaviours. The interpretivist stance taken for my study meant that teachers' perceptions and experiences of professional development were the primary phenomena of interest; as such, my findings may help ADEC policy makers to better understand the experiences of public school teachers.

My study has provided a detailed examination of how Abu Dhabi public school teachers perceive professional development and the factors that, in their view, influence the impact of professional development. As such, my findings could inform ongoing policy and practice related to professional development in ADEC schools. At both the school and system levels, my findings could be used to support stakeholder reflection on current practices and to inform future planning and decision making. The ITPD Questionnaire, which was developed and validated as part of this study, could also be used at both school and system levels in Abu Dhabi to allow ADEC to economically gather useful and theoretically informed data about the effectiveness of professional development. Finally, given that my study has highlighted the importance of culture and context for teacher professional development, my findings could contribute to ongoing consideration by ADEC policy makers of how best to incorporate international research findings and 'best practices' in the unique setting of Abu Dhabi.

7.4.3 Contribution to Education in other Middle Eastern Contexts

Although my study was specifically situated within Abu Dhabi public schools, other schools and education systems in Abu Dhabi, the UAE, and the Middle East may also make use of my findings. Educational reform has been called for across this region, and several countries—including Bahrain, Jordan, Qatar, Saudi Arabia, and the UAE—have launched strategic reform initiatives (Barber, Mourshed, & Whelan, 2007; Booz & Company, 2013; World Bank, 2008). These education systems, as well as many individual public and private schools within these countries, are trying to successfully manage the interaction of Arab and Western cultures. The findings of my study in relation to effective professional development practice and the impact of culture and context on professional development could be of use to these stakeholders, as could the ITPD Questionnaire, which was successfully validated within my study for use with both Arab and Western teachers and is available in both English and Arabic.

7.4.4 Theoretical Contribution

Despite its embeddedness in the Abu Dhabi context, my study makes several contributions to the wider literature. Namely, it contributes to the literatures on education in Abu Dhabi, education reform, and teacher professional development and its evaluation.

My study contributes to the literature on education in Abu Dhabi in that the breadth offered by the study's population and sample sizes, combined with the depth achieved through a mixed methods design, make my study the first in-depth examination of Abu Dhabi public school teachers' experiences of professional development. In a context where the existing research base is limited (see Section 1.1.5.3 of Chapter 1), this is a significant contribution and makes my study likely to be of value as a foundation for further research.

My study also contributes in several ways to the international literature on education reform as the ADEC reform has a number of attributes that, globally, are not well understood. The Abu Dhabi public school reform is a large-scale effort that seeks to

transform education in every public school in the emirate; there is currently a lack of literature about how to successfully conduct such large-scale reform (Akiba, 2013c; Fullan, 2009; Hopkins, 2011; LeTendre, 2013; Mourshed et al., 2010). A key education reform strategy used in Abu Dhabi has been the decentralised delivery of professional development in individual schools and clusters of schools; there is, similarly, a lack of research into the effectiveness of such decentralised large-scale professional development programmes that are delivered in different settings by different providers (Borko, 2004; Wayne et al., 2008). Finally, the large-scale nature of the Abu Dhabi reform means that all teachers are required to participate in professional development, whereas most existing research into professional development has dealt only with 'motivated volunteers' (Desimone, 2009; Fishman et al., 2003; Hochberg & Desimone, 2010). My study contributes to addressing each of these gaps by reporting on the state of professional development in Abu Dhabi public schools, identifying successes that could be replicated and failures that could be learned from.

My study makes several contributions to the literature related to teacher professional development and its evaluation. First, my conceptual model of the professional development impact process (presented in Section 6.1.1 of Chapter 6) has extended previous such models by articulating the distinctions between intended, received, accepted, and applied professional development and by describing the structural and acceptance barriers that affected the impact of professional development for the teachers in my study.

Second, my study has provided important insights into the factors that influence the impact of professional development. Given that much of the existing literature emphasises features of effective professional development design, my research examined the importance of five such design features in a new geographical and cultural context. The positive and statistically significant correlations observed between the design and impact scores indicated that these design features were, indeed, important in the Abu Dhabi context. However, the magnitude and explanatory power (in terms of variance explained) of these correlations suggested that the design features were not the only factors that affected the impact of professional development; the qualitative data indicated that non-design-related

factors also had important influences in this respect. To my knowledge, no past research has examined the relative contributions of design- and non-design-related factors to the impact of professional development. My findings thus highlight the importance of considering both design- and non-design-related factors as well as of explicitly evaluating the impact of professional development rather than assuming that impact will follow naturally from effective professional development design.

Third, my research has contributed to existing literature through the development, translation, and validation of the ITPD Questionnaire, a new instrument for capturing teachers' perceptions of the effectiveness of professional development. The existing literature currently contains many theoretical models and guidelines for professional development practice and its evaluation; however, few practical tools and strategies have been developed and validated that are suitable for use in the practical evaluation of professional development by schools and education systems (Borko, 2004; Desimone, 2009; Flecknoe, 2002; Goodall et al., 2005; Harris et al., 2006).

Finally, my study brought together the fields of teacher professional development (see Chapter 2) and cultural differences (see Chapter 3) in what is, to my knowledge, a new way. Although previous research has considered how cultural differences affect the learning experiences of school students, almost no attention has been given to how these same cultural differences might affect the professional learning of teachers. The nature of the education reform underway in Abu Dhabi at the time that my research was conducted—particularly in terms of the staffing and professional development policies in place (see Section 1.1 of Chapter 1)—meant that ADEC public schools offered a rich context for investigating how cultural differences affected teachers' experiences of professional development. My findings highlight the importance of both culture and context for the success of teacher professional development and show that, in the case of Abu Dhabi public schools, teachers from different cultural backgrounds had different perceptions of the same professional development (research objective 5). As such, my study could contribute to a new body of research into teacher professional development practice in a range of international contexts involving culturally diverse groups of teachers.

7.5 Concluding Remarks

In a world where international assessments and economic indicators drive a race for global competitiveness, educational reform is a high-stakes endeavour. Like most countries in the 21st century, the UAE is seeking to improve its educational achievement. To this end, the UAE is strategically looking to leverage the lessons that have already been learned in other countries in order to generate faster, more dramatic changes than might otherwise be achievable. In the Emirate of Abu Dhabi, professional development is being harnessed, based on international recommendations, as a key lever for educational change. However, the literature base to inform this effort is drawn predominantly from Western countries, and even in those countries there is evidence that much professional development does not yield the desired teaching and learning impacts.

In this broad context, my findings offer key insights related to the importance of both culture and context for teacher professional development. My study captured both Arab and Western teachers' experiences and perceptions of professional development in Abu Dhabi public schools, including examination of the impacts of various forms of professional development and the factors—both design features and non-design-related factors—that contributed to those impacts.

On one hand, my study confirmed that Western principles of effective professional development design contributed to the impact of professional development in the Abu Dhabi context: Professional development that was better designed was generally associated with greater levels of impact. On the other hand, my study also indicated that examining the design-to-impact relationship did not tell the whole story. A number of cultural and contextual factors also emerged as important: School and education system contexts, linguistic and geographical contexts, cultural contexts, cultural capital, and cultural differences all affected the professional development experiences of the teachers in my study. As such, my study extends past research that has emphasised the design of professional development and provided limited information about cultural and contextual influences. My findings indicate that future professional development practice needs to be informed by careful attention to the

culture, and cultural capital, of the teachers involved as well as to the surrounding culture and context.

The findings of my study offer professional development practitioners and policy makers in Abu Dhabi information, and a new questionnaire, that may assist in reflection and future planning. More broadly, my findings highlight the importance of pursuing a more comprehensive approach to evaluating professional development than is currently commonplace. Whereas much evaluation merely documents the occurrence of professional development or, at best, monitors professional development's design, my findings call for explicit evaluation of the impacts of professional development as well as consideration of the cultural and contextual factors that may be at play in a given context or for a given cohort of teachers.

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Appendix 1

Analysis of the features of effective teacher professional development defined in past studies

Study	Features aligning to Desimone (2009)					Additional features
	Content focus	Active learning	Coherence	Duration	Collective participation	
Archibald et al. (2011)	• Focus on core content • Modelling of teaching strategies for the content	• Inclusion of opportunities for active learning	• Alignment with school goals, state and district standards and assessments, and other professional learning activities		• Provision of opportunities for collaboration among teachers	• Inclusion of embedded follow-up and continuous feedback
Blank and de las Alas (2009)	• Content focus	• Active learning	• Coherence	• Duration	• Collective participation of teachers	
Darling-Hammond et al. (2009)	• Focus on student learning • Addressing the teaching of specific curriculum content		• Aligned with school improvement priorities and goals	• Ample time for professional learning	• Build strong working relationships among teachers	• Intensive, ongoing and connected to practice
Doherty (2011)	• Focuses on what and how students learn	• Active learning techniques	• Coherence with teachers' beliefs and attitudes	• Appropriate duration	• Collaborative or social participatory environment	• Job-embedded • Authentic, meaningful learning

Study	Features aligning to Desimone (2009)					Additional features
	Content focus	Active learning	Coherence	Duration	Collective participation	
Hill (2007)	• Content (generic or subject-specific)	• Active learning	• Alignment to instructional goals, school improvement efforts & curriculum materials	• Time invested	• Collective participation	• Providers • Formats / learning opportunities • Philosophies of teacher learning
Ingvarson et al. (2005)	• Content focus	• Active learning • Collaborative examination of student work		• Contact hours • Time span • Sufficient time	• Collective participation	• Follow up • Feedback on practice
Jauhiainen et al. (2002)	• Courses closely aligned to teaching subject matter and pedagogical content knowledge	• Working in small groups, discussing, planning, making measurements, writing reports	• Courses closely aligned to teaching subject matter and pedagogical content knowledge	• Long-term training programme	• Collaboration; large-group training plus follow-up work by small groups of teachers at individual school sites	

