# POSTGRADUATE STUDENTS' LEVEL OF DEPENDENCE ON SUPERVISORS IN COPING WITH ACADEMIC MATTERS AND USING DIGITAL TOOLS

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**ABSTRACT**

The empowerment of human capital through higher education is a key element that contributes to the growth of national income. In line with this, Malaysia under the MyBrain15 initiative aims to produce a total of 60,000 doctoral degree holders by 2023. However, high attrition and low completion rates among postgraduate students to date have hindered the noble aspiration. Among the factors that have contributed to this are postgraduate supervisory practices and student limitations in terms of knowledge, and 21st century skills such as critical thinking, autonomy and lifelong learning. Therefore, this paper aims to investigate students' perceptions of their level of dependence on supervisors in postgraduate study in relation to digital literacy and academic matters in terms of providing motivational support, writing a proposal, collecting and analysing data and writing the final report. This exploratory descriptive case study involved 132 postgraduate students from the largest public university in Malaysia. Data were collected using a mixed-methods research design through the use of a questionnaire and semi-structured interviews. The findings show that students' level of dependence on supervisors for academic matters such as the need for was much higher compared to dependence in using digital tools. In terms of digital literacy, students articulated dependence on supervisors in aspects such as data analysis, data visualization and data management tools. With regard to academic study, students' dependence on supervisors was highest at the proposal stage but reduced at the data collection and data analysis stages. Nevertheless, their dependence again increased at the final writing stages. The findings of the study suggest that postgraduate students lack autonomy for lifelong learning and hence appropriate steps need to be taken to improve the quality of postgraduate supervision in the university.

**KEYWORDS**

Postgraduate students, digital learning, lifelong learning, dependence, autonomy, postgraduate supervision, student-supervisor relationship

## 1. INTRODUCTION

In today's competitive global markets, the development of a critical mass of human capital through higher education has become a key element that can contribute to the growth of national income. For this reason, the Malaysian government initiated a special programme referred to as MyBrain 15 which hopes to produce a critical mass of 60,000 graduates with doctoral degrees by 2023. Though this move has contributed to the increasing number of postgraduate students in institutions of higher learning in Malaysia, graduation rates have been low due to high attrition and low completion rates. Researchers such as Sidhu et al., (2014) have attributed this to student limitations in terms of knowledge, skills, student autonomy, inappropriate supervision and research learning environments.

Sidhu et al. (2013) in their comparative study between Malaysia and the UK found the supervisees in Malaysia looked for a 'people' oriented supervisor who was a motivator and confidence booster. These students were also more dependent on their supervisors and had higher expectations of their supervisors compared to postgraduate students in the UK. Cryer (2006) further highlighted that though new postgraduate students usually are more dependent on their supervisors, they need to learn how to wean off their dependence as they progress along their postgraduate journey. Developments in research by researchers such

as Stefano et al, (2004) has indicated that learner autonomy can be fostered via organizational support (providing students with decision making roles), procedural autonomy support (offering students choices in use of different media) and cognitive autonomy support (opportunities for students to self-evaluate work).

Consequently, there is a critical need for postgraduate students to become independent and autonomous lifelong learners. Knowles (1990) noted that the ultimate aim of all education should be lifelong learning if we are 'to avoid the catastrophe of human obsolescence' (p.135). The concept of autonomy, self-direction and lifelong learning which were rather contentious and hotly debated issues in the 1990s have gradually become accepted ideas in education. Today, almost all universities and educational organisations, including the Ministry of Higher Education in Malaysia, have lifelong learning as an important attribute for graduates. Hence, students in today's technology driven environments need to be responsive to change, inquiring and reflective in practice, through information literacy and autonomous, self-managed learning so that they leave tertiary institutions as lifelong learners.

Autonomy, on the other hand, refers to the "capacity for making informed decisions about one's own learning" and this can be developed through 'introspection, reflection and experimentation through learner training' (Sinclair, 2009, p. 1). To this discourse, Sidhu (2009) adds that for students to become autonomous lifelong learners in today's ever changing digital learning environments, they must first be equipped with the right tools and strategies so that they are capable and willing to plan, organise, monitor and evaluate their own learning. Researchers (Sinclair, 2009; Sidhu, 2009) note that for students to be autonomous learners, they must be active learners who are capable and willing to engage themselves in academically stimulating and challenging learning environments. Besides that, students must be willing to take responsibility for their own learning. Taking charge of one's learning is of utmost importance in postgraduate study if students want to leave academia as lifelong learners.

