

SHORT BLENDED ONLINE TRAINING FOR FACULTIES'
TECHNOLOGICAL, PEDAGOGICAL AND CONTENT KNOWLEDGE

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DEDICATION

Allah says in Quran

قُلْ إِنَّ صَلَاتِي وَنُسُكِي وَمَحْيَايَ وَمَمَاتِي لِلَّهِ رَبِّ الْعَالَمِينَ ﴿١٦٢﴾

لَا شَرِيكَ لَهُ، وَبِذَلِكَ أُمِرْتُ وَأَنَا أَوَّلُ الْمُسْلِمِينَ ﴿١٦٣﴾

سورة الأنعام (161-162)

“Say (O Muhammad صلى الله عليه وسلم): "Verily, my *Salât* (prayer), my sacrifice, my living, and my dying are for Allâh, the Lord of the ‘*Ālamîn* (mankind, jinn and all that exists)”.

"He has no partner. And of this I have been commanded, and I am the first of the Muslims."

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ABSTRACT

The use of Short Blended Online Training (SBOT) for Technological Pedagogical and Content Knowledge (TPACK) development is a promising approach to facilitate the use of e-learning by academics. Adult learners prefer the blending of pedagogies such as presentation, demonstration, practice and feedback if they are structured and instructor-led with an efficient training length. Thus, it is suggested that SBOT has the potential to create a highly preferred environment for training. However, little is known about how faculty members in the social science field evaluate SBOT for TPACK development. This study explores the evaluation of this mode of training through cross-case and mixed method design. Fifty three faculty members from different universities joined this training. Interviews, Technology Acceptance model (TAM) instrument, completion rate of blended online course design and development and TPACK instrument were used to collect the evaluation for the SBOT. Interview codings, descriptive statistics and pre-post t-test were used to analyse the data. Results show a great acceptance for the SBOT because it provides useful, quality and practical training. The mean scores derived from TAM were high especially for training usefulness (4.3), training ease of use (4.3), and behavioural intention to join future SBOT (4.7) show high acceptance of this mode of training. The completion rates were 75% for blended online course design and 88% for development, suggesting that SBOT was useful and practical. In practice, dual training modes can be offered for TPACK development programs. These training modes may consist of face-to-face training and SBOT in order to enhance the TPACK development process in HEIs.

ABSTRAK

Penggunaan Latihan Campuran Pendek Dalam Talian (SBOT) untuk pembangunan Pengetahuan Teknologi Pedagogi dan Kandungan (TPACK) ialah pendekatan yang berpotensi untuk memudahkan penggunaan e-pembelajaran oleh ahli akademik. Pelajar dewasa lebih suka kepada pengaduan pedagogi seperti persembahan, demonstrasi, amalan dan maklum-balas jika berstruktur dan diterajui oleh pengajar dengan jangka-masa latihan yang efisien. Oleh itu, dicadangkan bahawa SBOT didapati mempunyai potensi untuk mewujudkan persekitaran yang sesuai untuk latihan. Walaubagaimanapun, tidak banyak yang diketahui bagaimana ahli fakulti dalam bidang sains sosial menilai SBOT untuk pembangunan TPACK. Kajian ini meneroka penilaian latihan SBOT melalui silang-kes dan kaedah campuran. Lima puluh tiga orang ahli akademik dari universiti berbeza menyertai latihan ini. Temu-bual, instrumen Model Penerimaan Teknologi (TAM), kadar penyelesaian reka bentuk campuran dalam talian dan pembangunan instrumen TPACK telah digunakan untuk mengumpul data penilaian SBOT. Pengekoden temubual, statistic deskriptif dan ujian-T pra dan pasca telah digunakan untuk menganalisis data. Hasil kajian menunjukkan penerimaan yang tinggi untuk SBOT kerana menyediakan latihan berguna, berkualiti dan praktikal. Nilai min berdasarkan TAM adalah tinggi terutamanya bagi kebergunaan latihan (4.3), latihan mudah digunakan (4.3) dan niat untuk menyertai SBOT pada masa depan (4.7) menunjukkan penerimaan tinggi terhadap latihan cara ini. Kadar selesai dalam reka bentuk kursus campuran dalam talian adalah 75% dan pembangunan adalah (88 %), menunjukkan bahawa SBOT berguna dan praktikal. Dalam amalan, kaedah dwi latihan boleh ditawarkan untuk program pembangunan TPACK. Cara latihan ini boleh terdiri daripada latihan bersemuka dan SBOT untuk meningkatkan proses pembangunan TPACK di institusi pengajian tinggi.

