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## **Sustaining Students' Quality Learning Environment by Reviewing Factors to Graduate-on-Time: A case study**

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### **Abstract**

Research reveals that several factors affect the quality of learning environments. Therefore, this study investigated significant factors that affect postgraduate students' learning environment with regard to graduate on time (GOT). The study was conducted in a private Malaysian university involving 50 PhD students. Data were collected via tests, a questionnaire, and focus-group interviews. The findings revealed that critical reading skills and supervisory factors were significant factors affecting students' ability to GOT. This implies that universities should integrate early intervention training programs to hone students' critical literacy skills and provide effective supervisory practices for a sustainable quality postgraduate learning environment.

**Keywords:** postgraduate students; graduate-on-time; quality learning environment; influencing factors

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### **1.0 Introduction**

The impact of a quality learning environment on student achievement has been articulated by several researchers, and it is a predominant factor in student well-being and success (Dhanapala, 2021; Du et al., 2022). Though there have been a plethora of studies examining the learning environment of tertiary students, there is scant empirical evidence focusing on the burgeoning field of postgraduate education. The twin forces of globalisation and internationalisation witnessed the democratisation and massification of education at all levels, including postgraduate education. Many countries around the world have welcomed the exponential growth in postgraduate education, with Malaysia recording a 70% increase over the last ten years (Malaysian Higher Education Blueprint, 2015-2025). In today's context of flexible learning environments, there is no denying that the response to postgraduate education will continue to attract students of all ages, including part-time and full-time working adults. Moreover, institutions often award scholarships and various other attractive initiatives, including graduate research assistant (GRA) posts, as postgraduate study is often viewed as a step towards enhancing the nation's intellectual capacity in science, technology and innovation for the development of a critical knowledge workforce for a country's knowledge-based economy.

Despite these high enrolments, the financial investments in postgraduate education have reaped rather disappointing returns because statistics reveal high attrition rates and failure of students to graduate on time (GOT). At the global level, it is said that close to 60% fail to GOT, whilst figures in Malaysia reveal that one out of every five students dropped out from postgraduate programmes and close to 60% fail to GOT (MOHE, 2016). The current attrition rate largely affects Malaysia's aspiration to become a hub of educational

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excellence in South-East Asia. Studies (Muthukrishnan et al., 2022; Teoh et al., 2019) have revealed that there are several complex factors affecting students' failure to GOT, which include not only personal and institutional but also psychological and environmental factors. Since sustaining the quality of student life in any learning environment is the priority of all educators, the main objective of this study is to build upon current literature to identify significant factors affecting postgraduate students' ability to GOT.

## 2.0 Literature Review

The following section provides a brief review of the literature on the main variables alongside the current gap in research.

### 2.1 Rationale to GOT

The rationale for postgraduate students to GOT has long been a thorny issue of discussion as it is often viewed as a key performance index in terms of student enrollment and graduation. Graduate-On-Time refers to the timely completion of the study within the stipulated time frame of a particular program. In Malaysia, most PhD scholars are said to GOT if they complete their studies within three to four years. Styger, Vuuren & Heymans (2015) note that dropouts, incompleteness of study and prolonged study periods are viewed as losses in terms of funding and human capital. Furthermore, today's global push for postgraduate study is rising as statistics reveal that internationally approximately 86% of companies recruit employees with a postgraduate degree (Meikeng, 2017). Thus, many students view postgraduate study as a stepping stone to better employment. However, owning a postgraduate degree is not enough for employment since it is just a paper qualification. The way students manage time and themselves to solve problems through the process of study matters more than obtaining the certificate. Their learning process can be seen in the timely completion of their studies since their capacity for perseverance through effort in their studies brings valuable experiences (Teoh, 2019). If students successfully GOT, it suggests that they are capable of handling life's obstacles. Given the current attrition and low completion rates, this gap needs further exploration as a postgraduate programme gives students the best chance to grow and demonstrate their abilities in the workplace, having dealt with the challenges of learning in a condensed period of time to GOT.

