

Engaging Ph.D. Students: Investigating the Role of Supervisor Support and Psychological Capital in a Mediated Model

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(Received: November 13, 2016; Revised: March 25, 2017; Accepted: April 5, 2017)

Abstract

Organizational scholars have empirically outlined the significance of support features and psychological capital on individual outcomes. In the present study, we attempted to address the dearth of research on Ph.D. students' engagement via empirically testing the crucial role of supervisor support and psychological capital. A total of 125 Ph.D. students of 11 different nationalities were recruited from a public university in Malaysia. The application of structural equation modeling to test the mediated model revealed that research supervisor's support positively enhanced Ph.D. students' academic psychological capital. Accordingly, the study also found a positive relationship between academic psychological capital and Ph.D. students' engagement. Notably, the study reported academic psychological capital positively mediated the relationship between supervisor support and Ph.D. students' engagement. The study has addressed the research gap with critical findings pertaining to how students' psychological capital can be of prominent significance for Ph.D. students' well-being. Contributions and implications of the study are outlined with reference to how supervisor support can foster Ph.D. students' academic psychological capital and thereupon their engagement.

Keywords

Academic psychological capital, Engagement, Ph.D. studies, Supervisor support, Mediation.

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Introduction

With accelerating academic demands, the optimization of students' academic success is becoming a challenge for authorities in academia. Henceforth, the need to understand and explore how students' behavior and outcomes could be enhanced is becoming critical day by day. Importantly, unlike other conventional degree programs offered at the university level, Ph.D. study is very unique as it involves extensive research and development under the supervision of an expert in the area. Evidence pertaining to lack of students' engagement has underlined that students are not bringing that needed energy, vigor, and absorption in their studies (Hannon & D'Netto, 2007; Pontius & Harper, 2006; Adams et al., 1996). As a result, they are found expressing low connectivity with learning. Similarly, although limited, the evidence is available suggesting poor engagement levels among Ph.D. students and recommending for addressing the issue (Cardona, 2013).

Notably, studies have emphasized on the prominent role of supervisor support and psychological capital on individual behaviors and work outcomes (Caesens & Stinglhamber, 2014; Shanock & Eisenberger, 2006; Wilks & Spivey, 2010). In parallel, past studies have also highlighted the considerable role of such factors for harnessing students' academic behaviors. Yet, there is a scarcity of studies on features and the considerable role of healthy supervisor support and academic psychological capital of Ph.D. students. Additionally, since Ph.D. degree is very unique in nature compared to other university degrees, the current study has critically investigated how supervisor support is crucial for Ph.D. students in enhancing their academic psychological capital and engagement in a mediated model.

The present study hence enriches the literature in three dimensions. At first, the study outlines the significance of supervisor support for harnessing psychological well-being of individuals followed by the impact of academic psychological capital on Ph.D. students' engagement. In addition, theoretically and practically, the study has explored the mediation of academic psychological capital in the supervisor support and Ph.D. student engagement relationship.

Literature Review

Student Engagement

It has not been more than 25 years since academicians started talking about student engagement (Christenson et al., 2012). Engagement is viewed more than just the engaged time in study as Finn (1989) suggests that it is a multidimensional component comprising of an individual's emotion, behavior and approach towards learning whereby, a student actively involves himself in the course or programme related activities. Rothbard (2001) has explained engagement as a psychological connection. Similarly, Schaufeli, Salanova, González-Romá, and Bakker (2002) have suggested that engagement is a healthy and positive work-concerning state of mind which generally comprises of vigor, dedication and absorption. Engagement is a positive antithesis of negative work aspects like burnout (Maslach & Leiter, 2008). The authors have further stated that individuals' engagement with their tasks showcases their bringing energy, involvement and efficacy.