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LIST OF ABBREVIATIONS

SBOT	-	Short Blended Online Training
TK	-	Technological Knowledge
PK	-	Pedagogical Knowledge
CK	-	Content Knowledge
TPK	-	Technological Pedagogical Knowledge
TCK	-	Technological Content Knowledge
PCK	-	Pedagogical Content Knowledge
TPACK	-	Technological Pedagogical And Content Knowledge
SUs	-	Saudi Universities
NCEL	-	National Centre of E-Learning and Distance learning
ELI	-	International conference of NCEL
TLPT	-	TPACK Lesson Plan Template
BOCD	-	Blended Online Course Design
BOCDE	-	Blended Online Course Development
HEIs	-	Higher Education Institutions
KSA	-	Kingdom of Saudi Arabia
MOHE	-	Ministry of Higher Education
WIM	-	Web-based Interactive Module

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CHAPTER 1

INTRODUCTION

1.1 Introduction to the Study

Various domains of Higher Education Institutions HEIs are inevitably influenced by the integration of instructional technology and must be redesigned and updated to take full advantage of the new digital tools in HEIs (Williams, 2002). One of these domains that should be updated in order to provide a successful implementation of instructional technology is the faculty knowledge. According to Bates (1997), one of the twelve organisational strategies for preparing HEIs for technology integration is training faculty members on how to use the technology and informing them of the need to integrate instructional technology into learning.

Technological, Pedagogical and Content Knowledge (TPACK) constitutes the main required knowledge for faculty members to conduct online classes successfully (Mishra and Koehler, 2006). Faculty members may prefer this model of training because it includes elements of pedagogies (Friel *et al.*, 2009). In addition, the factors mentioned by Bates (1997) are covered by the TPACK model, as faculty members can identify easily the rationale of using e-learning tools according to the content they teach and the pedagogies they use. Thus, using the TPACK model is expected to facilitate faculty members' development and including the main related elements that are needed to conduct successful online instruction.

Achieving a successful and accepted training design for TPACK development can increase the practicality of the training workshops. Blended online training has the potential to create a training environment that is preferred by adult learners in general and faculty members in particular. Therefore, in this study, we designed a training workshop that is blended and online to provide structured and instructor-led training. Using such training mode has the potential to be an acceptable training mode by faculties which in turn can facilitate faculty members' development for the integration of instructional technology in HEIs.

1.2 Background of the Study

In Saudi Arabia, the intent to integrate online learning in higher education, as an effective way of teaching, is noticeable today. The process of this integration is supported fully by the ruler of Kingdom of Saudi Arabia (KSA) King Abdullah Bin Abdulaziz¹. As a result of this support, the Ministry of Higher Education (MOHE) of KSA² has the power to initiate the e-learning development plan for universities in Saudi Arabia. This plan is intended to develop suitable policies and to create ideal environment that support faculty and learners in using instructional technologies. One of the early support initiatives is the establishment of the National Centre for e-Learning and Distance Learning (NCEL) of KSA³ in Riyadh the capital of KSA. The role of this centre is to encourage and support the integration of e-learning and distance learning in Saudi universities⁴.

With the support from NCEL of KSA, Saudi universities (SUs) are striving to integrate online learning in their different faculties. Thus, in order to understand the current condition of online learning at SUs, the elements that influence the right

¹ http://en.wikipedia.org/wiki/Abdullah_of_Saudi_Arabia

² <http://www.mohe.gov.sa/>

³ <http://www.elc.edu.sa/portal/>

⁴ <http://www.elc.edu.sa/portal/>

implementation of online learning is crucial to be mentioned such as the technological infrastructure and faculties' development.

The technological infrastructures of online learning are different between faculties at SUs. Some faculties are equipped with latest technology of computer laboratories and data projectors such as the medical faculty. In other faculties, they still lack the suitable infrastructure to implement online learning. This variation in technology infrastructure may be a result of the variation in practicing teaching by using instructional technology tools by faculties (Aljodi, 2011). Regarding the personal equipment for faculty members, each faculty member owns a personal computer with an Internet connection at the office. The technological infrastructures are improving. For example, many technical problems started to disappear such as system breakdown and the slow speed of local area networks (LAN) as reported to the researcher by some faculties.

As a support for the development of e-learning software, the NCEL developed the learning management system (LMS) called Jusur for SUs. It is similar to Moodle LMS as the researcher experienced from using both LMS systems for a short period of time. By using this software, faculties can open virtual classes, upload teaching materials, track the learning process and use different techniques of instruction such as individual and group activities. All these facilities are provided with minimal fees charges. Therefore, as these facilities are provided by NCEL to all SUs, the top management in those universities are encouraging the use of Jusur LMS in the teaching and learning process today.