Study	Features aligning to Desimone (2009)					Additional features
	Content focus	Active learning	Coherence	Duration	Collective participation	
Myung et al. (2013)	• Focus on subject-specific content and pedagogical content knowledge	• Opportunities for active, hands-on learning	• Coherence with other learning opportunities, as well as instructional goals and curriculum materials	• Ongoing and sustained • Time to reflect	• Teams of professionals should work together on substantive PD projects	• Classroom-based and integrated into the daily life of teaching • Focus on student outcomes • Adaptive and targeted to individual teacher needs
Supovitz and Turner (2000)	• Focus on subject-matter knowledge and deepen teachers' content skills	• Engage teachers in concrete tasks based on teachers' experiences with students	• Grounded in a common set of PD standards • Show teachers how to connect their work to specific standards for student performance • Connected to other aspects of school change	• Intensive and sustained		• Model inquiry forms of teaching

Study	Features aligning to Desimone (2009)					Additional features
	Content focus	Active learning	Coherence	Duration	Collective participation	
Timperley et al. (2007)	• Integration of pedagogical content knowledge, assessment information, and how students learn particular curricula	• Opportunities to engage in a range of learning activities	• Consistency with wider policy trends and research	• Extended time for teachers to engage with new ideas and their implications	• Participation in a professional community	• Experts external to the group • Focusing on engaging teachers • School leaders actively leading PD • Challenging prevailing discourses • Integration of theory and practice

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School of Education
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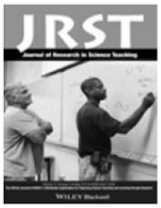

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Appendix 6

Summary of recommendations made in recent frameworks for evaluating teacher professional development

Evaluation framework source	Elements to be evaluated			Evaluation approaches
	Features of the professional development	Impact of the professional development	Contextual and strategic considerations	
Bubb and Earley (2010)	• The experience	• Learning • Into practice—degree and quality of change • Students' learning outcomes • Cascading to: ○ other adults in the school ○ other students in the school ○ adults in other schools ○ students in other schools	• Baseline picture • Goal • Plan • Organisational support	• Evaluation should not be burdensome • Range of possible sources of evidence of impact—both qualitative and quantitative
Coldwell and Simkins (2011)	• Interventions (the activities themselves)	• Intermediate outcomes: ○ Participant reactions ○ Learning and personal development ○ Behaviour • Final outcomes: ○ Short-term pupil outcomes ○ Longer-term pupil outcomes ○ Career development ○ Individual / team capacity ○ School systems / processes ○ Changes in school culture	• Antecedents (factors associated with individual participants that affect their ability to benefit from the opportunities offered to them) • Moderating factors (variables in the school and wider environment) that influence whether, and how, interventions lead to outcomes	

Evaluation framework source	Elements to be evaluated			Evaluation approaches
	Features of the professional development	Impact of the professional development	Contextual and strategic considerations	
Desimone (2009)	• Content focus • Active learning • Coherence • Duration • Collective participation	• Teacher knowledge and skills • Teacher attitudes and beliefs • Change in instruction • Student learning	• Context such as teacher and student characteristics, curriculum, school leadership, policy environment	• Experimental, quasi-experimental, correlational, and descriptive studies • Mixed methods approaches • Surveys, observations, and interviews can elicit much the same information (if well-constructed, well-administered and not linked to teacher evaluation) • Data collection methods should match research questions
Earley and Porritt (2010)	• Specific focus, goal, and time scales • Focus on pupil outcomes • Participant ownership • Time for reflection and feedback • Collaborative	• Differences in staff behaviour, attitudes, skills, and practice • Differences in the learning and experiences of students	• Clarity of purpose • Specific focus, goal, and time scales • Variety of professional development opportunities • Strategic leadership	• Consider *products* (tangible outputs e.g. policies, action plans, workshops) and *processes* (new or improved systems, then examine the *outcomes* (*impact*) that resulted
Fishman et al. (2003)		• Teacher attitudes and beliefs • Classroom teaching behaviours • Teacher explanation of classroom practice • Student performance		• Construct a chain of evidence from curriculum standards and baseline student performance, through professional development design and teacher knowledge and practice, to student performance • Techniques include student artefacts, classroom behaviours, pre- and post-tests, teacher interviews and surveys, classroom observations

Evaluation framework source	Elements to be evaluated			Evaluation approaches
	Features of the professional development	Impact of the professional development	Contextual and strategic considerations	
C. Fraser et al. (2007)[a]	• Domain of influence of professional learning—occupational: ○ Links between theory and practice ○ Intellectual stimulation ○ Professional relevance • Capacity (of the chosen model) for professional autonomy and transformative practice • Sphere of action: ○ Planned / incidental ○ Formal / informal		• Domain of influence of professional learning—personal: ○ Teacher beliefs, attitudes and values ○ Interest and motivation • Domain of influence of professional learning—social: ○ Relationships between individuals and groups ○ Supportive contexts	
Guskey (2000)		• Participants' reactions • Participants' learning • Participants' use of new knowledge and skills • Student learning outcomes	• Organisation support and change	• Specific techniques recommended for each level of impact • Focus on collecting reasonable evidence, not conclusive proof
Hunzicker (2011)	• Alignment with needs of adult learners: ○ Supportive ○ Job-embedded ○ Instructional focus ○ Collaborative ○ Ongoing			• Checklist that can be used as a planning tool, an in-progress evaluation, or a final evaluation

Evaluation framework source	Elements to be evaluated			Evaluation approaches
	Features of the professional development	Impact of the professional development	Contextual and strategic considerations	

F. King (2014)	• The experience
	• Initiative design
		• Initial satisfaction with the experience
		• Learning
		• Initiative impact
		• Degree and quality of change:
		  ○ New or improved systems
		  ○ Tangible outputs
		  ○ Staff outcomes
		• Use and understanding of new / improved knowledge and skills
		• Pupils' outcomes:
		  ○ Cognitive
		  ○ Affective
		  ○ Psychomotor
		• Diffusion to:
		  ○ Other adults in school
		  ○ Other pupils in school
		  ○ Adults in other schools
		  ○ Pupils in other schools
			• Evidence base
			• Targets
			• Plan
			• Systemic factors—support, teacher agency	

Shaha et al. (2004)		• Teacher impacts:
		  ○ Learning
		  ○ Attitudinal
		  ○ Resource
		• Student impacts:
		  ○ Learning
		  ○ Attitudinal
		  ○ Resource
				• Balanced metrics approach incorporating all impact dimensions
				• Pre- and post-test designs
				• Control and treatment groups
				• Transparency in regard to participants' demographic information (to support generalisability)

[a] C. Fraser et al.'s (2003) framework amalgamates three earlier models: (1) Bell and Gilbert's three aspects of professional learning (amended), (2) Kennedy's framework for analysing models of continuing professional development, and (3) Reid's quadrants of teacher learning. To avoid duplication, these three frameworks are not listed separately in the above table.

Appendix 7

Composition of the main survey sample in terms of teachers' nationalities

Arab teachers			Western teachers		
Nationality	Number of teachers	Percentage of teachers	Nationality	Number of teachers	Percentage of teachers
UAE	91	23%	USA	71	18%
Jordan	77	20%	South Africa	27	7%
Egypt	42	11%	England	18	5%
Tunisia	16	4%	New Zealand	12	3%
Syria	11	3%	Canada	9	2%
Sudan	3	1%	Ireland	7	2%
Yemen	1	<1%	Australia	6	2%
Unspecified[a]	1	<1%	UK	1	<1%
Total	242	62%		151	39%

[a] One teacher did not provide their nationality but was identified as Arab based on having responded to the main survey in Arabic. Therefore, the total number of Arab teachers was 242.

All percentages have been rounded to 0 d.p.; this means the total row does not add up to exactly 100%.

Appendix 8

Information sheets for the expert panel review of the draft questionnaire

Expert panel review – *Teachers' Experiences of Professional Development* survey instrument

June 2014

Introduction

Based on your expertise and experience in the field of education and professional development within the Abu Dhabi context, I would like to ask you to review the attached proposed survey instrument.

I am currently working towards my Doctorate of Philosophy through Curtin University. My thesis topic is "Investigating teachers' experiences of professional development within a major education reform in the Emirate of Abu Dhabi". The proposed survey will be administered to a sample of Cycle 2 and Cycle 3 English, Mathematics and Science teachers (EMTs and AMTs) in ADEC government schools. The survey will be available in English and Arabic.

My study has been approved by the ADEC research office and by Curtin University's Human Research Ethics Committee.

Purpose

The purpose of the proposed survey is to gather teachers' perceptions of the effectiveness of the professional development they received in the 2013-2014 academic year.

Theoretical Framework

The attached instrument is a modification of the *Questionnaire for Professional Training Evaluation* (Grohmann & Kauffeld, 2013; attached). The *Q4TE* was developed in the general field of training and staff development so is not education-specific.

To adapt the *Q4TE* to suit educational settings, it was aligned to two key frameworks for evaluating teacher professional development (Desimone, 2009; Guskey, 2000). These frameworks are attached. As a result of this alignment, one scale from the original *Q4TE* was removed and two new scales were added.

Structure

The proposed instrument has seven scales, each with two items. The original *Q4TE* was validated with two items per scale as the original authors' objective was to create a valid, time-efficient instrument for evaluating training while going deeper than simply assessing short-term or reaction-based aspects.

For implementation in the ADEC context, the proposed instrument has two sections. Teachers are asked to respond to each item in relation to (a) whole-school and (b) subject-specific professional development. This reflects the two primary ways teachers in the target population receive professional development. Whole school professional development includes the ADEC Tamkeen program as well as other school-based professional development such as that delivered by Academic Vice Principals or eLearning Facilitators. Subject-specific professional development includes the support provided by Education Advisors and Subject Support Specialists. Other, less common types of professional development that

may not be incorporated in these two categories will be explored through in-depth interviews with teachers in a later stage of data collection.

Review process

If you are willing to participate in this expert panel review, please complete the following steps:

1. Read the attached summaries of the two theoretical frameworks being used to guide the research project.
2. Read the attached information showing how the original *Q4TE* has been modified to suit an educational context and to align to the two theoretical frameworks.
3. Complete the review form and return it to me via email: c.k.mcchesney@gmail.com by Monday 23 June 2014.

Journal articles presenting the *Q4TE* and each of the two theoretical frameworks have also been attached for your reference; however, key information has been summarised as above.

Please contact me at the above email address if you have any further questions or concerns.

