

Influence of ICT-Supported Learning Environment Perceptions, Academic Ability, and Prior Educational Experience on Approaches to Learning for Accounting in Malaysian Secondary Schools

Boon See TAN^{a*} & Su Luan WONG^b

^a*Faculty of Educational Studies, Universiti Putra Malaysia, Malaysia*

^b*Faculty of Educational Studies, Universiti Putra Malaysia, Malaysia*

*bstan_29@yahoo.com

Abstract: This study reviews selected influencing factors on students' approaches to learning for accounting in the ICT-supported learning environment, namely the students' perceptions of learning environment, academic ability, and prior educational experience. The retrieved research reports reveal that the learning environment which is perceived as being tensed up with pressure and demands would influence students to adopt surface approaches to learning. However, the ICT-supported learning environment that contributed to the perceptions of interactivity and involvement, inquiry and investigation, authenticity of learning, cooperation, and differentiation would stimulate deep approach to learning. Furthermore, academic ability could positively or negatively influence approaches to learning. Lastly, the availability and quality of prior educational experience could influence deep approach to learning, while problematic prior educational experience would lead to surface approach to learning.

Keywords: Deep approach to learning, surface approach to learning, perceptions of ICT-supported learning environment, academic ability, prior educational experience, accounting

1. Introduction

Accounting is one of the important professions for nation building which covers a wide spectrum of economic events in business enterprise and national economic activities. However, accounting is always regarded as a technical-oriented subject and it has been dominated by the objective of training students to know facts and solve problems from a narrow and inadequate perspective and thus, students used to take a surface approach to learning (Eley, 1992; Booth, Lockett, & Mladenovic, 1999; Lucas, 2000).

Likewise, in the context of Malaysia, the learning of accounting has yet to achieve deep approach, particularly at the level of fundamental accounting in secondary schools. It was found that most of the accounting teachers tended to focus on the procedural aspect of the subject by using the teacher-centred teaching approach without delving deeper into the knowledge (Suhaida Abdul Kadir, 2002; Hanuni Yusuf, 2003; Rohaila Yusof, 2006). This may be a reflection of the education system which has overemphasised students' academic achievement (Kementerian Pelajaran Malaysia [Ministry of Education], 2006) and many teachers are unwilling to take the risk of students' failure in examination by attempting innovative teaching. They would rather employ teacher-centred teaching methods which comply with the requirements of the exam-oriented education system. Moreover, students are short of the ICT skills to adopt deep approach to learning for managing the whole set of accounts by relating the processes of accounting cycle into a coherent whole (Arfah Salleh, 2001; Rashidah Hassan & Arfah Salleh, 2008; Tan & Wong, 2012).

In view of the weaknesses of the accounting education, a revised curriculum and assessment was launched by Ministry of Education in 2010. It involves consolidating the fundamental accounting

education by emphasising on the use of ICT skills for preparing a full set of accounts, soft skills, and ethical aspects of the accounting profession (Bahagian Pembangunan Kurikulum [Curriculum Development Section], 2009). However, to what extent the revised curriculum and assessment are able to foster students' deep approaches to learning, particularly under the ICT-supported learning context? Thus, in this review study, it is set forth to uncover the factors that may contribute to students' approaches to learning so that important information can be acquired for applying technology-enhanced pedagogy for better teaching and learning of accounting in Malaysian secondary schools.

1.1 Students' Approaches to Learning (SAL)

SAL is defined as the ways in which how a student perceived a particular academic task and then handle it (Marton & Säljö, 1976). In addition, SAL is seen as a contextually dependent response rather than an enduring characteristic of the individual (Meyer, Parsons, & Dunne, 1990). It is further identified into two contrasting approaches i.e. deep approach and surface approach. A deep approach entails learners' intrinsic motivation and interest to attempt to understand the meaning of the learning material and relate parts to each other, new ideas to previous knowledge or to personal meaningful context; whereas a surface approach is characterised by extrinsic motivation to acquire only sufficient knowledge to complete the task or pass the subject and thus, learners tend to memorise separate facts and/or view a particular task in isolation from other tasks and real life as a whole (Marton & Säljö, 1976; Biggs, 1985; 1987; Biggs and Moore, 1993; Biggs, Kember, & Leung, 2001; Kember, Biggs, & Leung, 2004).