In connection to academics, the definition by Lamborn, Newmann, and Wehlage (1992) defines student engagement as "psychological investment in learning, comprehension and mastering the knowledge, skills, and crafts necessary" (p. 12). Hence, for students the concept can be implied as the extent to which a student is psychologically connected, physically committed, and energetic about what they are involved in learning. Review of popular studies on academics indicates several factors influencing student engagement like teacher behavior (Skinner & Belmont, 1993), classroom climate (Reyes et al., 2012), achievements (Denny, 2013), and instruction aspects (Dreher, 2013). Although engagement is a psychological component connected with well-being, these studies have highlighted that just like other positive outcomes, student engagement can also be influenced through numerous external components.

Supervisor Support and Ph.D. Studies

Importantly, Ph.D. or doctoral study is entirely a different level of education (Phillips & Pugh, 2010), therefore, it involves a variety of

different components which are unique to conventional degree programs. For instance, Finn (2005) states that Ph.D. study is an entirely research based degree program whereby the student works under the supervision of an expert, generally referred as a supervisor. The author further states that unlike other degree programs, Ph.D. mainly, holds no specific curriculum and the researchers/Ph.D. Students have to work under the assistance of their respective supervisors and contribute to a mutually agreed body of knowledge. This, in a way, is similar to working in a company and being supervised by a specialist to achieve certain tasks and objectives. Delany (2008) underlines that Ph.D. research can be viewed as an apprenticeship program whereby a student enrolls to work on a specified area or topic under the supervision of a seasoned academic scholar, known as the doctoral/research supervisor.

Caesens and Stinglhamber (2014) in their study on Ph.D. students have reported that Ph.D. students are recruited by universities mainly in the capacity of research assistants and are expected to work in close connection with their assigned supervisors. Therein, the supervisor's support and assistance plays a critical role towards the final outcomes. Hence, it can be implied that Ph.D. research journey is more similar to formal work procedures.

Review by Vilkinas (2002) suggests that in this challenging and rapidly evolving academic environment, the role of a Ph.D. supervisor is becoming more of a manager. By definition, a Ph.D. research supervisor is an assigned university staff member (mainly a professor in the subject area), responsible to guide the Ph.D. student(s) towards acquiring knowledge and learning tools, techniques and methodologies to effectively conduct research on a specific topic (Byrge, 2003). Based on this definition, Ph.D. supervisor support refers to the level of support and assistance a Ph.D. student receives from the Ph.D. supervisor he/she is assigned to.

Supervisor Support and Ph.D. Students' Engagement

Since the concept of engagement is not very old (Shuck & Wollard, 2010), it is yet to be studied extensively in different aspects.

Supervisor support is generally termed as a job resource (Demerouti et al., 2001) in the engagement literatures. Conservation of Resources Theory by Hobfoll (1989) explains how people recognize and accumulate resources which help them to foster their well-being. Based on this theory, this research study aimed to examine how supervisor support acts as a resource to influence Ph.D. students' psychological capital and engagement. Precisely, since this research aimed to investigate Ph.D. students' engagement, there exists a severe paucity of empirical research on the topic. Marsh, Rowe and Martin (2002) have stated that there is very little known regarding Ph.D. students and the quality of research supervision that they receive. Study by Caesens and Stinglhamber (2014) is the only known study that empirically tested the impact of supervisor support on the job satisfaction through mediation of engagement on 425 Ph.D. students of a Belgian university. The study found that supervisor's support significantly enhanced Ph.D. students' engagement. Caesens and Stinglhamber (2014) have also indicated the severe paucity of research on the topic and have forwarded recommendations for further study on the topic in different settings. Henceforth, this led to the need for further empirical attention on the topic. Notably, it became also important to explore how supervisor support and Ph.D. students' engagement are related among students from other regions and nationalities apart from Europe. Lee (2008), in his study, has suggested that for a supervisor it is important that he/she resolves all the tensions between the professional role and personal self when it comes to guiding and supervising students for effective fulfillment of their responsibility.

Supervisor Support and Academic Psychological Capital

Psychological capital in the engagement literatures is often denoted as "personal resources which refer to positive evaluations relating to a person's view of its potential and ability to responsively manage and impact on their environment" (Hobfoll et al., 2003). Similar to supervisor support, psychological capital can also be understood through Conservation of Resources theory as to how it can enhance

individual engagement levels. Psychological capital primarily comprises of self-efficacy and resilience (Luthans et al., 2007), which outlines the confidence of individuals in their abilities (self-efficacy) to strive for better outcomes and withstand any problems and difficulties with sustenance to move ahead (resilience) to achieve success (Luthans et al., 2007, p.3).

