Science and Mathematics Education Centre

An Evaluation of the Effectiveness of the Primary Extension and Academic Challenge (PEAC) Online Programme for Gifted and Talented Students in Western Australian Primary Schools

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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 acknowledgment has been made.

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

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ABSTRACT

One of the key areas of the Western Australia's Department of Education and Training's Plan for Government Schools is '*to provide access to quality, relevant, balanced, timely and inclusive programs that are challenging and enjoyable for all students.*' Online access for students through the Primary Extension and Challenge (PEAC) programme is a strategy that is currently being used to provide inclusivity for many gifted and talented students across Western Australia who are unable to travel to PEAC centres. This study evaluated the effectiveness of the online delivery programme for gifted and talented students in primary government schools in Western Australia.

Data and information was collected the key stakeholders involved in the PEAC programme and was based around four research questions which looked at: the skills and professional development of the teachers, the role and needs of the support persons, the course design and content and the perceptions and needs of the online students.

Some of the results found that teachers are spending more than their allotted time and much of their work is done at home. The professional development of teachers is not centrally managed and is done ad hoc without set guidelines of best practice and principles. Support for the online students mainly occurs in the student's home, although both teachers and parents believe that the support should take place in the school. There is a disparity in the perceived value placed on the programme by the teachers and parents; parents believe that schools do not value the programme whereas teachers believe they place a high value on the programme. The PEAC Online courses themselves are modified classroom courses which, although the students find the courses of value, parents perceived the courses as too difficult and needing more structure to help their online student. This is backed up by the high dropout or non completion rate of the courses. Recommendations are made to improve the effectiveness of the programme reflecting in higher learning outcomes of the participating gifted and talented students.

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INTRODUCTION AND OVERVIEW

1.1 Introduction

The Western Australian Department of Education and Training's policy on Gifted and Talented students' states;

> *'Schools, districts and central office will plan and implement procedures to identify gifted and talented students and provide the necessary teaching and learning adjustments to ensure that these students achieve optimum educational outcomes. Identification processes and the effectiveness of provision will be monitored to ensure that the educational needs of gifted and talented students are being met.'* (Department of Education and Training website)

Primary Extension and Academic Challenge (PEAC) is a part-time withdrawal programme implemented for upper primary school Years 5 – 7 students. The PEAC programme offers classes for these gifted and talented students in centres located throughout each education district. These programmes focus on:

- Social interaction with gifted and talented peers;
- Intellectual rigour and challenge;
- Pursuit of excellence;
- Development of higher order process skills;
- In-depth investigations of real problems;
- Open-ended activities which encourage choice and negotiation;
- Opportunities to interact with practising experts;
- Students working at their own pace; and
- Self/peer evaluation and reflection of performance.

(Department of Education and Training, 2006)

Students are identified as being gifted and talented through testing carried out at the end of the year for students in Year 4. Once identified, students are invited to attend a PEAC centre for one half day per week for the rest of their primary school education. These centres operate during school hours and require parents or caregivers to organise transport of their child from their school to the centre if the centre is located within a different school.

Gifted and talented students attend PEAC centres throughout Western Australia each week to take part in the specialised programmes operating to meet their particular needs. However, there are many students who, despite being chosen for the programme, are unable to attend the classes for reasons such as having a lack of transport due to both parents working, students living in remote areas or those students who are unwilling to leave the regular classroom. For all these students the PEAC Online programme is an option.

PEAC Online operates as an asynchronous delivery programme. An asynchronous programme is where teacher and student are in different locations and internet technology is the primary base for communication with no live instruction (Zhu and McKnight, 2006). To enrol in PEAC Online students are required to nominate online learning as their preference if unable to attend a PEAC centre during school hours. Curtin University of Technology's Science and Maths Education Centre supply the portal WebCT for PEAC Online. Courses are run each semester for approximately twelve weeks.

The purpose of this research study is to conduct the required evaluation of the effectiveness of the PEAC Online programme as per DET policy. In February 2001, the researcher was employed by DET through the initiative and direction of the Swan Education District Office. DET also provided funding through its Gifted and Talented Education directorate. Curtin University of Technology's Science and Mathematics Education Centre (SMEC) supported the review and evaluation through the provision of expert advice in the fields of online learning and research methodology.

The cohort of students who are the basis of analysis in this report are children who have been identified as gifted and talented within the Primary sector. Giftedness

refers to a student's outstanding potential and ability in one or more domains (e.g., intellectual, artistic or sensorimotor). Talent refers to outstanding performance in one or more fields of human activity. Talent emerges from ability as a consequence of the student's learning experience (Gagné, 1985).

1.2 Background

Online learning for PEAC students commenced in Narrogin in 2001 with one teacher and 20 students using the WebCT online learning environment accessed through Curtin University of Technology. By second semester 2002, the Swan District began implementing online courses for approximately 30 PEAC students under the direction of two teachers. These two online courses were funded through district budgets. The PEAC Online programme has been coordinated from the Swan Centre for Gifted Education based at Lockridge Primary School since 2004. Since its inception, the programme has involved ten teachers and almost 900 students across nine districts in Western Australia.

In Semester One 2006, 191 students were enrolled from eight districts including West Coast (58), Pilbara (37), Swan (32), Canning (20), Midlands (17), Albany (17), Bunbury (9) and Kimberley (1). Eleven courses were delivered to these students by teachers based in the following districts: Swan (3), West Coast (2), Albany (1), Midlands (1), Canning (1) and Pilbara (1). Typically 0.1 Full Time Equivalent (FTE) of teacher time (i.e. one half day) is allocated to each group of 15 students.

By Semester Two 2004, funding was received from the School Information and Communication Technologies (ICT) Curriculum Project for $8000. This was supplemented by $2500 from centrally allocated funds from the G&T Education programme. The number of courses offered by that time was eleven with seven teachers involved teaching 166 students from six districts

Semester Two 2006, enrolled the highest numbers of students since 2004 involving the greatest number of districts across the state. Nine teachers delivered eleven courses to these students. The teachers were based in the following districts: Swan (3), West Coast (2), Albany (1), Midlands (1), Canning (1) and Pilbara (1). The time

line and the numbers enrolled in each district since semester one 2004 is shown in Table 1.1

Table 1.1

Breakdown of Country and City Enrolments in PEAC Online by District

District	2004		2005		2006		Totals
	Sem 1	Sem 2	Sem 1	Sem 2	Sem 1	Sem 2	
Canning	14	30	31	32	32	20	159
Midlands	15	30	29	23	22	17	136
Midwest	5	1	1	0	0	0	7
Pilbara	17	32	34	32	26	37	178
Swan	14	57	29	23	24	32	179
West Coast	9	16	31	43	35	58	192
Albany			0	5	10	17	32
Kimberley			0	1	1	1	3
Bunbury							99
Total	74	166	155	159	150	191	895

Since Semester One 2004, a total of 895 students have enrolled in the PEAC Online programme. Of the enrolled students, 54% have been male, 46% female. Most male students enrolled from Year 6 and girls mainly enrol in Year 7. No Aboriginal or Torres Strait Island students have ever enrolled in the programme.

1.3 Research Questions

The aim of this paper is to evaluate the programme in terms of four key questions. The establishment of the PEAC Online course has grown according to student demand, district initiative, funding and the volunteering of teachers who have an interest in this type of teaching and learning. The experience and ability of the online teachers varies as does the availability and type of professional development offered

to help the teachers develop and deliver their courses. This research paper seeks to identify the needs of the teachers by the following question;

1. Do the PEAC Online teachers have adequate support to:
    a. develop an online course?
    b. facilitate an online course?

A key factor in the delivery of the programme is the support expected to be provided to the online student. This support role may be from the school or the home depending on where the student is accessing the programme. As the programme relies on support being given to the student the second question for this paper to address will be;

2. Is there adequate support to facilitate the successful implementation of PEAC Online programmes for student guides?

A quick review of the current literature shows limited research done on teaching gifted and talented primary school-aged students in an online learning environment. This paper will seek to gather qualitative and quantitative evidence on the quality and effectiveness of the courses by addressing the following third question;

3. Are the courses developed by online teachers suitable for gifted and talented students in terms of;
    a. course content
    b. course structure
    c. use of interactive course elements

The final question aims to gather both qualitative and quantitative data from the students themselves on their perceptions of PEAC Online by focussing on the following;

4. How do the students enrolled in PEAC Online programmes perceive the online learning environment in terms of;
    a. teacher support
    b. personal relevance

c. student autonomy (opportunities for independent learning)
d. equity
e. whether the asynchronous nature of the discussion forum promotes reflective thinking
f. opportunities for online communication with fellow students, content experts and online teachers (interaction and collaboration)
g. support resources
h. enjoyment of the programme

1.4 Overview of Methodology

The research was conducted over one school year with the main component of the data collected over Semester One with follow up data collected over Semester Two.

Four groups were involved in the collection of data; the enrolled online students, their nominated support person (usually a parent), the seven online teachers (which included the developer of the programme) and the school staff who may have some involvement in the programme i.e. classroom teacher, administrator and PEAC coordinator.

The bulk of the data collected was collected via WebCT. The interaction of the students with the programme through WebCT gave information on the amount, duration and type of interaction. This form of data collection also included analysis of the communication between the online teachers and the students.

To complete a full analysis of the effectiveness of the programme both qualitative and quantative information was collected from interviews and questionnaires sent both online and on paper from each of the four identified groups.

1.5 Significance of this research paper

This research is significant for four reasons. Firstly, there is almost no literature in the area of online learning and primary aged gifted and talented children. This is reiterated by Shaklee and Landrum (2000) who have identified that empirical

research needs to be done to determine the effective and ineffective uses of technology in the gifted classroom.

A large amount of research has been carried out in the area of college gifted and talented online students or the use of technology in the primary classroom but little on combining all three areas. The study will determine what the most effective means of teaching is to this unique category of student.

Secondly, the research is being funded by the Department of Education and Training which is interested in the effectiveness and the future needs of the programme to help determine budgeting and staffing needs. The Department is also interested in gathering best practice and pedagogy research and data collection to determine the future of the online programme.

And thirdly, as the programme is unique in its field and has been running for five years, DET has access to much data that will make a significant contribution to the lack of empirical research available in the area of online learning and gifted and talented primary school students.

1.6 Overview of Chapters

A review of the literature in the areas of online learning, gifted and talented education and primary school aged students will be presented in Chapter 2. Chapter 3 will present the methodology used throughout the research and how data was collected from all participants. Chapter 4 will present the results and analysis of the results of all the various data collected. Chapter 5 presents a discussion of the findings of the results, while Chapter 6 details the conclusion and includes the limitation of the research and the possible future research that may be done.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Online learning is becoming an important means of delivering education to students in remote and rural areas. Teacher shortages are requiring rural schools to access different methods of educating their students. Distance education and online learning are becoming an essential link to providing courses that are less accessible to the rural student.

The needs of the gifted and talented student in rural areas are particularly crucial (Savage & Werner, 1994). It is without question that all students should be developed to reach their fullest potential, however, gifted students, including gifted rural students, because of their greater potential to contribute to society, should not be overlooked and online learning offers a unique way to meet these students' needs. (Belcastro, 2002)

Where distance, time, lack of support or programming are normally issues that mean a gifted and talented student misses out on specialist programmes, online learning is becoming a means of providing a service previously unattainable to these students. However, are these online distance programmes effective in their outcomes fro gifted and talented students? Are the courses providing quality, differentiated learning for the students to reach their full potential? Are the students achieving expected outcomes through the programme? What is known about the advantages and disadvantages of online learning has mainly been gathered from research based on university or college students.

The factors that produce effective online teaching and learning in the K-12 school system are still as not yet well understood. (Digital Bridges, 2006). As well as this, empirical research that examines the effectiveness of technology in the gifted classroom is practically non-existent and is imperative in today's climate of educational accountability. (Riley & Brown, 1997; Shaklee & Landrum, 2000;

Nugent, 2001). This chapter looks at some of the research of the variables involved in the teaching of PEAC Online students; the definitions associated with online learning, the professional development of online teachers, school and parental support, course content, course design, student perceptions and retention issues.

2.2 Definitions

The PEAC Online programme is a distance education programme which uses online learning as its mode of delivery. Distance education describes any form of learning that does not involve the traditional classroom setting in which student and teacher are in the same location at the same time (Ko & Rossen, 2001). Online learning is a modern day form of distance learning and is defined as;

> *a system and process that connects learners with distributed and online learning materials… and is characterised by separation of place and time between teacher and learner, between learners, and between learners and learning resources.* (Chang & Fisher, 2003).

In 2001, Zhu and McKnight described online learning as any formal educational process where the student and the teacher are not in the same place and technology is used to provide a communication link between the two.

Chang & Fisher, 2003, defined online courses as, 'courses that are developed online and are within the approaches of dependent and fully developed use of the Web.' The rationale for this definition is that 'instructors must develop the online course materials focused on a student centered approach and that they must use a range of online teaching and learning strategies to set up their learning tasks'. (Chang & Fisher, 2003).

The PEAC Online programme operates mainly asynchronously. An asynchronistic learning environment offers more choice for students as access is available at any time of day. Students and teachers are free from time and distance limitations and have the opportunity for either reflective or spontaneous interaction. (McComb, 1993, p.2). Synchronous interaction occurs in the 'chat room' that is set up by the PEAC teacher at a time suitable for the majority of students and allows real time

discussion. The main objective of this exercise is to help foster a sense of community which is a vital component of the needs of online learners, but especially gifted and talented students.

2.3 Professional development of online teachers

As the use of computers in classrooms is a relatively new field much of the initial research has focused on the providing information on the background to the online environment. Clayton, 2007, noted that initial research has included areas such as; the cost of developing and delivering computer courses, the effectiveness of these environments, issues faced by students in accessing technology, the benefits in overcoming isolation, the impact on students attitudes towards science and the improved computer skills of students. These studies have provided much needed information and highlighted the potential of online learning, however 'in many instances they failed to examine critically the pedagogical issues of these environments.' (Clayton, 2007).

More recent research has focused on the evaluation of the quality of online learning, the identification of effective teaching practices and learning techniques. Some of this research has highlighted the inadequacies of educational institutions in the provision of professional development and the need to develop policies on workloads and support issues. (Bain, 2004; LeFoe & Albury, 2006; Shannon & Doube, 2004, as cited in Clayton, 2007).

Goodyear, Salmon, Spector, Steeples and Tickner, 2001 outlined the major roles of a competent online teacher as:

- 'The role of content facilitator, concerned directly with facilitating the learners' growing understanding of course content;
- The role of technologist, concerned with making or helping make technological choices that improve the environment available to learners;
- The role of designer, concerned with designing worthwhile online learning tasks;
- The role of manager/administrator, concerned with issues of learner registration, security, record keeping, etc;

- The role of process facilitator, concerned with facilitating the range of online activities that are supportive of student learning;
- The role of adviser/counsellor, concerned with offering advice or counselling to learners on an individual or private basis to help them get the most out of their engagement with the course;
- The role of assessor, concerned with providing grades, feedback, and validation of learners' work; and
- The role of researcher, concerned with engagement in production of new knowledge of relevance to the content areas being taught.'

Van Tassel-Baska, 2005 identified that teachers of the gifted and talented are required to be; lifelong learners, passionate about at least one area of knowledge, good thinkers who are able to analyse, synthesise and evaluate ideas, and capable of addressing multiple levels and objectives at the same time. A highly effective teacher of the gifted and talented in an online programme needs to successfully manage the teaching practices and strategies of working with gifted and talented students with the skills of technology to create the best outcomes for the gifted online learner. (Riley & Brown, 1998).

The provision of highly effective, technology proficient teachers of the gifted and talented is a major factor in developing the skills of young people who can make a strong contribution to a technology based society (Rickards, 2003). To achieve this, online teachers need sustained professional development time to spend on acquiring and practising the necessary skills and techniques before effective implementation can be displayed in the classroom. (Riley & Brown, 1998; Van Tassel-Baska, 2005). For those teachers supporting online students in rural areas, school districts need to make funding available for teachers to attend professional development workshops in all aspects of gifted education (Witters & Vasa, 1981), including continuous training in electronic technology (Schweizer, 1999; White & Weight, 2000).

2.4 School and parental support

According to Gagné (1985), one of the catalysts of the development of a student's talents is the environmental factors surrounding the student. Gifted programmes such as PEAC Online are one of the environmental factors that Gagné describes as influencing the process of talent development.

To develop the talents of gifted students, an online programme needs the support of the students' schools and families. School support is not only needed with the provision of hardware and time but also at a supervisory and administrative level. Without administrative support, the programme may not receive the attention and acknowledgement it needs, ownership of the gifted programme will be absent and neglect will be the inevitable outcome. (Belcastro, 2002).

As a leader and role model, the school principal needs to be enthusiastic and informed about the online programme as well as supporting the development of staff skills, making resources and funds available and modelling the use of technology skills themselves. (Rickards, 2003).

The Tasmanian Department of Education's Centre for Extended Learning Opportunities (CELO) centre in its review of its gifted and talented online programme Ad Astra (2006) noted that;

> *Experience has shown that the success of online programmes such as Ad Astra is strongly correlated with school based support for the programme. These requirements are a critical element for ensuring that students gain maximum advantage from their engagement with the programme.*

The review also acknowledged the importance of the support person where that person is not the classroom teacher;

> *Good communication between the support person, delivery teacher and the classroom teacher is crucial to enable strong links to the students' classroom programme.*

The family of the online student also plays an important role in online learning programmes of their gifted child. Schools must involve parents so that they feel that

they have ownership in the programme and so that they learn important ways to reinforce classroom activities (Baldwin, 1994). It can be deduced therefore, that the online programme together with the support of the student's school and family are crucial to the development of the potential of the gifted and talented learner.

2.5 Course content and design

The use of technology in the classroom does not always lead to an improvement in perceptions and educational outcomes. Hartwell, Gunter, Montgomery, Shelton, and West (2001) in their research found that the integration of technology in grade six science and mathematics classes did not produce any significant change in any of the scales measured. Ellen and Clarebout (2001) reported on a project where the 'ill-structured' implementation of a technologically rich learning environment resulted in outcomes that were negative and less than expected. The researchers warned that changes using technology should not be extreme and could in fact be detrimental if teachers and learners feel confronted by the new environment. This is supported by educational psychology research which suggests that optimum learning takes place when the task provides a moderate challenge; a too difficult task causes the learner to 'down shift into a self protection mode'. (Tomlinson, 1993)

The Department of Education and Training (DET) in Western Australia developed the following guidelines for the teaching of gifted and talented students;

Teaching and learning adjustments should;

- be flexible to match students' knowledge, abilities, needs and phrases of learning;
- include a range of group and individual activities to accommodate different abilities, skills and learning rates;
- enable the development of generic skills and higher order thinking skills and strategies;
- allow negotiation of self-selected topics for learning within established curriculum parameters;
- be open-ended, encouraging questioning and tasks which allow students to construct knowledge;
- demonstrate logical, critical, creative, lateral and parallel forms of thinking;

- pay attention to product and the demonstration of achievement in student's learning;
- encourage students to help other students with their learning.

(Department of Education and Training website, 2006)

Teachers of gifted and talented students in both secondary and primary schools, whether the students are in the classroom, special classes or in the online programme are required to follow these guidelines in their planning, teaching and assessment of these students.

Previous programmes developed by DET included extending the use of technology to secondary gifted and talented students in rural Western Australia concentrating on higher order thinking as a learning outcome. The evaluation of the project indicated that;

> *The interactive features of the technology provided task-related collaboration and gave the students the opportunity to interpret, discuss, and evaluate concepts, thereby leading to higher order thinking* (McLoughlin & Oliver, 1998).

Course design is of particular importance in all online courses but especially at the primary school level. As the student does not have immediate contact with the teacher, it is essential that the course is as intuitive as possible with ease of navigation and clarity. Grasel, Fischer, and Mandl (2000) in their research on computer-based self-directed learning environments using fourth year medical students concluded that 'instructional designers cannot rely on learners recognising and correcting their mistakes when learning individually'. If this conclusion was made on advanced learners then these ramifications are even more important for primary students whether they are gifted or not. Courses need to provide scaffolding, interaction with teachers and peers to resolve problem and issues as they arise and be useable and user friendly.

Goldman, Williams, Sherwood, Hasselbring, and the Cognition and Technology Group at Vanderbilt University (1999) identified four basic requirements of course design. The course should be; organised around meaningful problems, provide

scaffolding, provide opportunities for feedback, revision and reflection, and promote collaboration, sharing and independent learning.

Interactions should be designed and managed by the teacher to promote meaning making, encourage higher level thinking and support motivation. (Navarro & Shoemaker, 2000; Rovai, 2001). This highlights the role of the teacher and their interaction with the students to develop higher level thinking skills as an important element of the online course. Frederickson et al (2000) found students who had high levels of interaction with their teacher achieved the highest levels of learning.

There is some differing research into the importance of the student-student interaction in online courses. Carabajal, LaPointe & Gunawardena (2003) report on the importance of interaction between the online students to foster a sense of community. However, Reisetter & Boris (2004) found that many students placed a low value on the interaction that they had with their peers. As both of these studies involved college students, it will be of interest to note the value and interest placed on interaction with peers by the primary aged online students.

One aspect of investigating and evaluating online learning can be through the types of relationships or interactions within the environment. Apart from the student computer relationship, Moore and Thompson (1997) identified three types of interaction that are essential for successful online learning; teacher-student, student-student and student-content. In evaluating the online learning environment, Trinidad, Aldridge and Fraser (2005) developed the Online Learning Environment Survey (OLES) which identifies five broad categories of online learning activity that can be investigated; (1) Student – Interface Interaction; (2) Student – Student Relationships; (3) Student – Tutor Relationships; (4) Student – Media; and (5) Student Reflection Activities. The addition of the extra two types of interaction, particularly student reflection activities enables educators to make improvements and enhance student outcomes in online learning.

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2.6 Student perceptions

Much of the current literature on students' perceptions of the online learning environment focuses on college students. However, the research from this area is still of use in looking at the advantages and disadvantages of online instruction and the possible means of determining the effectiveness of online learning in the primary gifted and talented programme.

Trinidad (2003) reporting on the findings of a project involving tertiary students in Hong Kong suggested that learners in a technology rich environment had 'a sense of empowerment, where they are no longer dependent on the specific and often limited knowledge of their educator.' For gifted students who are often frustrated by the limiting environment of the typical classroom, being involved in an online environment with challenging open-ended tasks may also feel this sense of empowerment reported by Trinidad.

Most college students are attracted to online learning because of the convenience and flexibility. (Ryan, 2001) However, online courses are not appropriate for everyone. College online students need to be self-motivated and self-disciplined, able to commit sufficient time to the online course each week and be able to speak up when they have problems. (Howland & Moore, 2002; Huber & Lowry, 2003) In 2005, Siegle noted that successful high school gifted and talented online students are those who are actively engaged, curious, focused and flexible, highly motivated and have good technological, time management and study skills.