The development of TPACK knowledge for faculty members at SUs is as crucial as the development of technology infrastructure. As technology is the tool that are used by instructors in the educational field, without updating the knowledge and the skills of faculty members, the effective use of technology for instruction will not be achieved. Also, the nature of the *technology knowledge*, *pedagogy knowledge* and *content knowledge* is interrelated. The lacks of knowledge of any type of those

different knowledge will form a strong barrier that reduces the feasibility of using instructional technology in the learning process (Bingimlas, 2009). The upcoming sections will shed the light on the current situation at SUs regarding the faculties' TPACK.

The development of technology knowledge for educators in SUs can help them to go beyond the social and business use of technological tools and adapt them for the purposes of teaching and learning (Technology, 2008). For example, web-based interaction that is increasing today for social networking and business administration can be used by educators for increasing the interaction with the instructional content, among learners and between learners and educators. Thus, developing educators knowledge about the capability of technology to accommodate their pedagogical purposes are crucial (Technology, 2008). But before that we need to shed the light on the computer knowledge of faculty at SUs.

According to the researcher's observation and informal interviews with many faculty members, their technological knowledge can be categorized into three levels: high, intermediate and low. For users with high knowledge of technology, they can design and develop instructional websites by using programming languages such as PHP or ASP. In addition, they can use the LMS to professionally generate report and successfully track learners. Not only that but also they can design and develop multimedia elements such as image or animation in 2D or 3D shape effectively. But their number is limited since the majority of those faculties with high technology level come from the field of computer science.

For users with intermediate knowledge of technology, they can author their website by using authoring tools such as Dreamweaver or Articulate. Also, they can use their intermediate knowledge of technology to use LMS to upload Power Point presentation slides and set the deadline for the course activities. But in general, those are considered to be few of faculty members who are young and use self-learning for their professional development.

Lastly, users with limited ability of technology knowledge are the majority of faculty. They have a basic knowledge of computer use such as to write, edit or send emails. Also, they can use Microsoft Word to type exam questions and use university online grading system. In general, they can use the computer to achieve different needs in an acceptable way.

As a result of the different computer literacy among faculty members, any development plan should take into consideration the variation of technological knowledge among them and set the right plan that appropriate the variation of faculty knowledge and skills. Lastly, although faculty who want to teach online are advised to join technical training (Ray, 2009), faculties themselves preferred to be provided with a pedagogical training as well (Friel *et al.*, 2009).

The pedagogical knowledge includes “Deep understanding of methods of teaching and learning according to social, cognitive and developmental theories” (Technology, 2008, p. 14). This may cover the understanding of learners nature and knowledge, the preparation of lesson plans and the evaluation of learning process (Mishra and Koehler, 2006; Technology, 2008). Therefore, focusing on promoting and developing the knowledge of preparation, implementation and evaluation of instructional technology can help conceptualising the main steps that should be followed by educators when designing their plans to conduct online classes. The pedagogical knowledge of the faculty members from the researcher’s point of view has some limitation about the methods of teaching especially for using formative evaluation and online pedagogy. Although faculty in SUs are free when conducting teaching classes to decide the appropriate content that matches the general goals of the course they teach and to use whatever way of teaching they prefer. This freedom if not ruled by pedagogical knowledge may hinder the learning process and influence the teaching practice in general and online teaching and learning in particular. According to Ray (2009), pedagogical training is essential for every faculty member who wants to teach online as perceived by faculty themselves. Therefore, SUs recognised this gap in the pedagogical knowledge of the faculty members and had developed some supportive plan.

One of the plans to support pedagogical knowledge of faculty members was done by requiring them to attend short courses (personal communication). They covered different topics such as educational theory and methods of teaching. This way of support helped to develop the pedagogical knowledge and support the teaching practices as mentioned to the researcher by some of the faculty members (personal communication). As a result of this support, most faculty members now can set the behavioural objectives for their lessons correctly and use the summative evaluation in an acceptable way. So far, they do not have the knowledge to design and develop online courses because online learning is recently integrated in SU. This knowledge may covers designing the objectives of the lesson, use supportive activities that help learners understand the content (Morrison *et al.*, 2007), applying different forms of learning activities as well as using different forms of evaluation techniques such as formative and summative evaluation (Morrison *et al.*, 2007). Therefore, since faculty members has the basic knowledge about pedagogy and technology as mentioned earlier, TPACK development programs are expected to be implemented successfully.

