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Team Performance: Where Learning Makes the Greatest Impact

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ABSTRACT

As work tasks increase in complexity the nature of interaction between work units intensifies and impacts on performance goals. A team approach is, therefore, viewed as more appropriate for complex organisational and business contexts as it is based on the assumption that organisations are able to benefit from the rich repertoire of knowledge that exists within the workforce when there is collaboration and sharing of knowledge. The potential value of a team approach is centred on the concept of learning in organisations. This study examines and compares the impact of three dimensions of learning in organisations: individual learning, team learning, and organisational learning, on team performance. The findings reveal that organisational learning has the greatest positive impact on team performance. Interestingly, unlike organisational and individual learning, it was found team learning did not substantially, and singularly contribute to team performance. The study results suggest learning activities that are preoccupied with team goals and disregard broader organisational goals, may subsequently thwart the performance of both the team and the achievement of organisational goals. Whilst this study was undertaken in the Filipino context, it has broad ranging implications for organisations in different contexts seeking to improve team performance.

INTRODUCTION

The rapidly changing organisational environment coupled with advances in technology has resulted in an increased complexity of work tasks. Consequently, greater interaction between and within work units is demanded, notwithstanding the achievement of performance goals that are highly reliant on team interaction rather than individual accomplishment. (Dechant, Marsick &

Kasl 1993). A team approach is progressively viewed as being more appropriate for the increasingly complex organisational and environmental contexts as it brings together a range of expertise and the integration of cross disciplinary knowledge (Mathieu, Heffner, Goodwin, Salas & Cannon-Bowers 2000). The literature has identified numerous factors that affect team performance, such as leadership (Lee, et al. 2010), trust (Mach, Dolan & Shay 2010, Palanski, Kahai & Yammarino 2011), psychological collectivism (Dierdorff, Bell & Belohlay 2011), and shared mental models (Jo 2011, Mathieu, et al. 2000).

The potential benefit of bringing a rich repertoire of knowledge workers together to undertake workplace complexity appeals to most organisations. However, the design of such organisations is centred around the impetus given to learning. Learning in organisations, requires the acquisition and creation of new knowledge that benefits team performance since the teams are no longer limited by their existing knowledge. The continuous updating and enrichment of the knowledge repertoire of the organisation may improve the team's ability to manage the complex and often unexpected changes and challenges. Whilst many studies allude to examining the impact of learning on performance indicators such as product innovation (Alegre & Chiva 2008), financial performance (López, Peón & Ordás 2005), job satisfaction (Egan, Yang & Bartlett 2004), there is a need to understand the potential impact of learning on team performance. Against this backdrop, the factors that could potentially contribute and enhance team performance are examined. This study examines the impact of learning on team performance as well as the different dimensions of workplace learning that includes individual learning, team learning, and organisational learning, on team performance.

LEARNING DIMENSIONS – INDIVIDUAL, TEAM, AND ORGANISATIONAL LEARNING

Organisational learning is a collective learning process that involves the continual testing of experience (Senge 1990), the acquisition and interpretation of new knowledge from these experiences (Dimovski 1994), and the consolidation of new knowledge in the organisational memory (Huber 1991). The new knowledge acquired leads to behavioural and cognitive changes, which will in turn impact organisational performance (Škerlavaj, Štemberger, Škrinjar & Dimovski 2007, Alegre & Chiva 2008, Jiménez-Jiménez & Sanz-Valle 2011). Crossan, Lane and White (1999) developed a theoretical model of learning in organisations, which depicts the learning processes of individuals, teams, and the organisation as a whole, which has been referred to as dimensions of learning. Each dimension constitutes distinct features and is linked by four socio psychological processes: intuiting, interpreting, integrating, and institutionalising.

Individual employees first acquire and create new insights and knowledge from experiences and observations through a subconscious process of intuiting.

Knowledge acquired at this stage is largely tacit and implicit. The subconscious knowledge of the individual goes through the interpreting process, under which the knowledge is made explicit such that it can be articulated, explained, and transferred across individuals. Under the integrating process, knowledge is shared amongst individuals, a collective understanding is developed, and these individuals create new ideas and knowledge collectively, within and across teams, and/or across the organisation. The knowledge developed across the whole organisation is consolidated and embedded into formal systems, routines, and practices under the institutionalising process.