Mupinga, Nora and Yaw (2006) found the top three expectations of online students were; communication with the instructor, instructor feedback, and challenging online courses. Some students wanted regular and prompt feedback from their instructor and also suggested a receipt of email form the instructor to let them know that there assignment or communication had been received. However, Boettcher (2003) recommended that although the expectations of constant availability from students are there, instructors should not make themselves available twenty four hours a day, seven days a week. He suggests managing students' expectations from the beginning with setting up framework detailing turnaround time. Frederickson et al (2000) supported this by feeling that,

If the turn-around time on student requests for assistance is plainly communicated and consistently applied, student disappointment, anxiety, and confusion can be reduced and satisfaction and learning can be increased.

One indicator of the effectiveness of a course could be seen to be the retention rate and the reasons as to why the students drop out. Research shows a trend of as many as 50% of enrolled online college students do not complete their course (King, 2002). Reasons cited for dropping out include; lack of interest, lack of confidence, technical problems, feeling overwhelmed by content and unsatisfactory interaction with the teacher (Chyung, 2001). Other research has found that online students dropout because they lack time, motivation, self-discipline, support or incongruent learning style. (Digital Bridges, 2006) It can be inferred that interaction with the teacher will be of high significance in online courses for primary aged students as they are highly dependent on support and feedback from teachers in face to face learning and it would be expected that this will be the case in online learning.

2.7 Summary

The role of the online teacher is different to that of the classroom teacher. The online teacher is required to have the technological skills to design an online course and the pedagogical knowledge of designing a course that not only engages the gifted student but challenges them and encourages them to interact with the content and with their online peers.

Student perceptions of the online environment and the online teacher have a direct link with the interaction of the student with his/her online peers and the academic achievement of the student. As the ultimate goal of the online learning environment for gifted and talented students is to help the student reach their full potential then the importance of the students' perception of the learning environment can not be underestimated.

The current challenge for both educators and researchers is how best to determine the necessary factors for successful online education for gifted and talented primary school aged students. It is not enough to simply offer online classes. As educators we need to ensure that the best and brightest of our youth, no matter where their

location, are being provided with programmes that are contain quality, differentiated courses that enable these students to achieve their highest potential.

Although the online learning environment is a relatively new area, the varying research that has been conducted has offered some conclusions, observations, suggestions and tools for evaluating and creating an optimal environment for students to learn in. Despite this, however, the need for an original evaluation in the area of primary school aged gifted and talented students involved in online learning exists as the demand for effective, inclusive and differentiated online curriculum in this area continues to grow. Crucially, educators and researchers will need to know what skills and professional development teachers in this area are required to have, what types of support are essential for these students and those who support them, what the most effective course structure and design is necessary, and finally, what factors are required to attract, retain and fulfil the needs and expectations of these young gifted and talented students in the online learning environment? The next chapter looks at four research questions that form the basis of evaluating the effectiveness of the PEAC Online programme and the methodology used in this study.

CHAPTER 3

RESEARCH METHOD

3.1 Introduction

The aim of the study was to evaluate the effectiveness of the online programme in meeting the educational needs of gifted and talented primary students. The necessity of evaluating the integration of gifted and talented students and technology is reiterated by the lack of literature in this field. Riley and Brown (1997) have noted that *'empirical research examining the efficacy of technology integration in the gifted curriculum is practically nonexistent in the scholarly gifted journals.'*

The study was centered on the following four research questions;

1. Do the PEAC Online teachers have adequate support to:
    a. develop an online course?
    b. facilitate an online course?

2. Is there adequate support to facilitate the successful implementation of PEAC online programmes for student guides?

3. Are the courses developed by online teachers suitable for gifted and talented students in terms of;
    a. course content
    b. course structure
    c. use of interactive course elements

4. How do the students enrolled in PEAC Online programmes perceive the online learning environment in terms of;
    a. teacher support
    b. personal relevance
    c. student autonomy (opportunities for independent learning)
    d. equity

e. whether the asynchronous nature of the discussion forum promotes reflective thinking
f. opportunities for online communication with fellow students, content experts and online teachers (interaction and collaboration)
g. support resources
h. enjoyment of the programme

3.2 Sample group

To measure the effectiveness of PEAC Online, it was necessary to obtain information from all the stakeholders in the programme to ascertain all perceptions and expectations from those involved. The stakeholders included not only the students themselves but their main support person, the PEAC Online teachers and an administrator, such as the principal or PEAC coordinator from the student's school. The numbers of those who responded to the surveys are shown in Table 3.1.

Table 3.1
PEAC Online Survey Respondents

Survey respondents	Total
Online students	150
Support person	64
Online teachers	7
School personnel	38
Total	259

3.2.1 Online Students

This group consisted of 150 students who enrolled in the seven PEAC Online courses in semester one, 2006 though the Swan Gifted and Talented Centre which is based at Lockridge Primary School. The district enrolments, gender and year level of the students is shown in Table 3.2.

Table 3.2

PEAC Online course enrolments

District		Gender		Year Level	
Albany	10	Male	84	Year 5	22
Canning	32	Female	66	Year 6	66
Kimberley	1			Year 7	60
Midlands	22				
Pilbara	26				
Swan	24				
West Coast	35				
Totals	150		150		150

3.2.2 Support Person

The online students nominated one person as being their main support person. The person identified as being the key support person for students involved in PEAC Online is the parent (85%), see Figure 3.1.

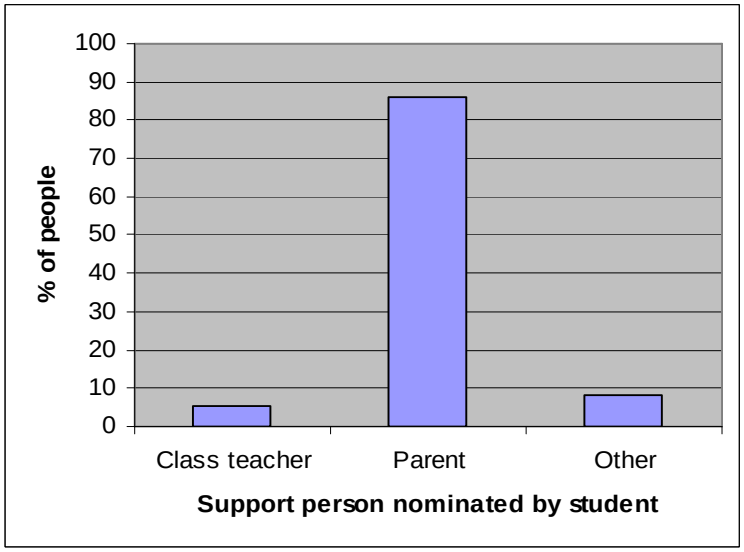

Figure 3.1. Main support person nominated by student.

3.2.3 Online Teachers

This sample group consisted of the seven teachers who plan, design and deliver the online courses. The teachers are located at different schools throughout the state and have different levels of experience in online teaching and learning. One of the teachers co-ordinates the online programme and is responsible for the professional development of the other teachers.

3.2.4 School Personnel

The final sample group was formed later in the research when it was realised that most of the support people nominated by the students were parents and not the classroom teacher as first believed (see Figure 3.3). As a result of this, a fourth sample group was included as the research required information on the effectiveness of the programme from staff from the students' schools. The staff who responded to the surveys included the school principal, the school deputy, the school Talented and Gifted Support (TAGS) teacher or the school PEAC co-coordinator.

3.3 Data Collection

The data collected were both qualitative and quantitative. To take advantage of the online learning environment, some surveys were placed online. Where parents and school personnel were involved, departmental protocols were followed and letters were sent through the principal to keep him or her involved and to gain approval to involve the designated person.

3.2.1 Online Students

The 150 students participating in a PEAC Online course in Semester 1, 2006 were involved in two data collections. The first was an online questionnaire based on the Online Learning Environment Survey (OLES) (Trinidad, Aldridge & Fraser, 2005). This survey was placed on the WebCT site so that it appeared to each student when they accessed their course, 43 of the 150 (29%) students completed this survey.

The second questionnaire was a two page paper sent via the principal and class teacher to each student. Out of 150 questionnaires sent 74 (49%) were completed and returned. The questionnaire included multiple choice answers, three part rating scales and open-ended questions. (see Appendix E)

The bulk of information on the students was collected via WebCT each day by the researcher. Each day access pages were printed and collated and these pages gave information on;

- The day and time each student logged on;
- When the student first accessed the site;
- Emails sent to and from the teacher;
- The numbers of hits made of the website by each student; and
- Emails read and posted by each student.

3.2.2 Support Person

A questionnaire was sent to each online student via the school principal. The student passed the questionnaire on to the person who they considered to be their support person. Of the 150 questionnaires sent 64 were completed and returned (43%). The questionnaire covered three main areas; specific information on time, place and type of support, a five point rating scale on perceptions of the programme and finally open-ended questions to elicit further information. (see Appendix D)

3.2.3 Online Teachers

The PEAC Online teachers were sent a questionnaire in May 2006. All questionnaires were completed and returned by September 2006. The teachers were also asked to keep a log of their time spent working on the online programme, noting the time, place, duration and type of work done each time. These were returned with varying degrees of completion and times kept but all information was collated. (see Appendix M)

The online teachers were also asked to forward to the researcher the students' end of course results on both achievement and participation which was then used extensively in the data analysis.

3.2.4 School Personnel

From the school, surveys were sent to classroom Teachers, the PEAC coordinator, and a school administrator. These three groups were sent a questionnaire in September after the initial support questionnaire was returned mainly by parents of the student instead of the classroom teacher and it was found necessary to gather information from the school. Of the 99 schools who participated, 34 schools sent at least one questionnaire back from one of the above groups. The questionnaire was almost identical to that sent to the student's support person with differences being mainly in the organisational section of the questionnaire. (see Appendix I, J, K)

3.4 Data Analysis

The analysis of the quantitative data was completed using the software package SPSS version 14. As the main purpose of this research was to examine the effectiveness of the programme and information on best practise in this particular area, the main use of SPSS was to correlate identified variables. An example of this was correlating those students working from home and their academic achievement and comparing it with correlating those students working from school and their academic achievement. From this information it was then possible to ascertain through SPSS if the correlation was significant in either case and then use this information to inform best practise and further directions for online learning.

3.5 Confidentiality and Ethical Considerations

An advantage of this study was that it was initiated and funded by the Department of Education and Training to monitor the effectiveness of its own programme. Department of Education and Training ethics protocols were followed in order to gain consent from principals, class teachers and parents to allow the students to take part in surveys and questionnaires. Ethics approval was also sought and granted by

the Ethics Committee of Curtin University of Technology and thus the study was structured to meet the ethical requirements of both organisations.

Participation by teachers and students in this study was encouraged by the researcher, however it was made clear that confidentiality would be maintained at all times. All surveys were coded to keep the anonymity of the respondents and respondents had the right to withdraw at any time. However, it was explained that those who wished to be acknowledged as having taken part in the study would be noted in the final paper.

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3.5.1. Facilities and Resources

As the researcher was employed by the Department of Education and Training, facilities were provided in the workplace at Swan District Education Office. These included computers, printers, photocopying, audio equipment and stationery.

3.5.2 Data Storage

Data collected were both qualitative and quantitative in nature and will be stored in either or both paper format and electronic format on a computer at the Department of Training and Education's Swan District Education Office while collection and analysis tasks place. The data files will be maintained electronically with the Department of Education and Training for five years after which they will be destroyed. Completed questionnaires and interview sheets will also be destroyed after five years.

3.6 Summary

The purpose of the study was to examine the effectiveness of the PEAC Online programme. Information collected was both qualitative and quantative and included longitudinal research tools. Evaluating an online course meant that much information could be collected and collated online.

Four sample groups were involved in the study; students, online teachers, the students' main support person and school personnel. Access to each group was made easier by the researcher working for the Department of Education and Training and being specifically employed to conduct this research.

The research tools included online attitudinal surveys, questionnaires which included five point attitudinal scales, multiple choice and open-ended questions and work logs kept by teachers. Much of the quantitative information collected was accessed daily through the WebCT programme which informed the researcher on the students and teachers' interaction with the online courses. Other data collected included the students' final results for the course as given by the teacher on academic performance and participation.

Data analysis was carried out using the SPSS software programme with the focus being on correlating data to look for significant correlations to inform on the effectiveness of current practises and inform possible future best practise.

Ethical procedures and considerations of both the Department of Education and Training and Curtin University of Technology were followed regarding data collection, storage and confidentiality, etc and approval given by both institutions.

The next chapter of this paper looks at the data collected from the four sample groups using the methodology described in this chapter.

CHAPTER 4

RESULTS

4.1 Introduction

This chapter looks at the data collected from the PEAC Online courses, delivered over ten weeks and spanning terms one and two, 2006. The data were collected using different tools i.e. online surveys, questionnaires, teacher logs and online data collection from the four main sample groups of online students, online teachers, support personnel and school personnel. The results of the data collected were categorised under the four research questions.

4.2 PEAC Online Teachers

Question 1: Do the PEAC Online teachers have adequate support to:

- ***develop an online course?***
- ***facilitate an online course?***

In considering if the teachers had adequate support to develop their courses, it was necessary to look firstly at the experience of the teachers involved and then to consider if there is any correlation between the experience and skills of the teachers and the participation and performance of the students involved in the courses.

Of the eight teachers delivering the courses, two were new to the programme, four were in their second year and two had more than three year's experience in delivering PEAC Online.

In the students' end of course report a score is given under the title Student Participation which is based upon the teacher's perception of the student's participation in the course. Figure 4.1 shows the percentage of participation results compared with teacher experience. There was found to be no significant correlation between teacher experience and the participation levels of students.

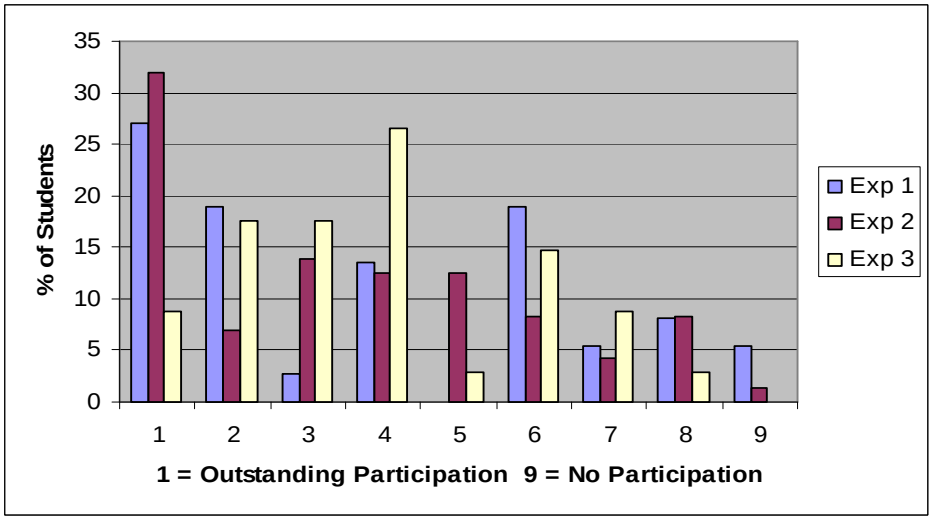

Figure 4.1. Report – Participation.

Whilst it could be expected that more experienced teachers achieve greater student performance, this is not supported by the data found. Table 4.1 and Figure 4.2 show there was a significant negative correlation between teacher experience and report performance. Therefore, the less experienced the teacher in online teaching the better the performance rating of the student by the teacher.

Table 4.1

Correlation of Teacher Experience and Report Performance

	Performance	Teacher Experience
Performance	1	-.236(**)
Teacher Experience	-.236(**)	1

(p<0.01)

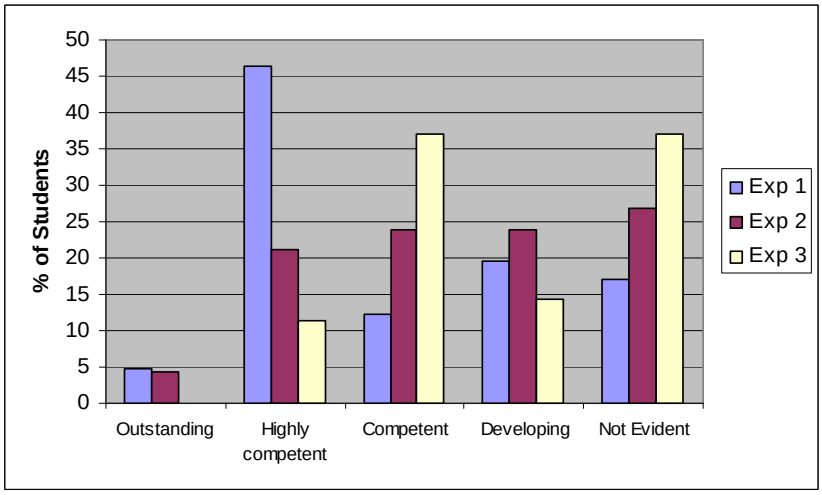

Figure 4.2. Teacher experience vs student performance.

Based on responses from teachers, only one formal meeting per term between teachers was held. Contact between the coordinator and the online teachers was informal and in most instances occurred weekly.

PEAC Online teachers are given 0.1 Full Time Equivalent (FTE) per 15 students to deliver their courses. FTE of 0.1 amounts to half a day a week, being 310 minutes a fortnight. The actual time being spent by PEAC Online teachers in their delivery of courses is shown in Table 4.2.

Table 4.2

Teacher FTE Allocation vs Actual Time (mins)

Teacher	Allocated FTE	Actual time
1	155	300
2	155	360
3	155	360
4	155	240
5	155	420
6	155	240
7	155	240
Average	155	309

Of the nine teachers who were involved in PEAC Online in Semester 1 2006, seven teachers logged the time they spent on delivering their course. PEAC Online teachers were spending an average of five hours per week delivering their courses which, as shown in Table 4.3, was over twice the allocated FTE time. Of the time that teachers were spending on delivering courses, the majority of this time was spent working from home as shown in Table 4.3. Most teachers are spending more than half of their time working from home, being 63% of teacher time.

Table 4.3

Teacher Time Spent Administering Course at Home and School

Teacher	Hours	School %	Home %
1	5	27	73
2	6	14	86
3	6	14	86
4	4	46	54
5	4	86	14
Average	5	37	63

Of those teachers who logged the time and location, being five teachers out of the nine involved in the survey, only one teacher used their FTE time mainly at school. This data is shown on Figure 4.3 and when compared with Figure 4.4, Teacher 5 who used all of the FTE time plus some additional school time, had the smallest amount of course delivery time spent at home.

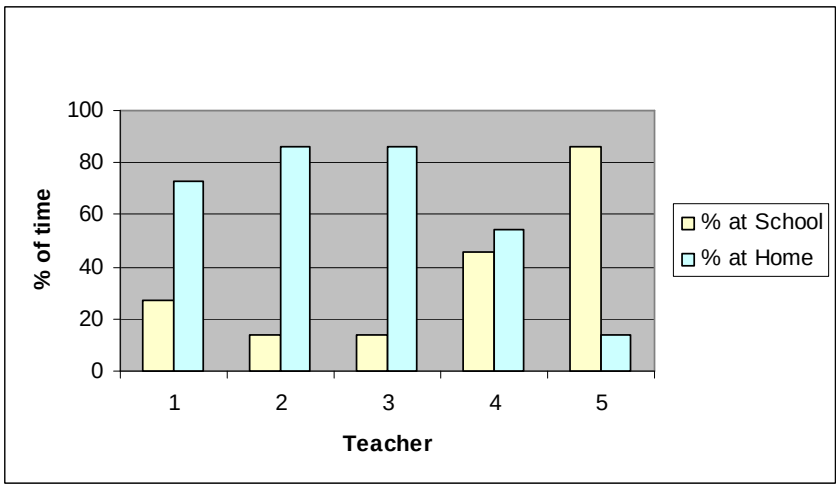

Figure 4.3. Location teachers delivered courses from.

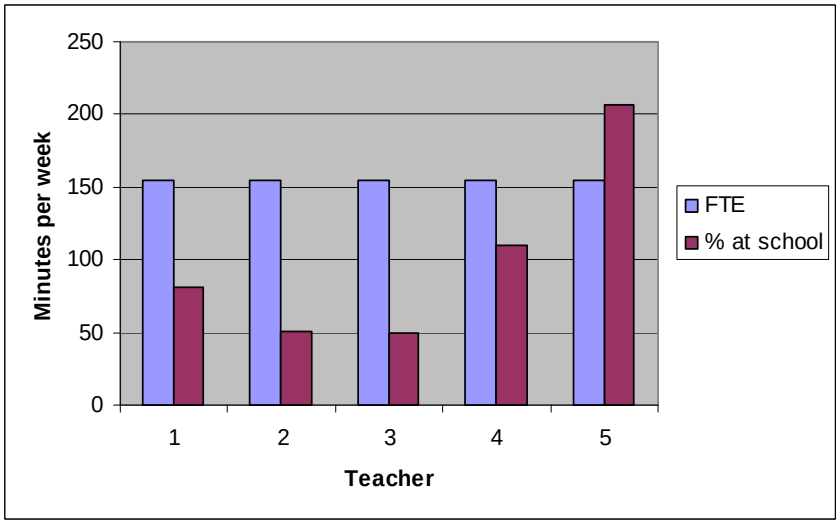

Figure 4.4. FTE vs teacher delivery time at school.

On consideration of whether spending additional time at home delivering courses was having a positive impact upon student performance, it is shown in Figure 4.5 that of the teachers who did log their time and place of work, there was no significant difference between student academic performances. Of the teachers who did log their work time and place, Teacher 5 who used all of the FTE time at school (Figure 4.9) the average performance for this course was competent/developing.

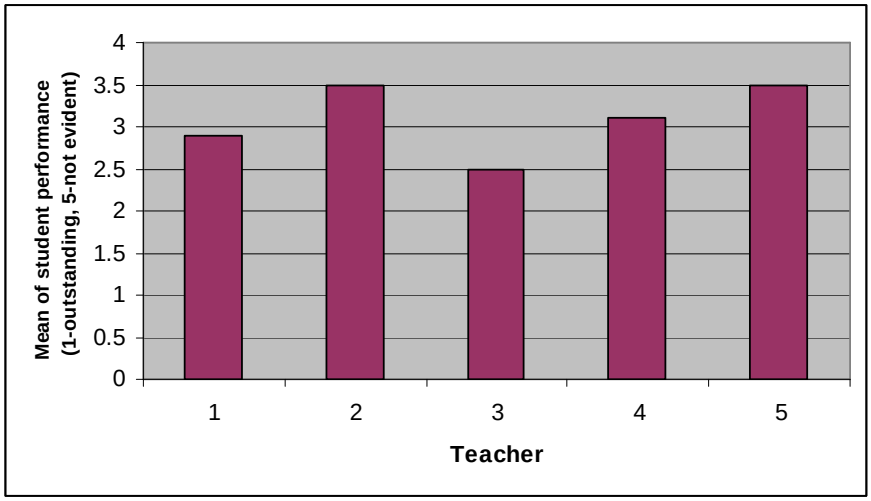

Figure 4.5. Student performance for teachers who logged work time and place.