1.2 Factors Influencing Approaches to Learning

Based on the Presage-Process-Product (3Ps) Model proposed by Biggs (1985) which explains why students learn and act differently in their processes of learning by delineating the important stages in learning i.e. Presage, Process, and Product, the author proposed that students' personal and situational factors which exist at the presage stage of learning or before learning takes place influence the learning process which is represented by learning approaches. In this vein, students' personal factors include their individual characteristics in terms of prior knowledge for a learning subject, abilities, personality, and home background; while situational factors of learning environment consists of the variables such as subject area, teaching method, time on task, task demand, and course structure. Furthermore, Ramsden (2003) adapted the 3Ps model by highlighting students' perceptions of learning environment which exist as an important presage factor to influence approaches to learning. In other words, it is not the learning environment in itself that influences learning, but the way students perceive it. As a consequence, several factors were selected for investigation and the research questions addressed in this review study are:

- Do students' perceptions of ICT-supported learning environment significantly influence approaches to learning?
- Does academic ability significantly influence approaches to learning?
- Does prior educational experience significantly influence approaches to learning?

2. Methodology

To answer the aforementioned research questions, studies that investigated the influence of ICT-supported learning environment with specific focus on examining the relationship between students' perceptions of learning environment, academic ability, and prior educational experience on students' approaches to learning were explored. The search terms were "approaches to learning", "ICT-supported learning environment", "constructivist learning environment", "student-centred learning environment" combined with key words of "perceptions", "academic ability", "student at risk", "prior educational experience", or "prior knowledge". For the acquisition of the articles related to accounting education, additional keywords were entered i.e. "accounting", "accounting education", "accounting learning", and "accounting teaching".

This literature search was conducted by means of the electronic search through several wellknown and established databases such as Taylor & Francis, Emerald Management Xtra Plus, Sage

Journals Online, SpringerLink, Wiley-Blackwell, and Science Direct. The abstracts of the studies were reviewed and the selected literatures were based on several criteria i.e. (1) the studies had to address students' approaches to learning consisting of motive and strategy to tackle a task; (2) the studies had to clearly address the relationships between the influencing factors (i.e. students' perceptions of learning environment, academic ability, and prior educational experience) and approaches to learning; and (3) the studies had to use computer or internet technologies for teaching and learning.

3. Results

3.1 Do Students' Perceptions of ICT-Supported Learning Environment Significantly Influence Approaches to Learning?

There have been many studies reporting that significant relationships exist between students' perceptions of learning context and approaches to learning. It was found that approaches to learning are influenced by different perceptions of students studying different subject areas (Ramsden, 1979). In this vein, accounting students were especially influenced by their learning context which perceived as being tensed up with pressure and demands from the professional accounting bodies and there was evidence that most of them adopt the surface approaches to learning (Eley, 1992; Gow, Kember, & Cooper, 1994; Sharma, 1997; Booth et al., 1999; Jackling, 2005; Lord & Robertson, 2006; Abraham 2006). On the other hand, deep approach to learning was found to be associated with perceived quality teaching support (Eley, 1992; Chan & Watkins, 1994; Lizzio, Wilson, & Simons, 2002), appropriate pedagogy which encourages independence, interaction, and inquiry (Eley, 1992; Abraham, 2006), and appropriate assessment (Abraham, 2006; Watty, Jackson, & Yu, 2010).