Many thanks

Katrina McChesney

References

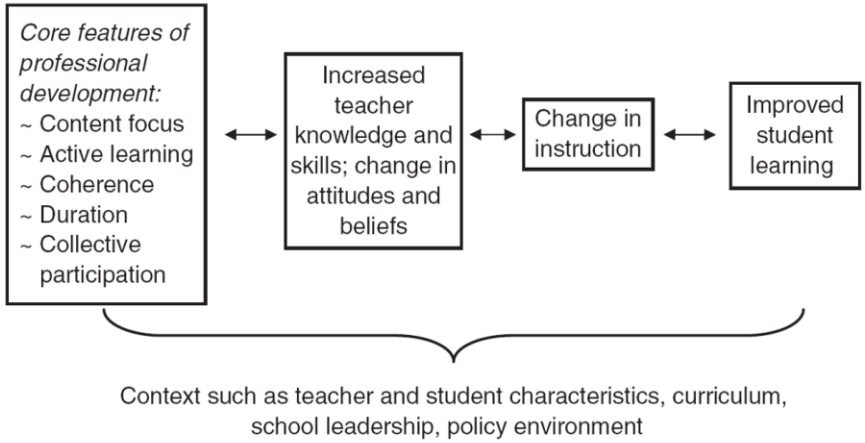
Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher, 38*(3), 181-199.

Grohmann, A., & Kauffeld, S. (2013). Evaluating training programs: Development and correlates of the Questionnaire for Professional Training Evaluation. *International Journal of Training and Development*, 17(2), 135-155.

Guskey, T. R. (2000). *Evaluating professional development*. Thousand Oaks, CA: Corwin Press.

Theoretical Framework 1: DESIMONE

Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher, 38*(3), 181-199.



Note: The first element of Desimone's framework, *Core features of professional development*, is not measured by the proposed survey instrument. All other elements of both Desimone's framework and Guskey's framework describe the impact of professional development; the *Core features* element in Desimone's framework is unique in that it describes the design of the professional development itself. This element will be explored through in-depth interviews with teachers rather than through the survey instrument.

Theoretical Framework 2: GUSKEY

Guskey, T. R. (2000). *Evaluating professional development. Educational Leadership, 59*(6), 45-51.

Figure I. Five Levels of Professional Development Evaluation[1]

Evaluation Level	What Questions Are Addressed?	How Will Information Be Gathered?	What Is Measured or Assessed?	How Will Information Be Used?
1. Participants' Reactions	• Did they like it? • Was their time well spent? • Did the material make sense? • Will it be useful? • Was the leader knowledgeable and helpful? • Were the refreshments fresh and tasty? • Was the room the right temperature? • Were the chairs comfortable?	• Questionnaires administered at the end of the session	• Initial satisfaction with the experience	• To improve program design and delivery
2. Participants' Learning	• Did participants acquire the intended knowledge and skills?	• Paper-and-pencil instruments • Simulations • Demonstrations • Participant reflections (oral and/or written) • Participant portfolios	• New knowledge and skills of participants	• To improve program content, format, and organization
3. Organization Support & Change	• What was the impact on the organization? • Did it affect organizational climate and procedures? • Was implementation advocated, facilitated, and supported? • Was the support public and overt? • Were problems addressed quickly and efficiently? • Were sufficient resources made available? • Were successes recognized and shared?	• District and school records • Minutes from follow-up meetings • Questionnaires • Structured interviews with participants and district or school administrators • Participant portfolios	• The organization's advocacy, support, accommodation, facilitation, and recognition	• To document and improve organizational support • To inform future change efforts

4. Participants' Use of New Knowledge and Skills	• Did participants effectively apply the new knowledge and skills?	• Questionnaires • Structured interviews with participants and their supervisors • Participant reflections (oral and/or written) • Participant portfolios • Direct observations • Video or audio tapes	• Degree and quality of implementation	• To document and improve the implementation of program content
5. Student Learning Outcomes	• What was the impact on students? • Did it affect student performance or achievement? • Did it influence students' physical or emotional well-being? • Are students more confident as learners? • Is student attendance improving? • Are dropouts decreasing?	• Student records • School records • Questionnaires • Structured interviews with students, parents, teachers, and/or administrators • Participant portfolios	• Student learning outcomes: – Cognitive (Performance & Achievement) – Affective (Attitudes & Dispositions) – Psychomotor (Skills & Behaviors)	• To focus and improve all aspects of program design, implementation, and follow-up • To demonstrate the overall impact of professional development

1. Guskey, T. R. (2000). *Evaluating Professional Development*. Thousand Oaks, CA: Corwin Press.

Proposed Adaption of *Questionnaire for Professional Training Evaluation* Instrument

	Original Q4TE	Proposed new instrument	Alignment to theoretical frameworks
SCALE:	**Reaction / satisfaction**	**Teacher reaction (satisfaction)**	Guskey: Level 1
ITEMS:	*Ich werde das Training in guter Erinnerung behalten.* I will keep the training in good memory	I have positive memories of this professional development.	
	Das Training hat mir sehr viel Spaß gemacht. I enjoyed the training very much.	I enjoyed this professional development very much.	
SCALE:	**Reaction / utility**	**Teacher reaction (usefulness)**	Guskey: Level 1
ITEMS:	*Das Training bringt mir für meine Arbeit sehr viel.* The training is very beneficial to my work.	This professional development has been very beneficial to my teaching.	
	Die Teilnahme am Training ist äußerst nützlich für meine Arbeit. Participation in this kind of training is very useful for my job.	Participating in this kind of professional development is very useful for my teaching.	
SCALE:	**Learning / knowledge**	**Teacher learning**	Guskey: Level 2 Desimone: Stage 2
ITEMS:	*Ich weiß jetzt viel mehr als vorher über die Trainingsinhalte.* After the training, I know substantially more about the training contents than before.	As a result of this professional development, I know substantially more than I did before.	
	In dem Training habe ich sehr viel Neues gelernt. I learned a lot of new things in the training.	I have learned a lot of new things from this professional development.	
SCALE:	**Behaviour / application to practice**	**Classroom implementation**	Guskey: Level 4 Desimone: Stage 3
ITEMS:	*Die im Training erworbenen Kenntnisse nutze ich häufig in meiner täglichen Arbeit.* In my everyday work, I often use the knowledge I gained in the training.	In my daily classroom practice, I often apply what I learned from this professional development.	
	Es gelingt mir sehr gut, die erlernten Trainingsinhalte in meiner täglichen Arbeit anzuwenden. I successfully manage to apply the training contents in my everyday work.	I successfully apply the content of this professional development in my daily classroom practice.	

	Original Q4TE	Proposed new instrument	Alignment to theoretical frameworks
SCALE:	**Behaviour / application to practice**	**Classroom implementation**	*Does not align to either framework*
ITEMS:	*Seit dem Training bin ich mit meiner Arbeit zufriedener.* Since the training, I have been more content with my work.	*SCALE REMOVED*	
	Durch die Anwendung der Trainingsinhalte hat sich meine Arbeitsleistung verbessert. My job performance has improved through the application of the training contents.		
SCALE:	**Organizational results / global**	**Organizational change**	Guskey: Level 3 Desimone: [context as overarching factor]
ITEMS:	*Durch die Anwendung der Trainingsinhalte konnten Arbeitsabläufe im Unternehmen vereinfacht werden.* Overall, it seems to me that the application of the training contents has facilitated the work flow in my company.	Overall, this professional development has had a positive impact on my school.	
	Durch das Training hat sich das Unternehmensklima verbessert. Overall, it seems to me that the organizational climate has improved due to the training.	Overall, the culture and procedures in my school have improved due to this professional development.	
SCALE:		**Organizational support**	Guskey: Level 2 Desimone: [context as overarching factor]
ITEMS:	*NEW SCALE*	My school encouraged and supported teachers in implementing what they learned from this professional development.	
		My school recognized teachers who successfully implemented what they learned from this professional development.	
SCALE:		**Student learning**	Guskey: Level 5 Desimone: Stage 4
ITEMS:	*NEW SCALE*	As a result of this professional development, my students' learning has improved.	
		My students have benefited from me receiving this professional development.	

Appendix 9

Review form for the expert panel review of the draft questionnaire

Expert panel review – *Teachers' Experiences of Professional Development* survey instrument – REVIEW FORM

Name: _____ **Position:** _____ **Organisation:** _____

Please circle your response to each statement:

	Strongly Agree	*Agree*	*Neutral*	*Disagree*	*Strongly Disagree*
1. The two theoretical frameworks (Desimone, 2009; Guskey, 2000) provide a suitable basis for a study such as this.	1	2	3	4	5
2. The scales on the proposed survey instrument align appropriately to the theoretical frameworks.	1	2	3	4	5
3. The items on the proposed survey instrument fairly represent and measure the identified scales.	1	2	3	4	5
4. The modifications of the original *Q4TE* item language to suit an educational context are appropriate.	1	2	3	4	5
5. The proposed survey instrument is appropriate given the purpose of the survey [*described on page 1 of the information sheet*].	1	2	3	4	5
6. The proposed survey instrument [*available in Arabic and English*] is appropriate for use in the context of ADEC Cycle 2 and 3 government schools.	1	2	3	4	5

Please write any additional feedback or comments here.
If you circled 'disagree' or 'strongly disagree' for any statement above, please give details here.

Signature: _____ Date: _____

Many thanks for your contribution to this expert panel review process.

Appendix 10

Collated feedback from the expert panel review of the draft questionnaire

Table A1. Quantitative feedback provided by the expert panel

Item	Mean panel response score[a]
1. The two theoretical frameworks (Desimone, 2009; Guskey, 2000) provide a suitable basis for a study such as this.	4.5
2. The scales on the proposed survey instrument align appropriately to the theoretical frameworks.	4.33
3. The items on the proposed survey instrument fairly represent and measure the identified scales.	4.67
4. The modifications of the original Q4TE item language to suit an educational context are appropriate.	4.83
5. The proposed survey instrument is appropriate given the purpose of the survey [*described on page 1 of the information sheet*].	4.83
6. The proposed survey instrument [*available in Arabic and English*] is appropriate for use in the context of ADEC Cycle 2 and 3 government schools.	4.67

[a] Each of the six panel members responded to each item on a five-point response scale ranging from 1 = *strongly disagree* to 5 = *strongly agree.*

Table A2. Qualitative feedback provided by the expert panel

Panel member feedback	Resulting decision
Section: Reaction/utility: Should the tense used reflect the fact that this training is perceived as beneficial to the participant's future practice? For example: The professional development will be very beneficial to my teaching.	Given that the survey is to be completed retrospectively, summarising teachers' responses to the professional development they had received over an entire academic year, the existing tense ('has been') will be retained. This is also in keeping with the original Q4TE instrument.
Section: Organizational change: Change the word 'culture' to 'ethos' or 'climate'? The word 'culture' could be misinterpreted? [sic]	This suggestion was discussed with the translator who was used to translate the instrument into Arabic (a native Arabic speaker employed as a translator within the ADEC reform context) and also with another member of the review panel who is an Emirati national. Both of these experts recommended that the word 'culture' should be retained, as they believed that the concept of 'school culture' was sufficiently familiar to both Arab and Western teachers.