When comparing the academic performance of the course run by Teacher 5 who logged time and used all the FTE allocation at school, (Figure 4.6), this course sits comfortably in the middle of the range of average grades given across all ten courses. The range of averages for academic performance for the 10 courses being 2.5 to 4.5, and Teacher 5's course being 3.5. Therefore, teachers spending additional time at home and not using FTE time allocated at school had no impact upon student performance.

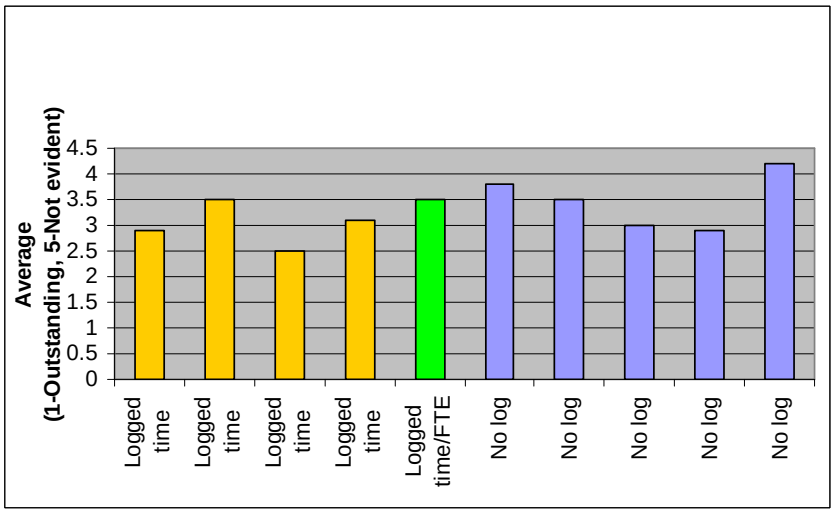

Figure 4.6. Comparison of student academic achievement across courses.

PEAC Online teachers were asked if they needed to spend money in order to facilitate their online course; six identified having to spend money to upgrade to

broadband to deliver their course from home, while two teachers spent money on upgrading their computer hardware.

Many of the teachers involved in PEAC Online had done some type of extra study or skill development in their own time to supplement their current skills. Figure 4.7 identifies that teachers spent time up-skilling in content and computer skills in their own time. No respondent undertook any courses or training in online learning in their own time. Of the teachers who attended professional development courses during school time, most of the study was connected with online learning, WebCT use, gifted and talented and an induction course on online learning (See Figure 4.7).

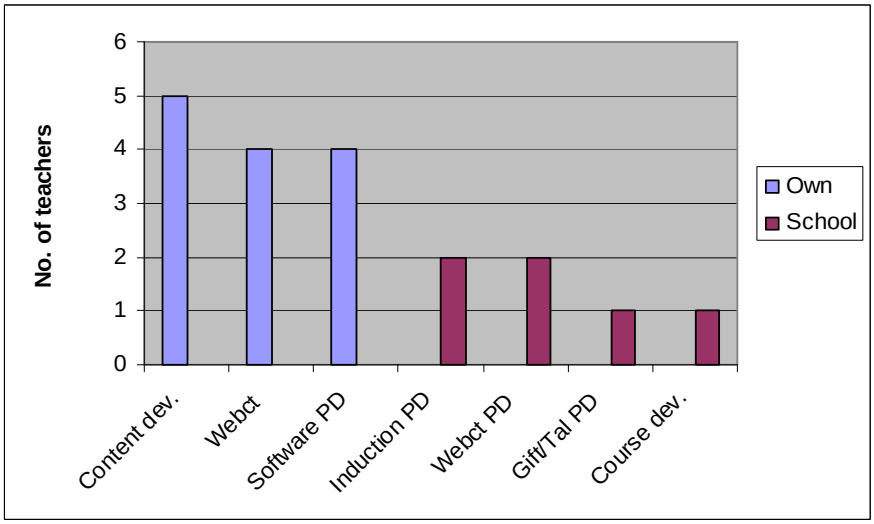

Figure 4.7. Skill development undertaken by PEAC Online teachers.

During the study the PEAC Online programme was delivered from the Swan Education District and had one part-time coordinator. In the teacher questionnaire, teachers were asked if they had ready access to support if needed. PEAC Online teachers identified the coordinator and other PEAC Online teachers as support, with all teachers responding they had access to this kind of support. Teachers have found the most effective professional development to be at point of need, one-on-one with the coordinator and whole days where they can work together in their own support network on courses and share information. Based on responses from teachers involved in this study, no formal meetings of teachers were organised except once a term. Contact between the coordinator and teachers, although informal, was generally done weekly and on a needs basis.

When asked how support could be improved, each of the online teachers believed that improvements could be made. The suggestions by those teachers who responded to this question are as follows:

- *I think improvements would just be negotiated on a needs basis.*
- *A set time each week for support, but other work conflicts.*
- *Greater use of WebCT teacher's section.*
- *By recognition in FTE's of time required to develop and run your online courses.*
- *It needs to be resourced so that one person can work in the online programme full-time as a coordinator, organiser etc.*
- *It would be great to have someone with more knowledge and experience in online delivery as a mentor.*
- *In an ideal world 24/7 access to support would be wonderful and spare ID for students having problems getting in to save time.*

PEAC Online teachers were asked to consider what the most challenging aspect of their role was and this is shown in Table 4.4. Time and student interest were the most cited challenges. Time refers to the lack of FTE time that teachers are allocated and the demands on time. Student interest responses were maintaining student interest, keeping students in courses, keeping track of students and providing effective feedback.

Communication and technical knowledge were the next most common challenges. Communication referred to the number of emails received, the lack of face–to-face contact with students, the problems associated with waiting for student responses and greater communication with students to empower and encourage them when faced with problems. Technical knowledge refers to providing technical assistance to students and other teachers when faced with difficulties and technical knowledge in teaching courses. Challenges involving course design are associated with the technical knowledge behind course design and online teaching challenges refers to the management, organisation and school support of online learning.

Table 4.4

Teacher Identified Challenges in PEAC Online Teaching Role

Rank	Challenge
1	Time
2	Maintaining student interest
3	Having the technological knowledge
4	Maintaining regular communication
5	Designing the course
6	Teaching online

When asked about the comparisons between PEAC Online teaching and PEAC face-to-face teaching, the following advantages were identified:

- *Students are able to work independently*
- *Caters for disadvantaged students*
- *Caters for an alternative learning style*
- *Anonymity allows more reserved students to participate more easily*
- *It immerses students in ICT which will provide excellent skills for further study and work.*

The PEAC Online teachers saw the disadvantages as being;

- *Harder to help students who are having difficulties*
- *Results are different – more of a range of standards*
- *Social interaction is more limited*
- *More teacher preparation needed*
- *Learning is mainly text based*
- *Feedback is more difficult and intensive*
- *Harder to build rapport with the students*
- *Maintaining equity in access for all students to equipment, resources and support*
- *Dropout rate higher than in face to face.*
- *Monitoring progress more difficult*

4.3 Support Persons

Question 2: Is there adequate support to facilitate the successful implementation of PEAC Online programmes for student guides?

The majority of students logged on to PEAC Online at home. Table 4.5 and Figure 4.8 show that 63.5% of students were logging on at home, compared with 21.6% of students logging in at school. Student logon represents the number of times that students interacted with the PEAC Online course, email and discussion board.

Table 4.5

Location of Student Logon

Location	Frequency	Percent
No logon	18	12.2
School	32	21.6
Home	94	63.5
Home & School	4	2.7
Total	148	100

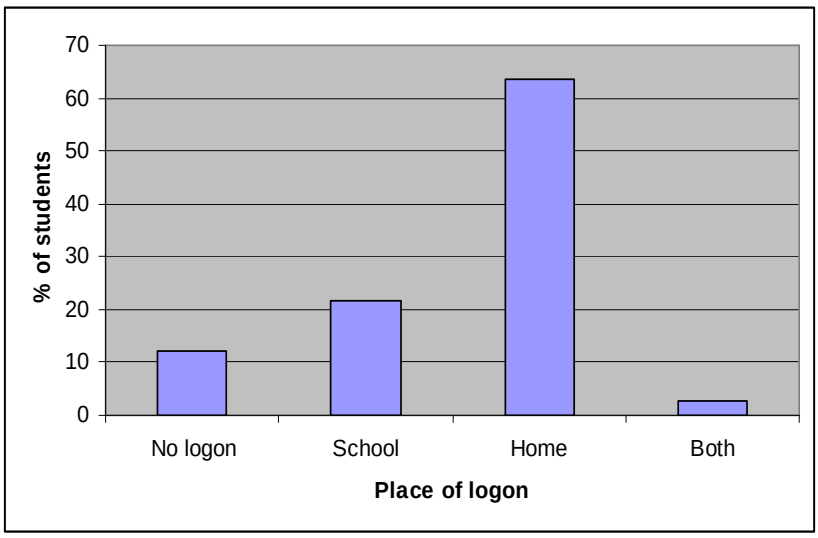

Figure 4.8. Percentages of students and place of logon.

Most students are logging in to PEAC Online after school as seen in Figure 4.9. The person identified as being the key support person for students is the parent, see Figure 4.10. Therefore most of the work and support is being done at home with supervision and support given by parents.

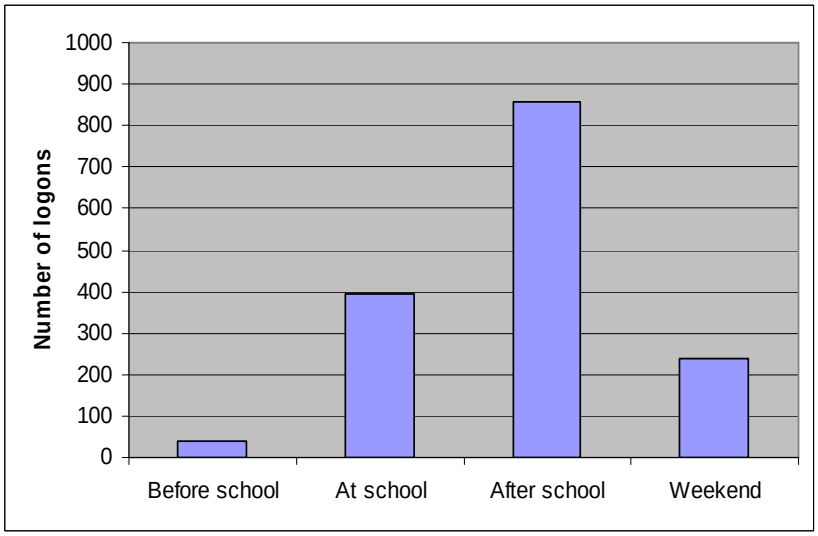

Figure 4.9. Time that students are logging in to PEAC Online.

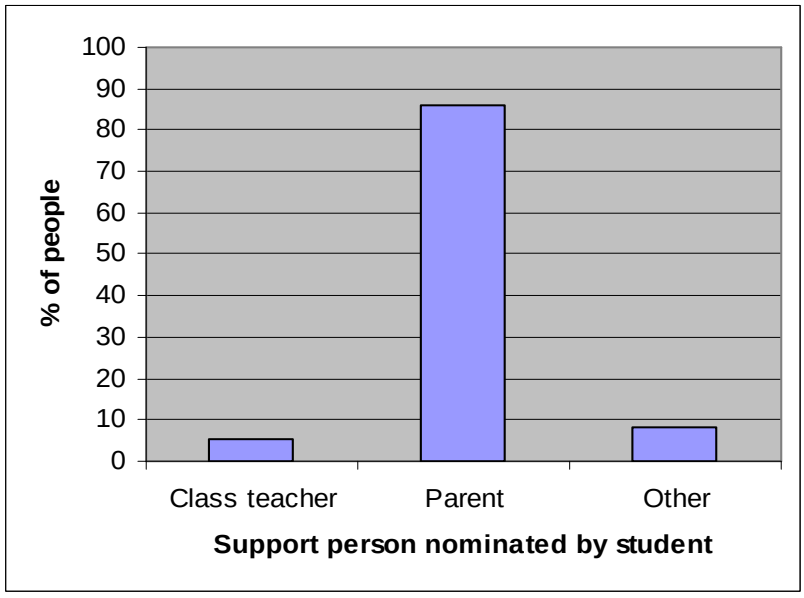

Figure 4.10. Support person nominated by PEAC Online student.

The support person was asked how much time they usually spent supporting the PEAC Online student. This is indicated in Figure 4.11. Of the responses received 50% of the support people are spending 30 minutes per week or more supporting

their PEAC Online student. Of the respondents supporting for over 30 minutes a week, 50% were supporting between 30 and 60 minutes per week and 50% were supporting for 60 minutes or more per week.

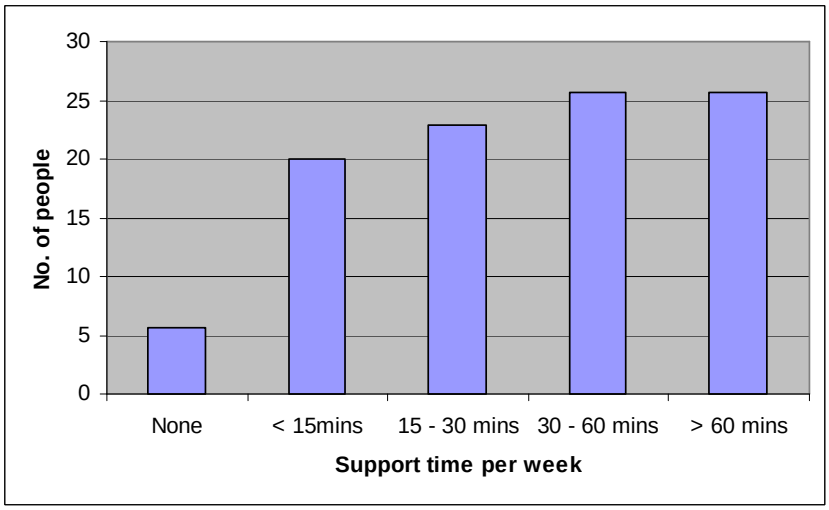

Figure 4.11. Average time spent by support person assisting student.

The location of where students who worked on PEAC Online at school is shown in Figure 4.12. The majority of students, that is 85%, worked in either their classroom or the computer room with 15% of students working in the school library. Of the students who did work on PEAC Online at school 41% were given 30 – 60 minutes a week for this. One to two hours was given to 24% of PEAC Online students who worked at school and this is shown in Figure 4.13.

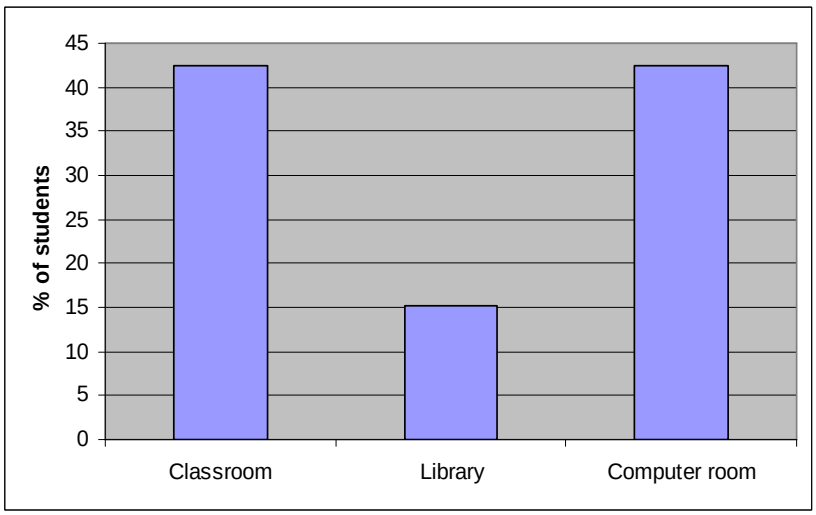

Figure 4.12. Location of students who worked on PEAC Online at school.

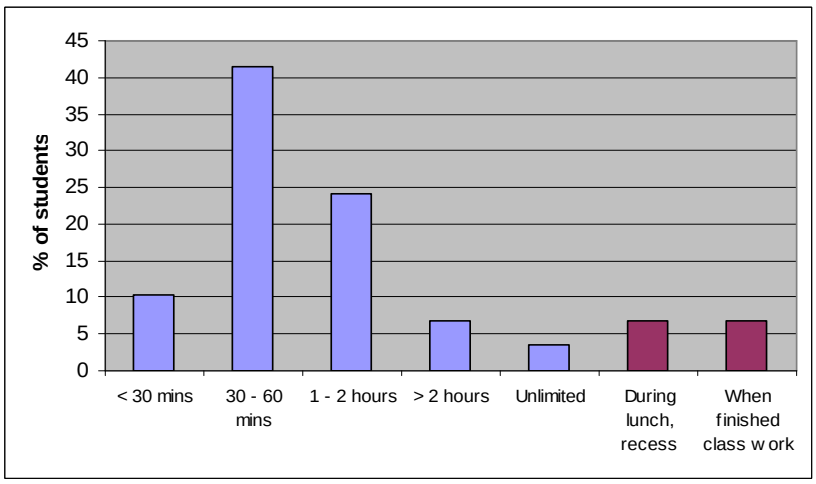

Figure 4.13. Time allocation given to students by class teacher at school.

Most PEAC Online students worked at home and their reasons for working at home are shown in Figure 4.14. The top three responses for why PEAC Online students chose to work at home were: *own time; couldn't do at school* and *easier to work.* Each of these responses represented 24% of respondents. Of the students who worked at home 50% did so for 1 to 2 hours per week. See Figure 4.15. This is twice the amount of time that is spent at school working on PEAC Online.

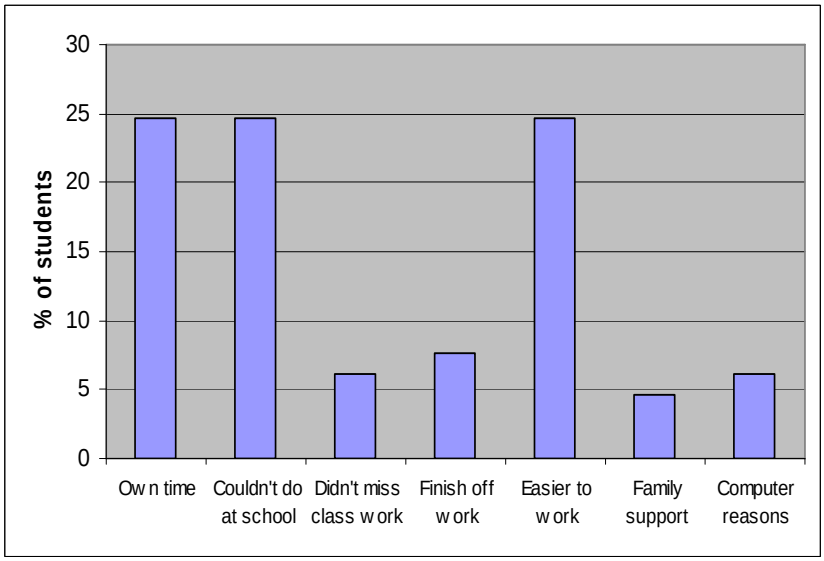

Figure 4.14. Reasons PEAC Online students worked at home.

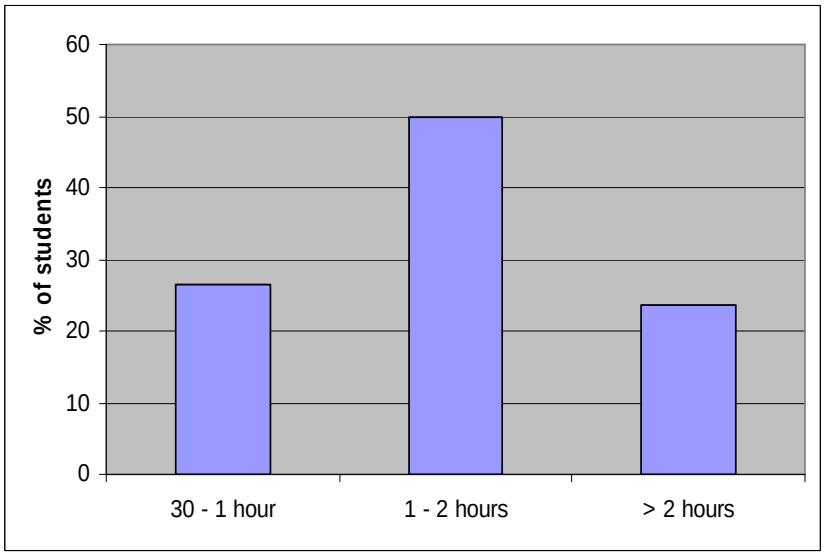

Figure 4.15. Time spent working on PEAC Online at home.

There were 17 students who did not log in to PEAC Online and of these 76.5% received a report performance of 'not evident'. This data is shown in Figure 4.16. Some of those students who did not logon due to computer or internet difficulties completed their work by receiving the course on CD Rom and completing the course by mail or fax. For those students who achieved an academic performance of 1, Outstanding, 2 Highly Competent, 3 Competent, as seen in Figure 4.16, the number of students logging in at home was quite similar to those logging in at school and those logging in equally at home and school.

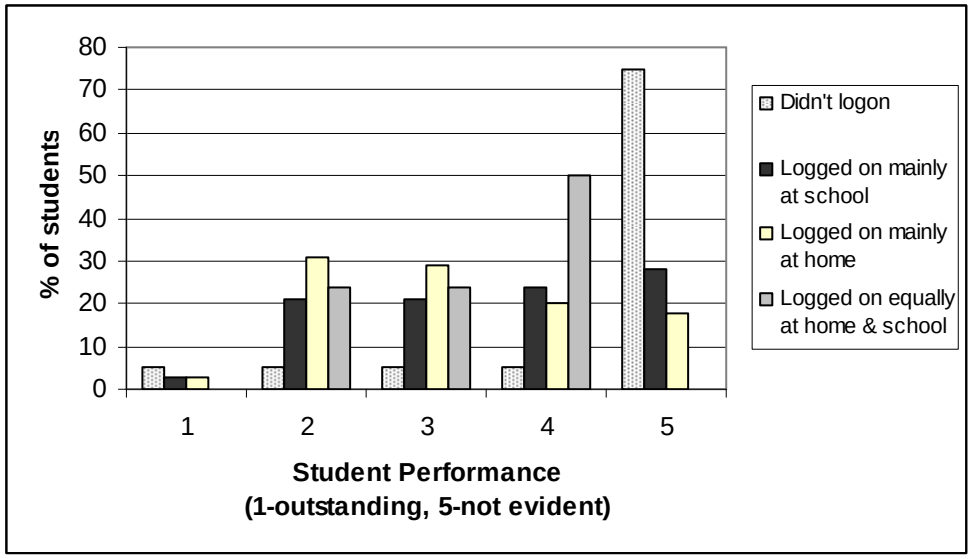

Figure 4.16. Student report performance compared with location of logons.

Figure 4.17 shows participation for those students who did not logon and achieved poor or no participation results. There is little difference between participation results and place of logon. Participation is defined as student engagement with PEAC Online through their logon with enables them to access the online learning programme, email and discussion board. Where students are logging on has no great impact upon the participation results they are achieving.