Furthermore, the ICT-supported learning environment is especially contributing to students' perceptions of interactivity and involvement (Maor, 2000; Law, Lee, & Chow, 2002; de Lange, Suwardy, & Mavondo, 2003; Jebeile & Abeysekera, 2010; Premuroso, Tong, & Beed, 2011), inquiry and investigation (Basu & Cohen, 1994; Siragusa, 2002; Jones, Scanlon, Gaved, Blake, Collins, Clough et al., 2013), authenticity of learning (Basu & Cohen, 1994; Green, Reinstein, & Mc Williams, 2000; Murphy & Hoepfner, 2002; Marriott, 2004; Stanley & Edwards, 2005; Neal 2005), cooperation (Rumpagaporn, 2007), and differentiation (Jebeile & Abeysekera, 2010) as well as the perceptions of teacher support (Rumpagaporn, 2007; Lillie & Wygal, 2011). These perceptions were found contributing to students' deep approaches to learning. Meanwhile, the ICT-supported learning environment perceived by students to have replaced them by producing the accounting reports automatically (Green et al., 2000) and being a safety net for absence (Wells, de Lange, & Fieger, 2008) were associated to surface approaches to learning.

3.2 Does Academic Ability Significantly Influence Approaches to Learning?

Academic ability refers to a person's capacity to study which is measured by his or her prior performance in examinations (Auyeung & Sands, 1994; Lizzio et al., 2002; Duff, 2004). Several studies reveal that students with low academic abilities were associated to surface approaches to learning and conversely, those with high academic abilities tended to perform deep approaches to learning (Holschuh, 2000; Duff, 2004; Tang, 2008). In addition, the low academic ability in terms of English competency was related to surface approach to learning (Gow et al., 1994; Kember, Ng, Tse, Wong, & Pomfret, 1996; Kember & Leung, 1998; Watty et al., 2010). This phenomenon was explained by the authors that due to the students' limited ability to decipher text written in English, they were likely to adopt surface strategy of memorising key words.

On the other hand, Lizzio et al. (2002) revealed that students with higher academic ability tended to use surface approach. This in particular applied to commerce students while the researchers found that science students demonstrated positive influence of academic ability to deep approaches to learning. Finally, Auyeung and Sand (1994) found that academic ability was only related to surface approach to learning. Overall, the past studies prove that academic ability is significantly related to surface or deep approach to learning.

3.3 Does Prior Educational Experience Significantly Influence Approaches to Learning?

A student's prior educational experience refers to a person's previous experiences of educational settings (Ramsden, 2003; Biggs, 2003). It provides prior knowledge before entering any actual learning context, which is important in determining learning. Many studies reveal that prior educational experience is related to approaches to learning. Most of the studies stress that availability of prior educational experience can influence deep approach to learning vice versa (Ramsden, 1979; Richardson, Morgan, & Woodley, 1999; Tempone, 2001; Dochy, De Rijdt, & Dyck, 2002; Harmer, 2009). Abhayawansa, Tempone, and Pillay (2012), on the other hand, focus on the quality of prior educational experience based on different learning environments i.e. students from conventional and technical schools. In this vein, learning environment which emphasises on the development of adaptability, innovativeness, and problem-solving was most likely to influence deep approach to learning. Furthermore, some of the studies focus on the negative aspect of prior educational experience. These studies highlighted that the problematic prior knowledge would lead to surface approach to learning (Crawford, Gordon, Nicholas, & Prosser, 1998; Lucas, 2000; 2001; McGowen & Tall, 2010).

4. Conclusion

Based on the aforesaid studies, this review study concluded that students' approaches to learning are significantly influenced by their perceptions of ICT-supported learning environment, academic ability, and prior educational experience. The results of this review study could serve as a basis for new studies to fill in the gaps in the corpus of knowledge regarding approaches to learning, particularly in the scope of accounting education and educational technologies. Future studies should be conducted to investigate several other factors which may influence students' approaches to learning in ICT-supported learning environment such as individual student's personality, socioeconomic background, and motivational factors.