It is generally agreed that individual learning is the basis for building organisational learning. The organisation learns from the knowledge acquisition and creative activities of its individual members (Argyris & Schön 1978, Jacobs & Washington 2003, Jorgensen 2004). Without the intuiting and interpreting learning processes that occur at the individual level the knowledge will continue to remain at that level with little or no knowledge available for collective sharing and knowledge creation at the collective level. However, it is also argued that individual learning is only the prerequisite, but not a sufficient condition for organisational learning to occur (Senge 1990, Antonacopoulou 2006). Organisational learning is not merely the accumulation of isolated knowledge acquisition and creative activities of individual employees. Individual knowledge needs to be shared across individuals to become organisational knowledge. Additionally, organisational learning is integrated and directed by collective goals, leading to the mutual construction of knowledge and aimed at improving the performance and adaptability of the organisation as a whole (Marsick and Watkins 2003).

DIFFERENT LEARNING DIMENSIONS IMPACT ON TEAM PERFORMANCE

Previous studies examine the impact of a range of learning activities targeted at individual employees on work performance, such as supervisor feedback on performance (Zhou 2003), workplace training (Aguinis & Kraiger 2009), and career development programmes (Yeo & Li 2011). Despite the relative lack of research directly examining the impact of individual learning on the performance of teams, team performance is likely to benefit from individual learning especially when employees contribute and apply their enhanced individual knowledge to their immediate team environment.

Within this paper it is proposed that collective learning activities, such as team and organisational learning are more likely to have an even greater impact on team performance than individual learning alone. A core premise is that collective intelligence can make a greater contribution to performance than the sum of individual intelligence (Senge 1990). The literature has examined the impact of individual learning and team learning on team performance and organisational performance (e.g., Loo & Thorpe 2002, Chan, Lim & Keasberry

2003, Zellmer-Bruhn & Gibson 2006, Aguinis & Kraiger 2009), but the differential impact of these three dimensions of learning on team performance has yet to be examined.

Differences Between Individual and Collective Learning

Unlike individual learning, team and organisational learning are collective and interactive processes that occur amongst individuals, rather than isolated learning processes occurring within the cognition of each individual. Furthermore, the collective unit such as the team or the organisation learns only when individual learning activities are directed by shared goals (Marsick & Watkins 2003). These collective learning activities comprise the sharing of knowledge and experiences, the collective reflection and construction of knowledge and ideas, and subsequently contribution to team intelligence (Dechant, et al. 1993, Kasl, et al. 1997).

Collective Learning Guided by Shared Goals

Teams work towards common goals (Dechant, et al. 1993). Therefore, to maximise the benefits of the learning activities of the individual team members toward team performance, individual learning activities need to be guided by collective goals and purposes, rather than being driven by the pursuit of personal goals and accomplishments. Collective goals enable individual employees to select the appropriate knowledge and pursue new ideas (Wang & Rafiq 2009). Furthermore, by having clear goals and direction shared by all members of the organisation interpretation and evaluation of knowledge across individuals can be developed (Sinkula 1994) to improve communication, knowledge sharing, collective reflection of ideas and mutual construction of knowledge of the collective whole.

Ely and Thomas (2001) observed that teams with shared goals leverage team diversity more effectively to promote team performance. A fundamental feature of this premise is team members were more willing to engage and resolve differences. Tjosvold, Yu and Hui (2004) also noted that teams with cooperative goals were better at learning from their mistakes in contrast to observation competitive or independent goals within teams lead to blaming and tend to undermine team learning. Senge (1990) advocates shared vision as a key pillar of the learning organisation, which creates communities of commitment where people are continually learning how to learn together, where shared identity and collective ownership is developed to channel employees' focus of learning.

Collective Learning as an Interactive Process

Knowledge sharing has the potential to improve team performance as it allows employees to more fully exploit the knowledge and past experiences of others to avoid repeating mistakes (Bresman 2010). Previous research has demonstrated that late adopters of new practices usually progress faster, because they can

learn from the past experiences of the early adopters, and hence, avoid repeating earlier mistakes (Edmondson, Roberto & Watkins 2003).