### 2.2 Quality Learning Environment

Today, with the advancement of technologies, the demand for quality learning environments encompassing the optimisation of smart learning environments (SLE) has become a necessity in higher education to attract potential students. Likewise, the exponential increase in postgraduate enrolments catalyses tertiary institutions to relook into flexible online and offline quality learning environments. Sidhu et al. (2015), in exploring institutional support for postgraduate study in Malaysia, expressed low satisfaction in terms of facilities, learning resources, professional development and opportunities for grant and fellowship applications. Sancar-Tokmak & Dogusoy (2020) equated quality learning environments that provide more personalised and adaptive teaching-learning pedagogies, whilst others called for intensive seminars critical for enhancing student competencies and strategic decision-making about their learning (Abunamous et al., 2022). According to Su (2022), there is scant evidence of this in the literature, and hence more emphasis on learning environments that encourage deep learning and learner engagement strategies for learner autonomy needs to be investigated.

### 2.3 Factors to Graduate on Time

Carroll et al. (2009) summarised that GOT is based on three main factors, i.e., situational, dispositional and institutional. Situational factors include situations and circumstances within a student's life, whilst dispositional or attitudinal factors include an individual's or community's beliefs, values and attitudes that may inhibit a student's participation. Finally, institutional factors include factors such as the processes, the procedures, the structures and the politics within an institution. Likewise, Sidhu et al. (2017) stressed the importance of student factors and their obligations as doctoral students to GOT. Other personal factors such as marital status, time management, and motivation to complete their study for self-fulfilment and potential career development also need to be taken into consideration. Additionally, Sidhu et al. (2016) indicated that supervisory factors such as supervisory roles, competencies and practices are key factors affecting students' ability to GOT. Students need to strive for a productive working relationship with their superiors. Other than that, Jeyaraj (2018) stressed that students must ensure that they possess the necessary skills to pursue a postgraduate degree. This was further reiterated by Teoh et al. (2019), Sidhu et al. (2022) and Muthukrishnan et al. (2022) that fundamental self-efficacy skills and academic competencies in reading, writing, research, and digital literacy are required for successful GOT. Ryan and Zuber-Skerritt (2017), in examining factors influencing low completion rates, noted that before supervisors can effectively supervise students, they need to address the challenges students face and how they were managing their studies. They suggest that the student factors (challenges and experiences) have a significant impact on the GOT. Nevertheless, empirical evidence reveals that successful learning happens when students exhibit motivation and a certain degree of independence, such as their prior domain knowledge (Mustapha et al., 2023; Rumlich, 2022). Muthukrishnan et al. (2022) found research skills as the strongest predictor of Malaysian postgraduate student motivation toward GOT, and these research skills also mediated the relationships between institutional support, students' self-management skills and postgraduate students' motivation to GOT.

Henceforth, this study aimed to examine the factors affecting PG students' ability to GOT, and it was guided by the following research objectives:

- To investigate if there is any significant difference between students' perceived and actual performance in basic competencies in postgraduate study.

- To examine which of the predictor variables (reading, writing and research skills) make a significant contribution to students' ability to GOT.
- To determine if there is any significant difference in students' perceptions of institutional, motivational, student and supervisory factors that affect their ability to GOT.
- To examine which of the predictor variables (institutional, motivational, student and supervisory factors) make a significant contribution to students' ability to GOT.

### 3.0 Methodology

This study utilised a descriptive correlational research design with a mixed-methods approach, as it could provide insights into the relationship between variables to make predictions. It was set at a faculty of education located in a private university in Selangor, Malaysia, referred to as University X in this study. The study involved one intact group of 50 first-semester postgraduate students enrolled in the PhD (Education) as most senior students were out of campus working on their thesis. Data were collected via a three-pronged approach involving competency tests, a questionnaire and five focus group interviews involving 25 students. The three skill-based tests aimed to investigate respondents' critical reading, academic writing and basic research skills, whilst the questionnaire examined their perceptions of their basic competencies and factors affecting their motivation to GOT, such as personal, institutional and supervisory factors based on a five-point Likert scale ranging from strongly disagree to strongly agree.