Keeping in line with the noble aspirations of becoming a developed nation by 2020, Malaysia launched the Malaysian Education Blueprint 2015-2025 (Higher Education) in 2015. This Blueprint outlines 10 shifts to spur continued excellence in the higher education where shift number nine (9) pushes for the need for globalized online digital learning and shift four (4) focuses on developing a nation of lifelong learners in a bid to develop holistic, entrepreneurial and balanced graduates to fulfil the needs of a high-income economy (Ministry of Education Malaysia, 2015). If the postgraduate students are to become the nation's critical mass of knowledgeable lifelong learners, it is only pertinent that supervisors empower students and move away from patriarchy, control and dependence.

For success in completing an academic research study at the postgraduate level, students must be well equipped with current 21st century skills which include digital literacy. In today's cyber 21st century, students need to be digitally literate to access opportunities to learn, live and work effectively. The ability to utilize digital tools has also been identified as one of eight key competences for lifelong learning, as it ensures active participation in society and economy (European Parliament and the Council, 2006). Consequently, in today's world of learning, both academics and students alike need to be digitally literate and be aware of the vast array of digital tools available for teaching and learning. The digital natives of today's learning environments need to be well equipped with technical skills for the use of digital gadgets and software to manage and construct knowledge whilst surfing the web and deciphering user interfaces (Hall, Nix & Baker, 2013). Today, both students and supervisors can even share content on the web, chat in chat rooms and communicate via social networks during on-line supervisory sessions. As such digital literacy involves a range of abilities from basic computing skills to the creation of multimodal texts and tools that can help postgraduate students in managing information, organizing the literature review and analyzing and visualizing data collected for the preparation of their final research report.

Beside having to cope with the use of digital tools, these students also need to gain independence in online academic matters such registering for courses, settling fees and communicating online with supervsiors and other administrative personnel. Cryer (2006) notes that even though new postgraduate students are usually more dependent on supervisors for support in both academic study and digital literacy, supervisors must learn to strike a balance between control and autonomy. They need to slowly dissuade their students off their dependence and guide them towards pathways of autonomy and independence. This is important because at the end of the day, students need to emerge as confident researchers in their field of expertise so that they can contribute to the critical mass of knowledge workers required by the country. Even though postgraduate supervision is growing steadily to be an explored field of interest, there still exists scant empirical evidence on postgraduate supervision from the perspectives of postgraduate students, particularly in terms of their level of autonomy. Therefore, this study hopes to examine students' level of dependence on their supervisor in coping with academic matters and using digital tools effectively in their postgraduate study.

## 2. THE STUDY

This study was conducted in one of the largest public university in Malaysia and employed a descriptive research design with a mixed-methods approach. Data were collected through a questionnaire and semi-structured interviews. The questionnaire was aimed to investigate students' perceived level of support / dependence on their supervisors in terms of coping with academic matters and using digital tools. A total of 132 postgraduate students responded to the questionnaire whilst eight respondents agreed to be interviewed. These 8 respondents were coded based on gender (4 males and 4 females – coded as M or F) and academic study (PhD and Masters coded as P and M). In this study, these eight respondents were referred to as follows R1-FP (R=Respondent 1, a Female PhD student), R2-MP, R3-FP, R4-FP, R5-MP, R6-FM, R7-FM and R8-MM

The questionnaire used in this exploratory study was adapted from Sidhu et al. (2014) Postgraduate Supervision Questionnaire to suit the objective of this study. It consisted of two sections: Section A explored the demographic variables of the students (e.g. gender, mode of study and academic qualification) whilst Section B consisted of 18 bipolar constructs that explored students' need for support / level of dependence on their supervisor in coping with academic matters and using digital tools. The bipolar constructs in the student-supervisor relationship for academic matters examined students' perceptions of the support they needed based on three stages in their postgraduate study which would indirectly reflect postgraduate students' level of readiness for autonomy and lifelong learning. The three stages of study explored in this study for academic matters were: 1) the proposal stage, 2) data collection and data analysis stages and 3) the final writing stage. The scale used is shown in Figure 1. Appropriate support on the left of the scale reflects the level of students' dependence on their supervisors. Meanwhile the autonomy generation (on the right side of the scale) indicates students' level of independence.