Interaction and engagement with other members of the team/organisation may also encourage deeper reflection and the development of new interpretation of personal knowledge and experiences. Previous documentation (Schön 1995, Jindal-Snape & Holmes 2009) suggests that people learn more deeply when they examine, reflect, and reframe their understandings and experiences during interaction with others. Refined understanding and new knowledge can be constructed mutually through such dialogue and interaction amongst individuals. Senge (1990) also identifies the value of dialogues in bringing the full depth of people's thoughts to the surface, thereby allowing them to move beyond their individual views.

There is foundation for the notion innovation is essentially an interactive activity (Tsai 2001). Interaction, knowledge sharing, and collective reflection amongst individuals has potential to promote innovation as these interactive activities encourage employees to look beyond their initial perspectives. The benefits of organisational/team heterogeneity on team performance are most prominent in creative and intellectual tasks (Guzzo & Dickson 1996), because it allows the cross fertilisation of ideas and the exploration of new ideas and perspectives (Tsai 2001, Martins & Terblanche 2003, Kanter 2006). For example, previous studies (Bantel & Jackson 1989, Rodan & Galunic 2004) demonstrate that innovativeness is positively associated with knowledge heterogeneity. Moreover, it has been reported culturally diverse teams are likely to be found to be more capable in generating alternative solutions and to apply a range of perspectives in analysing problems (Watson, Kumar & Michaelsen 1993, Stahl, Manevski, Voigt & Jonsen 2009). Finally, synergistic values could be created through knowledge sharing and interaction amongst individual employees, such that the teams are able to achieve more than the sum of individual intelligence.

Collective forms of learning have synergistic benefits. It is expected that team and organisational learning have greater potential to promote superior team performance, which is greater than individual learning alone (Mesmer-Magnus and DeChurch 2009, Erhardt 2011).

These conditions support potential relationships for hypothesis 1 and hypothesis 2.

Hypothesis 1 (H1) Individual learning, team learning, and organisational learning will be positively associated with team performance.

Hypothesis 2 (H2) The positive impact of team learning and organisational learning will be greater than that of individual learning.

METHODOLOGY

Participants

The study was undertaken across eighteen municipalities within the Province of Misamis Occidental, Mindanao in the Philippines. Respondents comprised of 322 full time employees from a cross section of positions, with varying management responsibilities and job functions. The sample represented approximately 49 per cent of the 660 employees that were part of the studied local government. The respondents were drawn from all local government employees in each of the 18 municipalities in Mindanao. Data were collected using anonymous self report questionnaires administered by the human resource managers from each municipality.

Measures

A composite survey instrument consisting of 46 items was administered to the participants. This composite instrument is made up of four different well developed scales from the literature, including: the Individual Learning Scale (Ames & Archer 1988); the Team Learning Survey (Edmondson 1996); the Organisational Learning Survey (Goh & Richards 1997); and Team Performance Survey (Edmondson 1996). The Individual Learning Scale (Ames & Archer 1988) consists of nine items that measure the respondents' perception of the opportunities and their motivation to learn in their organisation.

The Team Learning Survey (Edmondson 1996) is an 11 item scale measuring two types of team learning oriented activities: internal team learning and external team learning. Edmondson (1996: 164) defined team learning as "... the extent to which team members engage in behaviours to monitor performance against goals, obtain new information, test assumptions, and create new opportunities". External team learning is the extent to which the team members seek information outside the team to improve the team's alignment with the external environment. The construct is defined as "... an assessment by several of the team's customers and/or managers about the extent to which the team engages in behaviours such as seeking new information or requesting those who receive or use their work for feedback" (Edmondson 1996: 164).

The Organisational Learning Survey comprises of 21 items that measure five characteristics of an archetypal learning organisation (Goh & Richards 1997). The five characteristics are listed and defined.

1. Clarity of purpose and mission:
A clearly articulated mission needs to be created to promote collective learning.
2. Leadership commitment and empowerment:
Leaders should encourage continuous learning among employees.
3. Transfer of knowledge:
Organisational structure and system should facilitate communication and knowledge transfer across the whole organisation.