1.3 Problem Statement

As mentioned earlier, some of the major factors for successful integration of online learning in education are related to the technology and resource support. The technological factors include technology infrastructure, hardware and software (Khan, 2001). The resource support consists of online support, instructional/counselling support, technical support, career counselling services, other online support services, resources, online resources and offline resources (Garrison and Kanuka, 2004; Khan, 2001). Instructional support for technology integration can be divided into seven types (Stesa *et al.*, 2010). They are workshops and seminar, feedback from students, practice with feedback, concept-based training, and colleagues helping colleagues, resources materials such as newsletter manuals or sourcebooks and instructional grants. Although these different approaches of faculties' development can be used according to the contexts of training and the

topics being offered, TPACK development research focused mainly on using training workshops. This may be a result of the nature of early stages of technology integration that required guidance, support and structured training.

The practicality of the TPACK development programs in HEIs should be considered since joining the development programs by faculties can be challenging (Zelin and Baird, 2007). The practicality of TPACK training may include the location independence, the training length, and the active participation of the faculty. In TPACK literature, two modes of training have been used mainly for TPACK development. They are face to face training mixed with online training (Koehler *et al.*, 2004; Koehler *et al.*, 2007; Shin *et al.*, 2009; Voogt *et al.*, 2005b; Yang and Liu, 2004) and full online training (Marreo *et al.*, 2010; Pryor and Bitter, 2008; Schrum *et al.*, 2005). Both training mode positively contributed to the development of TPACK but the later has the potential to provide other merits to the training programs.

Using full online training to utilise its valuable merits for faculties development is promising (Wolf, 2006). The location independence of trainers and participants is one of the merits of full online training that can increase the practicality of TPACK development programs. According to Wolf (2006), online training is a suitable way to train staff from the institutions in widely spread branches. Also, It can improve faculties' attitude towards using online learning in their classes (Carr, 2000). In addition, It can be a helpful mean for instructional technology training since faculties who trained by using LMS that belongs to their institutions achieve a useful training (Wolf, 2006). It can provide an efficient training environment that facilitate realizing the differences between online instruction and face to face instruction (Voogt *et al.*, 2005a; Ward and Benson, 2010). Moreover, overcoming constraints of time and place can provide a flexible form of online support which is considered a critical element of resource support (Khan, 2001). The last merit for applying online training is its ability to facilitate recruiting international experts for distance training (Yang and Liu, 2004). This can increase the quality of training programs as certified instructional technologists will conduct the training. All these merits are considered attractive to create a practical and quality training

environment for TPACK development especially in short online training forms to provide timely efficient training (Team, 2004).

Marreo *et al.* (2010) explored the evaluation of Short Blended Online Training workshop (SBOT) that was structured, limiting the participants' number, led by instructor, and allowing participants to study on their own time. SBOT was used in the form of presentation sessions and online materials for in-service instructors' development. A positive acceptance of this mode of training was reported. Thus, using SBOT is most likely to be accepted by faculties as it is aligned with the principles of adult learning as will be elaborated in Chapter three.

Identifying the pedagogies that have been used in the long-term training can facilitate enhancing their efficiency. The most common pedagogy for TPACK development is the use of design-based learning. The learners in this technique is very similar to be a problem solver because they are trying to produce a real artifact or prototype (Wijnen, 2000). This technique of training is preferred by faculty (Chen *et al.*, 2009; Koehler *et al.*, 2004; Koehler *et al.*, 2007; Mishra and Koehler, 2006) because faculties are problem-centred learners (Knowles, 1973). Although it was effective for TPACK development, the ill-structured nature of design-based learning can be a time consuming and contradict faculties' preference of structured training. Using design templates and web-based interactive module (WIM) in design-based learning to increase the guidance and deliver training with a suitable length is aligned with faculties' preferences. Moreover, leading the training by a trainer is preferred by faculties (Georgina and Hosford, 2009). Thus, providing extra guidance by the trainer can help in accelerate the training process and increase the practicality of the design-based learning.

The research problems that were tackled in this study were two as follows:

- The first problem is the limitation of the TAPCK online training programs that utilise adult learning principles in their design.

- The second problem is the limitation of the TPACK training programs that explore the acceptance or the rejection factors of the TPACK training programs that utilise adult learning principles in their design by using cross-case and mixed methods design.

Studying these two problems has the potential to achieve high accepted TPACK online training programs for faculties in HIEs. Thus, the following section is stating clearly the purpose of this study.