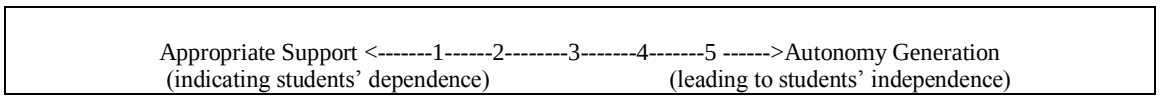


Figure 1. Scale for Student-Supervisor Dependency

The reliability of respondents' responses to the questionnaire was tested using the Cronbach's coefficient alpha in a pilot study which involved approximately 52 students from another public university in Malaysia. The Cronbach's alpha reliability indexes for different dimensions in the instrument namely overall support required by students in postgraduate study (.96), dependence on supervisors for using digital tools (.94), academic support required by students at different stages (.94), and dependence on supervisors at various stages of study (.95) were identified at high level. Overall, the average Cronbach's alpha reliability for the questionnaire was identified at .95 ($\alpha$=.95) indicating it was highly reliable (Cohen, Manion & Morrison, 2007).

## 3. RESULTS AND DISCUSSION

A total of 132 postgraduate students from a public university in Malaysia responded to the questionnaire. The demographic profile revealed that a majority of the respondents were females (65.9%) and 34.1% of them were males. As for the mode of study, 81.8% were full-time students while 18.2% were part timers. Out of these 132 respondents 85.6% were currently pursuing their masters whilst the remaining 14.4% were pursuing their PhD.

### 3.1 Overall Support Required By Students in Postgraduate Study

Table 1 below shows the amount of academic support students needed in their postgraduate study. Based on the findings in this pilot study, it can be seen that a majority of the respondents (79.5%) reported that they needed moderate academic support from their supervisors, indicating a moderate dependence on supervisors. This reflects a moderate readiness towards autonomy and lifelong learning. Another 10.6% of respondents claimed that they needed little support indicating that approximately 14 students were rather independent and were moving towards the path of autonomy. Another 13 students (9.8%) indicated that they were highly dependent and required much support from their supervisors.

Table 1. Level of academic support required by students (n=132)

| Level of Support | Frequency | Percentage (%) |
|---|---|---|
| Low (1 – 1.99) | 14 | 10.6% |
| Moderate (2 – 3.99) | 105 | 79.5% |
| High (4 -5) | 13 | 9.8% |
| Total | 132 | 100.0% |

## 3.2 Students' Level of Dependence: Using Digital Tools

The following section presents the students' perceptions of their dependence on supervisors in terms of using digital tools in their study. From the quantitative findings presented in Table 2, it can be seen that students articulated independence on a variety of aspects. The highest level of independence was recorded for the use of referencing software (M=4.58, SD=.715) followed by the use of online academic matters (M=4.56, SD=.864) and use of search engines for research purposes (M=4.23, SD=.762). On the other hand, the highest dependence on supervisors was for the use of data visualisation tools (M=2.03, SD=.740) followed by use of data analysis tools (M=2.43, SD=.659) and use of plagiarism software (M=3.05, SD=.766). In addition, students expressed moderate dependence in terms of using social media in research, managing literature review online tools and use of technology for online supervision.

The extent of support required by students was further investigated in the interviews with eight postgraduate students. Findings indicated rather similar findings obtained from the questionnaire. Almost all students highlighted that they were not dependent on their supervisors when it came to online academic matters. For example, Respondent R3-FP stressed that "I *do not need any help from my supervisor on online academic matters because everything is on the postgraduate website. I can register for a semester, take a semester off and even apply for a change of supervisor*." Similarly Respondent R7-FM expressed that the "*university website was very user- friendly"* and she experienced no problems accessing it even though she was not as techno-savvy as her younger course mates. Likewise, a majority of them also voiced agreement that they encounter few problems when using available digital tools for referencing and manthey had little problems with the use of available digital tools for referencing and managing information obtained from the web. Respondent R1-FP pointed out that during the orientation programme they were taught how to use various search engines and referencing software to locate information. She added, "*We were also introduced us to some data management tools and the university library staff were very helpful . . . some of them taught us how to reference materials and where we could go for further help . . .but I think I need help and expertise in managing and writing my literature review*."

Table 2. Student dependence on supervisors for using digital tools (n=132)

| Items | Mean | SD |
|---|---|---|
| Online academic matters | 4.56 | .864 |
| Using Online search engines – research | 4.23 | .762 |
| Managing lit review online tools | 3.23 | .643 |
| Data Analysis & Analytics tools | 2.43 | .659 |
| Using referencing software | 4.58 | .715 |
| Understanding data visualisation tools | 2.03 | .740 |
| Use of plagiarism check tools | 3.05 | .766 |
| Use of social media in research | 3.79 | .462 |
| Use of latest tools e.g. mobile apps, etc. | 4.05 | .783 |
| Use of technology /media for online supervision /chat | 3.65 | .875 |

Scale: Appropriate Support 1—2—3—4—5 Autonomy Generation
(indicating dependence) (leading to independence)

To this Respondent R6-FM highlighted that . . .