References

- Abhayawansa, S., Tempone, I., & Pillay, S. (2012). Impact of entry mode on students' approaches to learning: A study of accounting students. *Accounting Education: An International Journal*, 21(4), 341–361.
- Abraham, A. (2006). Teaching and learning in accounting education: Students' Perceptions of the Linkages between teaching context, approaches to learning and outcomes. In Juchau, R. and Tibbits, G. (Eds.), *Celebrating accounting* (pp.9-21). New South Wales, Australia: University of Western Sydney.
- Arfah Salleh (2001). Integration of computers into accounting curriculum: A revisit. *Akauntan Nasional, Journal of the MIA*, 14(5): 42-47.
- Auyeung, P. K., & Sands, D. F. (1994). Predicting success in first-year university accounting using gender-based learning analysis. *Accounting Education*, 3(3), 259-272.
- Bahagian Pembangunan Kurikulum [Curriculum Development Section] (2009). *Sukatan Pelajaran Kurikulum Bersepadu Sekolah Menengah: Prinsip Perakaunan* [Syllabus for Integrated Secondary School Curriculum: Principles of Accounting]. Putrajaya: Bahagian Pembangunan Kurikulum, Kementerian Pelajaran Malaysia.
- Basu, P., & Cohen, J. (1994). Learning to learn in the accounting principles course: Outcome assessment of an integrative business analysis project. *Journal of Accounting Education*, 12(4), 359-374.
- Biggs, J. B. (1985). The role of meta-learning in study process. *British Journal of Educational Psychology*, 55, 185-212.
- Biggs, J. B. (1987). *Student approaches to learning and studying*. Hawthorn, Victoria: Australian Council for Educational Research.
- Biggs, J. B., & Moore, P. J. (1993). *The process of learning* (3rd ed.). New York: Prentice Hall.
- Biggs, J., Kember, D., & Leung, D. Y. P. (2001). The Revised Study Process Questionnaire. *British Journal of Educational Psychology*, 71, 133-149.
- Booth, P., Luckett, P., & Mladenovic, R. (1999). The quality of learning in accounting education: The impact of approaches to learning on academic performance. *Accounting Education: An International Journal*, 8, 277–300.