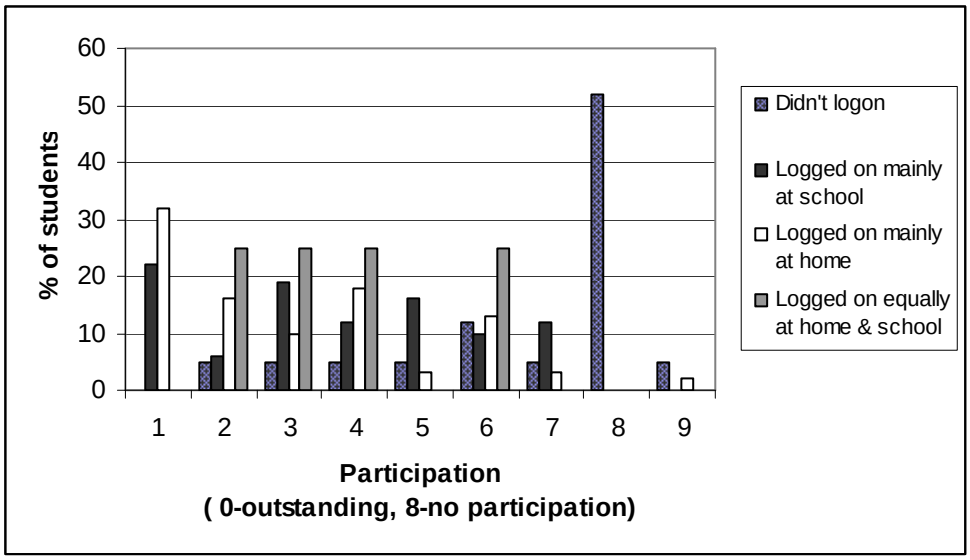

Figure 4.17. Student logon location and participation results.

There was found to be no significant correlation between the location of where students logged on to PEAC Online and the enjoyment rating that students gave the course they were studying.

Support people were asked to rate the support they received from the school. 31% said support from the school was poor, 28% said it was excellent and this is shown in Figure 4.18. Support people were also asked to rate the support they received from Swan PEAC Online. This is shown in Figure 4.19, where 33% rated the support from Swan PEAC Online as poor and 22% rated it as excellent. Overall 50% of support people rated the support from Swan PEAC Online as satisfactory to excellent.

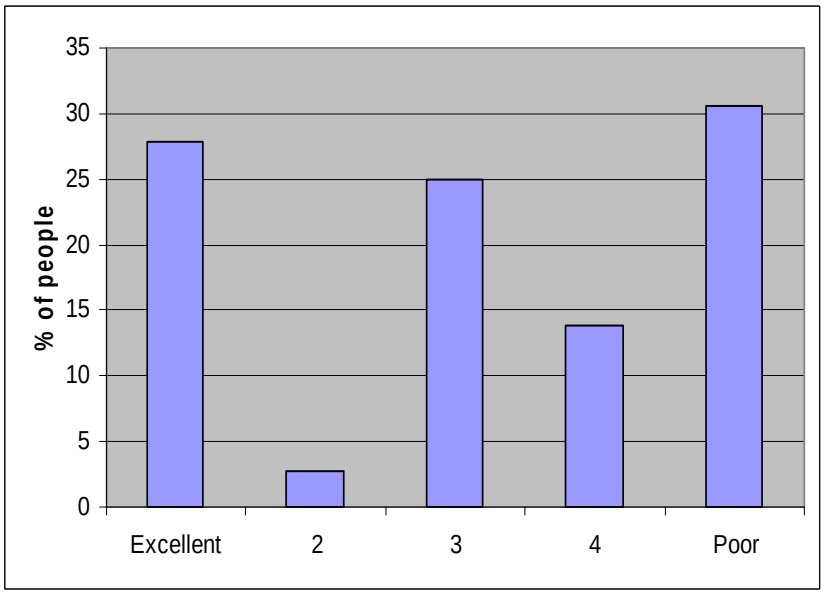

Figure 4.18. Support person rating of support given by school.

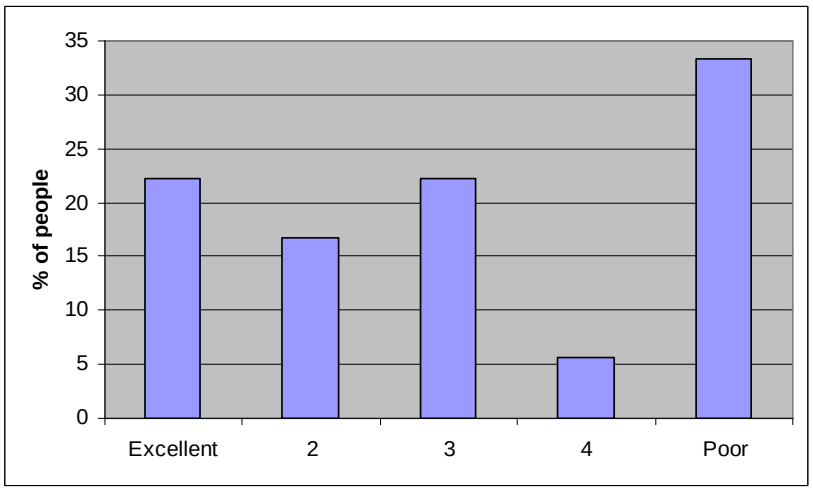

Figure 4.19. Support person rating of support received from Swan PEAC.

Support people were asked what importance they felt their school placed on PEAC Online and this is shown in Figure 4.20. They were also asked about the importance they placed on PEAC Online, which is also shown in Figure 4.20. It can be seen that support people believe they place more importance on PEAC Online than they feel the school does. There were no negative responses from support people on the value of PEAC Online however 35% believe the school places only Some Importance or Not important on PEAC Online.

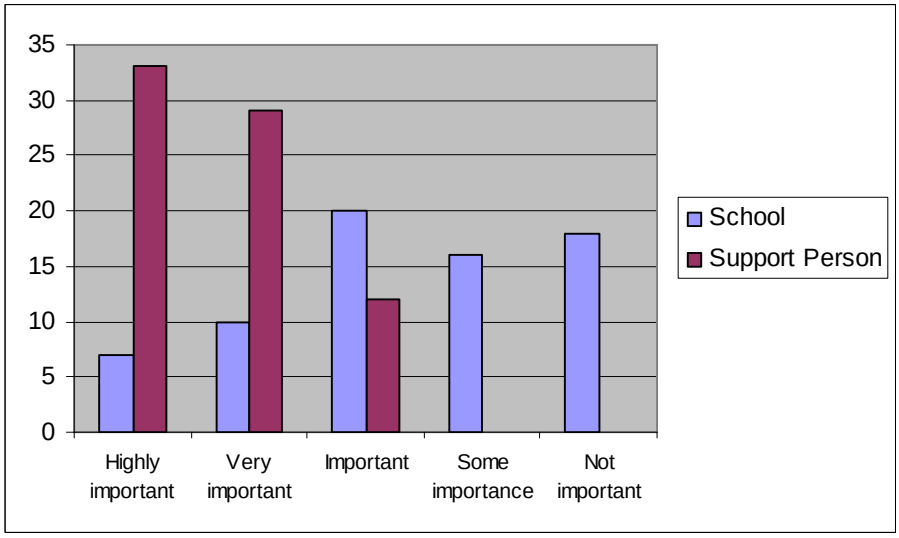

Figure 4.20. Support person's value of PEAC Online and perceived value that school places on PEAC Online.

School staff was also asked what importance they placed on the PEAC Online programme and the responses to this question are shown in Figure 4.21. Of the respondents 30% of school administrators viewed the programme as highly important compared with 21% of PEAC coordinators and 17% of class teachers. No respondents believed that the programme had no importance.

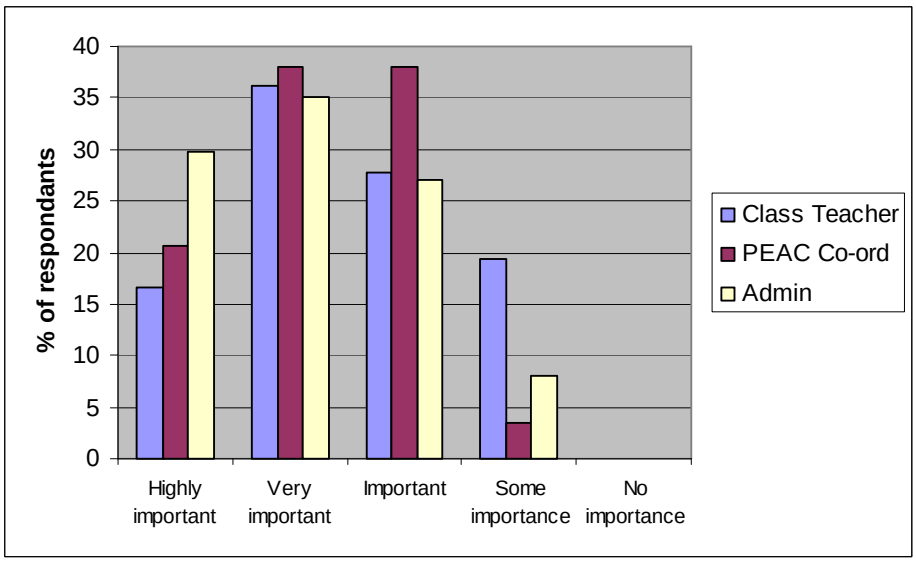

Figure 4.21. School staff response to 'What importance do you place on the PEAC Online programme?'

The responses to the value of the PEAC Online programme were averaged for school staff and support people and this is shown in Figure 4.22. There is a significant difference between the value placed on PEAC Online by school staff and the value support people believe the school places on the programme.

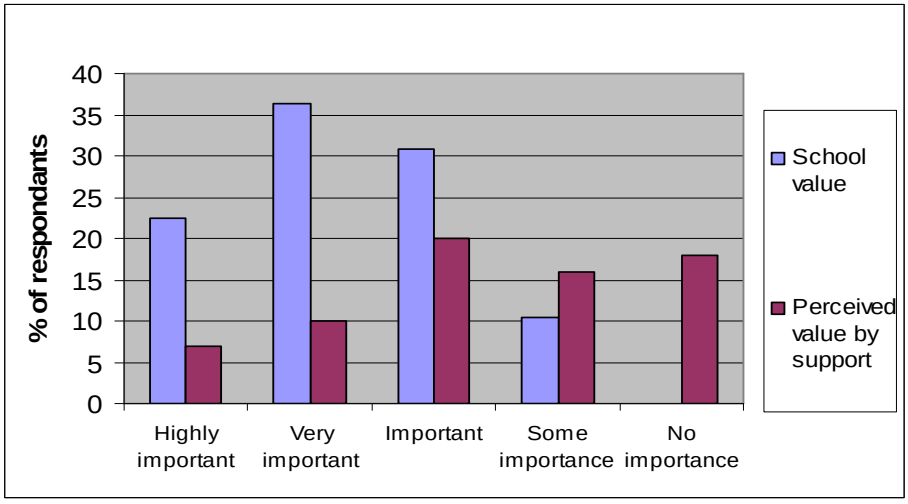

Figure 4.22. School personnel value vs perceived value by Support Persons.

The support persons rated the support from Swan PEAC Online to help them with their student, and this is shown in Figure 4.23. Of the respondents 61% said the support from Swan PEAC Online was Good to Excellent and 39% said it was Fair to Poor. Respondents were also asked to rate the support received from their school and this is shown in Figure 4.24. 28% viewed support as excellent, 25% as Good and 31% as Poor.

Figure 4.23. Support persons' rating of support from Swan PEAC Online

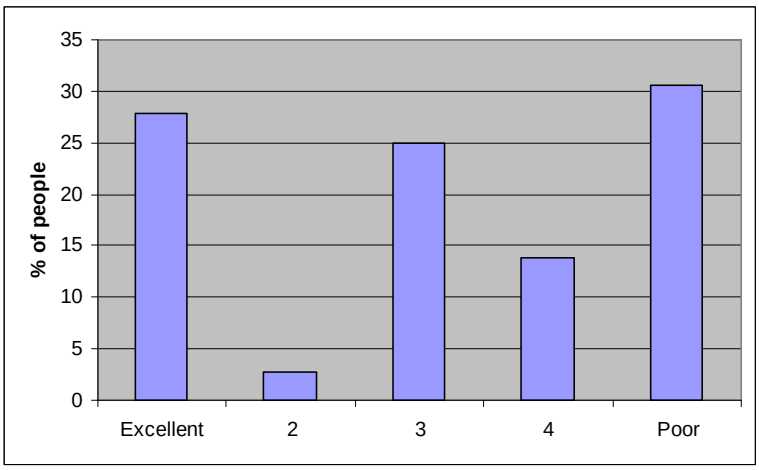

Figure 4.24. Support person rating of support received from school.

Support people were asked to rate the Handbook they received from Swan PEAC at the beginning of a PEAC Online course. The responses from this question are shown in Figure 4.25. Of respondents 57% rated the Handbook as Excellent and Very Good.

Figure 4.25. Support person rating of Handbook from Swan PEAC.

School personnel were asked where they believed PEAC Online should be done by the student. The responses are shown in Figure 4.26. Over 50% of school personnel respondents believe that PEAC Online should be done during class time. 34% of respondents believe that PEAC Online should be done at home by students in their own time.

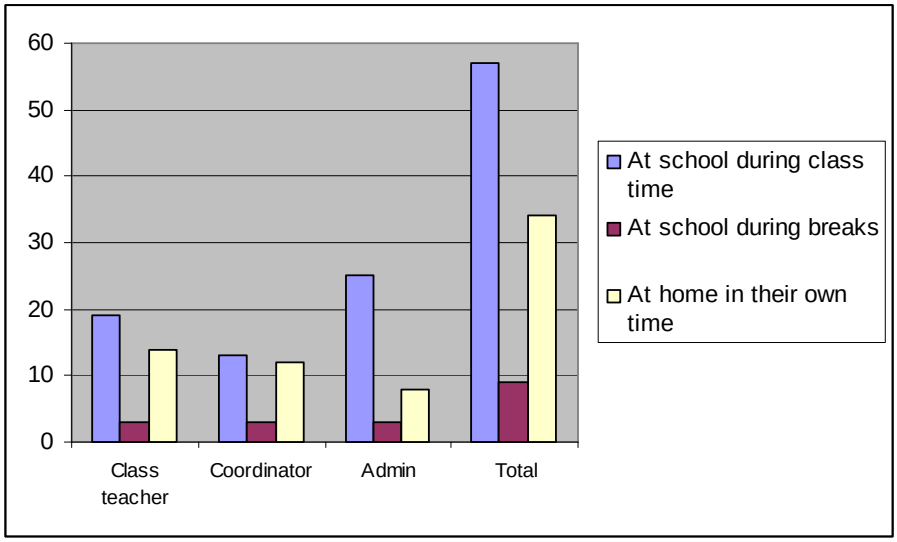

Figure 4.26. School personnel response to where PEAC Online should be completed by student.

The support persons were asked to rate the PEAC Online learning programme and the responses to this question are shown in Figure 4.27. Overall 62% of respondents rated PEAC Online as Excellent.

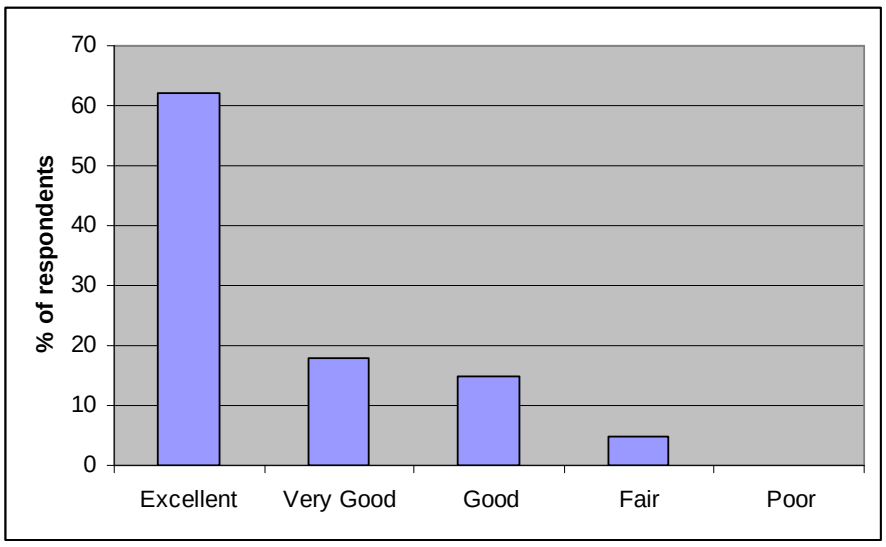

Figure 4.27. Support Person rating of PEAC Online.

Over half of the support people who returned the questionnaire commented on the content in PEAC Online courses. Positive comments accounted for 26% of the comments received and 74% were negative as shown in Figure 4.28.

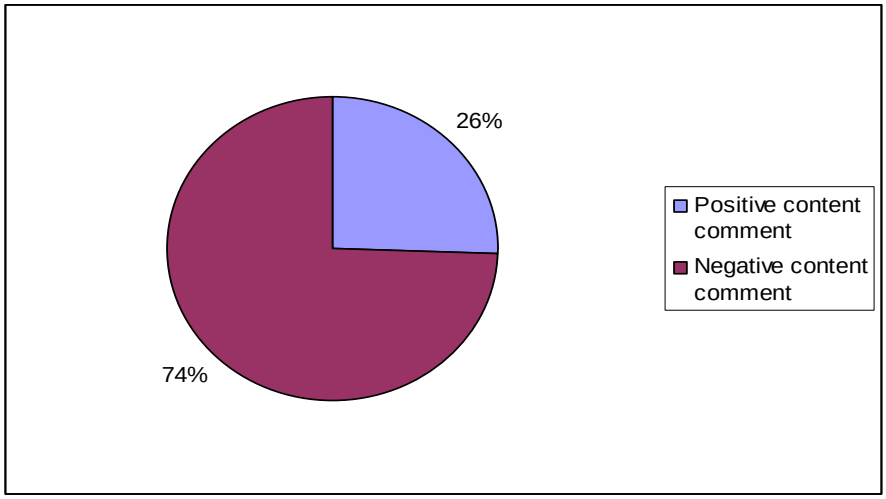

Figure 4.28. Comment classification from support people.

A sample of the comments received is listed below:

Positives

- *My daughter was inspired to learn more about the two things she really loves, i.e. Harry Potter & Computers.*
- *The online courses they have done have challenged and extended them.*
- *We are very happy with the course and we hope the course could last longer.*
- *PEAC Online encourages self directed learning/self motivation.*

Negatives

- *Subject matter could be a little more diverse.*
- *Words and terminology. Needs to be plainer and explained in more detail.*
- *Some tasks were very difficult to understand.*
- *I believe that normal school does not challenge kids enough and spends far too much time not doing basic maths and English. Some parts of PEAC were the opposite. Meant for much older students. Hard to work to keep student motivated for these parts.*
- *I think the next online programme my son does will be a little easier (and less frustrating) in terms of completing tasks and working around the site.*

- *I have been in contact with both of them expressing concerns with PEAC Online.*
- *Too much emphasis on assessments. Too little interaction with the online teacher to explore concepts. Some tasks are way too challenging or the technology is too chunky. Why not try some taped lectures, mpg's, video conferencing and more visually superior presentation.*
- *I believe it is better to have most content in the printed book sent to students and just have students logging in for communication and research and interaction. If the online content isn't interactive, it's better off in the book so student time can be spent on content and tasks rather than logging in to see static content. (Having the static content in one place (the book) also reduces duplication which means less chance of inconsistencies in instructions and less confusion for the student.)*
- *Some of the links outlined in the task activities were outdated too, with the sites being no longer available etc.*
- *There were times student had time to do course but either couldn't access or the next stage of course hadn't been posted.*

4.4 Course Suitability

Question 3: Are the courses developed by online teachers suitable for gifted and talented students in terms of;

i. course content
j. course structure
k. use of interactive course elements

The students who participate in online learning receive an assessment based on their academic performance and their participation in the course. Academic performance was rated on a scale where 1 is Outstanding performance, 2 Highly Competent, 3 Competent, 4 Developing and 5 Not Evident. These assessments are subjective and are not moderated against the Outcomes and Standards Framework and will be referred to later in recommendations.

Figure 4.29 shows student academic report achievement as evaluated by online teachers. Approximately 29% of participants are receiving a score of Highly Competent or better and approximately 47% are receiving a score of Developing or Not Evident.

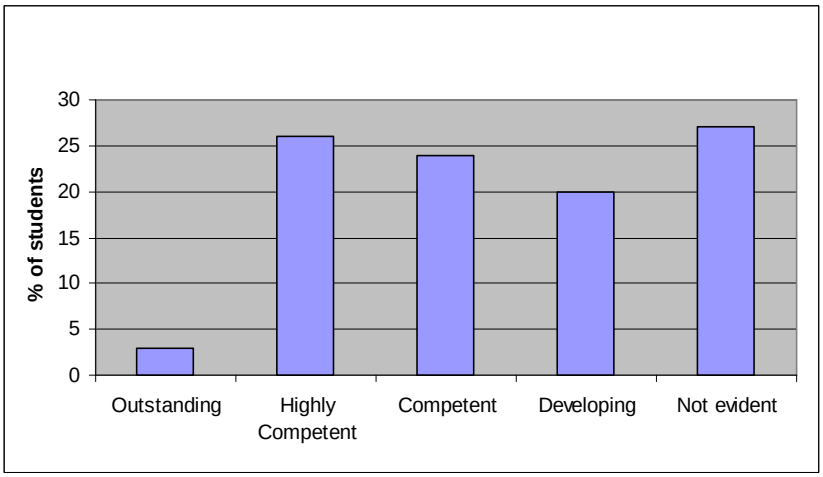

Figure 4.29. Student report on performance.

Student participation is graded against an eight point scale, with 0 representing Outstanding and 8 being No Participation. The range of participation scores is shown in Figure 4.30. Approximately 50% of the students participated at the Outstanding, 0, 1 and 2 levels.

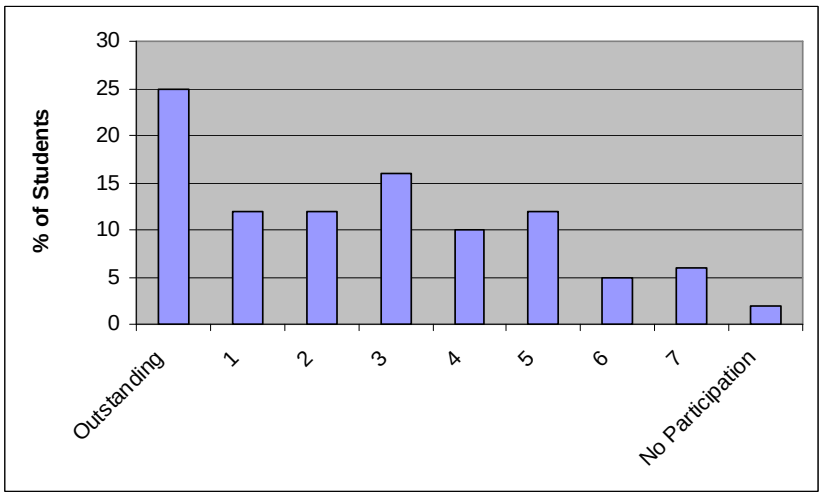

Figure 4.30. Student report on participation.