Panel member feedback	Resulting decision
Section: Organizational support: Incorrect categorisation (typo)—change Guskey Level 2 to Guskey Level 3.	Amended.
Overall: Given the wide range of professional development activities, it could be helpful to differentiate between training types. The use of "this professional development" seems to imply a specific professional development session or type.	The broad wording was deliberate; the type (or types) of professional development being reported on were made clear to teachers when they complete the survey. For the main survey, the types were whole-school and subject-specific professional development; for the in-depth interviews, each individual teacher reported the types of professional development they had participated in and then reported according to these types.
I look forward to seeing the results of your research!	N/A

Appendix 11

Online English language version of the main survey

Teachers' Experiences of Professional Development

The purpose of this survey is to investigate teachers' experiences of professional development in ADEC Cycle 2 and Cycle 3 public schools.

Your participation is voluntary and your responses are anonymous.

1. I teach in an ADEC Cycle 2 or Cycle 3 school.

- ○ Yes
- ○ No

Page 1

Teachers' Experiences of Professional Development

2. I teach:

- ☐ English
- ☐ Mathematics
- ☐ Science
- ☐ Biology
- ☐ Chemistry
- ☐ Geology
- ☐ Physics
- ☐ None of the above subjects

Teachers' Experiences of Professional Development

3. I am an:

- AMT (Arabic Medium Teacher)
- EMT (English Medium Teacher)

4. I am:

- Female
- Male

5. My students are:

- Female
- Male

6. I am from:

- United Arab Emirates
- Australia
- Canada
- Egypt
- England
- Iraq
- Ireland
- Jordan
- New Zealand
- Northern Ireland
- Palestine
- Scotland
- South Africa
- Sudan
- Syria
- Tunisia
- United States of America
- Wales
- Other (please specify)

7. Including this year, I have been a teacher for:

- 1-2 years
- 3-4 years
- 5-9 years
- 10-14 years
- 15-19 years
- 20-24 years
- 25 years or more

Teachers' Experiences of Professional Development

The questions below ask you about the professional development you received in THIS ACADEMIC YEAR (2013-2014).

Please only consider THIS YEAR (2013-2014) when responding.

Please select the most appropriate response for each statement, from Strongly Agree to Strongly Disagree.

For each question, in the FIRST row, please give an overall response in relation to all the subject-specific professional development you have received this year
(for example, from your English, Mathematics or Science Education Advisor).

In the SECOND row, please give an overall response in relation to all the whole-school professional development you have received this year
(for example, the Tamkeen program).

8. I have positive memories of this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

9. I enjoyed this professional development very much.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

10. This professional development has been very beneficial to my teaching.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

11. Participating in this kind of professional development is very useful for my teaching.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

12. As a result of this professional development, I know substantially more than I did before.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

13. I have learned a lot of new things from this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

Teachers' Experiences of Professional Development

14. In my daily classroom practice, I often apply what I learned from this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

15. I successfully apply the content of this professional development in my daily classroom practice.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

16. Overall, this professional development has had a positive impact on my school.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

17. Overall, the culture and procedures in my school have improved due to this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

18. My school encouraged and supported teachers in implementing what they learned from this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

19. My school recognized teachers who successfully implemented what they learned from this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

20. As a result of this professional development, my students' learning has improved.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

21. My students have benefited from me receiving this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

Teachers' Experiences of Professional Development

22. (OPTIONAL) Please enter any additional comments.

Teachers' Experiences of Professional Development

I'm sorry. This survey is only for teachers in ADEC Cycle 2 or Cycle 3 schools.

Teachers' Experiences of Professional Development

I'm sorry. This survey is only for teachers of English, Mathematics or Science subjects.

Teachers' Experiences of Professional Development

Thank you very much for your involvement in this research.

Your participation is greatly appreciated.

Appendix 12

Online Arabic language version of the main survey

Note: The Arabic-language page header for the survey did not export correctly from the Survey Monkey software due to a technical issue with the website's Arabic language functionality. Therefore, a screenshot of the first screen is provided below to show the page header (on the dark strip), which appeared identically on all screens of the Arabic-language survey. This screenshot is followed by the Survey Monkey export of the full Arabic-language survey showing all the survey items and page breaks (but with the page headers misprinted).

????? ???????? ?? ??????? ??????

الغرض من هذا الاستبيان هو التحقق من خبرات المعلمين في التطوير المهني في مدارس الحلقتين الثانية و الثالثة الحكومية في مجلس ابوظبي للتعليم

مشاركتك طوعية ومعلوماتك ستبقى سرية

1. أدرّس في مدرسة حلقة ثانية أو ثالثة في مجلس أبوظبي للتعليم

- نعم
- لا

Page 1

????? ???????? ?? ??????? ??????

2. أدرَس

- ☐ اللغة الإنجليزية
- ☐ الرياضيات
- ☐ العلوم
- ☐ الأحياء
- ☐ الكيمياء
- ☐ الجيولوجيا
- ☐ الفيزياء
- ☐ ليست أي مادة من المواد المذكورة أعلاه

????? ???????? ?? ??????? ??????

3. : أنا

- معلم مواد باللغة العربية
- معلم مواد باللغة الإنجليزية

4. : أنا

- أنثى
- ذكر

5. : طلابي هم

- إناث
- ذكور

6. : أنا من

- الإمارات العربية المتحدة
- أستراليا
- كندا
- مصر
- إنجلترا
- العراق
- إيرلندا
- الأردن
- نيوزيلندة
- إيرلندا الشمالية
- فلسطين
- سكوتلندا
- جنوب إفريقيا
- السودان
- سوريا
- تونس
- الولايات المتحدة الامريكية
- ويلز
- أخرى (الرجاء التحديد)

7. : بما فيها هذا العام، أنا معلم / معلمة منذ

- 1-2 years
- 3-4 years
- 5-9 years
- 10-14 years
- 15-19 years
- 20-24 years
- 25 years or more

????? ???????? ?? ??????? ??????

(تسألك الأسئلة أدناه عن التطوير المهني الذي تلقيته في العام الدراسي الحالي (2013 – 2014
يرجى الأخذ بالاعتبار هذا العام فقط (2013 -2014) عند الإجابة

الرجاء اختيار الإجابة الأنسب لكل عبارة ، من أوافق بشدة إلى لا أوافق بشدة

عن كل سؤال ،في الجزء الأول ، يرجى إعطاء إجابة شاملة فيما يتعلق بكل التطوير المهني الخاص بالمادة الذي تلقيته هذا العام (مثلا من المستشار التعليمي لمواد اللغة الإنجليزية أو الرياضيات أو العلوم)

(في الجزء الثاني ، يرجى إعطاء إجابة شاملة فيما يتعلق بالتطوير المهني لكل المدرسة الذي تلقيته هذا العام (مثلا : برنامج تمكين

8. لدي ذكريات إيجابية عن هذا التطوير المهني

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

9. لقد استمتعت بهذا التطوير المهني كثيرا

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

10. لقد كان هذا التطوير المهني مفيدا جدا في تدريسي

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

11. المشاركة في هذا النوع من التطوير المهني مفيد جدا لتدريسي

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

12. كنتيجة لهذا التطوير المهني أعرف أكثر بكثير مما عرفته من قبل

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

13. لقد تعلمت الكثير من الأشياء الجديدة من هذا التطوير المهني

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

14. في ممارساتي الصفية اليومية، غالبا ما أقوم بتطبيق ما تعلمته من هذا التطوير المهني

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

????? ???????? ?? ??????? ??????

15. أطبق بنجاح محتوى هذا التطوير المهني في ممارساتي الصفية اليومية

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

16. بصورة شاملة ، كان لهذا التطوير المهني أثر إيجابي على مدرستي

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

17. بصورة شاملة ، لقد تطورت الثقافة و الإجراءات في مدرستي بسبب هذا التطوير المهني

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

18. قامت مدرستي بتشجيع و دعم المعلمين في تنفيذ ما قاموا بتعلمه من هذا التطوير المهني

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

19. قامت مدرستي بتكريم المعلمين الذين طبقوا بنجاح ما قاموا بتعلمه من هذا التطوير المهني

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

20. كنتيجة لهذا التطوير المهني ، تحسن تعلم طلابي

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

21. لقد استفاد طلابي مني بسبب هذا التطوير المهني

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

22. (اختياري) الرجاء إضافة أية ملاحظات إضافية

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????? ???????? ?? ??????? ??????

المعذرة . هذا الاستبيان خاص فقط بمعلمي الحلقة الثانية و الثالثة في مدارس مجلس أبوظبي للتعليم

????? ???????? ?? ??????? ??????

المعذرة . هذا الاستبيان خاص فقط بمعلمي مواد اللغة الإنجليزية و الرياضيات و العلوم

????? ???????? ?? ??????? ??????

شكرا جزيلا على مشاركتك في هذا البحث

نثمن عاليا مشاركتك

Appendix 13

Paper English language version of the main survey

Teachers' Experiences of Professional Development

The purpose of this survey is to investigate teachers' experiences of professional development in ADEC Cycle 2 and Cycle 3 public schools.

Your participation is voluntary and your responses are anonymous.