The validity of research instruments was established through a panel of three experienced experts with doctoral degrees, i.e., an English Language professor, a writing instructor, and a professor teaching research methodology. The reliability of the three competency tests and the questionnaire was established via a pilot study involving 35 PG students from another faculty. The reliability of the three tests was high as the tests were adopted from a highly recognised exam body, whilst the Cronbach alpha score for the questionnaire stood at 0.87. The quantitative data were analysed using both descriptive and inferential statistics. The inferential analysis utilised SmartPLS to establish the structural models employing lower and higher order construct. Meanwhile, qualitative data involved thematic analysis. Data collected from quantitative and qualitative instruments enable the researchers to triangulate the findings, thus establishing greater credibility (Creswell & Creswell, 2018). Keeping in line with ethics in research, prior permission and consent were obtained from both the institution and respondents involved. Besides that, the data collected was stored in a password-encrypted laptop.

### 4.0 Findings

The following section provides a brief description of the main findings obtained from the study.

#### 4.1 Demographic Profile of the Respondents

The study consisted of 50 PhD (Education) students, wherein 40% were males whilst the remaining 60% were females. A large majority of the students are international students from China between the ages of 30 to 40. All are full-time students majoring in the field of education and working as lecturers, teachers and school or university administrators.

Table 1. Demographic Profile of Respondents (n=50)

Items	Number	Percentage
<i>Gender</i>		
Male	20	40
Female	30	60
<i>Age</i>		
Less than 32 years old	15	30
32 to 35 years old	20	40
36 years old and above	15	30

#### 4.2 Students Perceived and Actual Competency Level for basic Postgraduate Skills

The first research objective investigated students' perceived and actual performance in critical reading, academic writing and basic research skills. The results in Table 2 reveal a significant difference between respondents' self-perceived and actual competency levels in all three skills, indicating they overestimated their competency. Moreover, results highlighted that the students possessed rather limited competency in all three skills, with the lowest means recorded for a critical reading followed by research skills and writing skills. An in-depth statistical analysis of their actual performance in the three tests demonstrated significant differences between their perceived and actual performance in all three skills. These results illustrate that respondents overestimated their actual performance in all three skills.

Table 2: Students' Self-Perceived Readiness and Actual Performance for Basic Competencies in Postgraduate Study

	Self-Perceived	Actual	Mean difference	t	df	Sig. (2-tailed)
Reading Skills	3.63	2.65	.98	4.21	49	.000
Research Skills	3.25	2.82	.43	2.01	49	.000
Writing Skills	3.31	2.93	.38	1.91	49	.002

Overall basic competencies	3.04	2.80	.24	1.80	49	.003
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Significance \*\* p < 0.05

Their limited competency in all three skills was also admitted by students in the interviews, as English was either a second or foreign language to the students. For instance, Respondent S3G2 (Student#3, Group2) highlighted that reading in English is difficult as “it is hard reading long journal articles.” Likewise, Respondent S5G5 stressed that writing in English was a challenge and often ended up “writing in Chinese first and then I google translate into English.” A majority also felt that research was something new, and they faced difficulty conceptualising their study due to their limited knowledge of research skills.

#### 4.3 Significant Predictor of Students’ Perceptions of Basic Postgraduate Skills to GOT

Research objective two examined which among the three basic competencies was a significant predictor in helping students GOT. Since all these students were first-year students, GOT in this study referred to students who had successfully defended their proposal within one to one and half years of their three-year study program. From the results in Table 3, it can be concluded that all three skills do influence students’ ability to GOT. Nonetheless, further data analysis utilising SmartPLS revealed that only critical reading skills have a significant effect on GOT (t=5.063, p=0.000).