Although there is little known in terms of relationship between supervisor support and psychological capital, yet some references could be traced. Xanthopoulou, Bakker, Demerouti and Schaufeli (2007) proposed that resources and support factors like supervisor support can enhance individual psychological capital like self-efficacy and resilience. In their subsequent study, Xanthopoulou et al. (2009), in a mediation model empirically tested and found that supervisor coaching did positively influenced psychological capital of the Greek workers. Accordingly, Gibson, Grey and Hastings (2009), in their study on therapists working in ABA schools, found that supervisor support positively influenced therapists' self-efficacy. Similarly, the study by Wilks and Spivey (2010) on undergraduate students in USA found a significant positive impact of social support features on academic resilience. The study also concluded that academic resilience is important for students to exert responsive behaviors at work. Shanock and Eisenberger (2006) have outlined that positive perception about supervisor support can flourish positive behaviors and outcomes.

Notably, there exist no studies on Ph.D. students, investigating the role of Ph.D. supervisor support on the academic psychological capital of Ph.D. students. Yet, based on the above evidences, the research study inferred that supervisor support will make a considerable influence on Ph.D. students' academic psychological capital including academic self-efficacy and resilience.

H1. Supervisor support is positively related with Ph.D. students' academic psychological capital.

Academic Psychological Capital and Ph.D. Students' Engagement

As explained earlier that psychological capital comprises of self-

efficacy and resilience (Luthans et al., 2007), whereby, according to Bandura (1977) self-efficacy refers to a “person believing in his or her capacity to execute behaviors that are crucial for producing specific performance outcomes”. People can outline their goals and targets that they desire to achieve and the work of Bandura (1977) has stated that self-efficacy can considerably facilitate the achievement of these goals and targets. In the views of Luthans, Luthans and Luthans (2004) people with high self-efficacy are capable of handling challenges responsively, able to develop sincere interest in activities, and have a momentarily strong sense of commitment to their targets. Similarly, students with higher academic self-efficacy are better learners and achievers (McTigue et al., 2009; Zimmerman et al., 1992). Empirical studies have indicated the significance of academic self-efficacy for enhancing students’ academic performance (Chemers et al., 2001), academic motivation (Schunk, 1991), and academic attainment (Zimmerman et al., 1992).

Accordingly, academic resilience is an individual feature that helps students to “sustain high motivation and performance regardless of stressful events and conditions during their studies” (Alva, 1991, p.19). This concept emerged back in 90s (Alva, 1991), which talked about how students can manage to achieve better results in their studies despite of hardships and unfavorable conditions. According to Borman and Overman (2004), the amount of resilience in academics varies as it depends upon the adversities a student is facing. The authors have further stated that students who are academically efficacious and resilient have better perception of their studies and express greater involvement with related activities. On the contrary, individuals with lack of academic resilience can dominantly result in negative outcomes (Martin, 2013). Studies have empirically shown that psychological capital can foster positive outcomes from students (Li et al., 2014), yet there is a scarcity of research in the non-western countries studying this relationship, particularly on the non-western nations and Ph.D. students.

H2. Academic psychological capital is positively related with Ph.D. student’s engagement.

Mediation of Academic Psychological Capital

The role and impact of mediators from the engagement literatures can be viewed from studies like Salanova, Agut and Peiro (2005), that investigated the mediation of service climate between organizational resources and work engagement. Xanthopoulou, Bakker, Demerouti and Schaufeli (2009), in their empirical study, found a full mediation of psychological capitals factors between job resources including supervisor support and employee engagement in the Greek fast food company. The authors have argued that such support features enhance individual psychological factors like self-efficacy which further results in engagement.