1.4 Purpose of the Study

In this study, for the purpose of utilizing the powerful feature of mixed method design (Lodico *et al.*, 2006) for the evaluation of SBOT for TPACK development. Two SBOT workshops were conducted. We explored qualitatively the factors that may lead to the acceptance or to the rejection of SBOT for TPACK development in social science field. Also, the potential of using SBOT that was instructor-led (Georgina and Hosford, 2009) and structured (Bailey and Card, 2009; Ke and Xie, 2009) to create a high accepted environment for TPACK development was examined by using Technology Acceptance Model (TAM) and the completion rate of the training activities as well.

The focus was directed towards the field of social science since the analysis phase in the context of the study showed the need to start the TPACK training in this field as appears in Chapter three. In addition, the first element of the seven that comprises the TPACK model was selected as a training topic. It is related to knowledge of content's instruction by using pedagogy that integrates technology effectively (Cox and Graham, 2009; Mishra and Koehler, 2006). The development of this element is considered the main concern for faculties who wish to teach online

(Lukaweski, 2006). Thus, the knowledge of blended online course design (BOCD) and blended online course development (BOCDE) was developed in this training.

1.5 Research Objectives

This study aims to achieve the following objectives:

- i. To design and develop TPACK lesson plan template.
- ii. To design and develop web-based interactive module that explain how to use LMS Jusur to develop online course.
- iii. To explore the acceptance of SBOT for TPACK development.
- iv. To explore the acceptance of TLPT for BOCD.
- v. To explore the acceptance of WIM for BOCDE.

1.6 Research Questions

- i. How do faculties accept SBOT as a mode of developing TPACK in the 1st case of training?
- ii. How do faculties accept SBOT as a mode of developing TPACK in the 2nd case of training?
- iii. What is the acceptance of SBOT as a mode of developing TPACK?
- iv. What is the improvement in faculties' TPACK after joining SBOT?
- v. How do faculties accept the design of blended online courses by using TLPT in the 1st case of training?
- vi. How do faculties accept the design of blended online courses by using TLPT in the 2nd case of training?
- vii. What is the completion rate of designing blended online courses by using TLPT in the 2nd case of training?

- viii. How do faculties accept the development of blended online courses by using WIM in the 1st case of training?
- ix. How do faculties accept the development of blended online courses by using WIM in the 2nd case of training?
- x. What is the completion rate of the development of blended online courses by using WIM in the 2nd case of training?

1.7 Theoretical Framework

There are five theories and principles underpin this study. The first element is adult learning principles that will help in understanding the adults' methods of learning online. Understanding how adult learners learn in online professional development sessions is considered one of the best practice elements to design pedagogically sound training for faculty (Wolf, 2006). Thus, McQuiggan (2007) recommended the use of adult learning principles when designing the training programs for faculties. There are six characteristics of adult learners in online training reported in the literature (Vanderbilt, 2008). These characteristics were taken into consideration during the design of training workshop as follows. Online training programs provide (a) an interactive process of extending faculties previous knowledge and takes their new knowledge and skills to the place of work (blending traditional face to face learning with online learning can build on the previous experiences of faculties). (b) Useful, relevant and practical training (design and development of blended online course is a topic that possesses these features). (c) Rich training experiences (we blended different pedagogies (Littlejohn and Pegler, 2007): Presentation-demonstration-practice). (d) Safe environment to facilitate interaction, communication between learners and instructors and among learners as well (SBOT can help to create such environment). (e) Support, guidance and encouragement (instructor-led training –presentation –demonstration-design-based template and WIM were applied for these purposes). (f) Feedback that confirm, correct or inform participants (feedback sessions). These six elements were taken into consideration during the design of the SBOT for TPACK development.

Using SBOT that is instructor-led (Georgina and Hosford, 2009) and structured (Bailey and Card, 2009; Ke and Xie, 2009) to create a high accepted environment for TPACK development is promising. It can provide practical training since faculties are location independent. Also, faculties can experience an acceptable training length since faculties are led with a trainer and training materials and activities are structured. The design section of Chapter three elaborates about the use of adult learning principles during the preparation of SBOT, TLPT and WIM.

The second element is the instructional design theory (ADDIE) that can help in deliver effective instruction (Morrison *et al.*, 2007). It was used to guide the design of TLPT and training content of online course design and development.