There is a significant correlation between the participation and the performance of a student as shown in Table 4.6. Previous research has demonstrated a correlation

between ‘perceived high interaction in a course and course satisfaction’ and a positive relationship between participation and academic achievement (Rolyer & Wiencke 2004:3). This same positive correlation is occurring in PEAC Online courses. The correlation was quite high at 0.82 ($p<0.01$) indicating a strong relationship between two variables.

Table 4.6

Correlation between Report Performance and Report Participation

	Participation	Performance
Participation	1	.821(**)
Performance	.821(**)	1

($p<0.01$)

The PEAC Coordinator and three online teachers ranked the available online courses according to the following criteria;

- Clearly explained tasks
- Tasks well sequenced and progressively harder.
- Good variety of tasks
- Tasks appropriate to age group but still challenging
- Activities involve higher order thinking skills
- Attractive main page
- Professional appearance of pages (colour, graphics, font)
- Ease of navigation
- Interactive elements/ audiovisual
- Good use of internet links

The courses were ranked against the criteria from 1 to 7, with 7 being the highest ranking and 1 being the lowest ranking. The rankings for each course against the criteria were totalled and then the courses were ranked with the highest total being 1st and the lowest total being 7th. This ranked the courses against criteria that would be expected in a gifted and talented online course by the people who deliver the courses.

The rankings for the courses are shown in Table 4.7 and Figure 4.31 as a percentage with seven of the ten courses scoring over 50% against the criteria.

Table 4.7

Peer Score Rating of PEAC Online Courses by Teachers

Course	Score	Rating
1	35	5
2, 4	58	1
3	22	7
5	40	4
6, 7, 9	47	3
8	27	6
10	54	2

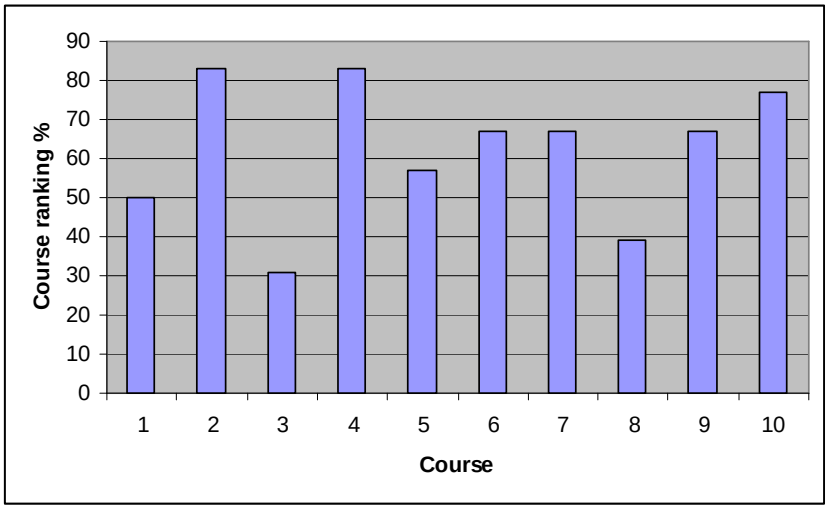

Figure 4.31. Percentage ranking by PEAC Online teachers.

Assessment feedback on completion of courses is based on a five point scale. An assessment of 1 equates to Outstanding, 2 Highly Competent, 3 Competent, 4 Developing and 5 Not Evident. Students who achieved Not Evident are those students who did not complete the course. Students who achieved Developing had not demonstrated competent ability during the online course. Figure 4.32 shows the percentage of students who achieved either Developing, 4, or Not Evident, 5 for their PEAC Online course.

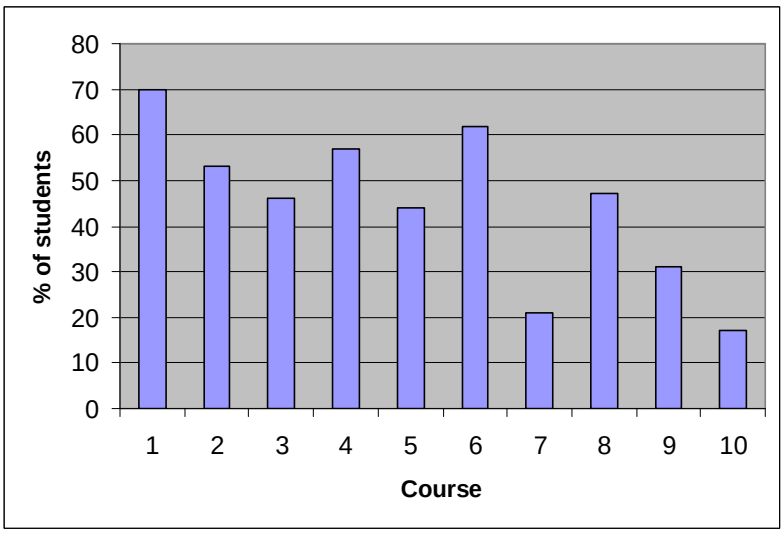

Figure 4.32. Percentage of students performing at Level 4 or 5.

4.5 PEAC Online Students

Question 4: How do the students enrolled in PEAC Online programmes perceive the online learning environment in terms of;

a. *teacher support*
b. *personal relevance*
c. *student autonomy (opportunities for independent learning)*
d. *equity*
e. *whether the asynchronous nature of the discussion forum promotes reflective thinking*
f. *opportunities for online communication with fellow students, content experts and online teachers (interaction and collaboration)*
g. *support resources*
h. *enjoyment of the programme*

An adapted version of the Online Learning Environment Survey (OLES) (Trinidad, Aldridge & Fraser, 2005) was completed by 43 of the 150 enrolled PEAC Online students. Table 4.8 shows the seven categories and related questions used in the survey. Six of the seven categories resulted in at least 60% of respondents answering positively with 'often' or 'always'. Only one category, Student Interaction, had the majority of students answering from 'sometimes' to 'never'. This clearly showed that students are not interacting with other online students as expected. (see Table 4.9).

Students rated Equity as the highest with nearly 82% rating this category with ‘always’ or ‘often’.

Table 4.8

Online Learning Environment Survey (OLES) Questions

Item No.	Question
Teacher Support	
1	The teacher helps me to identify problem areas in my work.
2	The teacher responds quickly to my questions.
3	The teacher encourages my participation.
4	It is easy for me to contact the teacher.
Student Interaction	
5	I work with others.
6	I share information with other online students.
7	I discuss my ideas with other online students.
8	I relate my work to other online student's work.
Personal relevance	
9	I am able to learn about topics that interest me.
10	I link class work to my life outside of this class.
11	I learn things about the world outside this class.
12	I use real facts in class activities.
Student Autonomy	
13	I solve my own problems.
14	I work during times I find convenient.
15	I approach learning in my own way.
16	I am in control of my learning.
Equity	
17	I get the same amount of help as other students do.
18	I receive the same encouragement from the teachers as others
19	I get the same opportunity to contribute to class discussions as other students.
20	I get the same opportunity to answer questions as others.
Asynchronicity	
21	I read messages at times that are convenient to me.
22	I take time to think about my messages before I post them.
23	Not being able to see my fellow students discourages me from sending messages.
24	Writing and sending messages helps me to think.
Enjoyment	
25	Online learning is exciting.
26	I enjoy studying online.
27	I look forward to learning online.
28	I prefer online learning.

Table 4.9
Student Responses (%) to Online learning Environment Survey (OLES)

Category	Question	Never	Seldom	Sometimes	Often	Always
Teacher	1	2	7	17	44	30
Support	2	0	2	28	40	30
	3	0	7	16	30	47
	4	0	2	12	35	51
Average		0.5	4.5	18.25	37.25	39.5
Student	5	5	33	51	11	0
Interaction	6	7	28	39	21	5
	7	16	26	28	28	2
	8	23	23	52	2	0
Average		12.75	27.5	42.5	15.5	1.75
Personal	9	2	2	0	51	45
Relevance	10	5	19	37	30	9
	11	0	2	26	37	35
	12	0	2	16	35	47
Average		1.75	6.25	19.75	38.25	34
Student	13	0	0	14	58	28
Autonomy	14	2	2	12	28	56
	15	0	2	26	35	37
	16	0	2	19	42	37
Average		0.5	1.5	17.75	40.75	39.5
Equity	17	2	2	26	28	42
	18	2	0	12	35	51
	19	0	2	12	23	63
	20	2	0	12	23	63
Average		1.5	1	15.5	27.25	54.7
Asynchronicity	21	2	0	2	33	63
	22	0	0	16	44	40
	23	37	19	23	14	7
	24	5	14	35	33	13
Average		11	8.25	19	31	30.75
Enjoyment	25	2	5	12	35	46
	26	0	0	9	72	19
	27	0	0	16	35	49
	28	2	14	30	28	26
Average		1	4.75	16.75	42.5	35

Interaction by the teacher through emails did not influence students to continue with PEAC Online. As shown in Table 4.10, there was a significant negative correlation (- 0.255 at $p<0.01$) between the number of emails received from the teacher and the students' enrolment into the following semester. This suggests that the more email contact the students received from the teacher the less likely the students would enrol in the following semester.

Table 4.10

Correlation between Continuing Online Learning and Teacher Interaction

	Enrolled Semester 2	Teacher email average
Enrolled Semester 2	1	-.255(**)
Teacher email average	-.255(**)	1

($p<0.01$)

Table 4.11

No. of Logons per Week by Student vs Emails Received from Teacher per Week

Week		Correlation
Week 3	Pearson Correlation	.283(**)
	Sig. (2-tailed)	.000
Week 4	Pearson Correlation	.142
	Sig. (2-tailed)	.075
Week 5	Pearson Correlation	.252(**)
	Sig. (2-tailed)	.001
Week 6	Pearson Correlation	.090
	Sig. (2-tailed)	.263
Week 7	Pearson Correlation	.360(**)
	Sig. (2-tailed)	.000
Week 8	Pearson Correlation	.312(**)
	Sig. (2-tailed)	.000
Week 9	Pearson Correlation	.222(**)
	Sig. (2-tailed)	.005
Week 10	Pearson Correlation	.190(*)
	Sig. (2-tailed)	.017

** Correlation is significant at the 0.01 level (2-tailed).

- Correlation is significant at the 0.05 level (2-tailed).

Over seven weeks of the course the online data collected showed that there was a significant relationship between the number of logons by the students and the number of emails sent to the student by the teacher. (Table 4.11) This suggests that the more the numbers of emails sent to the student by the teachers the more the student would logon.

There was a significant correlation between the average number of emails sent by the teacher and the amount of social interaction of the student as seen in Table 4.12. Social interaction is identified as emails sent and read by the student. Students are sent both group and individual emails from the teacher. The greater the amount of emails sent by the teacher to the students the more the students interacted socially with the teacher and other students.

Table 4.12

Correlation of Teacher Emails and Student Social Interaction

	Teacher email average	Social interaction
Teacher email average	1	.432(**)
Social Interaction	.432(**)	1

($p<0.01$)

There was a significant correlation between the average number of emails sent by the teacher and the learning interaction of the student within the course as shown in Table 4.13. Learning interaction is defined as all interaction done by the student during the course on WebCt. The more the teacher emailed the student the more the student interacted with the learning objects of the course.

Table 4.13

Correlation of Teacher Emails and Student Learning Interaction

	Teacher email average	Learning interaction
Teacher email average	1	.543(**)
Learning Interaction	.543(**)	1

(p<0.01)

No significant correlation was found between the specific course completed by the student and the enjoyment of that course reported by the student.

PEAC Online experienced a high number of dropouts throughout the semester. Figure 4.33 shows the number of students who ceased to logon each week. Although a few students ceased logging on but then completed the course by correspondence, the majority of students who ceased logging on were those who did not complete the course. Eleven students ceased to logon during Week 3 which was the highest number in a week for the semester.

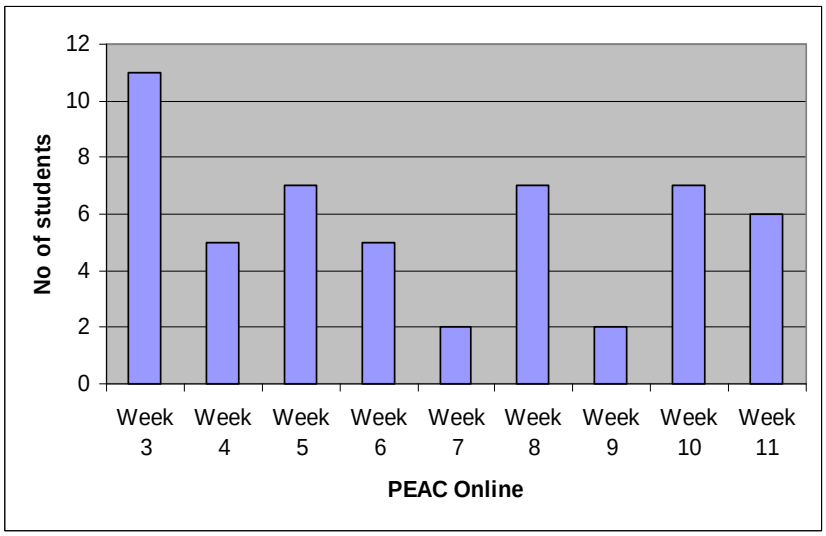

Figure 4.33. Number of students who stopped logging on during course.

To determine if students who were participating in PEAC Online were achieving a level of success at course completion, students who achieved Level 4, Developing, or Level 5, Not Evident were identified as shown in Figure 4.34. This figure shows the percentage of students who achieved either Level 4 or Level 5 across the ten courses

represents an average of 45% of students. Achievement of Level 4 or Level 5 indicates students who did not complete all requirements of the course or achievement was considered only to be 'developing' achievement towards the level required. These levels were developed by the PEAC Online teachers and are not referenced to the DET Outcomes and Standards Framework.

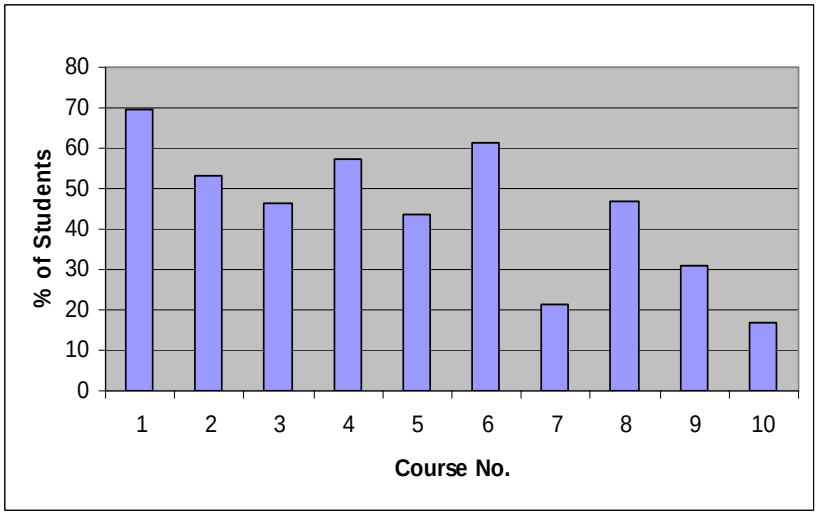

Figure 4.34. Students performing at Level 4 or 5.

Some of the students represented in Figure 4.34 did not complete the course they had enrolled in. When students were asked the reason for not completing the course the most common response was that the course was *'not interesting'* or *'too hard'*. This response was given across the majority of courses as shown in Figure 4.35.

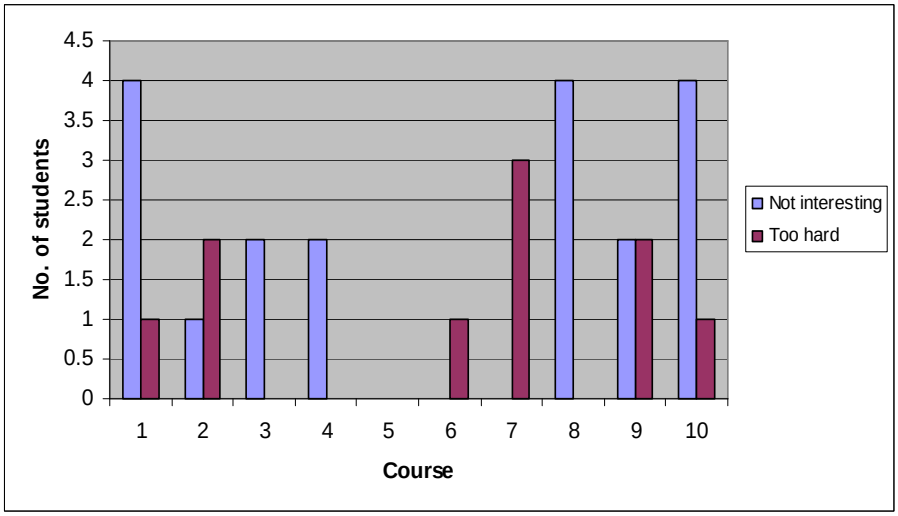

Figure 4.35. Main reasons for not completing course.

No correlation was found between the number of courses completed by students and the students' performance score.

There is a significant correlation between the amount of interaction received by the teacher and the enjoyment level reported by the student, see Table 4.14. The more the teacher emailed the student the more the student enjoyed participating in the course.

Table 4.14

Correlation between Amount of Interaction Received by Teacher and Enjoyment Level Reported by Student

	Teacher email average	Enjoyment
Teacher email average	1	.411(**)
Enjoyment	.411(**)	1

($p<0.01$)

PEAC Online students identified PEAC Online as offering courses of high interest, as shown in Figure 4.36. Of the students who responded 96% said the topics offered in the courses were *Always* and *Often* of high interest to them. An online survey was completed by PEAC Online students and the results are shown in Figure 4.37. Of the students who responded 62% said that they interacted with other students *Sometimes to Always.* This reflects that gifted and talented students, although often working independently still need both individual and group investigation of real problems (Renzulli 1986).

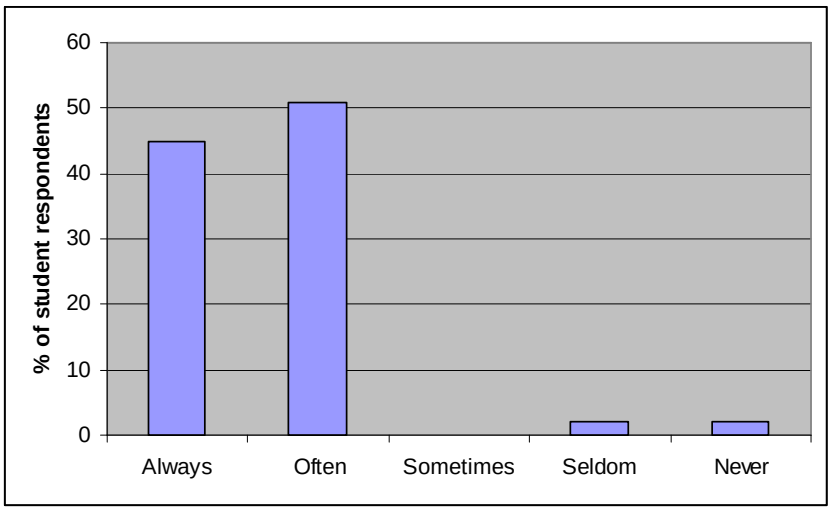

Figure 4.36. 'I am able to learn about topics that interest me'.

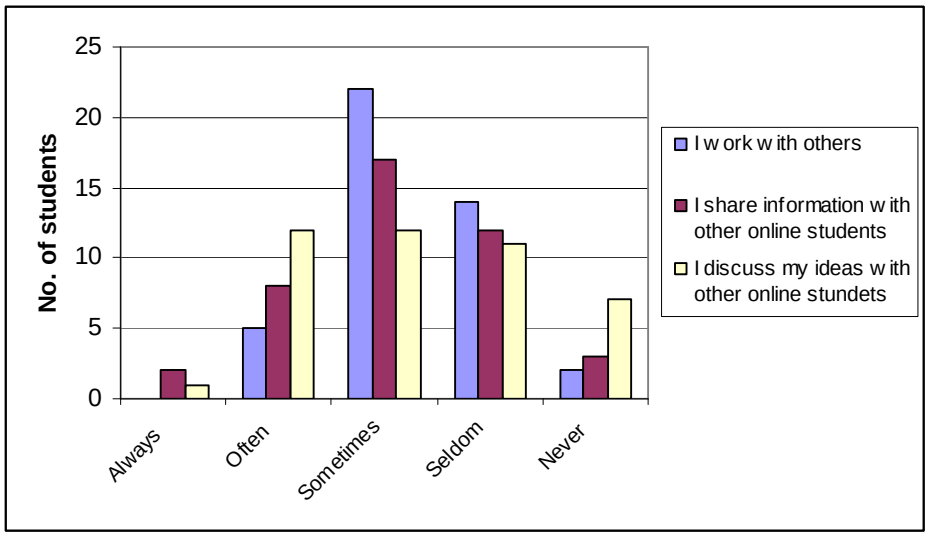

Figure 4.37. Student responses to interactivity of course.

Renzulli (1986) said that gifted and talented students need to become investigators of real problems, working on specific areas of study towards presentation to a real audience. PEAC Online students linked the course work with the outside world; hence they found the courses relevant. This is shown in Figure 4.38.

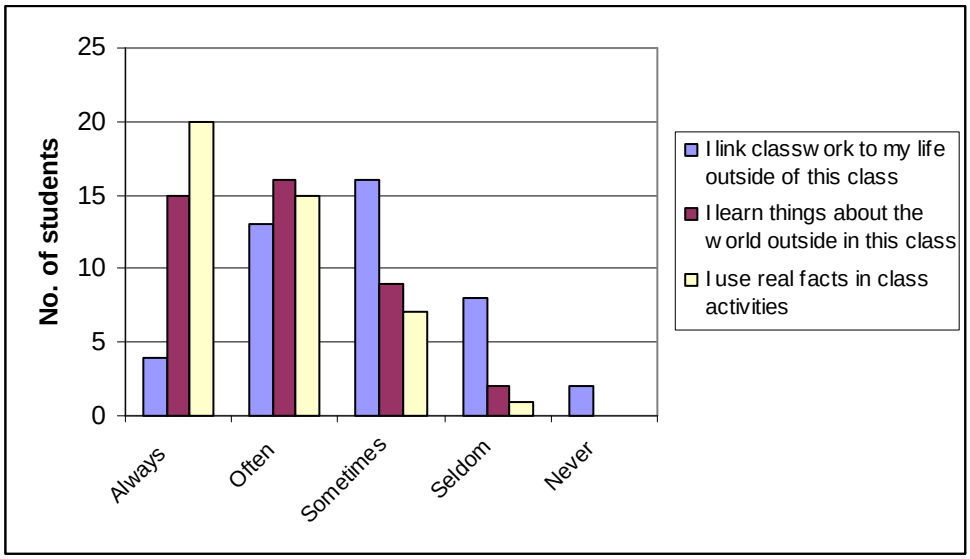

Figure 4.38. Student online survey responses to relevance of courses.