- Chan, Y. Y. G., & Watkins, D. (1994). Classroom environment and approaches to learning: An investigation of the actual and preferred perceptions of Hong Kong secondary school students. *Instructional Science*, 22, 233-246.
- Crawford, K., Gordon, S., Nicholas, J., & Prosser, M. (1998). Qualitatively different experiences of learning mathematics at university. *Learning and Instruction*, 8(5), 455-468.
- de Lange, P., Suwardy, T., & Mavondo, F. (2003). Integrating a virtual learning environment into an introductory accounting course: Determinants of student motivation. *Accounting Education: An International Journal*, 12(1), 1-14.
- Dochy, F., De Rijdt, C., & Dyck, W. (2002). Cognitive prerequisites and learning: How far did we progress since Bloom? Implications for educational practice and teaching, *Active Learning in Higher Education* 3 (3), 265-84.
- Duff, A., Boyle, E., Dunleavy, K., and Ferguson, J. (2004) The relationship between personality, approach to learning and academic performance. *Personality and Individual Differences*, 36, 8, 1907-1920.
- Eley, M. G. (1992). Differential adoption of study approaches within individual students. *Higher Education*, 23, 231-254.
- Gow, L., Kember, D. & Cooper, B. (1994). The teaching context and approaches to study of accountancy students. *Issues in Accounting Education*, 9(1), 118-130.
- Green, B. P., Reinstein, A., & Mc Williams, D. (2000). Using interactive courseware to teach the procedural components of introductory financial accounting. *Advances in Accounting Education: Teaching and Curriculum Innovations*, 3, 179-197.
- Hanuni Yusuf (2003). *Masalah pembelajaran dan pengajaran Prinsip Akaun* [Teaching and learning problems in Principles of Accounting]. Unpublished master's thesis. Universiti Kebangsaan Malaysia, Bangi, Selangor, Malaysia.
- Harmer, B. M. (2009). Teaching in a contextual vacuum: lack of prior workplace knowledge as a barrier to sensemaking in the learning and teaching of business courses. *Innovations in Education and Teaching International*, 46 (1), 41-50.
- Holschuh, J. P. (2000). Do as I say, not as I do: High, average, and low performing students' strategy use in biology. *Journal of College Reading and Learning*, 31, 94-107.
- Jackling, B. (2005). Perceptions of the learning context and learning approaches: Implications for quality learning outcomes in accounting. *Accounting Education*, 14(3), 271-291.
- Jebeile, S., & Abeysekera, I. (2010). The spread of ICT innovation in accounting education. *International Journal of Teaching and Learning in Higher Education*, 22(2), 158-168.
- Jones, A., Scanlon, E., Gaved, M., Blake, C., Collins, T., Clough, G. et al. (2013). Challenges in personalisation: Supporting mobile science inquiry learning across contexts. *Research and Practice in Technology Enhanced Learning*, 8(1), 21-42.
- Kember, D., Ng, S., Tse, H., Wong, E. T. T., & Pomfret, M. (1996). An examination of the interrelationships between workload, study time, learning approaches and academic outcomes. *Studies in Higher Education*, 21(3), 347-358.
- Kember, D., & Leung, D. Y. P. (1998). Influences upon students' perceptions of workload. *Educational Psychology: An International Journal of Experimental Educational Psychology*, 18(3), 293-307.
- Kember, D, Biggs, J. B., & Leung, D.Y.P. (2004). Examining the multidimensionality of approaches to learning through the development of a revised version of the Learning Process Questionnaire. *British Journal of Educational Psychology*, 74, 261-280.
- Kementerian Pelajaran Malaysia [Ministry of Education](2006). *Rancangan Malaysia Ke-9: Pelan Induk Pembangunan Pendidikan, 2006-2010* [Ninth Malaysia Plan: Blueprint of Education Development, 2006-2010]. Putrajaya: Kementerian Pelajaran Malaysia.
- Law, N., Lee, Y., & Chow, A. (2002). Practice characteristics that lead to 21st century learning outcomes. *Journal of Computer-Assisted Learning*, 18, 415-426.
- Lillie, R. E., & Wygal, D. E. (2011). Virtual Office Hours (VOH) in accounting coursework: Leveraging technology to enhance an integrative learning environment. *Journal of Accounting Education*, 29, 1-13.
- Lizzio, A., Wilson, K., & Simons, R. (2002). University students' perceptions of the learning environment and academic outcomes: Implications for theory and practice. *Studies in Higher Education*, 27(1), 27-52.
- Lord, B. R., & Robertson, J. (2006). Students' experiences of learning in a third-year management accounting class: Evidence from New Zealand. *Accounting Education*, 15(1), 41-59.
- Lucas, U. (2000). Worlds apart: Students' experiences of learning introductory accounting. *Critical Perspectives on Accounting*, 11, 479-504.
- Lucas, U. (2001). Deep and surface approaches to learning within introductory accounting: a phenomenographic study. *Accounting Education*, 10(2), 161-184.
- Maor, D. (2000). A teacher professional development program on using a constructivist multimedia learning environment. *Learning Environments Research*, 2, 307-330.