Similarly, researches on engagement have also shown the significant contribution of psychological capital to fostering engagement (Xanthopoulou et al., 2009) However, the question of how they are important for enhancing Ph.D. students' engagement still remains unanswered. Remarkably, Llorens, Schaufeli, Bakker and Salanova (2007), in their longitudinal study found that psychological capital like self-efficacy mediated between task resources and engagement. In line with this, Luthans, Youssef and Avolio (2006) have specified that resources like supervisor support can activate an individual's psychological capital like self-efficacy and resilience which in turn, may result in positive outcomes. Thus, we aimed that sufficient supervisor support will make Ph.D. students feel efficacious and highly resilient which in turn will enhance their psychological well-being like engagement. These reasons led to the test of the following hypothesis:

- H3.** Students' academic psychological capital will mediate the relationship between supervisor support and Ph.D. students' engagement.

Methodology

Sample and Data Collection

The sample of the present study comprised of Ph.D. students enrolled in a public university of Malaysia. One of the major reasons behind selecting this public university was it being one of the biggest

universities in the country, hosting students from more than 50 countries across the globe. This uniqueness also facilitated getting a diverse sample for the study. Keeping in view the idea of generalizability of the study results, the research did not limit the sample selection to any specific department, therefore, Ph.D. students from all the university departments were considered. As Kahn (1990) has explained that engagement is an individual component and also as the study intended to examine Ph.D. students' engagement, therefore, the unit of analysis was kept individual.

Quantitative data were collected for the present study. Through using self-administered technique, 263 enrolled doctoral students were targeted through simple random sampling. In order to simplify the sampling, Krejcie and Morgan (1970) have forwarded a table that outlines the minimum sample size required for a study based on the size of its target population. The table is developed through using a formula which helps in ascertaining the minimum number of required respondents to make generalization; the sample size for the current study was 157. The study was carried out with cross sectional approach whereby the data were collected over the month of February, 2016. A total of 134 responded back out of which, 9 were discarded due to incompleteness. Details pertaining to the respondents are presented in Table 1.

Measures

Six-item scale on supervisor support was adopted from postgraduate research experience questionnaire (PREQ) (Ainley & Harvey-Beavis, 2000). The scale has been extensively developed to investigate Ph.D. and similar research degree programs and experiences of the ones enrolled in them. The scale has been responsively used in postgraduate research studies (Cronbach alpha=0.91; Marsh et al., 2002) which assessed the extent of supervisor support, facilitation during difficult situations, feedback, and research support. Accordingly, Ph.D. students' engagement was measured through adapting the 9-item engagement scale by Utrecht University, popularly known as UWES (Schaufeli et al., 2006). The UWES scale is the most widely used and highly validated engagement scale. The

scale reported Cronbach alpha of 0.92 in a recent study (Balducci et al., 2015). The scale comprises of items that enquired about how energetic students felt in their Ph.D. journey, their perception of time and meaning of the degree, their inspiration towards the studies, and dedication and absorption in the research.

Parallel to this, psychological capital was measured through adapting 5-item scale on academic efficacy from Patterns of Adaptive Learning Scales (PALS), with Cronbach alpha of 0.78 (Midgley et al., 2000), as well as adapting 6-item scale on academic resilience by Martin and Marsh (2006), with Cronbach alpha of 0.89. All the constructs were measured using a five point Likert scale whereby 1 denoted strongly disagree and 5 referred as strongly agree.

Table 1. Demographic information of the respondents.

Demographic Variables	Categories	Frequency	Percentage
Gender	Female	31	24.8
	Male	94	75.2
Age	< 30	14	11.2
	30-40	87	69.6
	41-50	23	18.4
	51-60	1	0.8
	First	16	12.8
Current Year of Study	Second	47	37.6
	Third	50	40
	Fourth & above	12	9.6
	Algeria	2	1.6
Country	Bangladesh	5	4
	Indonesia	13	10.4
	Iraq	7	5.6
	Malaysia	21	16.8
	Myanmar	8	6.4
	Nigeria	25	20
	Pakistan	19	15.2
	Palestine	9	7.2
	Thailand	8	4.8
	Yemen	10	8.0

Results and Analysis

Hypothesis Testing

Structural equation modeling (Wold, 1975, 1985) was deployed to examine the hypothesized relationships. Therein, partial least squares

(PLS) approach was applied through using Smart PLS 3.0 software (Ringle et al., 2015) for data analysis. The approach performs bootstrapping procedures to underline the level of significance for loadings and paths coefficients (Hair et al., 2014; Hulland, 1999) for the tested relationships. PLS path modeling approach has been widely used in the academic research studies (Hair et al., 2014). The PLS path modeling approach proceeds in two stages, popularly known as measurement model and structural model.