4. Teamwork and group problem solving:
Effective teamwork could improve organisational performance and stimulate innovative ideas through improved communication and sharing of ideas.
5. Experimentation and rewards:
The organisation's policies and system should support and encourage the experimentation of new ideas and innovation.

Team performance is measured by Edmondson's (1996) Team Performance Survey. It consists of five items for the respondents to assess their own team's performance.

Analysis

Arithmetic means were computed for individual learning, team learning, organisational learning, and team performance. A set of Pearson correlations was computed between individual learning, team learning, organisational learning and team performance. Simple regression analyses were also performed to examine the postulated statement of hypothesis 1 and hypothesis 2. A series of stepwise multiple regression analyses were also performed to examine the independent contribution of each dimension of learning as predictors on team performance.

RESULTS

Table 1 presents the demographics of the study sample. The content of Table 1 shows male respondents comprised almost two thirds of the sample, almost 80 per cent of the participants were aged greater than 39 years, few of the sample occupied high managerial levels, while three quarters of the respondents held a bachelor degree or diploma. The average length of service was 17.29 years (Standard Deviation (S.D.) 9.77), years in the department (16.44 years S.D. 9.67), and average years of work experience (2.89 years, S.D. 9.35) to reveal long term commitment and practical experience.

Table 1
Demographics % (N = 300)

Gender	
Male	63.3
Female	36.7
Age (years)	
< 20	2.4
20-29	3.7
30-39	15.2
40-49	31.6
> 49	47.1
Job function	
Executive	3.0

Senior manager	4.1
Supervisor	21.0
Manager	1.8
Administration	39.5
Other	30.6
Education	
Secondary	10.4
College/Diploma	32.6
Bachelor	43.4
Post graduate	5.5
Master	5.5
Doctorate	1.0
Other	1.6

Table 2 presents descriptive statistics and correlations. As the demographic variables (i.e., age, gender, education level, years of service in the organisation, years of service in the department, and years of total working experiences) have potential to systematically influence the relationships between the investigated constructs they were controlled in these correlations. Consistent with the hypotheses, individual learning, team learning, and organisational learning are all positively related to team performance.

Table 2
Descriptive statistics and correlations (N = 300)

Construct	M	SD	1	2	3	4
Individual L	5.49	0.65	.70			
Team L	4.65	0.75	.29***	.86		
Organisational L	5.07	0.80	.36***	.36***	.86	
Team P	4.61	0.95	.25***	.33***	.36***	.82

Notes a. Individual L = Individual learning, Team L = Team learning, Organisation L = Organisational learning, and Team P = Team performance.
b. M = Arithmetic mean, and S.D. = Standard deviation of the mean.
c. Values in bold on the diagonal are the Cronbach alpha estimates.
d. ***p < 0.001.

Table 3 presents the findings of regression analysis. Individual learning significantly predicts team performance, $b = .369$, $t(279) = 4.337$, $p < .001$. It significantly explains 6 per cent of the variance in team performance, $R^2 = .060$, $F(1, 279) = 18.813$, $p < .001$. Team learning also significantly predicts team performance, $b = .358$, $t(279) = 4.999$, $p < .001$. The construct explains 7.9 per cent of the total variances in team performance, $R^2 = .079$, $F(1, 279) = 24.987$, $p < .001$. Finally, organisational learning also significantly predicts team performance, $b = .406$, $t(279) = 6.053$, $p < .01$, and explains 11.2 per cent of the variances in team performance, $R^2 = .112$, $F(1, 279) = 36.642$, $p < .001$. Consistent with the hypotheses, team performance is strongly predicted by

organisational learning, followed by team learning, and least by individual learning in the organisation.

Table 3
Simple regressions using learning as predictors of team performance

Predictors	S Beta	SE	t	R ²	F	P <
Individual L	.369	.085	4.337	.060	18.813	0.001
Team L	.358	.072	4.999	.079	24.987	0.001
Organisational L	.406	.067	6.053	.112	36.642	0.001

Notes a. S Beta = Standardised bet, and SE = Standard error.
b. Individual L = Individual learning, Team L = Team learning, and Organisation L = Organisational learning.
c. *** p < 0.001.