"*my supervisor has exposed me to a number of software available for managing the writing of literature review such as Mendeley. In fact my supervisor is very techno savy as she is into computing software and has even created her own software called LIRAS to help us manage our literature review.*"

A majority of these respondents stressed that their main limitation lay in analytics and how to use data analysis software to analyse data. Respondent R2-MP stressed that …

"*I am rather weak in numbers and I really learnt a lot from my supervisor. He is good in statistics and I think I need his support in helping me use analysis software such as SPSS to help me use SEM and Rasch modeling".*

Respondent R1-FP further added that,

"*I collected and presented a lot of tables in my thesis but I was not able to present it in an attractive manner. My supervisor, he exposed me to a number of 2D and 3D visualization tools like charts, matrix, scatter plot diagrams and multidimensional pie-charts and histograms. Now I can say I am happy that my research study now looks like a PhD study. I really appreciate his help in helping me visualize my data effectively."*

Interview sessions also investigated challenges students faced with regard to digital literacy. A majority expressed their limitation again in terms of keeping up-to-date with available and supportive software tools to help them manage and analyse data collected. A few other called for the need for more effective plagiarism checking tools and need to up-skill their knowledge in data analysis tools such as NVIVO and latest computing software such advance Microsoft word software for thesis writing and formatting.

## 3.3 Students' Level of Dependence: Academic Matters

The students' level of dependence on their respective supervisors was also examined in terms of academic matters such as communication, feedback and supervisory meetings at three main stages of study namely proposal, data collection and data analysis as well as writing stages. The details of the overall results were computed and reported in Table 3 which presents the students' level of dependence in seven (7) academic matters at different stages in their postgraduate study. At the proposal stage, they felt they needed to have effective communication (M=2.80, SD=.232) with their supervisors and hence they were rather dependent on highly experienced supervisors (M=2.54, SD=.162) who were able to provide them with proper guidance (M=2.68, SD=.155). More importantly, they also articulated a need for having a close relationship with supervisors as they needed them to provide strong motivational support. Students also indicated their dependence on quality feedback (M=2.77, SD=.163), regular meetings (M=2.54, SD=.140) and appreciated the need for a highly structured programme at this stage of postgraduate study.

Table 3. Students' level of dependence on supervisors at various stages of study (n=132)

| STAGE OF STUDY | Proposal Stage | | Data Collection & Analysis Stage | | Final Writing Stage | |
|---|---|---|---|---|---|---|
| Items | Mean | SD | Mean | SD | Mean | SD |
| Close relationship | 2.84 | .165 | 3.05 | .018 | 2.97 | .145 |
| Efficient communication | 2.80 | .232 | 3.00 | .152 | 2.92 | .205 |
| Quality feedback | 2.77 | .163 | 2.98 | .068 | 2.87 | .201 |
| Motivational support | 2.40 | .159 | 2.92 | 1.032 | 2.87 | .162 |
| Proper guidance | 2.68 | .155 | 2.92 | .024 | 2.84 | .111 |
| Regular meetings | 2.54 | .140 | 3.05 | .018 | 2.79 | .260 |
| Highly structured programme | 2.58 | .166 | 2.88 | .070 | 2.73 | .165 |
| Highly experienced supervision | 2.54 | .162 | 2.82 | .032 | 2.63 | .128 |
| Overall mean | 2.72 | | 2.95 | | 2.85 | |

Scale: Appropriate Support (indicating dependence) 1—2—3—4—5 Autonomy Generation (leading to independence)

This high support and dependence at the proposal stage was also recorded during the interview sessions. This indicated a low level of readiness for autonomy and lifelong learning on their own. They admitted that they were most dependent on supervisors as 'postgraduate study was a new chapter' in their lives and they 'looked forward to developing a close relationship' with their supervisors (R7-FM). Furthermore, Respondent R1-FP stated that she needed the most support during the proposal stage and therefore, she made it a point to having regular meetings with her supervisor. She further stated that through the frequent meetings, she was able to experience good communication with her supervisor.