1. I teach in an ADEC Cycle 2 or Cycle 3 school.

- ◯ Yes
- ◯ No

2. I teach:

- ☐ English
- ☐ Mathematics
- ☐ Science
- ☐ Biology
- ☐ Chemistry
- ☐ Geology
- ☐ Physics
- ☐ None of the above subjects

3. I am an:

- ◯ AMT (Arabic Medium Teacher)
- ◯ EMT (English Medium Teacher)

4. I am:

- ◯ Female
- ◯ Male

5. My students are:

- ◯ Female
- ◯ Male

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Teachers' Experiences of Professional Development

6. I am from:

- ◯ United Arab Emirates
- ◯ Australia
- ◯ Canada
- ◯ Egypt
- ◯ England
- ◯ Iraq
- ◯ Ireland
- ◯ Jordan
- ◯ New Zealand
- ◯ Other (please specify)
- ◯ Northern Ireland
- ◯ Palestine
- ◯ Scotland
- ◯ South Africa
- ◯ Sudan
- ◯ Syria
- ◯ Tunisia
- ◯ United States of America
- ◯ Wales

7. Including this year, I have been a teacher for:

- ◯ 1-2 years
- ◯ 3-4 years
- ◯ 5-9 years
- ◯ 10-14 years
- ◯ 15-19 years
- ◯ 20-24 years
- ◯ 25 years or more

The questions below ask you about the professional development you received in THIS ACADEMIC YEAR (2013-2014).

Please only consider THIS YEAR (2013-2014) when responding.

Please select the most appropriate response for each statement, from Strongly Agree to Strongly Disagree.

For each question, in the FIRST row, please give an overall response in relation to all the subject-specific professional development you have received this year
(for example, from your English, Mathematics or Science Education Advisor).

In the SECOND row, please give an overall response in relation to all the whole-school professional development you have received this year
(for example, the Tamkeen program).

Teachers' Experiences of Professional Development

8. I have positive memories of this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

9. I enjoyed this professional development very much.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

10. This professional development has been very beneficial to my teaching.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

11. Participating in this kind of professional development is very useful for my teaching.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

12. As a result of this professional development, I know substantially more than I did before.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

13. I have learned a lot of new things from this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

14. In my daily classroom practice, I often apply what I learned from this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

15. I successfully apply the content of this professional development in my daily classroom practice.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

Teachers' Experiences of Professional Development

16. Overall, this professional development has had a positive impact on my school.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

17. Overall, the culture and procedures in my school have improved due to this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

18. My school encouraged and supported teachers in implementing what they learned from this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

19. My school recognized teachers who successfully implemented what they learned from this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

20. As a result of this professional development, my students' learning has improved.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

21. My students have benefited from me receiving this professional development.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Subject-specific PD	○	○	○	○	○
Whole-school PD	○	○	○	○	○

22. (OPTIONAL) Please enter any additional comments.

Thank you very much for your involvement in this research.
Your participation is greatly appreciated.

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Appendix 14

Paper Arabic language version of the main survey

خبرات المعلمين عن التطوير المهني

الغرض من هذا الاستبيان هو التحقق من خبرات المعلمين في التطوير المهني في مدارس الحلقتين الثانية و الثالثة الحكومية في مجلس ابوظبي للتعليم

مشاركتك طوعية ومعلوماتك ستبقى سرية

1. أدرّس في مدرسة حلقة ثانية أو ثالثة في مجلس أبوظبي للتعليم

- ◯ نعم
- ◯ لا

2. أدرّس

- ☐ اللغة الإنجليزية
- ☐ الرياضيات
- ☐ العلوم
- ☐ الأحياء
- ☐ الكيمياء
- ☐ الجيولوجيا
- ☐ الفيزياء
- ☐ ليست أي مادة من المواد المذكورة أعلاه

3. أنا :

- ◯ معلم مواد باللغة العربية
- ◯ معلم مواد باللغة الإنجليزية

4. أنا :

- ◯ أنثى
- ◯ ذكر

5. طلابي هم :

- ◯ إناث
- ◯ ذكور

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خبرات المعلمين عن التطوير المهني

6. : أنا من

- ◯ إيرلندا الشمالية
- ◯ الإمارات العربية المتحدة
- ◯ فلسطين
- ◯ أستراليا
- ◯ سكوتلندا
- ◯ كندا
- ◯ جنوب إفريقيا
- ◯ مصر
- ◯ السودان
- ◯ إنجلترا
- ◯ سوريا
- ◯ العراق
- ◯ تونس
- ◯ إيرلندا
- ◯ الولايات المتحدة الامريكية
- ◯ الأردن
- ◯ ويلز
- ◯ نيوزيلندة
- ◯ أخرى (الرجاء التحديد)

7. : بما فيها هذا العام، أنا معلم / معلمة منذ

- ◯ 1-2 years
- ◯ 3-4 years
- ◯ 5-9 years
- ◯ 10-14 years
- ◯ 15-19 years
- ◯ 20-24 years
- ◯ 25 years or more

(تسألك الأسئلة أدناه عن التطوير المهني الذي تلقيته في العام الدراسي الحالي (2013 – 2014
يرجى الأخذ بالاعتبار هذا العام فقط (2013 -2014) عند الإجابة

الرجاء اختيار الإجابة الأنسب لكل عبارة ، من أوافق بشدة إلى لا أوافق بشدة

عن كل سؤال ،في الجزء الأول ، يرجى إعطاء إجابة شاملة فيما يتعلق بكل التطوير المهني الخاص بالمادة الذي تلقيته هذا العام (مثلا من المستشار التعليمي لمواد اللغة الإنجليزية أو الرياضيات أو العلوم)

(في الجزء الثاني ، يرجى إعطاء إجابة شاملة فيما يتعلق بالتطوير المهني لكل المدرسة الذي تلقيته هذا العام (مثلا : برنامج تمكين

8. لدي ذكريات إيجابية عن هذا التطوير المهني

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	◯	◯	◯	◯	◯
التطوير المهني لكل المدرسة	◯	◯	◯	◯	◯

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خبرات المعلمين عن التطوير المهني

9. لقد استمتعت بهذا التطوير المهني كثيرا

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

10. لقد كان هذا التطوير المهني مفيدا جدا في تدريسي

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

11. المشاركة في هذا النوع من التطوير المهني مفيد جدا لتدريسي

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

12. كنتيجة لهذا التطوير المهني أعرف أكثر بكثير مما عرفته من قبل

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

13. لقد تعلمت الكثير من الأشياء الجديدة من هذا التطوير المهني

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

14. في ممارساتي الصفية اليومية، غالبا ما أقوم بتطبيق ما تعلمته من هذا التطوير المهني

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

15. أطبق بنجاح محتوى هذا التطوير المهني في ممارساتي الصفية اليومية

	أوافق بشدة	أوافق	حيادي	لا أوافق	لا أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

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خبرات المعلمين عن التطوير المهني

16. بصورة شاملة ، كان لهذا التطوير المهني أثر إيجابي على مدرستي

	لا أوافق بشدة	لا أوافق	حيادي	أوافق	أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

17. بصورة شاملة ، لقد تطورت الثقافة و الإجراءات في مدرستي بسبب هذا التطوير المهني

	لا أوافق بشدة	لا أوافق	حيادي	أوافق	أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

18. قامت مدرستي بتشجيع و دعم المعلمين في تنفيذ ما قاموا بتعلمه من هذا التطوير المهني

	لا أوافق بشدة	لا أوافق	حيادي	أوافق	أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

19. قامت مدرستي بتكريم المعلمين الذين طبقوا بنجاح ما قاموا بتعلمه من هذا التطوير المهني

	لا أوافق بشدة	لا أوافق	حيادي	أوافق	أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

20. كنتيجة لهذا التطوير المهني ، تحسن تعلم طلابي

	لا أوافق بشدة	لا أوافق	حيادي	أوافق	أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

21. لقد استفاد طلابي مني بسبب هذا التطوير المهني

	لا أوافق بشدة	لا أوافق	حيادي	أوافق	أوافق بشدة
التطوير المهني الخاص بالمادة	○	○	○	○	○
التطوير المهني لكل المدرسة	○	○	○	○	○

22. اختيارى) الرجاء إضافة أية ملاحظات إضافية (

شكرا جزيلا على مشاركتك في هذا البحث
نثمن عاليا مشاركتك

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Appendix 15

Interview guide

INTERVIEW GUIDE

Checklist:

- ☐ Interviewee information form
- ☐ Interview guide document
- ☐ Interviewee survey × 2
- ☐ Pens & marker
- ☐ PD definition card
- ☐ Interviewee consent form
- ☐ Recording devices × 2
- ☐ Sellotape
- ☐ Post-it notes (2 colours)
- ☐ Water for interviewee

Interviewee name:			Consent form (✓):	
School (2013-14):		Subject/s (2013-14):		
Nationality:		No. years teaching:		
Gender:		Students' gender:		

PART ONE – OVERVIEW OF PD EXPERIENCED IN 2013-2014

Please tell me in your own words what 'professional development' means to you.

What types of professional development did you experience in the 2013-2014 academic year?
[Discourse to work towards identification of core categories; record these on post-it notes as discussed and place on table; adjust categories if needed]

For this study, I am defining professional development quite broadly. I am taking professional development to mean:

> *"Any professional activity – formal or informal; planned or spontaneous – that causes teacher learning."*

[Place laminated card with definition on table for reference / reinforcement]

Using this definition, are there any other types of professional development you think we should add to our list of PD you experienced in 2013-2014?

[Again, discourse to work towards identification of core categories, recorded on post-it notes on table]

To make sure we have identified all the professional development, I have a list here that I would like you to review. It's a brainstorm I did with some colleagues showing all the different types of professional development we could think of, that may have occurred in 2013-2014. Please read through it and tell me if there are any additional types of professional development that we need to add to our list.

[Give participant list of PD types. Read through with them if necessary / appropriate. Record any new categories on post-it notes on table.]

If we look back at our definition of professional development, are you happy that we have now represented all the professional activities that caused you to learn as a teacher in 2013-2014?

PART 2 - SURVEY

I am interested in learning more about each of these types of PD. I would like you now to complete a survey about your experiences of each of these types of PD. After you complete the survey, we will discuss the PD more.

In the survey, I am going to ask you about the features of the PD – how it was designed – and also the effects or impact of the PD.

You will answer the same set of questions for each type of PD. This will allow me to compare the different types of PD.