Then, TPACK model was used to effectively prepare faculty to use technology in their classes. Seven elements of TPACK can be identified (Mishra and Koehler, 2006). These elements are:

- Knowledge of content's instruction by using pedagogy that integrates technology effectively
- Knowledge of depiction concept by using technology
- Knowledge of factors that might complicate or simplify concept understanding
- Knowledge of obstacles that might be faced by learners and how technology can be used to remedy them
- Knowledge of the role of learners' prior knowledge
- Knowledge of how learners' existing knowledge can be extended by using technology
- Knowledge of epistemological theories and trying to strengthen or develop new ones

All these knowledge that are related to TPACK should be developed for instructors who want to teach online. But for instructors, it might require a complex

process to develop all these knowledge by their own. Therefore, as instructional technologists, we can play a critical role in facilitating and accelerating the process of TPACK development by preparing tutorials and design templates when conducting a training workshop for TPACK development. For example, the first element is related to knowledge of content instruction by using pedagogy that integrates technology effectively. In this element, a particular pedagogy for a particular content can be identified by instructional technologists and a suggestion for a suitable technology that can be used to apply the pedagogy online to facilitate the selection of instructional technology. Those different elements when prepared for instructors can easily help them to select the suitable pedagogy that was attached of the suitable technology by instructional technologists. But in order to clarify that clearly for instructors, the complete process of learning and the different forms of activities that should be used to conduct effective instruction must be highlighted during the training sessions.

The fourth element is the online learning experiences. According to Means *et al.*(2009), purely online learning experiences can be divided into expository experiences where technology is used to convey the instructional message, active experiences where learners are independent and have control on the online learning objects they use such as web-based modules and interactive experiences such as collaborating with other learners to construct a specific knowledge and the instructor role is to facilitate learning. Positive results of full online training were reported in the literature for faculties' development programs (Marreo *et al.*, 2010; Pryor and Bitter, 2008; Schrum *et al.*, 2005).Using a blend of experiences can provide rich training, help participants play an active role and facilitate the participants' support.

Lastly, Technology Acceptance Model which is concern with clearing up and predicting the acceptance of instructional technology will be used to evaluate the acceptance of SBOT for TPACK development. TAM was originally built on the theory of reasoned actions (Davis, 1989). This theory was developed by (Ajzen and Fishbein in (1970). It tried to explore the human justifications of their actions. Ajzen and Fishbein identified the behavioural intention of performing behaviour or a task,

attitude towards the task, and subjective norm of the person to be significant for predicting the acceptance of a particular behaviour. From this point, Davis started TAM and mentioned that the perceived usefulness and the perceived ease of use can be considered one of the most important predictors for technology acceptance. More elaboration about TAM and its development stages will be mentioned in the literature review Chapter. Figure 1.2 shows the different theories and elements that were used in this research.