PEAC Online students were asked how they enjoyed working online. The results to this question can be seen in Figure 4.39. When ranking the courses, 74% of the students ranked their course as 'Great' and 'Good'.

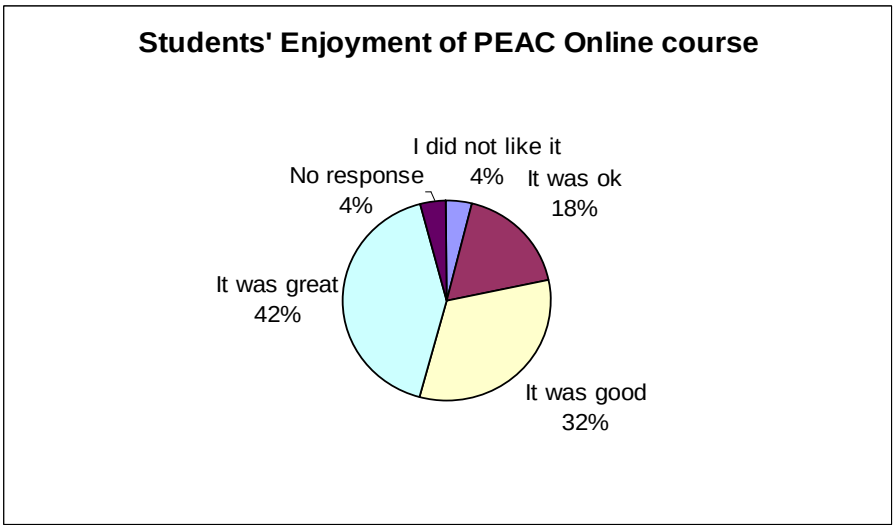

Figure 4.39. Student enjoyment of PEAC Online course.

Table 4.15 shows a significant correlation between PEAC Online students' participation level and their enjoyment of the PEAC Online course. That is the more the students participated in the course the more enjoyment they got out of the course.

Table 4.15

Correlation between Student Enjoyment of Course and Participation

	Enjoyment	Participation
Enjoyment	1	.533(**)
Participation	.533(**)	1

($p<0.01$)

A significant correlation is also demonstrated in the relationship found between student report performance and their enjoyment of the PEAC Online course, as shown in Table 4.16. This suggests that the more the students enjoyed the course the higher their reported performance level.

Table 4.16

Correlation between Student Enjoyment of Course and Performance

	Enjoyment	Performance
Enjoyment	1	.459(**)
Performance	.459(**)	1

($p<0.01$)

PEAC Online students were asked why they chose PEAC Online instead of attending a PEAC centre. The main reason students gave for choosing PEAC Online was *'It was easier to fit into my time'* with 47% of students choosing this response. The next highest response was being able to use a computer (19%). Being able to work on their own ranked the lowest with only 7% of students citing this reason for choosing to do PEAC Online.

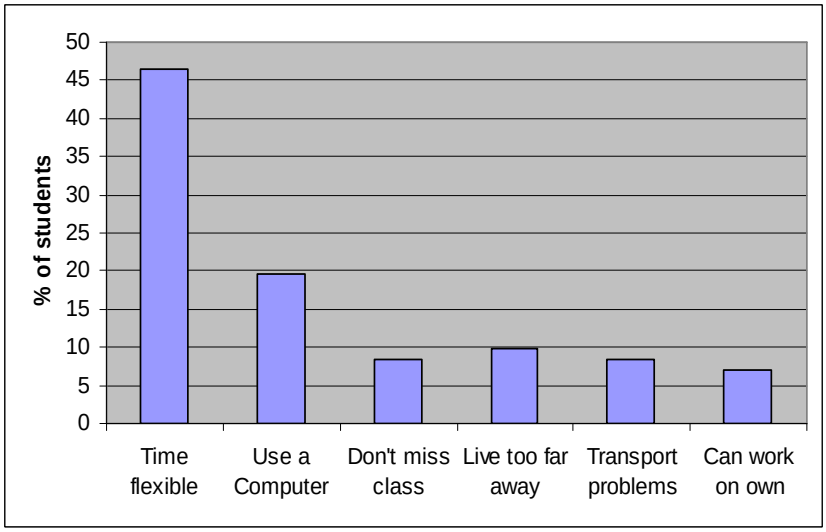

Figure 4.40. 'Why did you choose to do a PEAC Online course?'.

When asked what they liked most about PEAC Online most students again cited the flexibility of the course. This is shown in Table 4.17.

Table 4.17

What do You Like Most about PEAC Online?

	% of students
Time flexible	27
Course content	23
Interacting with others	21
Using a computer	15
Working on own	6
Didn't miss class	4
Location flexible	4
Total	100

PEAC Online students were asked what they liked least about doing an online course. The responses to this question are shown in Table 4.18. The response with the highest frequency of 21% of students was '*I can not see the other people in the class'*.

Table 4.18

PEAC Online Student Question Responses: 'What do you like least about doing an online course?'

Response	% of students
I can not see the other people in the class	21
I didn't have enough time	19
I didn't have enough help from my teacher	18
Some tasks were too hard	16
I didn't find the course interesting	13
I had computer problems	6
I wasn't organised/disciplined enough	5
I had internet problems	2
Total	100

When the students were asked if they felt as if they were working with a computer or with other people using a computer, over 58% of respondents felt they were working with other people using computers, see Figure 4.41, and 42% felt they were working with a computer.

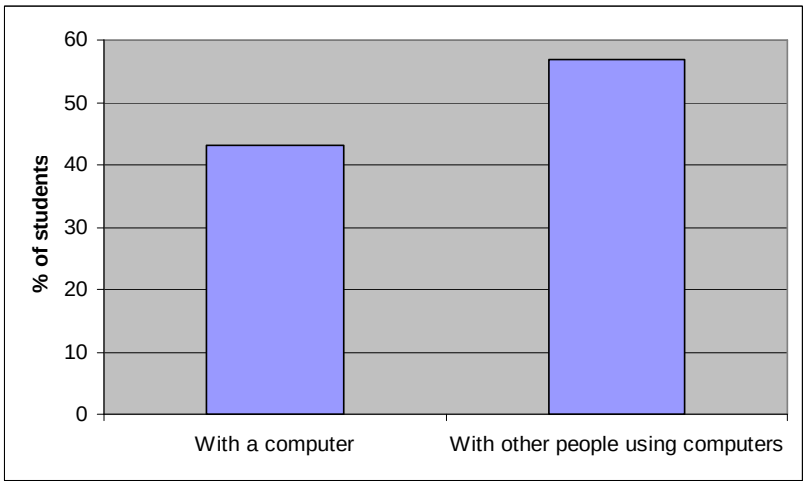

Figure 4.41. Students' perceptions of working with a computer.

PEAC Online students were asked how much feedback they received from their online teacher. The response to this question is shown in Figure 4.42. Of the respondents 79% felt that the feedback they received from their PEAC Online

teacher was ‘just right’. In Figure 4.43 50% of PEAC Online students felt that the time it took for teachers to respond with feedback was ‘just right’ and 50% said that it was ‘a bit slow’ or ‘too slow’.

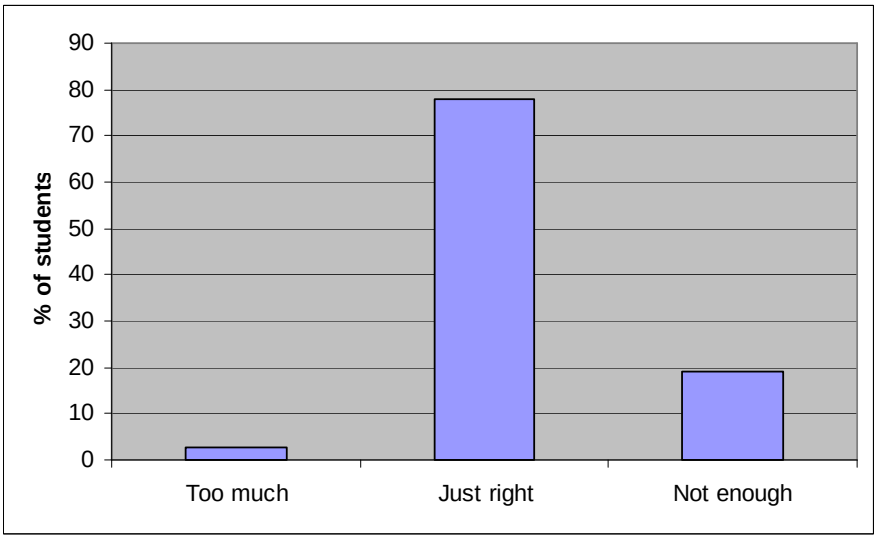

Figure 4.42. ‘How much feedback do you feel you got from your teacher?’.

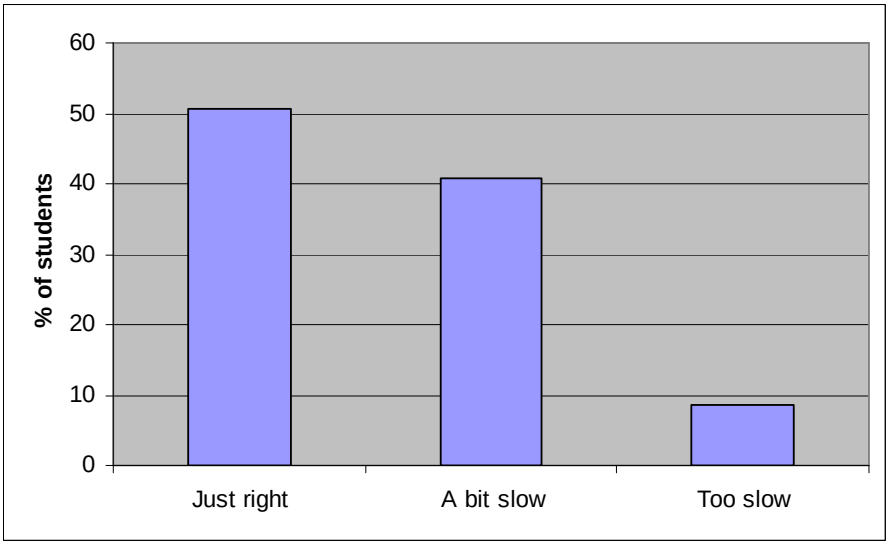

Figure 4.43. Student response to the time it took to receive feedback from their online teacher.

Emails that teachers sent to students were categorised according to the content that was contained within the email. For 4 of the 5 courses that emails were categorised, group emails represented the greatest amount of emails sent; course 3, 63% of emails, course 10, 62%, course 5, 50% and course 1, 43%. Only one course had emails that were more content driven, course 7 sending 46%, of all emails based on content. This is shown in Figure 4.44.

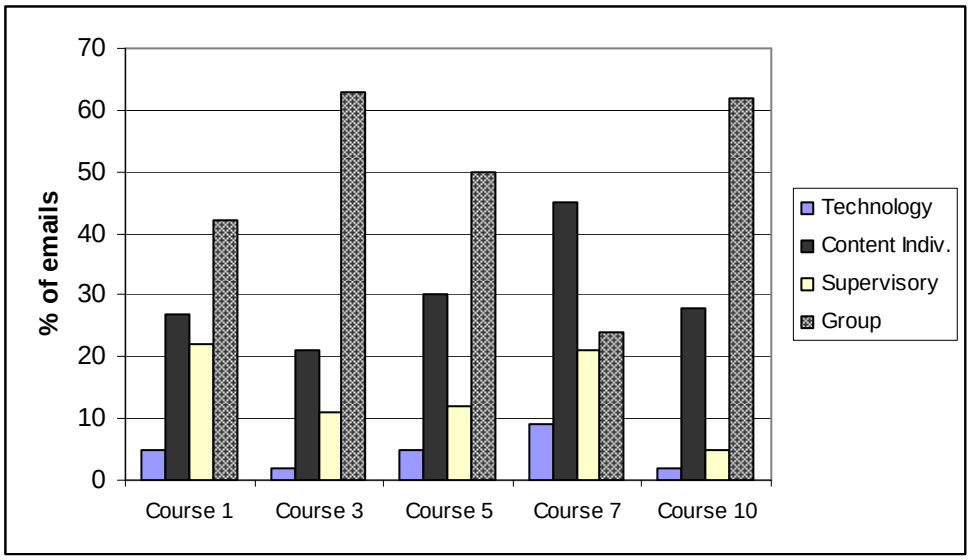

Figure 4.44. Teacher email categories.

Students were asked to make suggestions for how PEAC Online could be improved. As shown in Table 4.19 Course Structure had the most recommendations and the nature of these recommendations is also shown in Figure 4.45. Some students did not think any changes needed to be made to PEAC Online.

Table 4.19

Student Responses to How PEAC Online Could be Improved

Category	Comment	No. of responses
Support	Quicker teacher feedback	4
	School based support teacher	1
	Access to PEAC Online at school	1
	Computer information	1
Assessment	Clearer instructions	3
	Set assignment dates	2
Feedback	More communication with teacher	4
	Keep PEAC account to look back on	1
	Virtual classroom	1
Content	New courses	5
	More interesting activities	3
	Tasks to suit age group	1
Course structure	Broader time lines	5
	More games/fun activities	3
	More choices in activities	2
	Reduce workload	2
	Set times for interaction (synchronous)	1
	More writing tasks	1
	Chat rooms on all courses	1
	Put links to activities on homepage	1
No changes		7

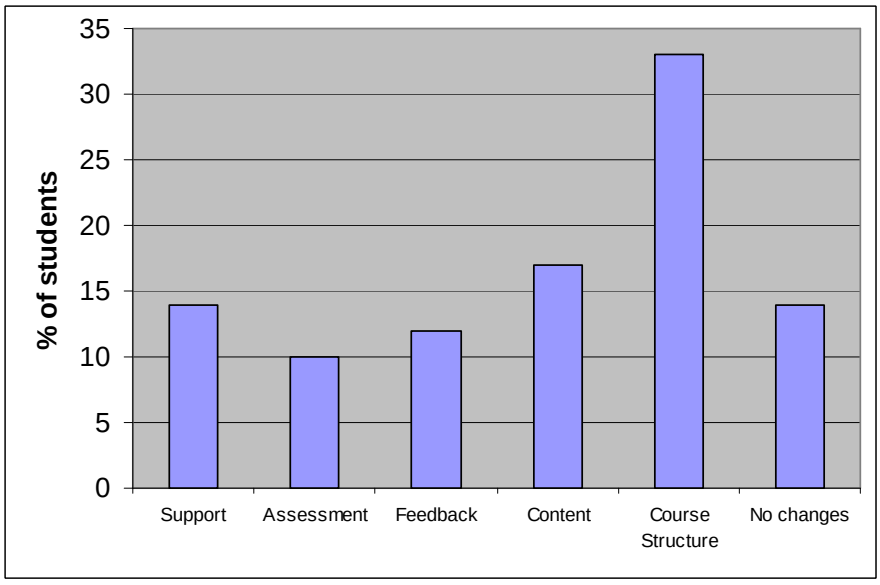

Figure 4.45. 'How could PEAC Online be improved?'.

The final data collected was regarding equity. DET was committed to providing equitable access to all students. In Figure 4.46 and Figure 4.47 the academic and participation performances of metropolitan and rural PEAC Online students was compared. There was little difference between the participation scores of country and city PEAC Online students. However, 13% more country PEAC Online students performed at level 5 (Not Evident) for academic performance than the city students as shown in Figure 4.47.

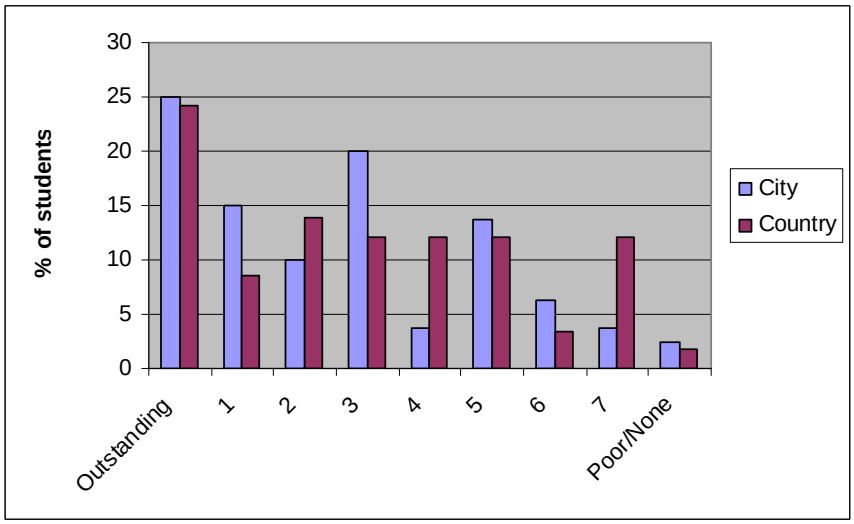

Figure 4.46. City/Country comparison of participation.

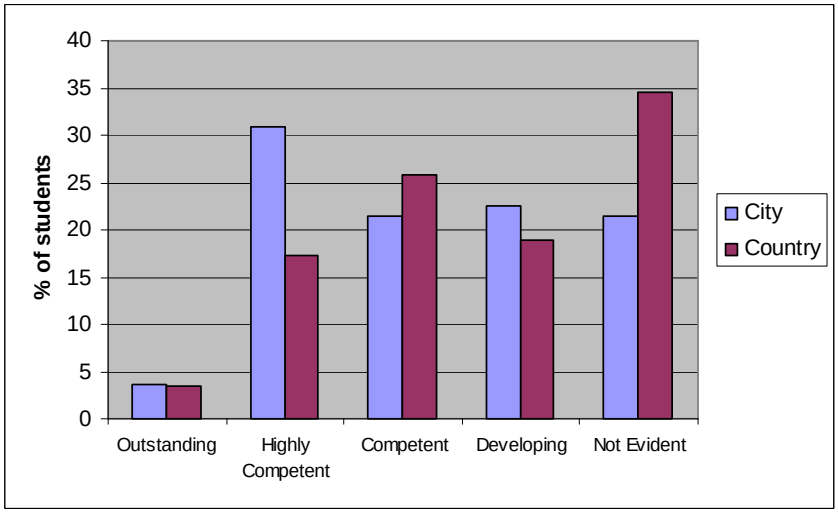

Figure 4.47. City/Country comparison of performance.

Figure 4.48 shows that 69% of the girls who were PEAC Online students received an Outstanding to Competent assessment compared with 40% of boys. Developing or Not Evident assessment was received by 32% of girls and 59% of PEAC Online boys received this assessment. No significant difference as shown in Figure 4.49 was found between participation of female and male students. Of those students who were given an Outstanding participation assessment, 26% of girls and 24% of boys received this grade. Of the girls 69% received a report performance of Outstanding to Competent and 40% of boys received this grade..

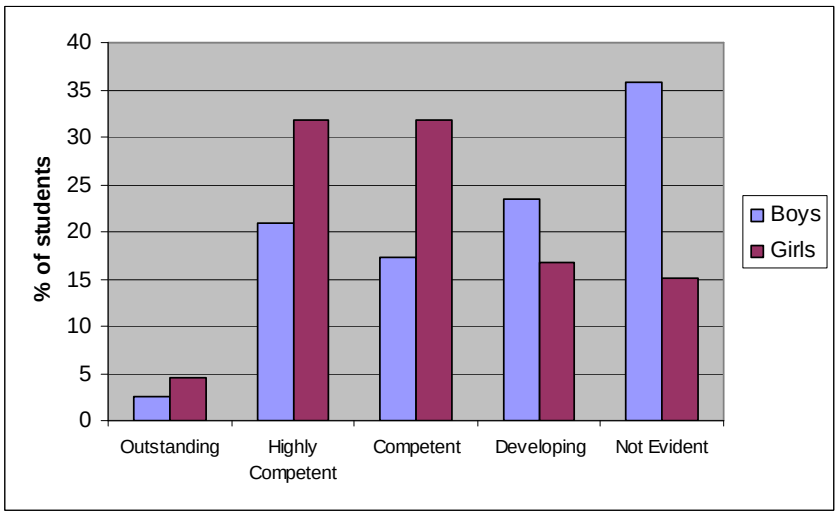

Figure 4.48. Student gender and performance.

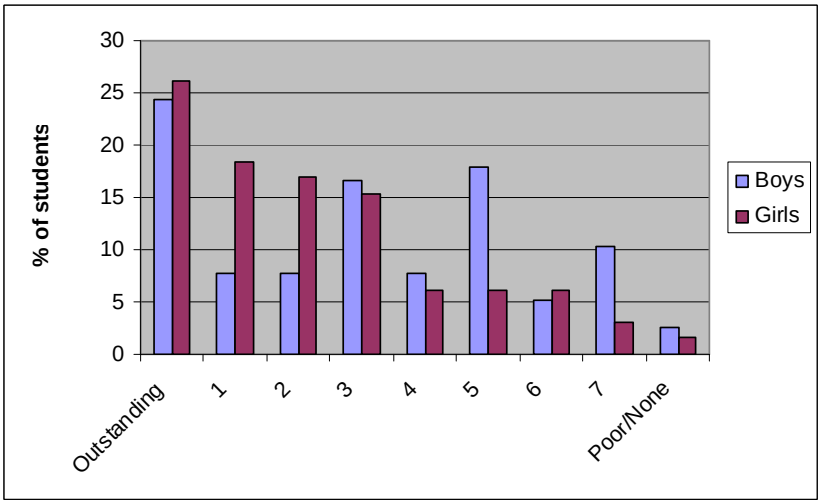

Figure 4.49. Student gender and participation.

4.6 Summary

In summarising the data collected, the results were looked at in the context of the four research questions.

Question 1: Do the PEAC Online teachers have adequate support to:

a. develop an online course?

b. facilitate an online course?

The research firstly looked at the experience of the teachers and their possible need for support and the consequences that this may have on the achievement of the students. To measure the effect of this the students' report results were used to compare against the category of experience of each teacher. The results showed that there was either no or little correlation between the two.

One of the major issues identified in the research by teachers was the amount of time spent on the online courses. Data collected showed that the teachers are spending more than twice their allocated time on the online courses and the majority of that time is spent working from home. To be able to do this all of the teachers who work from home have spent money on either or both software and hardware to do so. In comparing the students' results of those whose teachers spent more time on the course and worked from home compared with the teacher who only worked at school

in the allocated time, the results showed that their was no significant difference in the results of the students no matter where of how long the teachers spent working on the course.

Many of the teachers involved in PEAC Online had completed some type of extra study or skill development in their own time to supplement their current skills. Some professional development was completed during school time in both online teaching and gifted and talented education. However, teachers found that the most effective professional development to be at point of need, one-on-one with the coordinator and whole days where they can work together in their own support network on courses and share information. All teachers felt that improvements could be made in the resourcing of professional development, especially in time and personnel.