We will take each of your main categories of PD and write them across the top of the table.
[Write types of PD in the table headers]

For each question, you need to read the statement, then work across the table and write a number from 1 to 5 in the box for each type of PD. Then move down to the next question.

[Complete example row to illustrate approach; point out 1-5 scale key in top left of table]

If any questions are not clear or if you have any questions, please ask me.
[Teachers work through survey; when they reach Q26, intervene to give next instructions]

For these last two questions, you will not use the 1-5 numbers to give your answers. Instead, I need to you write an amount of time in each box. For example, for question 26, if you think on average you had Tamkeen once a week for 2 hours, that could be 2 hours × 30 weeks = 60 hours.
[Teachers complete Q26/27]

Thank you so much for completing the survey. It will be really helpful for me.

PART 3 – GOING DEEPER

FOCUSES:

1. **To gather description / details relating to specific types of PD to enrich the survey data. Different teachers will describe different types – not intending to go through all of them with each teacher!! Perhaps something that is unusual (e.g. a teacher whose school ran PLCs), or something the teacher naturally wants to discuss / feels strongly about**
2. **To capture teachers' overall feelings around 'good/ best' and bad/'worst' PD**
3. **To capture their overall response to the PD they have had in 2013-2014.**

(A) Did anything stand out to you when you did the survey that you want to talk about?

(B) I noticed on the survey that … Can you tell me more about that?

(C) Can you tell me about [PD type, e.g. the ways your EA worked with you] in 2013-2014? Describe this type of PD for me.

- ➔ Was this PD helpful? Why / why not?

(D) When I first asked you about the PD you had received, you told me these types: […]. Then when I showed you my definition of PD, you added some extra types – […]. Tell me about why you didn't include these types in your initial response.

(E) What things really help you learn as a teacher?

- ➔ Why are those things helpful?

(F) What does really good professional development look like for you? This does not have to be limited to PD you experienced in 2013-2014 – what is your 'dream' for the best possible professional development?

- ➔ Why do you think this professional development is / would be so good?

(G) What does really bad professional development look like for you?

- ➔ Tell me about the worst professional development you had in 2013-2014.
- ➔ Why was this professional development so bad?

(H) Can you compare […] and […] types of professional development for me?

(I) What is your overall feeling about the professional development provided by ADEC in 2013-2014?

- ➔ Has it met your needs? Why / why not?
- ➔ How could your overall professional development experience be improved?
- ➔ What message/s would you like to give ADEC?

FOCUSES:

1. To gather **description / details relating to specific types of PD** to enrich the survey data. Different teachers will describe different types – not intending to go through all of them with each teacher!! Perhaps something that is **unusual** (e.g. a teacher whose school ran PLCs), or something the teacher naturally **wants to discuss / feels strongly about**
2. To capture teachers' overall feelings around **'good/ best' and bad/'worst' PD**
3. To capture their **overall response** to the PD they have had in 2013-2014.

Appendix 16

Final interviewee survey

TEACHERS' EXPERIENCES OF PROFESSIONAL DEVELOPMENT

Curtin University

Please consider only the professional development you received in the 2013-2014 academic year.

For questions 1-25, please write a number from 1 to 5 in each box. For questions 26-27, please write an amount of time in each box.

Activities within the professional development (1 = never; 2 = rarely; 3 = occasionally; 4 = a moderate amount; 5 = a great deal)							
1. This professional development included **lesson observation** (I was observed teaching AND/OR I observed others teaching)							
2. This professional development included time for me to **plan lessons** implementing what I was learning.							
3. This professional development included time for me to look at **student work samples.**							
4. During this professional development, I **gave presentations, demonstrated teaching, led discussions, or wrote reports or plans.**							
5. In this professional development, I **collaborated with other teachers** from my subject area, grade level or school.							
Subject-specific focus of the professional development (1 = never; 2 = rarely; 3 = occasionally; 4 = a moderate amount; 5 = a great deal)							
6. This professional development was intended to improve **my own content knowledge** in my teaching subject *(e.g. to teach me more / new science).*							
7. This professional development focused on **how students learn specifically within my teaching subject** *(e.g. common misconceptions about fractions)*							
Coherence of the professional development (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree)							
8. This professional development was consistent with my **personal** knowledge, beliefs and professional development goals.							
9. This professional development was consistent with other professional development activities and goals in **my school.**							
10. This professional development was consistent with **ADEC** curriculum, pedagogy and assessment.							
My reactions to the professional development (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree)							
11. I have **positive memories** of this professional development.							
12. I **enjoyed** this professional development very much.							
13. **This** professional development has been very **beneficial** to my teaching.							
14. Participating in **this kind** of professional development is very **useful** for my teaching.							
Impact of the professional development on me (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree)							
15. As a result of this professional development, I know **substantially more** than I did before.							
16. I have learned a lot of **new things** from this professional development.							
17. In my daily classroom practice, I **often apply** what I learned from this professional development.							
18. I **successfully** apply the content of this professional development in my daily classroom practice.							
19. Overall, this professional development has had a **positive impact** on my school.							
20. Overall, the **culture and procedures** in my school have improved due to this professional development.							
Impact of the professional development on my school & students (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree)							
21. My school **encouraged and supported** teachers in implementing what they learned from this professional development.							
22. My school **recognized** teachers who **successfully** implemented what they learned from this professional development.							
23. As a result of this professional development, my **students' learning** has improved.							
24. My students have **benefited** from me receiving this professional development.							
Duration of the professional development (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree)							
25. **Enough time** was allocated to this professional development in the 2013-2014 academic year.							
26. Please estimate the **total number of hours** spent in this professional development in the 2013-2014 academic year.							
27. Please estimate the **total time span** this professional development was spread across, **from beginning to end**, during the 2013-2014 academic year. *(For example, all year; two months; two days ...)*							

Note: The interviewee survey was printed in colour at A3 size, to maximise readability for teachers. For teachers who had reported participating in more than

seven professional development activities, two of these A3 sheets were taped together to create additional columns for further professional development types.

Appendix 17

Procedure for replacing missing values in the main survey

For the main survey, 28 questionnaires were missing responses to fewer than 10% of the scale items. The determination of appropriate replacement values for these cases involved three steps, in an attempt to infer a 'best guess' of what the teacher might have felt, given the ways in which they had responded to other items on the survey.

Each scale was measured using two items, and there were two responses for each of the items (reflecting subject-specific and whole-school professional development). Therefore, the first step taken when one missing value was identified within a scale was to examine the other three responses that had been given by the teacher for that scale. Specifically, I checked the two responses that had been given for the same professional development type (either subject-specific or whole-school). Given that the two items within any scale were intended to measure the same underlying construct, it was expected that the responses to the two items for a single professional development type would be similar. As such, if the teacher had given the same response to both of the items for one type of professional development, I inferred that the scale was functioning correctly and measuring the same construct (for that teacher). Therefore, I duplicated the one available response, given for the other type of professional development, to replace the missing value. This meant that the teachers' two responses to the items of that scale for subject-specific professional development would be equal, as would their two responses for whole-school professional development.

For example, in the hypothetical case below, it was noted that the teacher had given the same response (4) for both the items in the scale for subject-specific professional development. As such, it was considered that the two responses for whole-school professional development should also match, so a value of 2 was entered in place of the missing value, duplicating the one response that had been provided for that scale for whole-school professional development.

Item 1		Item 2	
Subject-specific	Whole-school	Subject-specific	Whole-school
4	2	4	*(missing)*

Of the 49 missing data values, 26 were able to be filled in using this procedure. This left 23 further missing values across 15 questionnaires.

Where the approach above was not able to be used (because the two responses given for one type of professional development were not the same), I next checked whether the teacher had consistently given equal responses for both the whole-school and subject-specific professional development in every item. In such cases, I inferred that the teacher felt that the whole-school and subject-specific professional development were equally effective; therefore, I continued this pattern to insert replacement values.

For example, in the hypothetical case below, it was apparent that the teacher had consistently given equal responses for both types of professional development. Therefore, for item 4, I duplicated the existing response for subject-specific professional development (2) to replace the missing response for whole-school professional development.

Item 1		Item 2		Item 3		Item 4	
Subject-specific	Whole-school	Subject-specific	Whole-school	Subject-specific	Whole-school	Subject-specific	Whole-school
3	3	2	2	4	4	*Missing*	2

This procedure allowed an additional 10 missing values to be entered, leaving 13 further missing values across 9 questionnaires.

To fill in the remaining values, I calculated the mean of each respondent's *subject-specific* responses and the mean of their *whole-school* responses. The appropriate mean value was inserted to replace any missing values (rounded to the nearest whole number).

For example, in the hypothetical case below, the mean for all the provided subject-specific responses was 2.683, and the mean for all the provided whole-school responses was 2.482. Based on the subject-specific mean (rounded to the nearest whole number), a replacement value of 3 was entered for item 2; based on the whole-school mean (rounded to the nearest whole number), a replacement value of 2 was entered for item 3.

Item 1		Item 2		Item 3			Respondent means	
Subject-specific	Whole-school	Subject-specific	Whole-school	Subject-specific	Whole-school	…	Subject-specific	Whole-school
3	3	*Missing*	2	4	*Missing*	…	2.683	2.482

Following these three stages resulted in a complete data set for the scale items of the main survey.

Appendix 18

Curtin University ethical approvals to conduct the study

1. Original ethical approval for the smaller MPhil study

Curtin University

Memorandum

To	Katrina McChesney, SMEC
From	Pauline Howat, Administrator, Human Research Ethics Science and Mathematics Education Centre
Subject	Protocol Approval **SMEC-41-12**
Date	14 September 2012
Copy	Jill Aldridge, SMEC

Office of Research and Development

Human Research Ethics Committee

Telephone 9266 2784
Facsimile 9266 3793
Email hrec@curtin.edu.au

Thank you for your "Form C Application for Approval of Research with Low Risk (Ethical Requirements)" for the project titled *"Investigating matahematics teachers' experiences of professional development within a major education reform in Abu Dhabi, United Arab Emirates"*. On behalf of the Human Research Ethics Committee, I am authorised to inform you that the project is approved.

Approval of this project is for a period of twelve months **14th September 2012** to **13th September 2013**.

The approval number for your project is **SMEC-41-12**. *Please quote this number in any future correspondence*. If at any time during the twelve months changes/amendments occur, or if a serious or unexpected adverse event occurs, please advise me immediately.