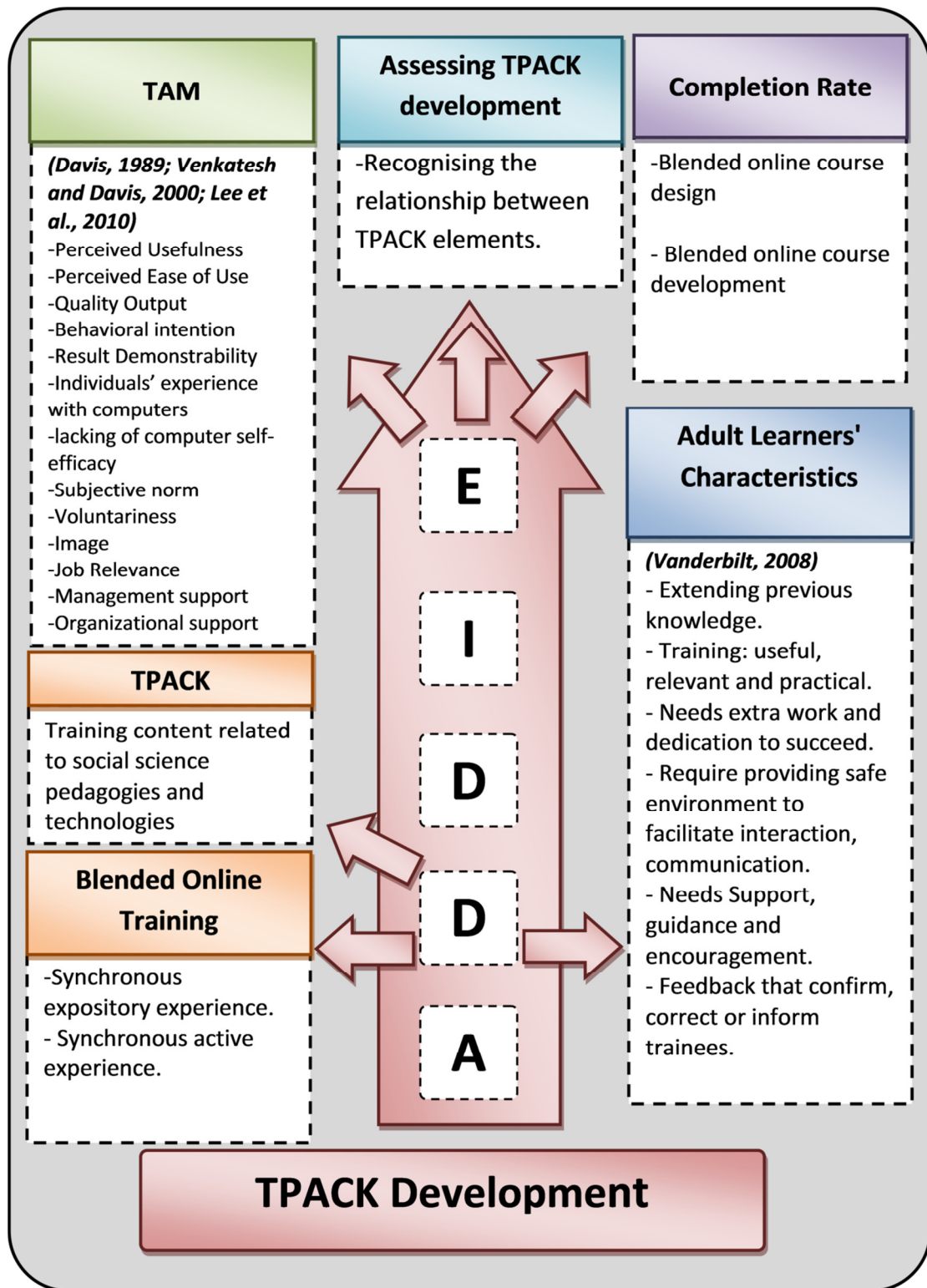


Figure 1.1 Theoretical framework

1.8 Significance of the Study

One of the gaps that are always identified by need analysts is the lack of the knowledge to perform a particular task. Those required knowledge is usually supported and developed with training. But as technology immersed in education and training today, findings from full online training reviews showed that it is a useful form of training. It is as effective as face to face training (Sitzmann *et al.*, 2006). These findings support conducting the training session fully online instead of the conventional face to face training. Therefore, the impact of the findings of this study will be useful for both stakeholders in NCEL and faculty members at SUs as follows.

For NCEL stakeholders, since the development plan of any organization is crucial to insure the production of quality services, the blended online training can accelerate the process of improving faculty TPACK among faculties which in turn can provide practical training. Also, the study can provide useful data to help stakeholders to decide in moving forward to implement the blended online training for TPACK development or to take more actions and procedures to ensure flexible and successful implementation of this mode of training.

For the faculty, they can get flexible environment for training that passes place constrain. Also, they can develop their TPACK by accessing online training from their own offices or houses at their own pace and reduce spending time moving from a place to another. For example, the faculty will spend about one hour preparing to reach the training place and return back home. In one hour time, faculty members may complete a training session with a single objective. This single objective usually represents 20 to 25 percent of the training session. Thus, saving one hour for each faculty is considered feasible. Not only that but also they can be trained by a mode of training that is considered to be effective, efficient and satisfactory for the majority of adult participants (Schrum *et al.*, 2005; Stergioua *et al.*, 2009; Yang and Liu, 2004). Lastly, they can acquire other skills such as managing online courses effectively since they experienced this mode of instruction during their professional

development programs. Thus, this research is an important step towards supporting faculty in the implementation of instructional technology in their teaching practices.

Using online training that is structured and instructor-led can reduce the training length. Also, using a useful training topics and activities can enhance the participation of faculty. By reducing the training length and increasing the faculties' participation during the training session, high acceptance and practical environment for TPACK development can be achieved. This in turn will increase the registration rate in the TPACK development programs as well as providing quality training.

1.9 Scope and Limitations of the Study

This study has some limitations that should be mentioned to limit the reader from generalising the results to the whole population or to different contexts. Since faculty development includes training, motivation and continuous support (Fang, 2007), the scope of this study will be only at faculty training. In other words, the researcher is going to design, develop and evaluate a SBOT for TPACK development. Also, as the proposed online training model is a blend of presentation, demonstration, structured practice and feedback, the result of this study is limited to this model of the training. The purposive sampling technique that used in this study limits the generalisation of the result to the whole population. Therefore, results of this study are limited to the faculties who participate in this study or to those who have similar characteristics. Understanding the participants' evaluation of SBOT would help in understanding the potential of accepting SBOT by the whole population.