Measurement Model Assessment

Prior to testing the hypothesized relationships, reliability, convergent validity and discriminant validity were inspected. Table 2 presents further details in this regards whereby, it shows that all the loadings were responsively higher than nominal threshold of 0.5 (Barclay et al., 1995; Chin, 1998). Notably, every constructs' average variance extracted (AVE) also exceeded the suggested threshold (Bagozzi & Yi, 1988). Similarly, scores concerning composite reliability were also higher than the recommended value (0.70) (Hair et al., 2013). These scores are basically noted to assure the convergent validity and so the results have assured its achievement. Table 2 indicates that the study has responsively attained significant convergent reliability and scale validity.

Table 2. Measurement model

Construct	Item	Loadings	AVE	CR
Academic efficacy	AAR2	0.679	0.559	0.792
	AAR3	0.719		
	AAR4	0.701		
	AAR5	0.725		
Academic resilience	AC3	0.723	0.506	0.836
	AC4	0.771		
	AC5	0.748		
Supervisor support	SS1	0.626	0.574	0.889
	SS2	0.833		
	SS3	0.818		
	SS4	0.762		
	SS5	0.715		
	SS6	0.773		
Student engagement	SE1	0.759	0.504	0.859
	SE2	0.717		
	SE3	0.684		
	SE5	0.684		
	SE7	0.699		
	SE8	0.712		

Accordingly, Table 3 contains details pertaining to discriminant validity of the present study. In the views of Fornell and Larcker (1981), each construct should have a greater square root of AVE compared to the correlation within and with other constructs in order to ascertain the discriminant validity. Fornell and Cha (1994) have also indicated the same rubrics with regards to assuring the discriminant validity. Respectively, Table 3 shows that all the constructs have met the criterion of discriminant validity.

Table 3. Discriminant validity

Construct	1	2	3	4
Academic efficacy	0.748			
Academic resilience	0.341	0.711		
Student engagement	0.466	0.470	0.710	
Supervisor support	0.147	0.212	0.224	0.758

Note: Values in the bold face represent the square root of the average variance extracted.

Structural Model

Upon the achievement of significant validity and reliability for the research model, assessment of structural model was carried out. Therein, t-values were obtained through applying the bootstrapping procedure with 500 samples. Below, Table 4 highlights the results of hypotheses testing and the same is presented in Figure 1.

Table 4 and Figure 1 evidently outline a positive relationship between supervisor support and psychological capital ($\beta=0.257$, $P<0.01$). In terms of explaining variance in the academic psychological capital, the supervisor support resulted in R-square value of 0.51 for academic efficacy and 0.76 for academic resilience. Accordingly, relationship between psychological capital and Ph.D. students' engagement also received empirically support by the findings ($\beta= 0.573$, $P<0.01$, R -square 0.35), thus supporting Hypotheses 1 and 2.

Relating to Hypothesis 3 regarding the mediation of psychological capital between supervisor support and Ph.D. students' engagement, recommendations from Preacher and Hayes (2004; 2008) were applied. Under this, bootstrapping method was executed in order to test the indirect effects for mediation; the results in this regard were

also found positive ($\beta= 0.147, P<0.01$) along with a t-value of 3.005. Additionally, as mentioned by Preacher and Hayes (2008) that the indirect effect of 0.147, 95 percent Boot CI: [LL= 0.051, UL = 0.243] should not straddle a zero hence suggesting the mediating effect.