Pauline

PAULINE HOWAT
Administrator
Human Research Ethics
Science and Mathematics Education Centre

Please Note: The following standard statement must be included in the information sheet to participants:
This study has been approved under Curtin University's process for lower-risk Studies (Approval Number SMEC-41-12). This process complies with the National Statement on Ethical Conduct in Human Research (Chapter 5.1.7 and Chapters 5.1.18-5.1.21).
For further information on this study contact the researchers named above or the Curtin University Human Research Ethics Committee. c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth 6845 or by telephoning 9266 9223 or by emailing hrec@curtin.edu.au.

J:\SAE\SMEC\office\Pauline\ETHICS\Ethics Approval Letter 2012\McChesney.docx

CRICOS Provider Code 00301J

2. Updated approval for the larger PhD study

Curtin University

Memorandum

To	Katrina McChesney, SMEC
From	Mun Yin Cheong, Form C Ethics Co-ordinator, Faculty of Science and Engineering
Subject	Protocol Amendment Approval **SMEC-41-12**
Date	24 September 2014
Copy	Jill Aldridge, SMEC

Office of Research and Development
Human Research Ethics Committee

TELEPHONE 9266 2784
FACSIMILE 9266 3793
EMAIL hrec@curtin.edu.au

Thank you for keeping us informed of the progress of your research. The Human Research Ethics Committee acknowledges receipt of your progress report and indication of modifications / changes for the project *"Investigating mathematics teachers' experiences of professional development within a major education reform in Abu Dhabi, United Arab Emirates"*. Your application has been ***approved***.

The Committee notes the following amendments have been approved:

1. Increased sample size for main survey to 300; and
2. Additional data collection techniques – interviews & interviewee survey.

Approval for this project is valid to **13th September 2016.**

Your approval has the following conditions:

(i) Annual progress reports on the project must be submitted to the Ethics Office.

Your approval number remains **SMEC-41-12**. Please quote this number in any further correspondence regarding this project.

Yours sincerely

Mun Yin

MUN YIN CHEONG
Form C Ethics Co-ordinator
Faculty of Science and Engineering

Note: Although the approval above specifies a sample size of 300 teachers, this was the target sample size. The final sample size obtained ($N = 393$ teachers) was reported to the university (and approved) as part of the ethics completion report.

Appendix 19

ADEC Research Office approvals to conduct the study

From: ADEC Research
To: Katrina Ruth Mcchesney ;ADEC-HQ;
cc: Masood Badri ;ADEC-HQ;
Subject: FW: تسهيل مهمة باحثة - كاترين روث
Date: Monday, March 04, 2013 7:56:47 AM

Dear Katrina,
Please find herewith below the permission message sent to all public schools in Abu Dhabi for you information. If you need any further information don't hesitate to contact me.
Best regards.

Research Office

From: School Operation
Sent: Sunday, March 03, 2013 10:24 AM
To: Abu Dhabi Education Zone Principals
Cc: ADEC Research
Subject: تسهيل مهمة باحثة - كاترين روث

الأفاضل **مديري المدارس الحكومية - أبوظبي** **/ مدراء الدائرة**

يطيب لنا أن نهديكم أطيب التحيات.

في إطار دعم مجلس أبوظبي للتعليم للبحوث والدراسات الهادفة
، يرجى تسهيل مهمة الطالبة أعلاه ومساعدتها في الحصول على المعلومات المطلوبة لإنهاء دراسة الماجستير .

شاكرين لكم حسن تعاونكم

Executive Director's Office
School Operation Sector
Abu Dhabi Education Council
Email: school.ops@adec.ac.ae

Appendix 20

Teacher information sheets for the main survey

Curtin University of Technology
School of Science
Science and Mathematics Education Centre

Curtin University

Teacher Information Sheet

Teachers' experiences of professional development

My name is Katrina McChesney. I am currently completing a research project for my Master of Philosophy degree at Curtin University of Technology, Australia.

Purpose of Research

I am investigating teachers' experiences of professional development (PD) within the ADEC education reform. Data in this study is being collected for research purposes and results will also be reported to the Abu Dhabi Education Council.

Your Role

If you teach English, Mathematics or a Science subject in an ADEC Cycle 2 or Cycle 3 school, I am interested in having you complete a short online questionnaire about your experiences of PD in 2013-2014. The questionnaire will take you no more than 10 minutes to complete.

Consent to Participate

Your involvement in this research is entirely voluntary. You have the right to choose not to participate. If you complete the questionnaire I will assume that you agree to participate and allow me to use your responses in my research.

Confidentiality

Your responses to the questionnaire will be anonymous and confidential. Staff and school names will not be collected. In adherence to university policy, the questionnaires and electronic copies of the data will be kept securely for at least five years, before a decision is made as to whether they should be destroyed.

Research Approval and Contact Information

This research has been approved by the ADEC Research Office (see attached notification from the office of Mohammad Salem Al Dhaheri, Executive Director of School Operations). This research has also been approved under Curtin University's process for lower-risk studies (Approval Number SMEC-41-12). For further information you can contact:

Researcher – Katrina McChesney	+971 2 615 6941	katrina.mcchesney@adec.ac.ae
Supervisor – Dr Jill Aldridge	+61 8 9266 3592	J.Aldridge@curtin.edu.au
Curtin University Human Research Ethics Committee	+61 8 9266 9223	hrec@curtin.edu.au
Abu Dhabi Education Council Research Office	+971 2 615 0000	research@adec.ac.ae

Thank you very much for your involvement in this research.
Your participation is greatly appreciated.

جامعة كرتن للتكنولوجيا
كلية العلوم
مركز تعليم الرياضيات و العلوم

ورقة معلومات المعلم

خبرات المعلمين عن التطوير المهني

اسمي كاترينا ماكتشيزني . أقوم حاليا بعمل بحث لاستكمال دراستي للحصول على درجة الماجستير في الفلسفة من جامعة كرتن للتكنولوجيا، أستراليا .

الهدف من البحث

أقوم بالتحقق من خبرات المعلمين عن التطوير المهني ضمن مشروع إصلاح التعليم في مجلس أبوظبي للتعليم . لقد تم جمع المعلومات في هذه الدراسة لأغراض البحث وسوف يتم إبلاغ النتائج لمجلس أبوظبي للتعليم أيضا .

دورك

إذا كنت معلما لمواد اللغة الإنجليزية أو الرياضيات أو العلوم في مدارس الحلقة الثانية أو الثالثة في مجلس أبوظبي للتعليم ،فيسرني أن تكمل استبيانا إلكترونيا قصيرا عن خبراتك في التطوير المهني للعام 2013 -2014 . سوف لن يأخذ الاستبيان من وقتك أكثر من عشر دقائق لإتمامه .

الموافقة على المشاركة

إن مشاركتك في هذا الاستبيان طوعية بالكامل . لديك الحق في عدم المشاركة . إذا اخترت إتمام الاستبيان فسوف أفترض أنك وافقت على المشاركة و السماح لي باستخدام إجاباتك في بحثي .

السرية

سوف تكون إجاباتك عن الاستبيان سرية و مجهولة وسوف لن يتم ذكر أسماء المدارس أو الأشخاص . وطبقا لسياسة الجامعة سوف يتم حفظ الاستبانات و النسخ الإلكترونية للمعلومات بشكل آمن لمدة خمس سنوات على الأقل قبل أن يتخذ قرار بشأن إتلافه.

الموافقة على البحث و معلومات الاتصال

لقد تمت الموافقة على هذا البحث من قبل مكتب البحوث في مجلس أبوظبي للتعليم (انظر إلى الإشعار المرفق من مكتب معالي محد سالم الظاهري ، المدير التنفيذي للعمليات المدرسية) . و تمت الموافقة على هذا البحث أيضا تحت بند الدراسات ذات الخطر المنخفض في جامعة كرتن (الموافقة رقم SMEC-41-12) . لمزيد من المعلومات يمكنكم التواصل مع :

الباحثة - كاترينا ماكتشيزني	+971 2 615 6941	katrina.mcchesney@adec.ac.ae
المشرفة - الدكتورة جيل ألدريدج	+61 8 9266 3592	J.Aldridge@curtin.edu.au
لجنة أخلاقيات البحوث الإنسانية في جامعة كرتن	+61 8 9266 9223	hrec@curtin.edu.au
مكتب البحوث في مجلس أبوظبي للتعليم	+971 2 615 0000	research@adec.ac.ae

شكرا جزيلا على مشاركتكم في هذا البحث

نثمن عاليا مشاركتكم

Appendix 21

Teacher information sheet for the interviews and interviewee survey

Curtin University of Technology
School of Science
Science and Mathematics Education Centre

Curtin University

Teacher Information Sheet – *INTERVIEWS*

Teachers' experiences of professional development

My name is Katrina McChesney. I am currently completing a research project for my Doctor of Philosophy degree at Curtin University of Technology, Australia.

Purpose of Research

I am investigating teachers' experiences of professional development (PD) within the ADEC education reform. Data in this study is being collected for research purposes and results will also be reported to ADEC.

Your Role

If you teach English, Mathematics or a Science subject in an ADEC Cycle 2 or Cycle 3 school, I am interested in interviewing you for up to 90 minutes about your experiences of PD in 2013-2014. The interview will be recorded (audio only); I will also take notes during the interviews. You will have the opportunity to check the transcripts of your interviews for accuracy, although you are not required to do this. Within the total interview time I will also ask you to complete a written survey about your PD experiences.

Consent to Participate

Your involvement in this research is entirely voluntary. You have the right to choose not to participate. If you do consent to participate, you will sign a consent form before the interview. You will then have the right to choose to withdraw from this study at any time, and to request that your data not be used in the study.

Confidentiality

The information you provide in your interview will be anonymous and confidential. Nothing that might allow you to be identified will be included in any published materials. In adherence to university policy, the interview notes, transcripts and audio recordings will be kept securely for at least five years, before a decision is made as to whether they should be destroyed.