Also, since change of faculty instruction has different levels such as the change within faculty (acceptance, knowledge and skills), change in the institutions, and change within students (perception, study approach and learning outcomes)

(Stesa *et al.*, 2010), the researcher studied the change within faculties. It includes the acceptance of the SBOT and the knowledge that was acquired after joining such mode of training.

1.10 Operational Definitions

Blended online training: The mixing of traditional face-to-face instruction with instructional technology; the mixing of different forms of technology such as CD ROMs with web-based technology; the mixing of pedagogical approaches such as constructivism with behaviourism irrespective of whether learning technology is used; and the mixing of instructional technology with specific tasks to be accomplished (Littlejohn and Pegler, 2007). In this study, the researcher means by blended online training is the mixing of different pedagogies. That is, in this study the researcher uses blended online training to refer to the use of synchronous expository and active experiences.

TPACK: “TPACK is the basis of good teaching with technology and requires an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students’ prior knowledge and theories of epistemology; and knowledge of how technologies can be used to build on existing knowledge and to develop new epistemologies or strengthen old ones (Mishra and Koehler, 2006, p. 1029)”. Also, TPACK can be defined as " a teacher’s knowledge of how to coordinate the use of subject-specific activities or topic-specific activities with topic-specific representations using emerging technologies to facilitate student learning" (Cox and Graham, 2009, p. 64). In this study, TPACK means the knowledge of choosing online social science pedagogies that includes the compatible technology for blended online course design and development.

Effectiveness: assessing the ability of a particular program to facilitate achieving the learning objectives of a particular topic or unit (Morrison *et al.*, 2007).

Social science: According to Byrnes (1996), "social studies consist of interrelated set of topics related to history, environment, economics, lifestyles, and government of peoples who live in this or other regions of the world" P:206 as cited in (Schunk, 2008). Also, it include history, geography, civic and political science; economics, psychology and sociology (Schunk, 2008).

Faculty development: this term is related to Professional development, academic development and instructional development (Stesa *et al.*, 2010).

Acceptance: the meaning of acceptance is the level of which users accept to use information technology or online training in work (Venkatesh and Davis, 2000). It can be defined also as the users' approval to use information technology (Davis, 1989).

Short training: We mean by the short training in this study is the training that lasts from half day to few days (B.Merriam *et al.*, 2001).

Completion rate: It means in this study how many participants completed the given training tasks. During the training sessions, two tasks for blended online course design by using TLPT and blended online course development were completed by the participants. The completion rate of the given training tasks was used as a source of data to evaluate the acceptance of the training.

Short blended online training: It means using a blend of pedagogies (presentation, demonstration, practice and feedback) in short training mode. Presentation, demonstration and feedback pedagogies are forms of synchronous

expository experiences. Practice pedagogy (design and development of blended online course) is form of active experiences.

TLPT: This acronym means TPACK Lesson Plan Template. It is used to provide structure training during the training sessions.

LMS: According to Jones (2009), “ it is broadly accepted that the almost universal response to e-learning within Universities has been a selection of an LMS”

TAM: It can be defined as the model that is trying to provide a suitable measures that can led to a better prediction for the use of information technology (Davis, 1989).

Adult learning theory: It can be defined as the design, the development and the implementation of the educational activities to facilitate learning for adults (Knowles, 1973).

1.11 Conclusion

Online learning will be implemented inevitably in HEIs for it is effectiveness and efficiency merits. If faculties are not prepared to utilize instructional technology effectively, many barriers will be faced (Bingimlas, 2009) . Developing TPACK of faculty is promising in providing faculty with the knowledge that supports the effective use of instructional technology. During the process of TPACK development, many challenges will appear in HEIs environment. One of these challenges is the length of the training programs (B.Merriam *et al.*, 2001; Bingimlas, 2009; Chick, 2002; Owston *et al.*, 2008). Therefore, providing instructor-led (Georgina and Hosford, 2009) and structured (Bailey and Card, 2009; Ke and Xie,

2009) training have the potential to create a sufficient training length. Also, addressing the social and job responsibilities is critical during the process of TPACK development. Therefore, using full online training as a training mode for TPACK development is promising because faculties are physically independent in this mode of training. Lastly, utilizing the Adult learning principles during the design of the TPACK development programs may contribute positively to the TPACK development programs. Addressing these elements can achieve a high acceptable environment for TPACK development. This in turn can facilitate process of TPACK development in HEIs.

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