*"I really needed a lot of help from my supervisor when I was at my proposal stage. We had meetings almost three times a week for two months. The feedback I received on my proposal from her was also good and easy for me to understand. I can say that we had good communication during that time and I was really dependent on my supervisor." (R3-FP).*

Likewise Respondent R2-MP articulated that he 'lacked confidence' at this stage and was hence 'very dependent 'on his supervisor for 'identifying readings, providing regular feedback on the writing', and giving him 'support, motivation and even guidance on how to survive postgraduate study'.

The findings in Table 4 further illustrate that there was a slight shift in the students' level of dependence at the data collection and data analysis stages (M=2.95) when compared to the proposal stage (M=2.72). Hence, respondents indicated there was little need for regular meetings with the supervisors (M=3.05, SD=.018) and they felt they could work independently and there was a little need of a close relationship with their supervisors during this stages (M=3.05, SD=.018). They however, indicated a need for quality feedback (M=2.89, SD=.068) and strong motivational support (M=2.92, SD=1.032). The results also show that they were most dependent on their supervisors in receiving highly experienced supervision at the data collection and data analysis stages (M=2.82, SD=.032).

This sentiment was also reflected in the interview sessions. Thus, the meetings with their supervisors decreased. They however pointed out that they still looked forward to support and motivation from their supervisors, particularly on finishing their study on time. For example, Respondent R4-FP stated that she did not meet her supervisor as frequently as when she was in the proposal stage and their relationship became rather distant. Nevertheless, her supervisor still provided support to her.

*"Right now I am at my data collection and data analysis stages. As I spent more time collecting data from respondents so I have less meetings with my supervisor compared to previous stage of writing the research proposal. I think that is why we are quite distant but I still receive support from her each time we meet up." (PPR2)*

During the final stage of writing, the results reveal that respondents shifted back to dependence on their supervisors (M=2.85, SD=.861). Consequently, they articulated a need for a highly structured programme and looked forward to more regular meetings (M=2.79, SD=.260) as they were at the tail end of their study. They were still dependent on their supervisors for guidance, motivational support and quality feedback. They also appreciated efficient communication and looked forward to having a close relationship with their supervisors. During the interview sessions, they stressed that since they were at the final stages of their study they were more dependent and looked forward to a close relationship with their supervisors compared to the other stages of their postgraduate study. Respondent, R2-MP, pointed out that he actually had more effective communication with his supervisor as he had more frequent meetings at the writing stage.

*"I am in my writing stage now. I can say that my relationship with my supervisor is better compared to the other stages. We also have more efficient and effective communication as we have regular meetings…I think I am still rather dependent on my supervisor" (PMC1)*

In addition, Respondent R3-FP further highlighted that she was rather dependent on her supervisor's feedback and felt that even though she had reached the end of her study she was 'not able to wean off successfully'. This is what she had to add:

"*I am at towards the end of my study and I know I should be a confident and independent researcher but the truth is I am still rather dependent as I think I still need my supervisor's approval. I still like her to check my work . . . I do not think I have been able to wean off my supervisor successfully and perhaps that is why I have not been able to achieve the independence required of a PhD student. . .but I am trying slowly."*

# 4. DISCUSSION AND CONCLUSION

The findings of this study showed that in general, a majority of the respondents were rather independent of supervisor support in terms of using digital tools but were rather dependent on supervisors in academic matters. Students expressed little need for supervisor support in aspects such as online academic matters and use of search engines for research purposes but called for support in the use of data analysis, data visualisation and data management tools. This calls for a need to further enhance digital literacy among postgraduates so that they do not lag behind the ever-changing demands of work and life. According to Shopova (2014), digital competence is crucial for effective learning and the need for students to adapt to adapt to the dynamically changing labour market.

With regard to academic study, student dependence on supervisors was rather high at all three stages of academic study, indicating a lack of autonomy among postgraduate students. These students were most dependent at the proposal stage as they needed guidance, motivation and quality feedback. This is congruent with findings from a study by Grant (2003) who highlighted that it is crucial for the level of relationship to be high at the beginning of the supervisory process where the production of a thesis is the key component of a supervisory practice. Goldberg, Dixon and Wolf (2012) further reiterated that good communication at the beginning of the relationship helps to build strong bonds. Moreover, good communication between students and their supervisor is necessary for effective supervision. The findings also revealed that students' dependence weaned off a little at the data collection and data analysis stages because at this stage students have to carry out data collection by themselves. This was also supported by Yin (2014) who states that students should learn to be more independent when collecting data. This slight independence however, swung back to dependence at the final stages of writing. Findings from the interview sessions indicated that students again fell back because their supervisors were still viewed as experts and a majority had not successfully learnt to wean off from their supervisors to grow as successful researchers in their own fields of interest.