Research Approval and Contact Information

This research has been approved by the ADEC Research Office (see attached notification from the office of Mohammad Salem Al Dhaheri, Executive Director of School Operations). It has also been approved under Curtin University's process for lower-risk studies (Approval No. SMEC-41-12). For more information, contact:

Researcher – Katrina McChesney	+971 2 615 6941	katrina.mcchesney@adec.ac.ae
Supervisor – Dr Jill Aldridge	+61 8 9266 3592	J.Aldridge@curtin.edu.au
Curtin University Human Research Ethics Committee	+61 8 9266 9223	hrec@curtin.edu.au
Abu Dhabi Education Council Research Office	+971 2 615 0000	research@adec.ac.ae

Thank you very much for your involvement in this research.
Your participation is greatly appreciated.

Note: The interviews were conducted in English and, as such, the teachers involved needed to have sufficient English language skills to engage in the oral conversation and also to complete the written interviewee survey. It was, therefore, considered acceptable to provide only English language copies of the interview information sheet and consent forms.

Appendix 22

Teacher consent form for the interviews and interviewee survey

Curtin University of Technology
School of Science
Science and Mathematics Education Centre

Teacher Consent Form – *INTERVIEWS*

Teachers' experiences of professional development

- I have been informed of and understand the purposes of this study.
- I have been given an opportunity to ask questions.
- I understand that I can withdraw from this study at any time without prejudice.
- Any information that might potentially identify me will not be used in published materials.
- I understand that my participation in this study involves one interview of up to 90 minutes about my experiences of professional development, and that this timeframe includes completing a written survey.
- I understand that my interview will be audio-recorded.
- I agree to participate in the study as outlined to me.

Name:	
Signature:	
Date:	

Thank you very much for your involvement in this research.
Your participation is greatly appreciated.

Note: The interviews were conducted in English and, as such, the teachers involved needed to have sufficient English language skills to engage in the oral conversation and also to complete the written interviewee survey. It was, therefore, considered acceptable to provide only English language copies of the interview information sheet and consent forms.

Appendix 23

Principal information sheet for school visits to conduct interviews

Curtin University of Technology
School of Science
Science and Mathematics Education Centre

Curtin University

Principal Information Sheet

Teachers' experiences of professional development

My name is Katrina McChesney. I work for ADEC as part of the P-12 Curriculum Division. I am currently completing a research project for my Doctor of Philosophy degree at Curtin University of Technology, Australia. I am investigating teachers' experiences of professional development within the ADEC education reform.

Your School's Role

I would like to interview some teachers from your school. ***I am asking for your permission to conduct interviews at your school with teachers who are willing to participate***. The interviews will take 90 minutes. During the interview time the teachers will also complete a written survey. Interviews need to be conducted in a private room with only myself and the teacher/s being interviewed present. I can interview several teachers together, if the teachers are comfortable with this. I am interested in interviewing ***Cycle 2 and/or Cycle 3*** teachers of ***English, Mathematics, Science, Biology, Chemistry, Geology, and/or Physics.***

Consent to Participate

Your cooperation with this research is entirely voluntary. You have the right to choose not to allow me to come to your school to conduct these interviews. Teachers' individual involvement is also entirely voluntary. Each teacher has the right to choose to participate or to choose not to participate.

Confidentiality

All data provided by teachers will be confidential. The information cannot be shared with you or other ADEC staff. However, summaries of overall findings of the research can be shared with you and/or the teachers if you wish when the study is complete. Details which might identify your teachers or your school will not be used in any reporting of findings. In adherence to university policy, the interview transcripts, recordings, questionnaires and electronic copies of the data will be kept securely for at least five years, before a decision is made as to whether they should be destroyed.

Research Approval and Contact Information

This research has been approved by the ADEC Research Office (see attached notification from the office of Mohammad Salem Al Dhaheri, Executive Director of School Operations). This research has also been approved under Curtin University's process for lower-risk studies (Approval Number SMEC-41-12). For further information you can contact:

Researcher – Katrina McChesney	+971 2 615 6941	katrina.mcchesney@adec.ac.ae
Supervisor – Dr Jill Aldridge	+61 8 9266 3592	J.Aldridge@curtin.edu.au
Curtin University Human Research Ethics Committee	+61 8 9266 9223	hrec@curtin.edu.au
Abu Dhabi Education Council Research Office	+971 2 615 0000	research@adec.ac.ae

Thank you very much for your involvement in this research.
Your participation is greatly appreciated.

Note: School principals were required by ADEC to speak English to a reasonable standard and were regularly expected to engage with written documents provided only in English. It was, therefore, considered reasonable to provide only English language versions of the principal information sheet and consent form.

Appendix 24

Principal consent form for school visits to conduct interviews

Curtin University of Technology
School of Science
Science and Mathematics Education Centre

Curtin University

Principal Permission Sheet

Teachers' experiences of professional development

I have read the information sheet about this study and understand this information.

I have been given an opportunity to ask questions about the study and I am satisfied with the answers I have received.

I understand that my school's participation in this study involves providing an opportunity for the researcher to meet with teachers to conduct individual interviews in a private room.

I understand that cooperation with this study is voluntary, and that each teacher's participation in this study is also voluntary.

I understand that information teachers provide will be confidential and any information that might potentially identify me, my school or my teachers will not be used in published material.

I agree to my school's participation in the above study as outlined to me.

School Name: _____

Principal's Name: _____

Principal's Signature: _____

Date: _____

Thank you very much for your involvement in this research.
Your participation is greatly appreciated.

Note: School principals were required by ADEC to speak English to a reasonable standard and were regularly expected to engage with written documents provided only in English. It was, therefore, considered reasonable to provide only English language versions of the principal information sheet and consent form.

Appendix 25

Arabic language version of the ITPD Questionnaire

No.	Item	Scale
1	لدي ذكريات إيجابية عن هذا التطوير المهني	Teacher reaction
2	لقد استمتعت بهذا التطوير المهني كثيرا	
3	لقد كان هذا التطوير المهني مفيدا جدا في تدريسي	
4	المشاركة في هذا النوع من التطوير المهني مفيد جدا لتدريسي	
5	كنتيجة لهذا التطوير المهني أعرف أكثر بكثير مما عرفته من قبل	Teacher learning
6	لقد تعلمت الكثير من الأشياء الجديدة من هذا التطوير المهني	
7	في ممارساتي الصفية اليومية، غالبا ما أقوم بتطبيق ما تعلمته من هذا التطوير المهني	Outcomes
8	أطبق بنجاح محتوى هذا التطوير المهني في ممارساتي الصفية اليومية	
9	كنتيجة لهذا التطوير المهني ، تحسن تعلم طلابي	
10	لقد استفاد طلابي مني بسبب هذا التطوير المهني	
11	بصورة شاملة ، لقد تطورت الثقافة و الإجراءات في مدرستي بسبب هذا التطوير المهني	Organisational response
12	قامت مدرستي بتشجيع و دعم المعلمين في تنفيذ ما قاموا بتعلمه من هذا التطوير المهني	

All items are measured using a five-point response scale:
1 = لا أوافق بشدة
2 = لا أوافق
3 = حيادي
4 = أوافق
5 = أوافق بشدة

Appendix 26

Professional development activities synthesised into each of the 11 categories used for analysis of the interviewee survey data

Professional development category and description	Examples of activities
System-wide generic: System-wide, non-subject-specific professional development activities organised by ADEC (including the *Tamkeen* programme)	• *Tamkeen* programme • Seminars for all English medium teachers on generic topics such as strategies for working with English language learners • Training sessions for one or more representatives from each school on generic topics such as the use of the ADEC student management software
Formal lesson observation: Teachers' lessons being observed by senior school staff (with or without feedback from the observer to the teacher).	• Formal observation and feedback by principal / vice principal • Observation without feedback • Brief lesson walk-throughs conducted by school administrators
Subject advisor: Subject-specific advice, guidance, coaching, and support provided to teachers by visiting subject advisors.	• Visits to schools by subject advisors (including conversations, coaching, co-planning, provision of resources, lesson observation and feedback, team-teaching, and in-class modelling) • Cluster meetings organised by subject advisors (e.g. for all grade six mathematics teachers at a particular advisor's assigned schools)
Formal department activities: Meetings and training sessions involving teachers within a subject department at a school.	• Weekly subject department meetings • Departmental workshops or training sessions
Peer lesson observation: Teachers observing each other's lessons (with or without feedback from the observer to the teacher).	• Peer observations among teachers within a subject department • Observing lessons in other subjects or at other grade levels • 'Model lessons' presented by teachers for colleagues to observe • Peer observation at other schools
School activities: Activities initiated by, and based within, individual schools (such as staff meetings, school committees, and interactions between teachers and school administrators).	• School-based, non-subject-specific professional development—for example, guest speakers, workshops presented by teachers for their colleagues, or training sessions led by the principal • Staff meetings • Teacher meetings with principal or other school administrators • School committees (e.g. environment committee, health and safety committee, literacy committee, school improvement committee) • Field trips (for staff or students)
Informal interactions with colleagues: Teachers' informal collaboration and communication with their peers.	• Informal conversations with colleagues • Conversations related to a colleague's ongoing postgraduate study • Spontaneous cooperation (such as co-planning) with peers • Teachers' lounge talk

Professional development category and description	Examples of activities
ADEC subject-specific: System-wide, subject-specific professional development activities organised by ADEC.	• Training organised by ADEC for subject-specific cohorts of teachers, such as grade seven mathematics curriculum training or a grade six science examination information day • Participation in special subject-specific projects such as final examination writing or curriculum review • Network meetings for teacher sharing and co-planning organised by ADEC for system-wide or regional cohorts of teachers (for example, all grade six science teachers in the Al Ain region)
Exemplars / resources: Teachers' engagement with classroom-ready exemplars or resources (including ADEC-supplied material, teacher-to-teacher sharing, and online materials).	• Looking at teaching materials such as textbooks or online resources • Reviewing resources on the ADEC staff portal website • Dropbox for resource sharing among English teachers
Study and research: Teachers' engagement in formal courses of study or research projects.	• Study for formal qualifications (e.g. Master's degree, PhD, LTCL) • Action research projects within school • Professional reading and research • Attending professional conferences (e.g. TESOL Arabia, a major regional conference for teachers of English to speakers of other languages)
Mentoring: Teachers' involvement in mentoring other staff (typically new teachers).	• Mentoring teachers new to the school (formally or informally) • Mentoring teachers new to teaching a particular grade level (formally or informally)