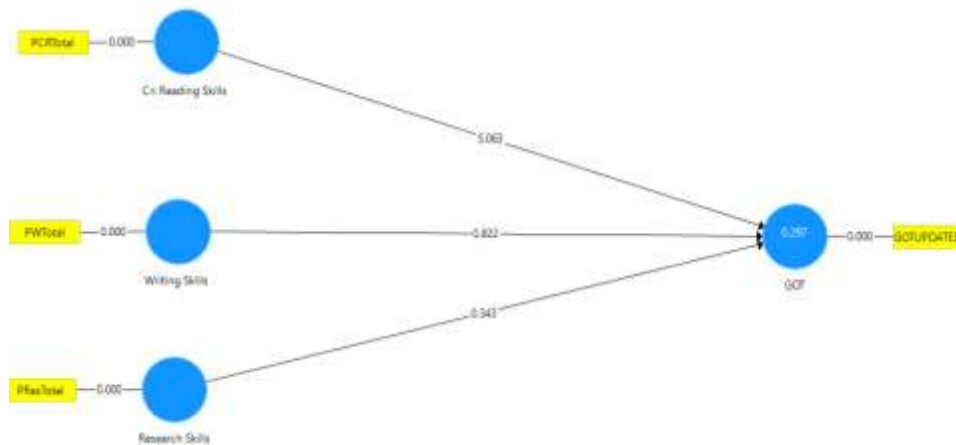


Fig. 1: Significant competency predictor(s) for students’ ability to GOT

#### 4.4 Factors Affecting GOT

The third research objective investigated students’ perspectives on four main factors that affected their ability to GOT. Results in Table 3 reveal that motivational factors (M=3.94) and students’ personal student factors (M=3.67) were viewed as most important. This finding resonates well with the fact that adult learners are aware of their responsibility for the successful completion of their thesis to GOT. In terms of supervisory factors, respondents viewed the supervisor’s role (M=3.63, SD=.747) and practices (M=3.60, SD=.674) were equally important as their competencies (M=3.58, SD=.714). With respect to institutional factors (M=3.60), students placed more importance on institutional facilities (M=3.68) compared to institutional support (M=3.58).

Table 3: Students’ Perceptions of Factors Affecting GOT

	Mean	SD
Overall Supervisory Factors	3.61	.712
Overall Student Factors	3.67	.538
Overall Motivational Factors	3.94	1.061
Overall Institutional Factors	3.57	.805
Overall	3.70	.779

Scale: 1=Weak, 2= Limited, 3=Fairly, 4= Good, 5= Excellent

Interview sessions further corroborated these findings as students were motivated to GOT for their future career development and personal self-fulfilment. Respondent S1G4 highlighted that she was motivated as she likes “to learn new things, and I feel I still have so much more to learn.” Respondent S4G3 reiterated the need for one to be disciplined in “working hard to complete my thesis” and always keep “learning because I learnt so many new things during the postgraduate courses . . . and if I do well it will also help me in a career development.” A similar sentiment was echoed by Respondent S2G4, who stressed that a PhD would help him “advance my career, and I think for me to succeed, I need a work with a good supervisor.” Similarly, S2G4 considered “a good supervisor is important for me to succeed...as supervisors can show us how to write the thesis.” All these excerpts reveal the importance of motivation and personal factors alongside supervisory factors for success in GOT.

#### 4.5 Significant Predictor Factors to GOT

The final research objective examined respondents' perceptions of the significant predictors that influence their success in GOT. Here four factors were considered. The findings employing SmartPLS revealed that all four factors, i.e., institutional, motivational, student and supervisory factors, related to GOT in a direct manner (Figure 2). Furthermore, supervisory factors proved to be the most significant factors that contributed to GOT.