- Marriott, N. (2004). Using computerized business simulations and spreadsheet models in accounting education: A case study. *Accounting Education*, 13(S1), 55-70.
- Marton, F., & Säljö, R. (1976). On qualitative differences in learning: II. Outcome as a function of the learner's conception of the task. *British Journal of Educational Psychology*, 46, 115-127.
- McGowen, M. A. & Tall, D. O. (2010). Metaphor or Met-Before? The effects of previous experience on practice and theory of learning mathematics. *The Journal of Mathematical Behavior*, 29, 169-179.
- Meyer, J. H. F., Parsons, P., & Dunne, T. T. (1990). Individual study orchestrations and their association with learning outcome. *Higher Education*, 20(1), 67-89.
- Murphy, E. A., & Hoepfner, C. J. (2002). Using technology and library resources in financial accounting courses. *Journal of Accounting Education*, 20, 331-346.
- Neal, G. (2005). *Student reflections on the effectiveness of ICT as a learning resource*. Retrieved December 18, 2010, from <http://www.aare.edu.au/05pap/nea05582.pdf>
- Premuroso, R. F., Tong, L., & Beed, T. K. (2011). Does using clickers in the classroom matter to student performance and satisfaction when taking the introductory financial accounting course? *Issues in Accounting Education*, 26(4), 701-723.
- Ramsden, P. (1979). Student learning and perceptions of the academic environment. *Higher Education*, 8, 411-428.
- Ramsden, P. (2003). *Learning to Teach in Higher Education* (2nd ed.). London, U.K.: Routledge.
- Rashidah Hassan & Arfah Salleh (2008, July). *Issues and challenges in preparing teachers for ICT integration in classroom teaching and learning: The case of Principles of Accounting Sijil Pelajaran Malaysia – SPM (Malaysian Education Certificate – MCE)*. Paper presented at the Conference of Vocational and Technical Education and Training, Bali, Indonesia
- Richardson, J. T. E., Morgan, A. and Woodley, A. (1999) Approaches to studying in distance education, *Higher Education*, 37 (1), 23-55.
- Rohaila Yusof (2006). *Keberkesanan strategi pembelajaran pengalaman berasaskan Model Kolb terhadap pembangunan kompetensi pelajaran perakaunan di Institut Pengajian Tinggi Awam* [Effectiveness of Kolb Model-based experiential learning strategy on competency development of accounting students in Public Higher Education Institutions]. Unpublished master's thesis. Universiti Kebangsaan Malaysia, Bangi, Selangor, Malaysia.
- Rumpagaporn, M. W. (2007). *Students' critical thinking skills, attitude to ICT and perceptions of ICT classroom learning environments under the ICT schools pilot project in Thailand* (Doctoral dissertation, University of Adelaide, Australia). Retrieved from <http://digital.library.adelaide.edu.au/dspace/bitstream/2440/37896/1/02whole.pdf>
- Sharma, D. (1997). Accounting students' learning conceptions, approaches to learning, and the influence of the learning-teaching context on approaches to learning. *Accounting Education: An International Journal*, 6(2), 125-146.
- Siragusa, L. (2002). *Research into the effectiveness of online learning in higher education: Survey findings*. Retrieved May 6, 2010, from <http://www.waier.org.au/forums/2002/siragusa.html>
- Stanley, T., & Edwards, P. (2005). Interactive multimedia teaching of Accounting Information System (AIS) cycles: Student perceptions and views. *Journal of Accounting Education*, 23(1), 21-46.
- Suhaida Abdul Kadir (2002). *Perbandingan pembelajaran koperatif dan tradisional terhadap prestasi, atribusi pencapaian, konsep sendiri akademik dan hubungan sosial dalam pendidikan perakaunan* [Comparison between cooperative and traditional learning towards performance, performance attribution, academic self-concept, and social relationship in accounting education]. Unpublished doctoral dissertation, Universiti Putra Malaysia, Serdang, Selangor, Malaysia.
- Tan, B. S., & Wong, S. L. (2012). Fostering deep approach to learning for Principles of Accounting through ICT integration in Malaysian secondary schools. In G. Biswas et al. (Eds.), *Workshop Proceedings of the 20th International Conference on Computers in Education* (pp.112-118). Singapore: Asia-Pacific Society for Computers in Education.
- Tang, T. (2008). *A study of learning in Economics* (Doctoral dissertation, Queensland University of Technology, Australia). Retrieved from http://eprints.qut.edu.au/16691/1/Tommy_Tang_Thesis.pdf
- Tempone, I. (2001). *Variation in student learning in accounting* (Doctoral dissertation, Swinburne University of Technology, Melbourne, Australia). Retrieved from <http://researchbank.swinburne.edu.au/vital/access/manager/Repository/swin:7458>
- Watty, K., Jackson, M., & Yu, X. (2010). Students' approaches to assessment in accounting education: The unique student perspective. *Accounting Education: An International Journal*, 19(3), 219-234.
- Wells, P., de Lange, P., & Fieger, P. (2008). Integrating a virtual learning environment into a second-year accounting course: determinants of overall student perception. *Accounting and Finance*, 48, 503-518.