Table 4 presents the results of the stepwise regression analysis. Organisational learning first entered the regression model (Model 1), team learning is then added in Model 2, and finally followed by individual learning in Model 3. All three regression models are statistically significant. Organisational learning explains 11.8 per cent of the variance in team performance in Model 1, $R^2 = .118$, $F(1, 262) = 35.178$, $p < .001$. The introduction of team learning did not significantly improve the predictive power of Model 2, $\Delta F(1, 261) = .3.263$, $p = .657$. However, the introduction of individual learning in Model 3 helped explain an additional 2.1 per cent of the variance in team performance, $\Delta R^2 = .021$, $\Delta F(1, 260) = 6.347$, $p < .05$. The final multiple regression model with all three predictor variables (Model 3), therefore, explains a total of 15 per cent of the variance in team performance, $R^2 = .150$, $F(1, 260) = 15.295$, $p < .001$.

Table 4
Stepwise regression using individual, team, and organisational learning as predictor variables, regressed on organisational commitment as dependent variable

	β	t	ΔR^2	R ²	ΔF	F	df
Model 1: Organisational L	.344	5.931***	—	.118	—	35.178***	262
Model 2: Organisational L	.250	3.223***	.011	.129	3.263	19.373***	261
Team L	.140	1.806					
Organisational L	.260	2.715**	.021	.150	6.347*	15.295***	260
Model 3: Team L	.151	1.535					
Individual L	.227	2.519*					

Notes a. Individual L = Individual learning, Team L = Team learning, and Organisation L = Organisational learning.
b. *p < 0.05, **p < 0.01, and ***p < 0.001.

DISCUSSION

The initial findings from the simple regression analyses demonstrated that all three dimensions of learning in the organisation – individual learning, team learning, and organisational learning – positively predict team performance. These findings support the hypothesis that all forms of learning in the

organisation will positively impact team performance. The results of the simple regression analyses also provide support for the hypothesis that collective forms of learning in the organisation, such as team and organisational learning will have a greater impact than individual learning on team performance. The findings are consistent with the arguments that team learning and organisational learning is interactive and collective learning processes are directed by shared goals. Individuals share, reflect on and reframe their knowledge, and mutually construct new knowledge through interaction. These interactive and collective learning activities, therefore, have greater benefits than isolated and fragmented individual learning.

In the simple regression analysis, individual learning explained six per cent of the variance in team performance. The multiple stepwise regression analysis that followed demonstrated that although it has independently contributed to team performance, in addition to the effect of organisation learning, much of it can be explained by organisational learning. These findings are consistent with the argument that individual learning is the basic building block of organisational learning (Senge 1990). Firstly, individual learning may independently and directly improve team performance when the employees apply their newly acquired knowledge to their work and in turn contributes to the performance of their teams. Secondly, individual learning may further improve team performance through their promotion of organisational learning. In other words, the relationship between individual learning and team performance could be partially mediated by organisational learning. More specifically, the individual learning activities of the employees are likely to be largely guided by the shared goals of the organisation, and the employees contributed their personal knowledge for the mutual construction of knowledge at the collective organisational level, and organisational learning may in turn produce even greater benefits for the performance of the corresponding teams.

Stepwise multiple regression analysis was then performed to examine the independent contribution of each dimension of learning on team performance to reveal interesting patterns. The three dimension of learning explain a total of 15 per cent of the variance of team performance. As predicted, organisational learning provided the greatest independent contribution to promoting team performance, and individual learning explained an additional 2.1 per cent of the variance in team performance when added to the model. Surprisingly, team learning did not contribute a significant amount of independent additional explanatory power to team performance beyond individual and organisational learning.

Organisational learning provided the greatest contribution to team performance among all three dimensions of learning in the organisation. According to the Organisational Learning Survey (Goh & Richards 1997), a prototypical organisation ensures that organisational purpose and mission are shared and supported by all individual employees and teams (clarity of purpose and

mission). Directed by these shared goals, organisational leaders need to encourage open discussion and decision making amongst employees (leadership commitment and empowerment), innovation and the experimentation of new ideas (experimentation and rewards), knowledge sharing (transfer of knowledge), and cooperation across functional boundaries throughout the whole organisation (teamwork and problem solving) to achieve the shared goals of the organisation. Although these learning activities are directed at the achievement of organisational goals, they are likely to have a significant positive impact on team performance. Team members are likely to be more committed at performing their specific functional roles within their corresponding teams to help achieve the mission of the organisation. Their team performance is also likely to profit from the organisational learning activities, such as cross functional knowledge sharing and the mutual construction of new knowledge and innovative ideas.