The main challenges identified by the teachers included time demands and the lack of adequate FTE, maintaining student interest so that students don't dropout and can keep up with the timeline of the course, the technical knowledge needed to run and maintain the courses, and keeping up constant communication with the students despite the lack of face-to-face contact. Other disadvantages of online learning were seen as; a greater range in the quality of work, less interaction between students and more preparation and time required by the teacher. Advantages of online learning were seen as; students being able to work independently, online learning caters for different learning styles, the anonymity of online learning allows more interaction from more reserved students, and learning online immerses the students in ICT skills.

Question 2: Is there adequate support to facilitate the successful implementation of PEAC Online programmes for student guides?

More than two thirds of the students logon on to their course from home with the top three responses for why they chose to do so being; 'I could work in my own time', 'I couldn't do it at school' and 'I found it easier to work'. With these students, parents were identified as being the main person to supervise and support the student. More than 50% of parents are spending at least 30 mins a week supporting their child with the course. An almost equal number of parents rated the support they received from the school and Swan PEAC centre as excellent and poor. When asked about the

importance they placed on the programme, the support people rated PEAC Online as important to highly important but felt that the school only placed some importance on the programme.

School personnel rated the programme differently according to their role in the school. While 30% of school administrators such as principals and deputy principals rated the programme of a high importance only 17% of class teachers saw PEAC Online as highly important. Overall, the 62% of support people rated PEAC Online as excellent and 57% felt the support received from Swan PEAC Centre was good to very good.

The students who worked at school on their online course mainly worked in either their classroom or the school computer room. Most were given between 30 and 60 minutes per week to work on their course compared with one to two hours a week spent by those students who worked at home. The data showed that the location of where students are logging on has no great impact upon the participation and performance results they are achieving as well as the enjoyment of the programme.

Question 3: Are the courses developed by online teachers suitable for gifted and talented students in terms of;

l. course content
m. course structure
n. use of interactive course elements

The online courses were rated against criteria that would be expected in a gifted and talented online course by the teachers who deliver the courses. Seven of the ten courses scored over 50% against the criteria.

Question 4: How do the students enrolled in PEAC Online programmes perceive the online learning environment in terms of;

i. teacher support
j. personal relevance
k. student autonomy (opportunities for independent learning)
l. equity

m. *whether the asynchronous nature of the discussion forum promotes reflective thinking*
n. *opportunities for online communication with fellow students, content experts and online teachers (interaction and collaboration)*
o. *support resources*
p. *enjoyment of the programme*

An adapted version of the Online Learning Environment Survey showed that in almost all categories at least 60% of respondents answered positively. However, the results in the Student Interaction category showed that students are not interacting with other online students as expected. Students also cited not being able to see each other as being what they least liked about learning online. This was also supported by the fact that over 40% of the students responded that they felt that they were working with a computer rather than working with others using a computer when working online.

Teacher interaction with the students through emails had a significant correlation with how often the students logged on, the amount of social interaction the students had with the teacher and other students, the amount of learning interaction the students had with their online course and the students' enjoyment of the course. Enjoyment of the course also had a high correlation with the students' report performance score. The content of most of the contact received from the teachers was sent to the students as group emails rather than individual emails.

PEAC Online had a high and fairly consistent dropout rate throughout the semester resulting in 45% of students receiving the low level performance scores of 4 and 5 out of 5. The number of courses completed by the student had no effect on the performance score achieved by the student. The main reasons students gave for not completing the course were that the course was *'not interesting'* or *'too hard'*. This response was given across all the courses.

The main reason students chose to do PEAC Online was because of it's time flexibility and this reason was also the main reason cited for what was most enjoyable about learning online.

Students were generally happy with the amount of feedback that they received from their teacher, however 50% felt that the time it took for their teachers to respond was ‘a little slow’ or ‘too slow’. This was suggested as being an area that could be improved on as was course structure.

Regarding equity, there is no significant difference between the performance and participation of city and country students. However, there is a difference between the performance and participation of girls and boys. Generally, girls participate more and achieve higher levels of performance than boys.

Chapter Five looks further at these results, discusses the findings and implications of the study and includes recommendations for best practice in online learning for gifted and talented primary school aged students.

CHAPTER 5

DISCUSSION OF RESULTS

5.1 Introduction

This chapter brings together and discusses the results of the study based upon the four research questions. For each of the questions, it discusses the findings and implications of the results linking each with research previously done in this area.

5.2 Online teacher support

Online teachers are spending twice the amount of time allocated in FTE to administer their PEAC Online course. No clear breakdown of teacher time use was identified in this research but more time was spent working at home on PEAC Online than at school for the majority of teachers. This may have been an indication of times of contact between teacher and student and also teachers taking advantage of the flexibility of the programme and working at home. Data collected in this research show that teachers delivering courses mainly from home instead of at school has no effect upon student performance (see p. 32).

There is little research that quantifies the amount of time needed to teach online courses. One study indicated that online courses required between 3.5 and 7 hours per week, however no student numbers were matched with this time and the study referred to tertiary education. (Lazarus, 2003). This study found that *'unlike live courses that meet between 1 and 3 times per week, the instructor needs to be online and available to students each day'* (Lazarus, 2003). One explanation for the amount of time that many teachers involved in PEAC Online delivery are spending at home, as opposed to time at school, could be explained in terms of the *'need to be online and available to students each day'*. Working at home allows this flexibility.

New teachers were heavily reliant upon more experienced online teachers for support in their new role. There is a need for more comprehensive and sequential training for new teachers to online learning and continual networking of best practice amongst

PEAC Online teachers. Whilst geographic isolation of teachers and their commitments to face-to-face classroom teaching are obstacles to this practice, increased feedback amongst teachers through informal and formal meetings, moderating sessions and anecdotal discussions could be used as a means of identifying key competencies for online teaching and student and course success.

A positive correlation between the two variables of teacher experience and report performance would show the strength of the relationship between the two variables however there was a low negative correlation between these two variables. An educational belief that experience results in increased student academic performance is not evident in the data collected in this research in fact it was found that more experienced teachers had poorer academic performance overall. Factors affecting this could be higher expectations of experienced teachers, no clear outcomes for assessment and experienced teachers being more confident and familiar with online teaching.

One possible reason for the disparity between the three variables, student participation, student performance and teacher experience, which educationally we would expect to be inter-related, could be because of the very nature of PEAC students and that each of these teachers who operate these courses work independently of each other and no agreed outcomes form the basis for assessment. Another reason for the disparity could be the nature of online learning and in terms of teacher experience in the primary school sector, this is new practice and no research or pedagogy has underpinned its implementation in Western Australian schools. Although distance education has a well established tradition, online learning 'represents the future, although its philosophical and pedagogical approach seem firmly rooted in the past…with much e-learning' being the 'digital descendent of the correspondence course' (Cannings & Stager, 2003, p.1) This does suggest that benchmark competencies need to be in place for teachers of PEAC courses and targeted professional development provided to ensure ongoing maintenance of said competencies.

PEAC Online teachers acquired professional development predominately in their own time and this skill development was sourced by the teachers individually. This

was mainly due to the lack of professional development being offered to the PEAC Online teachers as a group. Although teacher knowledge was shared it was predominately only done on an individual needs basis and not shared with all other PEAC Online teachers. Major factors contributing to this are geographic distance, lack of time and lack of shared time of PEAC Online teachers on a regular basis.

5.3 Student guide support

There was a general consensus from responses from support people that the level of communication needed to be improved. The data supports that PEAC Online teachers were communicating through emails to students but there was a difference between teachers in the regularity of emails. Another difference noted was the type of emails that teachers were sending, group emails constituting the majority of emails sent. Whilst there is a place for group emails it lacks the individual attention that students and parents are used to receiving at the school level and this is supported by the types of comments made by parents and students.

> *My child was sometimes frustrated at the delay between sending work in and receiving an acknowledgement of it – perhaps a quick 'been received – comments later' would allay the fear that it has been "lost" in email world.*

> *More personal feedback that was directed specifically to my child's work would have I believe helped to sustain his interest in the course.*

> *This is the second course my daughter has done online and they couldn't have been more different. The teacher, this time, was extremely slow in responding to emails on new modules that my daughter submitted. This has resulted in her running out of time to complete the course. There was a distinct lack of support from the teacher and I feel that this course was run very poorly. My daughter is very upset that she was unable to finish the course and this was through no fault of her own as she worked very hard throughout.*

One of the common suggestions made by support people was an improvement in the responses to emails from students. Rather than courses becoming an 'email nightmare', the need to think of different ways to engage communication and participation in courses is required. Communication that informs the teacher of student progress, communicates this to parents and schools, supports student learning needs without requiring the majority of support to come from parents and allows for independent and creative tasks that develop both academic and social/emotional learning for students. There needs to be clear guidelines and assessment for students based on open-ended tasks that provide opportunities for gifted and talented students to extend their learning.

Students are working predominately at home and the majority of the support they receive comes from their parents. The data do not show that there is any difference between student performance and the location of where they are working on PEAC Online. Therefore considering the large percentage of students who receive 'Developing' and 'Not Evident', either through poor performance or dropping out of the online course, home support is not enough to ensure success of online learning. A more global support structure from the school, PEAC Online and home is recommended.

Parents value PEAC Online highly but they have a perception that schools do not value it. Schools on being asked to rate the importance of PEAC Online actually placed equal value with parents on the programme however this belief is not being demonstrated to parents. Because parents are the main sources of support for PEAC Online students, 85% of support to students is coming from them; this could lead to their belief that the school does not place the same value on the programme as the school is only providing 15% of the support to students. School personnel believe that PEAC Online should be done at school during class time. This belief is contradicted by parent perceived value that the school places on PEAC Online, therefore there is a need for greater communication to occur between all parties involved in PEAC Online. Greater communication may account for the 34% of school personnel who believe that PEAC Online should be done at home by students in their own time.

According to the support people some schools provide excellent support for the online student, however almost equal number of support people view the support provided by schools as poor (see p.42). There are no real guidelines available to schools on how they can support the online student. The support person also rated the support received from Swan PEAC Online and 61% rated this as good to excellent however 39% rated support as fair to poor and 33% rated it as poor. Anecdotal responses suggest that reasons for rating Swan PEAC Online support as poor are due to inability to contact PEAC Online teachers and the slow responses to student emails.

> *My child was sometimes frustrated at the delay between sending work in and receiving an acknowledgement of it – perhaps a quick "been received – comments later" would allay the fear that it has been "lost" in email world.*

Improved lines of communication would overcome these concerns.

Overall some 60% of support people rated the PEAC Online programme as excellent. Parents are fully supportive of this initiative of the Department of Education and Training through the Swan Education District and are grateful for the opportunity it gives their student however they feel that there is room for improvement in some areas.

> *I'm really glad my son has had the opportunity to do PEAC Online as he's practised valuable independent learning skills, socialised with like-minded students and enjoyed a wider range of content and activities. Keep up the great work! And keep improving.*

> *Online learning is education of the future. I feel that if a student can learn using this method then they are well placed for the future. PEAC Online encourages self directed learning/self motivation. Excellent learning option!*

There needs to be reciprocal value placed on both the learning that occurs at the school base and the learning that occurs at PEAC Online. Improved communication

between PEAC Online and the school is needed and student achievement of outcomes through PEAC Online needs to be included in the school formal report. Student support people did not seem to require any other support or training and 46% did not respond to this question. The few comments received focused on resources that would help.

> *Perhaps an advice pack for the particular course my son is taking to let me know what I should and shouldn't be helping him with.*

> *Maybe a manual of some description would be helpful for tricks and tips for computers and programmes.*

Motivation was identified as a challenge for some support people.

> *The challenge is in keeping motivation levels up... trying to make it seem like fun rather than more work.*

Children who are involved in PEAC Online also have full workloads at school and an understanding of this needs to be established, therefore allowing students opportunities to work at school on PEAC Online reduces the additional workload that troubles some support people. Mason (1998) identifies the importance of providing motivation for students,

> *…finding incentives for students to participate actively, providing some synchronous events to maintain their interest and enthusiasm, supporting them in taking responsibility for their learning.*

Providing synchronous opportunities at school for online learning would reduce the pressure on parents to try and keep their children motivated.

5.4 Online course suitability

The Western Australian Department of Education and Training has established PEAC to provide programmes that cater specifically for gifted and talented students.

As identified on the Gifted and Talented DET website under Supplementary Provision – Primary, the focus of PEAC programmes is clearly outlined. This study found that some of the identified focii for gifted and talented students are not being provided consistently through PEAC Online. These programmes should focus on:

5.4.1 Social interaction with gifted and talented peers

Gifted and talented programmes should provide opportunities for social interaction with other gifted and talented peers and although interaction played a significant part in academic achievement for students in PEAC Online, and was identified as something students liked the most about PEAC Online, they also identified not being able to see other class members as what they liked the least about their online course. Therefore although interaction is playing an important role in the current implementation of PEAC Online, there is a need to introduce and provide new opportunities for student interaction, for example, synchronous learning through live webchat.

5.4.2 Intellectual rigour and challenge

Many students and parents commented on the challenge and enjoyment of the courses, however a major factor for withdrawing from courses was due to the difficulty of courses. This suggests that some students did not choose the right course or they were under the standard expected of gifted and talented or the courses were pitched above their level.

5.4.3 The pursuit of excellence

One of the PEAC Online teachers commented that some of the work produced by students *'is outstanding and some is rubbish'*. This could be due to different levels of support received at home by students and different levels of expectation over standards of work. Not many students who participate in PEAC Online receive Outstanding, in Semester 1, 2006 only 3.4% of students received outstanding. Moderation of work against outcomes and rubrics of assessment provided to students may produce more outstanding work.

5.4.4 Development of higher order process skills

This was not consistent across all courses, as identified by PEAC Online teachers in their evaluation of the criteria in courses. Many tasks strongly resembled classroom work.

5.4.5 In-depth investigations of real problems

Renzulli (1986) said that individual and group investigations of real problems are more appropriate for gifted students as they allow for the generation of creativity. In this study, it was not fully evident that the courses did achieve this in the eyes of the students as suggestions for improvement from students and support people indicated a need to make courses that were suitable for the age and development of the enrolled students. One of the main reasons given for student withdrawal from courses was that it was not interesting and the courses were too difficult, that is not based on real experiences that students relate to.

5.4.6 Open-ended activities which encourage choice and negotiation

Although there were degrees of open-endedness about some tasks, this was not fundamental to many programmes and open-ended tasks allow for students to develop their own independent thought on a task which helps to maintain interest level.

5.4.7 Opportunities to interact with practising experts

Based on the current set-up of PEAC Online this could be difficult, unless provided through web links which is found in some courses.

5.4.8 Students working at their own pace

There is a clear opportunity for students to work at their own pace, however this was hindered by the speed of feedback from PEAC Online teachers, links or pages not being available and realistic time expectations on tasks.

5.4.9 Self/peer evaluation and reflection of performance

While PEAC Online students are expected to work at own pace and show a level of independence, there is room for group investigation, synchronous learning to enhance communication and interaction of online learning.

Students who were highly interactive with PEAC Online, through interaction with teachers by accessing emails, logging on to WebCT and through interaction with other students by emails and discussion board also were assessed as performing at a high level. A high correlation was established between student participation and student performance.

PEAC Online teachers identified *maintaining student interest* as one of the main challenges to their role. Dewey (1956) believed that learning was active and children came to school to do things and live in a community which gave them real, guided experiences which fostered their capacity to contribute to society. Dewey believed that students should be involved in real-life tasks and challenges which concurs with student anecdotal suggestions that new courses were needed with more interesting activities that were suitable to their interest and age group. The majority of suggestions made by students were directed towards course structure and suggestions included more choice in activities, which supports more open ended tasks. The two major reasons that students dropped out of courses were that the courses were not interesting and the tasks were too difficult.

> *Too much emphasis on assessments. Too little interaction with the online teacher to explore concepts. Some tasks are way too challenging or the technology is too chunky. Why not try some taped lectures, mpg's, video conferencing and more visually superior presentation.*

This suggests an overhaul of current courses and the introduction of new courses.

The Western Australian Department of Education and Training's policy on Gifted and Talented students requires that;

> Schools, districts and central office…implement procedures to identify gifted and talented students…to ensure that these students achieve optimum educational outcomes…that the educational needs of gifted and talented students are being met. (DET gifted & talented website)

The provision of PEAC and PEAC Online is the Department's strategy to provide this. The research findings for this study found that 50% of the enrolled students received an academic level of Developing or Not Evident, which on the PEAC Online scale is below Competent. This suggests that for half of the students who enrolled in the PEAC Online programme, the programme is not meeting their needs and enabling them to *'achieve optimum educational outcomes'*

5.5 Student perceptions of the online learning environment

> *Identification processes should be inclusive to ensure gifted and talented students are not disadvantaged on the basis of gender, racial, cultural or socioeconomic backgrounds, physical or sensory disability or geographic location…Identification should be a flexible, continuous process to allow for the recognition of gifts and talents that may not be apparent at first.* (DET gifted & talented website)

At present there is an almost equal enrolment of boys and girls in PEAC Online however there is a significant difference between the participation rates of boys and girls. More than 20% of boys than girls are not completing the course. Girls consistently achieve higher results.

PEAC Online is inclusive as it offers courses across nine districts in Western Australia. Geographic isolation has been eliminated for gifted and talented students. More students in the country are enrolling but are not completing their PEAC Online course, around 15% more than city students. City students are performing at a slightly higher level than country students.

> *The relationship between the student and the instructor, in terms of the students' satisfaction with their communication with the teacher, is one of the factors that distinguish students who choose to continue or dropout.*
> (Willging & Johnson, 2004, p.108)

However in terms of this study the drop out rate is much higher than would normally be expected (45%), although little empirical data has been collected in online learning with 10 – 12 year olds, a recent report in the Chronicle for Higher Education found that *'institutions report drop out rates ranging from 20 to 50 percent for distance learners'* (Wilging & Johnson, 2004, p.108) If communication in the form that is occurring in PEAC Online at the moment was a clear indicator of course success, then we would expect to see greater numbers of students completing courses and succeeding in courses. Communication is important within a classroom environment, however in online learning students are not sitting in classrooms, and this doesn't diminish the importance of communication and attachment that students have in their learning environment, what is needed is to determine the types of communication and in what form to produce the same commitment and relationships that are evident in the traditional classroom.

There seemed to be a small negative correlation between teacher emails and student participation and performance, data collected through responses indicated that students believed they did not have enough interaction with their teacher and they felt that feedback was not quick enough. This feedback was supported by anecdotal comments from parents and support people who noted that quicker feedback and more information regarding student progress was needed and viewed as important to the success of their student's achievement.

5.6 Summary

In its discussion of PEAC Online in relation to the four research questions, this chapter identified the following main points;

- The PEAC Online teachers are generally providing more than the expected time on their courses, generally from home, with little targeted professional development but with support from within the PEAC team. The teachers are working without a set of competencies and are relying on the experience of the longer serving teachers to guide them.

- Support for the students is mainly provided by parents as the students complete most of the course at home. Parents believe that the communication between the school, the PEAC centre and the parents themselves needs to be improved. Parents felt that the schools did not place a high value on the programme whereas they saw PEAC Online as being very important.

- The suitability of the courses was matched against the criteria provided by the Department of Education and Training's guidelines for gifted and talented students. The study found that none of the nine criteria was being achieved satisfactorily by the programme and all could be improved to help students achieve according to their potential.

- PEAC Online is an inclusive programme but regular and improved communication between the teacher and the student is required to help stop the high dropout rate with its subsequent low report level.

The next chapter looks at each research question in turn and makes recommendations for best practice in online education for gifted and talented primary school aged students. Limitations and implications for future research are also identified.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This study is based on four research questions that seek to evaluate the effectiveness of the PEAC Online programme. This chapter looks further to make recommendations for best practice based on the findings of the study. Each research question is looked at in turn, a conclusion made and recommendations for best practice based on this. Following this, the limitations of the study are outlined with suggestions made for further research.

6.2 PEAC Online teachers

Do the PEAC Online teachers have adequate support to:

A. develop an online course?

B. facilitate an online course?

Teachers are spending more than twice the allotted time (0.1FTE) in developing and delivering the online courses. The majority of teachers are spending more than half of that time working from home and have been required to upgrade connections at home to do this.

Professional development is conducted by two online teachers who are self taught and who access their information and technology through networks and the World Wide Web. The professional learning programme is opportunistic and conducted when all teachers are in Perth on business with the content dependent upon the needs of the teachers at the time.

Some courses and assessments did not clearly link to the Outcomes and Standards Framework and no evidence of moderation between PEAC Online teachers was found.

Recommendation 1: That online learning for gifted and talented primary students be endorsed and supported by the DET as it provides equity of access for all gifted and talented students to participate in appropriate programmes.

Recommendation 2: That one centre for online learning for gifted and talented primary and secondary students be established that has fulltime teachers trained for online delivery with a full-time Online Learning Coordinator. The centre would also include access to web designers, course writers and content experts in gifted and talented education, and key learning areas so course design reflects online learning as opposed to face to face learning.

Recommendation 3: That the programmes developed within this centre for primary and secondary gifted and talented students reflect a developmental approach to learning and to the use of technology.

Recommendation 4: That DET put in place processes to support and sustain the online learning programme. This would include centrally managed training for teachers and access to the technological infrastructure and software necessary to host programmes that are accessible to students, that foster social interactivity and that are rigorous in their content.

Recommendation 5: That the programmes developed within this centre for primary and secondary gifted and talented students are outcomes based, evaluation and assessment is moderated.

Recommendation 6: That a coordinator responsible for online gifted and talented education be appointed within the proposed centre.

Recommendation 7: That the teacher student ratio for primary be 1:15 ratio per PEAC Online course and in its current format FTE increased to 0.2.

Recommendation 8: That a set of guidelines be developed that articulate best practice principles for developing and delivering online courses for all students, including the gifted and talented.

Recommendation 9: That benchmark competencies are put in place for teachers of PEAC courses and targeted professional development provided to ensure ongoing maintenance of said competencies.

Recommendation 10: That more comprehensive support materials and guidelines are developed to support administrators, teachers and parents with the online learning programme conducted within schools.

6.3 Support person

Is there adequate support to facilitate the successful implementation of PEAC Online programmes for student guides?

Parents rate PEAC Online very highly and are appreciative and supportive of the opportunity it provides their child; however they believe that schools do not place a high value on the programme. The response from school staff showed they do value PEAC Online and believe that students should work on PEAC Online at school, however the majority of the work done by students on PEAC Online is done and supported at home.

This disparity of perceptions may influence parents in the decisions they make about their child's future education. It is an area that needs to be addressed by schools and improved communication between PEAC Online, schools and parents would help to achieve this.

Students do most of the course work at home with a parent providing the support. The type of support given is equally balanced between technological, supervisory and content. As most course work is done out of school hours, there is little accountability for students to complete the tasks.

Recommendation 1: That more interaction and feedback occur between online teachers schools and parents. School reports should include reference to student performance in PEAC Online against outcomes.

Recommendation 2: That an increase in communication and working relationships are developed between online teachers, schools and support people to foster and encourage PEAC Online students to continue with online instruction.