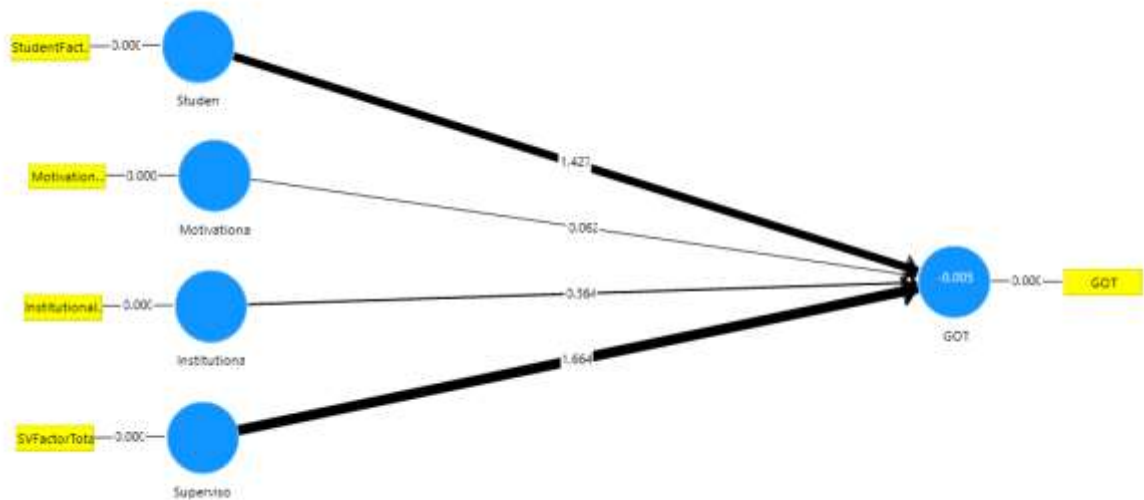


Fig. 2: Significant predictor(s) factors to GOT

The supervisory factors were viewed based on three constructs: supervisory role, supervisory practices and supervisor competencies. In-depth analysis utilising SmartPLS found that supervisor competency (SVComp) is related directly to GOT, while supervisory role (SVRole) and supervisory practices (SVPractice) are related in an indirect manner to GOT. Additional exploration of the structural model in Figure 2 was conducted, and the result in Figure 3 shows there is sequential mediation between SVRole and GOT. Hence SVpractices followed by SVComp play the sequential mediating roles between SVRole and GOT.

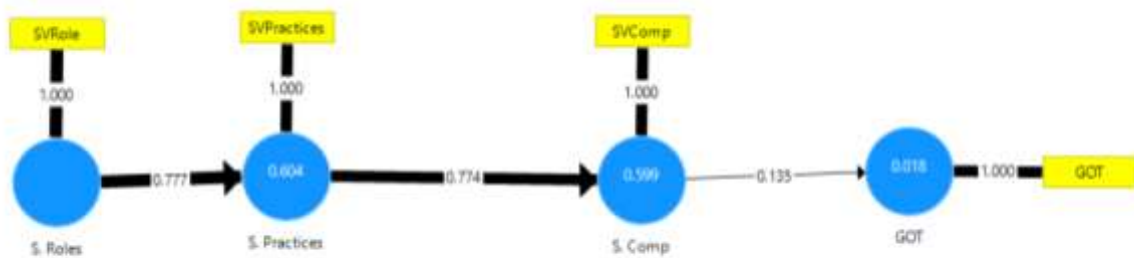


Fig 3: Sequential Mediation of SVPractices and SVComp between SVRole and GOT

Interview sessions with respondents stressed the importance of getting to work with a supervisor as soon as possible. Several attributed their success to GOT lay in the hands of their supervisors. Respondent S2G4 highlighted that a “good supervisor is important for me to get success . . . a supervisor can show me how to write the thesis”, whilst Respondent S2G5 reiterated that “a supervisor is very important as she has good knowledge in research to show me what is right and wrong in my study so that I can finish my thesis in time.” In fact, all respondents in the interviews agreed they were highly motivated to GOT but required a competent supervisor that matched their field of interest. They suggested that supervisors be assigned to them when they registered for the program and not when they have completed their coursework.

## 5.0 Discussion

The findings in this study found that there are several significant factors that can aid postgraduate students in successfully GOT. Firstly, they must possess the basic competencies in critical reading, academic writing and research skills. Among these three significant influences, critical reading proved to be the most important. Though similar findings were echoed by Shamida, Sidhu & Sofwah (2021) and Sidhu et al. (2017), a contradictory finding was recorded by Muthukrishan et al. (2022), where research skills were the determining factor in terms of influencing competencies in GOT. Nonetheless, critical reading is important as postgraduate students need to sieve

through volumes of literature to identify the research gaps, and this can only be accomplished if they have developed a good grasp of current literature in their respective fields of study. Le, Chong & Wan (2022) and Braten & Braasch (2017) also emphasised that critical reading helps assess the strength of evidence in an argument and determines what is credible. In today's technological world, the ability to critically process massive amounts of information is challenging as Google, Instagram, Twitter, and Facebook are examples of social media platforms where fake news is rather rampant. Postgraduate students' limited to moderate literacy competencies indicate that supervisors cannot assume that their students come equipped with the necessary skills. Therefore, innovative structured training programs should include critical reading, academic writing and research skills as they are the foundation for the successful completion of a postgraduate degree.

This study found that institutional, motivational, student and supervisory factors influence students' ability to GOT directly. Among these four, supervisory factors proved to be the most significant factor, but Muthukrishan et al. (2022) however found that institutional support and students' self-management skills significantly influenced students' motivation to GOT. Sidhu et al. (2013) observed that effective supervisors are 'people-oriented and are motivators and confidence boosters to helping students GOT. Teoh et al. (2019) also mentioned that effective supervisors need to be experts in their field of interest, whilst effective supervisory practices include effective monitoring of student progress so that students are motivated to GOT.