The most surprising result of the current study is the lack of an independent contribution of team learning to team performance beyond organisational learning. Conversely, there is an expectation team learning may have more direct and independent contributions to team performance than organisational learning, since team learning activities are supposedly directed at achieving team goals. A possible explanation to these counterintuitive findings is, that team learning with the preoccupation of team goals that disregards broader organisational goals, could thwart the team from the benefits of organisational learning. The preoccupation on achieving team goals may create internal competition between workgroups if the teams are not committed to the common goals of the organisation as a whole. This may result in silo thinking and knowledge hoarding behaviours especially when knowledge is treated as a source of competitive advantage to be carefully guarded by the team (Constant, Kiesler & Sproull 1994, Wasko & Faraj 2000, Blackman & Sadler-Smith 2009). However, work tasks of teams are often so complex that they do not only require cooperation within teams but also cross functional cooperation in order to draw upon the diverse array of knowledge and experiences throughout the organisation (Dechant, et al. 1993). These teams may also lose the opportunities for exploring knowledge beyond their functional expertise, and widespread cross fertilisation of ideas to promote innovation in their own teams. Paradoxically, team learning may in turn sacrifice team performance if organisational learning is ignored. Organisational learning could play a moderating role on the impact of team learning on team performance, such that team learning will significantly contribute to team performance under the culture of a learning organisation.

According to the 4Is model of learning proposed by Crossan, et al. (1999), there is a feedback loop from organisational learning back to team learning and individual learning. The findings of the current study illustrates this reverse direction of how organisational learning may in turn affect the impact of individual learning and team learning on team performance. Employees apply the knowledge they have acquired and developed from individual learning

activities, such as formal training sessions or informal self initiated learning at work, to perform their tasks and in turn directly improve the performance of their teams. However, the positive impact of individual learning on team performance could be strengthened when employees also engage in organisational learning activities guided by shared goals of the organisation. This could be achieved by sharing their individual knowledge cross functionally, reflect on the knowledge and ideas collectively, contribute their knowledge for boundary crossing joint problem solving. These may lead to the mutual construction of new meanings and innovative ideas.

Findings of the current study reflect that team learning is unlikely to improve team performance when organisational goals are neglected in the process. Team learning that is exclusively preoccupied with achieving team goals without the contribution of team intelligence to organisational learning may result in silo thinking. This may also prevent the free flow of knowledge across the organisation. Consequently, teams might exclusively rely on the knowledge and ideas of their team members, and wedge off the potential value from the intelligence of other teams and the innovative potential through the boundary-spanning cross-fertilisation of ideas. This may eventually hinder team performance because of the increasing need for cross functional cooperation to perform complex work tasks expected of each team. Although functional managers are primarily responsible for their own teams/work units, the findings of the current study suggest that they should avoid being too narrowly focused on promoting individual learning and team learning alone, and that teams should be encouraged to seek a broader perspective of organisational learning.

CONCLUSION

The current study contributes to the existing literature by examining the impact of the macro level organisational learning on meso level team performance. The learning literature has examined the impact of individual learning and team learning on team performance and organisational performance. However, the examination of how the most collective organisational learning could in turn influence the teams embedded within the larger organisation is very limited in the existing literature.

Evaluation reveals a relatively complex relationship between these three dimensions of learning with regards to their impact on team performance. The findings illustrate how organisational learning plays an important role in promoting the impact of individual learning and team learning on team performance. Future studies might, therefore, directly examine the underlying mechanism, in other words, the moderating and mediating role organisational learning plays in these relationships. Earlier it was alluded individual learning may contribute to team performance partly *through* organisational learning. Teams can also benefit when individual employees engage in organisational learning activities such as cross functional knowledge sharing, collective

knowledge reflection and mutual creation of new knowledge and innovative ideas. Future studies might benefit directly by testing this proposed *mediating* role of organisational learning in the relationship between individual learning and team performance.

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