Fig. 1. PLS output

Table 4. Results of hypotheses testing

Hypothesis	Relationship	Std. Beta	Std. Error	T-Value	Decision
H1	Supervisor Support -> Academic Psychological Capital	0.257	0.076	3.392**	Supported
H2	Academic Psychological Capital -> Student Engagement	0.573	0.077	7.437**	Supported
H3	Supervisor Support-> Academic Psychological Capital-> Student Engagement	0.147	0.049	3.005**	Supported

**P<0.01

Discussion

The core motivation of this study was to examine the role of supervisor support on students’ psychological capital and consequently the impact of academic psychological capital on Ph.D. students’ engagement. Furthermore, the paper also aimed to test the mediating effect of academic psychological capital on the supervisor support and Ph.D. students’ engagement relationship.

Findings of the PLS analysis have advocated support for all the hypothesized relationships. The result for the first hypothesized relationship (H1) has revealed supervisor support positively influenced Ph.D. students’ academic psychological capital. The

findings have highlighted that responsive feedback, recognition, problem solving, review, and study support from the Ph.D. supervisor is crucial for improving psychological well-being of the Ph.D. students. The findings also underline that the Ph.D. students view supervisor's support as a critical factor in relationship with their psychological well-being. Although no prior academic evidence concerning Ph.D. students was found, still the findings can be seen consistent with empirical studies conducted in the commercial sector on general employee and supervisor relationship (Morris et al., 2008; Schaufeli & Bakker, 2004), outlining supervisor support to be essential for boosting individual psychological capabilities for enriched behaviors and outcomes.

The findings have led to enhance the understanding of Conservation of Resources theory (COR; Hobfoll, 1989) suggesting that support features can act as valuable resources for doctoral students in order to promote their well-being. The results have shown that Ph.D. students perceived their supervisors to be supportive in their Ph.D. studies. Likewise, the finding asserts that supervisor support can help doctoral students feel positive about their abilities and competencies and enables them to become mentally strong to overcome any academic hardships and/or setbacks. These results support the notion of Stephens et al. (2012) who indicated the significance of supervisor support for Ph.D. students. It can also be viewed in the light of Vilkinas (2002), whereby the author emphasized on the central role of Ph.D. supervisors in the rapidly changing world. Conclusively, the results suggest that universities and institutions offering doctoral programs should ensure that supervisors are active in assisting their Ph.D. students for enhanced psychological resourcefulness of their students, motivating them to give their best to their studies.

In parallel, the results of Hypothesis 2 have emphasized that academic psychological capital can momentarily enhance Ph.D. students' engagement. Similar to Hypothesis 1, these results have also validated and strengthened the explanation of Conservation of Resource theory (COR). The results have underlined that Ph.D.

students who perceived being high in psychological capital were able to bring more connectivity, immersion, and energy into their studies, thus, predict engagement. The finding claims that academic psychological capital can help Ph.D. students to foster their engagement. The results clearly advocate that academically efficacious and resilient Ph.D. students can perform well in their studies through boosting their engagement. Based on the empirical findings of commercial studies (Rich et al., 2010; Chemers et al., 2001), it can be asserted that students with higher psychological capital can enhance their engagement which in turn will help them to boost their performance and end results.

In connection to Hypothesis 3, the study has found significant mediation of academic psychological capital in the supervisor support and Ph.D. student engagement relationship. The finding is in consonance with mediation studies of Xanthopoulou et al. (2009), and Llorens et al. (2007) outlining that social support resources like supervisor support can enhance individual psychological capabilities which in turn improve engagement. In other words, Ph.D. students receiving healthy supervisor support can showcase more engagement which is due to the presence and result of academic psychological capital. This, on a high note, concludes that ensuring students' academic psychological capital is noteworthy, particularly when it comes to addressing Ph.D. students' engagement.

Contributions of the Study

The present study has results in numerous contributions. The study has strengthened the engagement scale (UWES-9) (Schaufeli et al., 2006) through sampling respondents from 11 different countries (Table 1). This marks a notable contribution through extending the applicability of UWES engagement scales in different countries. Accordingly, the research has addressed notable gaps pertaining to Ph.D. students' engagement, particularly, the role of supervisor support on psychological well-being, and the mediation of psychological capital in the supervisor support and engagement relationship among Ph.D. students.