To conclude, one needs to embrace the unique context of postgraduate students in Malaysia. While most public universities comprise mainly Malaysian students, the reverse is true of private universities, and English is a foreign language for many international students. Nonetheless, studies (Sidhu et al., 2022; Izzah & Rohani, 2020) have shown that postgraduate students, whether Malaysians or international students, both private and public universities are struggling with the students' basic competencies for postgraduate study. There is no denying that they need extensive support to first enhance their English language proficiency, and it is hoped that critical reading and academic writing will follow suit.

## 6.0 Conclusion & Recommendations

This study reviewed factors that help postgraduate students to GOT and explored both basic competencies in the postgraduate study (reading, writing and research skills) alongside four contributory factors, namely institutional, motivational, student and supervisory factors. Though the findings recorded that all three competencies and factors do influence students' ability to GOT, critical reading skills and supervisory factors were the significant predictors that can help students GOT. These factors resonate well with our current understanding as reading is often viewed as the basic pillar of all knowledge, and effective critical reading of journal articles may consequently lead to effective academic writing. Likewise, effective supervision will beget effective students. Henceforth, sustaining a quality learning environment for postgraduate study requires the nexus of basic competencies alongside student, institutional and supervisory factors.

At this juncture, the researchers acknowledge the limitation of this study as the population involved only 50 students from one private university. Hence, future studies can involve a larger sample size and involve more triangulation processes. Though the findings cannot be generalised to the total population, this study has contributed to the literature on this burgeoning field of postgraduate study and factors that can help students GOT.

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## Paper Contribution to Related Field of Study

This paper provides both theoretical and practical implications for the mushrooming field of postgraduate study and significant factors that help students graduate on time so that higher education providers can provide sustainable quality learning environments for the success of all.

## References

- Abunamous, M.O., Boudouaia, A., Jebri, M., Diafi, S. & Zreik, M. (2022). The decay of traditional education: A case study under COVID-19. *Cogent Educ.*, 9, 2082116.
- Braten, I. & Braasch, J.L. (2017). Key issues in research on students' critical reading and learning in the 21st century information society: Improving reading and reading engagement in the 21st century. In *Improving Reading and Reading Engagement in the 21st Century*. DOI: [10.1007/978-981-10-4331-4\\_4](https://doi.org/10.1007/978-981-10-4331-4_4)
- Carroll, D., Ng, E. & Birch, D. (2009). Retention and progression of postgraduate business students: an Australian perspective. *Open Journal: The Journal of Open, Distance and e-Learning*, 24(3), 197 – 209.
- Dhanapala, R.M. (2021). The Effect of Learning Environment on Academic Performance From Students' Perspective. *Global Scientific Journal*, 9 (3). Online: ISSN 2320-9186 [www.globalscientificjournal.co](http://www.globalscientificjournal.co).