These findings have implications for postgraduate supervision. There is a need for a more holistic approach to postgraduate supervision that takes into consideration the tenets laid down by educationists such as Maslow and Vygotsky alongside the development of learner autonomy among postgraduate students (Sidhu et al., 2015). More importantly, both supervisors and students need to understand the delicate balance between control and autonomy. Effective supervision requires supervisors to employ a more student-centred approach in today's age of technological advances as educators who see themselves as know-all content experts are redundant in today's learning spaces. Supervisors need to listen to their students' voices, get them engaged in dialogue with their own learning environments and help provide the necessary 'scaffolding' to reach their respective zone of proximal development. Researchers like Delamont, Parry and Atkinson (1998) assert that too much control can not only limit the development of autonomy of the novice researcher but more importantly threaten the originality of research study. Therefore, supervisors need to create a healthy supervisory culture that can help their students towards the path of increasing independence and lifelong learning. On the other hand, students too need to attend training seminars where they can be helped to grow as independent and critical thinkers. Students need to be empowered with lifelong learning skills so that they can be emancipated and encouraged to question and work towards developing as independent researchers and confident members of the disciplinary community.

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# REFERENCES

Abiteboul, S. et al, 2000. *Data on the Web: From Relations to Semistructured Data and XML*. Morgan Kaufmann Publishers, San Francisco, USA.

Cohen, L., Manion,L. & Morrission, K. (2007). Research Methods in Education (7th, Edition). Routledge:USA.

Cryer, P. 2006. *The Research Student's Guide to Success*. UK: McGraw-Hill International.

Delamont, S, Parry, O & Atkinson, P (1998). Creating a delicate balance: the doctoral supervisor's dilemmas. Teaching in Higher Education 3(2):157-172.

European Parliament and the Council (2006) 'Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning'. Official Journal of the European Union, L394/310.

Goldberg, R., Dixon, A. & Wolf, C.P. 2012. Facilitating effective triadic counseling supervision: An adapted model for an underutilized supervision approach. *The Clinical Supervisor,* Vol. 31, pp. 42-60.

Grant, B. 2003. Mapping the pleasures and risks of supervision. *Discourse,* Vol. 24, pp. 175-190.

Hall, M., Nix,I. & Baker, K. (2013). Student experiences and perceptions of digital literacy skills development: Engaging learners by design? *Electronic Journal of e-Learning,* 11(3) pp. 207–225.

Knowles, M.S. 1990. Fostering Competence in self-directed learning. In R.M. Smith & Associates (Eds).*Learning to* l*earn across the life span.* (p.123-136). San Francisco: Jossey-Bass Pub.

Ministry of Education Malaysia. (2015). *Executive Summary: Malaysian Education Blueprint 2015-2025(Higher Education).* Kementerian Pelajaran Malaysia:Malaysia

Shopova, T. (2014). Digital literacy of students and its improvement at the university. ERIES Journal vol. 7 no.2 (p.2).

Sinclair, B. & Thang, S.M. 2009. *Learner Autonomy: Research and Practice in Malaysia and Singapore*. Pearson: Malaysia.

Sidhu, G.K. (2009). Empowering learners through Strategy Training. In B. Sinclair & S.M. Thang, (Eds). *Learner Autonomy: Research and Practice in Malaysia and Singapore*. Pearson: Malaysia. pp. 106-134..

Sidhu. G.K. Kaur, S., Chan, Y.F. & Farhana Yunus. (2013). Postgraduate Supervision: Exploring Malaysian Students' Experiences. *Procedia - Social and Behavioral Sciences,* Vol. 90, pp. 133-144.

Sidhu,G.K., Kaur, S., Chan, Y.F. & Farhana Yunus. (2014). Postgraduate Supervision: Comparing Student Perspectives from Malaysia and the United Kingdom. *Procedia - Social and Behavioral Sciences,* Vol. 123, pp. 151-159, 2014.

Stefanou, C.R., Perencevinch, K.C., DeCintio, M. & Turner, J.C. (2004). Supporting autonomy in the classroom: Ways teachers encourage student decision making and ownership. *Educational Psychologist 39 (2*), 97-110.

Yin, R.K. 2014. *Case study research: Design and methods*: Sage Publications.