The study results have empirically shown that receiving guidance, academic support, recognition, and acknowledgement from the supervisor can make Ph.D. students feel more academically efficacious and resilient. In other words, the respondents experienced healthy facilitation from their Ph.D. supervisors which resulted in making them feel more skillful, competent and capable of achieving academic milestones. In parallel, it also helped them to harness their potential of handling academic setbacks and keep up the pace of their studies.

Additionally, the research is one of its kind up to our knowledge, investigating the Ph.D. supervisor support's role in enhancing the academic psychological capital and thereupon fostering Ph.D. students' engagement in a mediation framework. The study also has made a considerable enhancement through offering empirical confirmation on the mediating potential of psychological capital in the relationship between social support resources like supervisor and engagement.

Importantly, study has also extended understandings and concept of Conservation of Resources theory (Hobfoll, 1989) through testing the role of resources in furthering individual well-being.

Conclusion and Recommendations

The research has concluded that supervisor support plays a critical role in enhancing the students' will power, and positive perception about their abilities and potentials. Moreover, the findings have also indicated that supervisor support can make Ph.D. students resilient by which they are in a better position to handle tough and stressful situations in their research journey.

The conclusion also encourages Ph.D. supervisors to realize the importance of their role and the amount of responsibility that they have towards their respective Ph.D. students. It also highlights the important factor for universities to take in consideration in order to enhance and attain the best from their Ph.D. students in terms of research and other expected outputs. Based on the findings, it is advisable that universities offer Ph.D. programs focusing on

cultivating healthy supervisor and student relationships. since engaged people are better performers (Sorensen, 2013), universities and higher education institutions need to work on finding ways to help supervisors and Ph.D. students maintain a healthy relationship with each other for better academic results.

Likewise, the positive result regarding the relationship between academic psychological capital and Ph.D. students' engagement has also helped the current study to address important literature gaps in this respect. Based on the statistical significance, the study recommends educationists including Ph.D. supervisors and concerned university officials to work on fostering such an environment that could nourish psychological capital of the students. Byrge and Tang (2015), and Saks (1995) have expressed that training interventions could be responsively used to enhance psychological capital, thus, it is recommended that training and development interventions could be designed for supervisors, enabling them to learn and understand how they can facilitate students' psychological capital, and also to support Ph.D. students in their learning of the significance, approaches, and important tips in order to develop and maintain academic psychological capital for effective learning and academic performance.

Importantly, the mediation results of academic psychological capital in the relationship between supervisor support and Ph.D. students' engagement is also an important element to realize its predictive significance. Based on this, suggestions could be made for universities and higher education institutions to realize the importance of students' academic psychological in fostering engagement. Educationists, academic scholars, and research authorities should focus on supporting students to start believing in their abilities and potentials and to develop strong mental resilience to overcome any obstacles in their Ph.D. studies. Conclusively, the research has outstandingly established that supervisor support and psychological capital are equally critical for Ph.D. students as they are for people at work.

Limitations of the Study

It is imperative to state the limitations of the study to help future scholars enrich their empirical attempts on the topic respectively. First of all, the study was done with a small sample size therefore cannot be potentially generalized across all the Ph.D. students. Moreover, the study only focused on Ph.D. students from a public university in Malaysia which resulted in limiting the diversity and coverage of the target audience.

Implications for Future Research

The present study suggests further empirical investigation on how other support resources like colleagues or institutional management can help enhance Ph.D. students' engagement. Accordingly, there is a possibility of variation in engagement levels on a daily basis (Xanthopoulou et al., 2009); hence future studies may consider examining how engagement varies in this regard. Equally, for generalizable results, future researchers may also consider investigating the relationships with a wider sample. Notably, future studies may also attempt to examine other social support resources like colleague and top management to pinpoint any other promising prospect for nurturing Ph.D. students' engagement.

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