- Du, R., Shamida, A., & Kaur Sidhu, G. (2022). Using the PAH in Teaching Reading to Sustain the Quality of EFL Students' Life. *Environment-Behaviour Proceedings Journal*, 7(22), 33-38. <https://doi.org/10.21834/ebpj.v7i22.4145>
- Jeyaraj, J. J. (2018). It's a jungle out there: challenges in postgraduate research writing. *GEMA Online @ Journal of Language Studies*, 18(1), 22- 37. Retrieved May 19, 2018, from <http://doi.org/10.17576/gema-2018-1801-02>.
- Izzah Ismail & Rohani Othman (2020). A Review of Literature on the English Language entry requirement for international students into postgraduate programs in Universiti Teknologi Malaysia. *Journal of critical reviews*, 7, (11), 543- 549.
- Kaur, S., & Sidhu, G.K., & Hoon, T.S., & Jamian, L.S., (2017). Student Readiness for Postgraduate Study in Terms of Research and Conceptual Skills: Perspectives from Supervisors. *Advanced Science Letters*, 23, 3255-3258.
- Le,H.V., Chong S.L. & Wan, R. (2022). Critical Reading in Higher Education: A systematic review. *Thinking Skills and Creativity*, 44 (6), <https://doi.org/10.1016/j.tsc.2022.101028>
- Lim, P.C., Gurnam, K.S., Chan, Y.F., Lee, L.F. & Leelee Susan Jamian. (2016). Assessing Writing Skills of Postgraduate Students: Perspectives of Supervisors and Supervisees. In Siew Fun Tang Loshinikarasi Logonnathan (eds) *Assessment for Learning Within and Beyond the Classroom*, 31-41.
- Ministry of Education, (2015). *Malaysian Higher Education Blueprint (2015-2025)*. Ministry of Education, Malaysia: Putrajaya.
- Meikeng, Y. (2017, September 3). Mustering up a Master's. *The Star Online*. Retrieved February 2, 2018, from <https://www.thestar.com.my/news/nation/2017/09/03/mustering-up-a-masters-nineout-of-10-companies-globally-want-to-hire-amasters-degree-graduate-acco/>
- Mustapha, A., Mamman, B., Isa, A., Kolo, M., Abuhassna, H., Yahaya, N. & Megat Zakaria, M. A. Z. (2023). Students' Motivation and Effective Use of Self-regulated Learning on Learning Management System Moodle Environment in Higher Learning Institution in Nigeria. *International Journal of Information and Education Technology*. 13. 195-202. [10.18178/ijiet.2023.13.1.1796](https://doi.org/10.18178/ijiet.2023.13.1.1796).
- Muthukrishnan, P., Sidhu, G. K., Hoon, T. S., Narayanan, G., & Fook, C. Y., (2022). Key Factors Influencing Graduation on Time Among Postgraduate Students: A PLS-SEM Approach. *Asian Journal of University Education (AJUE)*, 18(1), 51-64.
- Rumlich, D. (2022). Exploring the importance of prior knowledge and verbal cognitive abilities for foreign language learning. *Cognition and Second Language Acquisition: Studies on pre-school, primary school and secondary school children*, 4, 219.
- Sancar-Tokmak, H., & Dogusoy, B. (2020). Novices' instructional design problem-solving processes: Second Life as a problem-based learning environment. *Interactive Learning Environments*, 1-14.
- Shamida, A., Sidhu, G.K. & Sofwah M. N. (2021). Postgraduate Students' Perceived and Actual Performance in Critical Reading Skill. *Asian Journal of University Education (AJUE)*, 17(3), 76-84.
- Sidhu, G. K., Md Nawi, S., Ramakrishnan, K., & Du, R. (2022). Developing PG Students' Learner Autonomy through the PAH-Continuum: A Case Study. *Environment-Behaviour Proceedings Journal*, 7(21), 121-127. <https://doi.org/10.21834/ebpj.v7i21.3722>
- Sidhu, G.K., Kaur, S., Choo, L.P., Fook, C.Y., Fong, L.L., & Jeffrey, N.A., (2017). Students' Perspectives on Postgraduate Supervisory Practices. *Advanced Science Letters*, 23(4), 3229-3232.
- Sidhu, G.K., Kaur, S., Chan, Y.F., Lim, P.C., Lee, L.F., & Leelee S.J., (2016). Exploring Supervisors' Perspective to Enhance Postgraduate Supervision. (Eds), *7th International Conference on Learning and Teaching (InCULT 2014) Proceedings: Educate to Innovate. Springer-indexed*, 169-182.
- Styger, A., Van Vuuren, G. W., & Heymans, A. (2015). Case study of postgraduate student dropout rate at South African universities. *International Business & Economics Research Journal*, 14(1), 1 – 14.
- Su, J. (2022). *The Influence of Learning Environment and Learning Pressure on the Student Development of University—Based on the Mediating Role of Learning Orientation and Engagement*. [Doctoral thesis, International College of National Institute of Development Administration]. <https://repository.nida.ac.th/bitstream/handle/6627237376199/6212032025.pdf?sequence=1>
- Ryan, Y., & Zuber-Skerritt, O. (2017). *Quality in postgraduate education*. London, England: Kogan Page.
- Teoh, S.H., Narayanan, G. & Sidhu, G.K. (2019). Motivation to Graduate on Time: A Case Study in Malaysia. *Pertanika, Journal of Social Sciences & Humanities*. 27 (4): 2417 - 2439 (2019).