6.3 Course suitability

Are the courses developed by online teachers suitable for gifted and talented students in terms of;

o. course content
p. course structure
q. use of interactive course elements

PEAC Online courses are modified PEAC courses and are chosen for their subject matter and current appeal. Students choose PEAC Online courses by topic and many find the courses interactive and relevant.

Student support people generally believed that improvements were needed in course content to be directed more to age group interest and increased interaction.

Recommendation 1: That clear guidelines are established for assessment of participation of students.

Recommendation 2: That communication between schools and PEAC Online in respects to what outcomes students are working towards in PEAC Online courses and how these match to a schools Schedule A for reporting purposes.

Recommendation 3: That course assessment and structure is built around open-ended tasks that provide for challenging opportunities and allow for multiple perspectives on any given topic and increases the suitability to a greater audience.

Recommendation 4: That there should be consistency of materials within the course structure, so that there is a consistency for students irregardless of the course they are doing.

Recommendation 5: That testing of PEAC students be more inclusive of different learning styles.

6.4 Online students

How do the students enrolled in PEAC Online programmes perceive the online learning environment in terms of;

- teacher support
- personal relevance
- student autonomy (opportunities for independent learning)
- equity
- whether the asynchronous nature of the discussion forum promotes reflective thinking
- opportunities for online communication with fellow students, content experts and online teachers (interaction and collaboration)
- support resources
- enjoyment of the programme

The student dropout and poor course achievement results found in this study were mainly due to students not finding the course interesting or the course being too difficult. Although there was a medium relationship between teacher interaction and student enjoyment of PEAC Online courses, there was a high correlation between student performance and participation in a course. The more the student participated in the online course through WebCT the higher their achievement. Girls perform better in both participation and academic achievement in online courses. Metropolitan students perform better than rural students.

Recommendation 1: That the PEAC Online programme be extended to students across all education districts.

Recommendation 2: That each course is designed to include asynchronous and synchronous interaction for students to foster a sense of community and enable them to communicate with other gifted and talented students.

Recommendation 3: That students participate in the online programme during school hours and that this programme is delivered both synchronously and asynchronously. Students should be involved in at least one face-to-face activity per year.

6.5 Limitations/Future research

This research did not specifically ask teachers how they assessed participation and academic performance and some of the suggestions that have been made could already be in practice by PEAC Online teachers.

Teachers were asked to keep a log book of the time spent on online and the type of activity being done. There was not a consistency of entry from the teachers who did fill in the log and this was perhaps a fault in the construct of the log sheet.

No clear opportunity was provided for the recording by the coordinator of PEAC Online or online teachers to record the nature of the interaction amongst other PEAC Online teachers.

In considering enrolment status of students no information was collected on racial, cultural or socioeconomic backgrounds. This information would address more issues relating to inclusivity within the PEAC Online programme. Further research into why gifted and talented students in the metropolitan area are performing at a higher level than their rural counterparts and why more rural students are not completing the course they start. Finding out about these areas will lead to recommendations and improvements in course delivery.

Email is one factor that contributes to social interaction between students and further study is needed of what other forms of interaction there are between students and what other forms of interaction are possible in an online learning environment, i.e. discussion boards, phone calls, student emails to students, webcam etc. Interaction was noted on the discussion boards but the majority of this interaction was of a social context rather than content discussions. Further research into possible types and formats of communication in online learning may result in more development of a sense of community amongst the online students.

Further research needs to look at why students are not continuing with online learning and what reasons students have for withdrawing from the programme. Are the students who are withdrawing going back to PEAC Centres and if not why is this programme losing gifted and talented students? This would give insight into what the programme needs to encourage students to stay in PEAC at primary school and ATP in Secondary School and reduce the number of students who leave public education for the opportunities provided by the private sector. It is not known how many PEAC students continue on to ATP at secondary school and also how many gifted and talented students' public schools are losing to private schools.

A significant limitation of some of the findings presented in this report is the subjectivity of teacher assessments, particularly participation and performance. More defined evaluation methods form part of the recommendations. Over the period of data collection students often changed their responses to the same question and the age of the respondents, being 10 – 12 could be seen as a limitation of the reliability of the data.

6.5 Concluding comments

PEAC Online is at the cutting edge of teaching and learning in primary gifted and talented education. The programme owes its current status to the dedication of a small group of teachers who, with limited resources and support, have created an online learning environment for gifted and talented primary students across the state.

This evaluation has found that although PEAC Online is generally not yet achieving the results expected from its gifted and talented students, the infrastructure has been created and can be improved and refined using the recommendations made in this study.

PEAC Online has the support and interest of the students, their parents and schools who all place a high value on its importance; however, for PEAC Online to continue to develop and achieve its potential as an effective provider of education to young gifted and talented students, it requires additional support above what is currently provided by the Department of Education and Training.

The potential in online learning for gifted and talented students is huge. PEAC Online has the foundations of an innovative and effective programme and, with the right resourcing, funding and teacher development by the Department of Education and Training, the education of gifted and talented students, no matter where they live in Western Australia, looks to an exciting and promising future.

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Every reasonable effort has been made to acknowledge the owners of copyright material. I would be pleased to hear from any copyright owner who has been omitted or incorrectly acknowledged.

APPENDIX A

Department of Education and Training
Government of Western Australia
Swan Education District Office

PEAC ONLINE

Dear Principal

For five years the Swan Centre for Gifted & Talented Education has been running online courses for PEAC students who, for a variety of reasons, are unable to attend PEAC centres. The Department of Education and Training is now interested in evaluating the effectiveness of this programme and then looking at directions for its future use.

Enclosed with this letter are envelopes for each PEAC Online student in your school. Each envelope contains;

1. Letter to class teacher
2. Student questionnaire with permission form (yellow)
3. Support person questionnaire (green)
4. 2x self addressed envelopes

It would be appreciated if you would pass on this package to the class teacher of each online student as soon as possible. All questionnaires sent back by Friday 14 July will receive a free mystery prize!

Class teacher:

Students:

PEAC Online is a unique and innovative programme. The completion of these surveys will make a valuable contribution towards not only the future of PEAC Online but also towards the future of online learning in Western Australian government schools. Your assistance with the distribution of these surveys would be greatly appreciated.

Kind regards

Julie Smith
District Curriculum Officer
PEAC Online Evaluation

23 June, 2006

APPENDIX B

Department of Education and Training
Government of Western Australia
Swan Education District Office

PEAC ONLINE

Dear Class Teacher

For five years the Swan Centre for Gifted & Talented Education has been running online courses for PEAC students who, for a variety of reasons, are unable to attend PEAC centres. The Department of Education and Training is now interested in evaluating the effectiveness of this programme and then looking at directions for its future use.

Please find enclosed an envelope for each PEAC Online student in your class. We would like all online students to complete the survey even if they did not complete the course. It would be appreciated if you would pass the envelope on to the student.

Each envelope contains;

5. Student questionnaire with permission form (yellow)
6. Support person questionnaire (green)
7. 2x self addressed envelopes

Once completed the student will give the envelope back to you to either be posted or sent to us through the school courier system. All questionnaires sent back by Friday 14 July will receive a free mystery prize!

PEAC Online is a unique and innovative programme. The completion of these surveys will make a valuable contribution towards not only the future of PEAC Online but also towards the future of online learning in Western Australian government schools. Your assistance with the distribution of these surveys would be greatly appreciated.

Kind regards

Julie Smith
PEAC Online Evaluation
Swan District Education Office

23 June, 2006

APPENDIX C

Department of Education and Training
Government of Western Australia
Swan Education District Office

PEAC ONLINE

Dear Online student support person

For five years the Swan Centre for Gifted & Talented Education has been running online courses for PEAC students who, for a variety of reasons, are unable to attend PEAC centres. The Department of Education and Training is now interested in evaluating the effectiveness of this programme and then looking at directions for its future use.

Attached is a questionnaire for you to complete. Please answer as many questions as you can even if your online student did not complete the course or if you were only able to provide minimal support. All of your answers will be kept confidential. When finished, either place the form in the self addressed envelope and post back to us or fax it through to the fax number below. All questionnaires sent back by Friday 14 July will receive a free mystery prize!

PEAC Online is a unique and innovative programme. The completion of these surveys will make a valuable contribution towards not only the future of PEAC Online but also towards the future of online learning in Western Australian government schools. Your assistance with the distribution of these surveys would be greatly appreciated.

Kind regards

Julie Smith
PEAC Online Evaluation
Swan District Education Office

23 June, 2006

APPENDIX D

Department of Education and Training
Government of Western Australia
Swan Education District Office

PEAC ONLINE

SUPPORT PERSON QUESTIONNAIRE

1. How many students are you supporting to do a PEAC Online course? _____

2. What is your relationship to the PEAC Online student?
___ Classroom teacher ___ Library resource teacher
___ Parent ___ Principal
___ Teacher assistant ___ Support teacher
___ TAGS coordinator
___ Other Please specify _____

3. Where is the support taking place?
___ Student's Classroom ___ Other classroom in school
___ School library ___ Home
___ Other Please specify _____

4. On average, how much time do you spend helping each student with their online course each week?
___ None
___ Less than 15 minutes
___ Between 15 minutes and half an hour
___ Between half an hour and an hour
___ More than an hour

5. What type/s of support do you give to your online student/s?
___ Technological ___ Supervisory
___ Content ___ None

6. What importance do you feel your school places on the PEAC Online programme?
Please circle appropriate number.

No importance at all Very important

1 2 3 4 5

7. What importance do you place on the PEAC Online programme?

No importance at all Very important

1 2 3 4 5

8. How do you rate the support from Swan PEAC Online to help you with your online student?

Excellent Poor / None received

1 2 3 4 5

9. How do you rate the support from your school to help you with your online student?

Excellent Poor / None received

1 2 3 4 5

10. How do you rate the handbook sent to you from Swan PEAC Online to help you with your online student?

Excellent Poor / None received

1 2 3 4 5

11. If you are a class teacher, how useful is any of the online programme to you with your own class?

Not useful Very useful

1 2 3 4 5

12. How could Swan PEAC Online support you more with your role as an online support person?

13. How could the school support you more with your role as an online support person?

14. What other support or training would you like to have to help you?

15. What do you consider to be the most challenging aspect of your role in supporting your online student?

16. Finally, how do rate the PEAC Online learning programme overall?

Excellent				Poor
1	2	3	4	5

Other Comments?

Thank you for taking the time to complete this evaluation survey.

APPENDIX E

Department of Education and Training
Government of Western Australia
Swan Education District Office

PEAC ONLINE

Dear PEAC Online student

Thank you for being an online student this semester. Now that your course is about to finish, we would really like your help in letting us know your thoughts, feelings and suggestions about working online.

Enclosed with this letter is;

1. A questionnaire for you to complete. Please answer as many questions as you can even if you did not finish the course. All of your answers will be kept confidential.

2. A questionnaire for your main support person to complete. This is the person who gave you the most help to do your online work. This person may be your class teacher, your parent/s, the library teacher or whoever else supervises most of your time doing your online course.

When finished, place your questionnaire back in the self addressed envelope and hand back to your class teacher who will send it back to us. All questionnaires sent back by Friday 14 July will receive a free mystery prize!

*To take part in this questionnaire, you need to have the permission of your parent/caregiver. Please include this slip with your questionnaire.

We thank you for your help and look forward to receiving your questionnaires shortly.

Kind regards

Julie Smith
PEAC Online Evaluation
Swan District Education Office

23 June, 2006

APPENDIX F

Department of Education and Training
Government of Western Australia
Swan Education District Office

PEAC ONLINE

PERMISSION FORM

TO BE COMPLETED BY YOUR PARENT / CAREGIVER

To;

Julie Smith
PEAC Online Evaluation
Swan District Education Office
18 Blackboy Way, Beechboro WA 6063

I, _____ give permission for

my child, _____ to take part in the PEAC Online

questionnaire conducted by the Department of Education and Training. I understand

that all answers will be kept confidential.

Signed: _____

Date: _____

APPENDIX G

Department of Education and Training
Government of Western Australia
Swan Education District Office

PEAC ONLINE

STUDENT QUESTIONNAIRE

1. Overall, how did you enjoy working online? *Circle one.*

   I did not like it It was OK It was good It was great

2. Why did you choose to do a PEAC course online?
   Tick those that were true for you.

   It was easier to fit into my time. ____
   I wanted to learn using a computer. ____
   I don't like to be away from my class / friends. ____
   I live too far away from a PEAC centre. ____
   I can't get transport to a PEAC centre. ____
   I like to work on my own. ____

3. What was the main reason for choosing the course that you did?

   The title interested me. ____
   The topic interested me. ____
   The activities interested me. ____
   The subject interested me. ____

4. What do you like most about doing an online course?

5. What do you like least about doing an online course?

6. When you are online, do you feel as though you are working -

   with a computer or with other people using computers? *(Circle one)*

7. If you worked at school, where in the school did you work?

8. If you worked at school, how much time were you given by your teacher?

9. If it was a set time each week, why was that particular time selected?

10. If you worked at home, why did you do it there?

11. How much time each week did you need at home to complete the tasks?

30 min – 1 hour 1 to 2 hours More than 2 hours

12. If you did not complete your course, what were the main reasons?

Tick those that were true for you

Some tasks were too hard.	___
I didn't find the course interesting.	___
I didn't have enough time.	___
I had computer problems.	___
I had Internet problems.	___
I didn't have enough help.	___
I lost interest in the course.	___
The course was not my first choice.	___
There was too much reading & writing	___
I couldn't keep up with the tasks.	___
Other_____	___

13. How much feedback do you feel you got from your online teacher?

Too much Usually just right Usually not enough Hardly any

14. How do you feel about the time it took to get feedback from your teacher?

Too fast Usually just right Usually a bit slow Too slow

15. What suggestions do you have that would improve PEAC Online?

16. What other courses would you like to see offered online?

Thank you for taking the time to complete this evaluation survey.

APPENDIX H

Department of Education and Training
Government of Western Australia
Swan Education District Office

PEAC ONLINE

Dear Principal

Recently you would have received some questionnaires regarding the PEAC Online programme to pass on to PEAC Online students and their support person. The response to this survey was fantastic and we are in the process of collating all the data.

We found in gathering this data that most replies on support came from the online students' parents. As it is important to collect information from all stakeholders, we are sending this questionnaire to other personnel from your school who may be involved at some level with the online student.

Please note this questionnaire is related to PEAC students who were enrolled in an online course last semester.

Enclosed with this letter are questionnaires for;

1. A school administrator (Principal, Deputy Principal)
2. The PEAC/TAGS coordinator (if applicable)
3. The classroom teacher for each PEAC Online student last semester

It would be appreciated if you would pass on each questionnaire to the above people as soon as possible and return in the enclosed self addressed envelope by Friday 15 September. Please note each questionnaire returned by this date will be in a draw for a teacher's resource book on gifted and talented education.

We thank you for your continued support in this evaluation and look forward to your replies.

Kind regards

Julie Smith
District Curriculum Officer
PEAC Online Evaluation

30 August, 2006

APPENDIX I

Department of Education and Training
Government of Western Australia
Swan Education District Office

SCHOOL QUESTIONNAIRE – ADMINISTRATOR

Semester 1, 2006

1. How many PEAC Online students did your school have last semester?_____

2. Did they access PEAC Online
   ____ at school?
   ____ at home?
   ____ at both school and home?

3. Where is the computer located?
   ____ Classroom
   ____ Computer lab
   ____ School library
   ____ Other _____

4. What Internet connection does your school have?
   ____ Dialup
   ____ Broadband
   ____ None

5. Who organises the PEAC programme?
   ____ Administration
   ____ TAGS / PEAC coordinator
   ____ Classroom teacher
   ____ Other _____

6. Who organises the PEAC Online programme?
   ____ Administration
   ____ TAGS / PEAC coordinator
   ____ Classroom teacher
   ____ Other _____

7. When do your students complete their PEAC Online work?
   ____ At school during class time
   ____ At school during breaks ie recess, lunch, before/after school
   ____ At home in their own time
   ____ Other _____

8. When do you feel is the most appropriate time for PEAC students to complete their online work?

____ At school during class time
____ At school during breaks ie recess, lunch, before/after school
____ At home in their own time
____ Other _____

9. What support do you give to your PEAC Online student?
____ Technological
____ Supervisory
____ Content
____ Other? _____

10. How do you rate the support from Swan PEAC Online to help you with your online student?

Excellent Poor / None received

1 2 3 4 5

11. What importance do you place on the PEAC Online programme?

No importance Very important

1 2 3 4 5

12. What importance do you feel your school places on the PEAC Online programme?

No importance Very important

1 2 3 4 5

Other Comments?

Thank you for taking the time to complete this evaluation survey.

APPENDIX J

Department of Education and Training
Government of Western Australia
Swan Education District Office

PEAC ONLINE

SCHOOL QUESTIONNAIRE – PEAC COORDINATOR
SEMESTER 1, 2006

1. How many students did you support last semester to do a PEAC online course?_____

2. Where did the support take place?
___ Student's Classroom ___ Other classroom in school
___ School library ___ Computer lab
___ Other Please specify _____

3. On average, how much time did you spend helping each student with their online course each week?
___ None
___ Less than 15 minutes
___ Between 15 minutes and half an hour
___ Between half an hour and an hour
___ More than an hour

4. What type/s of support did you give to your online student/s?
___ Technological ___ Supervisory
___ Content ___ None

5. What Internet connection does your school have?
____ Dialup
____ Broadband
____ None

6. Who organises the PEAC programme?
____ Administration
____ TAGS / PEAC coordinator
____ Classroom teacher
____ Other _____

7. Who organises the PEAC Online programme?
____ Administration
____ TAGS / PEAC coordinator
____ Classroom teacher
____ Other _____

8. When do your students complete their PEAC Online work?
____ At school during class time
____ At school during breaks ie recess, lunch, before/after school
____ At home in their own time

____ Other _____

9. When do you feel is the most appropriate time for PEAC students to complete their online work?

____ At school during class time
____ At school during breaks ie recess, lunch, before/after school
____ At home in their own time
____ Other _____

10. What importance do you feel your school places on the PEAC Online programme? *Please circle appropriate number.*

No importance at all Very important

1 2 3 4 5

11. What importance do you place on the PEAC Online programme?

No importance at all Very important

1 2 3 4 5

12. How do you rate the support from Swan PEAC Online to help you with your online student?

Excellent Poor / None received

1 2 3 4 5

13. How do you rate the support from your school to help you with your online student?

Excellent Poor / None received

1 2 3 4 5

14. How do you rate the handbook sent to you from Swan PEAC Online to help you with your online student?

Excellent Poor / None received

1 2 3 4 5

15 If you are a class teacher, how useful is any of the online programme to you with your own class?

Not useful Very useful

1 2 3 4 5

16. How could Swan PEAC Online support you more with your role as an online support person?

17. How could the school support you more with your role as an online support person?

18. What other support or training would you like to have to help you?

19. What do you consider to be the most challenging aspect of your role in supporting your online student?

20. Finally, how do rate the PEAC Online learning programme overall?

Excellent				Poor
1	2	3	4	5

Other Comments?

Thank you for taking the time to complete this evaluation survey.

APPENDIX K

Department of Education and Training
Government of Western Australia
Swan Education District Office

PEAC ONLINE

SCHOOL QUESTIONNAIRE – CLASSROOM TEACHER
Semester 1, 2006

1. How many PEAC Online students did your school have last semester?_____

2. Did they access PEAC Online
   ____ at school?
   ____ at home?
   ____ at both school and home?

3. Where is the computer located?
   ____ Classroom
   ____ Computer lab
   ____ School library
   ____ Other _____

4. What Internet connection does your school have?
   ____ Dialup
   ____ Broadband
   ____ None

5. Who organises the PEAC programme?
   ____ Administration
   ____ TAGS / PEAC coordinator
   ____ Classroom teacher
   ____ Other _____

6. Who organises the PEAC Online programme?
   ____ Administration
   ____ TAGS / PEAC coordinator
   ____ Classroom teacher
   ____ Other _____

7. When do your students complete their PEAC Online work?
   ____ At school during class time
   ____ At school during breaks ie recess, lunch, before/after school
   ____ At home in their own time
   ____ Other _____

8. When do you feel is the most appropriate time for PEAC students to complete their online work?

____ At school during class time
____ At school during breaks ie recess, lunch, before/after school
____ At home in their own time
____ Other _____

9. What support do you give to your PEAC Online student?
____ Technological
____ Supervisory
____ Content
____ Other? _____

10. How do you rate the support from Swan PEAC Online to help you with your online student?

Excellent Poor / None received

1 2 3 4 5

11. What importance do you place on the PEAC Online programme?

No importance Very important

1 2 3 4 5

12. What importance do you feel your school places on the PEAC Online programme?

No importance Very important

1 2 3 4 5

Other Comments?

Thank you for taking the time to complete this evaluation survey.

APPENDIX L

Department of Education and Training
Government of Western Australia
Swan Education District Office

PEAC ONLINE

PEAC ONLINE TEACHER'S TIME LOG
Semester 1/2006

Name: _____

Course/s: _____

DATE	PLACE	ACTIVITY	TIME	TOTAL
24/3/06	Home	Answering emails	5:10 – 5:45pm	35 mins

APPENDIX M

PEAC ONLINE TEACHER SURVEY

May 2006

Thank you for taking the time to complete this survey.

PEAC Online is a unique and innovative programme. Your answers and comments will make a valuable contribution towards the future development of not only PEAC Online but also towards the future of online learning in Western Australian schools.

Please either email, fax or post your survey back to me by June 9, 2006.

Please note that your confidentiality will be respected at all times.

Julie Smith
Swan District Education Office
18 Blackboy Way, Beechboro WA 6063

Phone: 9442 6673
Fax: 9442 6622
Email: julie.smith3@det.wa.edu.au

Background

1. How long have you been with the PEAC Online delivery programme?

2. What courses have you delivered in that time?

3. Is this your first experience with online learning/teaching?

4. If not, what else have you been involved in?

5. Why did you become a PEAC Online teacher?

6. Have you spent any money/time upgrading your personal computer and/or purchasing new software to run your online course? _____

   If so, please comment.

Professional Development

7. What new skills have you acquired in becoming a PEAC Online teacher?

8. Have you done any study in your own time to help you with online teaching? _____

   If yes, what study did you do?

9. In the past two years, how many hours of professional development or support have you had?

10. What has been the most effective professional development that you have received during this time?

11. What has been the least effective professional development that you have received?

12. Which areas would you like more professional development in?

Support and Resources

13. How often do you meet/talk with other online teachers per week?

14. How do you do this? ie face to face, telephone. online, email etc

15. How often would you like to have professional development or collaborative meetings?

16. Do you feel you have ready access to support if you need it?

17. How can it be improved?

18. What resources do you use to develop and run your online course?

19. Which of those are the most effective?

20. Are there any resources that you would like to have to help you with your online teaching?

Perceptions

21. How do you compare PEAC Online learning with classroom PEAC learning?

22. What do you consider to be the most challenging aspect of your work?

23. What do you consider to be your strengths in online teaching?

24. What do you see to be the biggest challenges to PEAC Online?

25. Where would you like to see the future of PEAC Online heading?

26. Do you have any other comments you would like to contribute towards this evaluation of PEAC Online?

Thank you for taking the time to participate in this survey.