INTEGRATING HYBRID DIGITAL COACHING (HDC) IN LEARNING THROUGH MULTIMEDIA TO IMPROVE STUDENTS' PERFORMANCE STANDARD

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Abstract

The attempts in improving students' achievement and facilitating their learning are a continuous journey with no end. Various theories, models, approaches and strategies have been applied in different fields of learning according to its suitability. Multimedia has been applied in numerous fields with the intention to facilitate learning. The theory of learning with multimedia, introduced by Mayer (2001) has been research globally not only in its origin but also by integrating it with other elements that may enhance learning. Coaching is one of the instructional activities in the constructivist-learning environment that can be applied to support students' learning. By referring to literature review and previous promising researches results on coaching in facilitating learning across different field, we believed that hybrid digital coaching (HDC) with the appropriate suggested activities through multimedia will be able to help students' in their learning of ICT subject and improve students' performance standard. The purpose of this paper is to highlight the potential of integrating a coaching model through multimedia learning material focusing on improving students' performance standard in learning an Information and Communication Technology (ICT) subject. A preliminary investigation which consists of an early review and interviews were conducted in the early stage of this study to investigate the current situation and problems faced by students in acquiring the knowledge and skills in the subject. Our investigation confirmed that students are facing some challenges in learning the ICT subject. It is within our best intention that this paper would be able to assist future researchers in the development of multimedia learning courseware aiming to facilitate students' learning and improve their standard performance.

Keywords: Information and Communication Technology (ICT), coaching, multimedia

1. INTRODUCTION

Information and Communication Technology (ICT) has been given significance attention worldwide as it has an impact in improving people's work and it is considered a must-have skill, to the extent that technological literacy has become a functional requirement for people's work, social, and also personal lives. The significance role of ICT in the education field has been recognized as one of the prominent aspect in improving teaching and learning based on the abundant researches reported. United Nations Educational, Scientific and Cultural Organization (UNESCO) considers ICTs as a promising factor that can contribute to universal access to education, equity in education, the delivery of quality learning and teaching, teachers' professional development as well as improve education management, governance and administration provided the right mix of policies, technologies and capacities are in place (UNESCO, 2016).

Equipping students with ICT skills has been an important agenda to any nations as it gives them advantage in exploring the knowledge in a borderless world of information. The teaching and learning of ICT has been improvised accordingly based on students needs and their ability in learning. Nevertheless, the room for improvement is still available as it is an ongoing process that has no limit or end. Our primary focus for this study is to facilitate students' learning in ICT and also to ease teachers in their teaching as well.

With the launching of the new Standard Curriculum for Primary Education (*Kurikulum Standard Sekolah Rendah – KSSR*) in 2011, Information and Communication Technology (ICT) subject for Year 4 was introduced by Ministry of Education (MOE) in 2013 as part of the Malaysia primary school curriculum transformation. This new Curriculum Standard Document and Assessment outlines the content for Year 4 ICT curriculum. The curriculum content is organized according to two standards, namely content standards and learning standards. Content standards consist of the essential knowledge and skills students need to acquire by the end of Year 6 (12 years old). The learning standards comprise of the relevant knowledge and ICT skills that students need to acquire in a particular year in relation to the content standards; while the performance standards serve as a tool for teachers to monitor their students' developmental progress for each learning standard.

Based on the preliminary investigation (Shuhaila & Wan Ahmad Jaafar, 2015), we confirmed that the Year 4 students (10 years old) are currently facing problems in learning a part of the knowledge and skills listed in Malaysia Year 4 ICT Curriculum Standard Document and Assessment. The ICT teachers were interviewed as a mean to collect information on the current teaching and learning situation of the subject. The interviews revealed the problems faced by the students in learning as identified by the ICT teachers.

The teachers stated that the students' ability in understanding the contents, students' attitude, and lack of appropriate and suitable educational resources that caters students' ability were among the main obstacles faced by the students. Further to this, it has been found that the performance standards achieved by majority of the students are at an average level only. The students will continue learning this subject until their Year 6 level. Due to this, any difficulties and problems that these students are facing should be overcome during this level of its implementation.

The undeniable positive impact of ICT to education is relevance for students' future utilization. Serious and on-going efforts have been taken by the Malaysia MOE with the expectation that ICT will be able to provide students with the necessary knowledge and skills. These must-have knowledge and skills are needed for them to be able to compete in a non-stop growth of technologically driven world. Our study in intended to provide an alternative solution to assist teachers and facilitate students' learning by developing a multimedia learning courseware (MLC) by integrating a coaching model as the instructional strategy and incorporating other suitable theories, based on the literature review.

2. THEORIES AND PRINCIPLES RELATED TO THE STUDY

For the purpose of this study, the identified learning theories and multimedia principles will be integrated accordingly in formulating the theoretical framework. This framework will be applied with specific purpose of this study. Fig. 1 shows the proposed theoretical framework. The theoretical framework illustrates the structure and the expected outcomes for this study. The theoretical framework will be based on the micro and macro level theoretical framework. At the macro level, the combination of related theories will be applied to support researcher belief that integrating coaching model in learning with multimedia will be able to facilitate students' learning and improve their performance standard in the ICT subject.

MACRO LEVEL

Learning Theories – Constructivism (Coaching), Conceptualization of Attitudes , Motivation , Multimedia (Politeness Principle)

| Multimedia-aided polite manner coaching (MPMC) | Multimedia-aided direct manner coaching (MDMC) | ← Independent variable |

Cognitive Level ← Moderator variable

| Performance standard | Attitude | Perceived Motivation | ← Dependent variable |

MICRO LEVEL

Allessi & Trollip Model

Multimedia Learning Courseware

| Instructional Material Motivations Scale | Computer Attitude Measurement for Young Students |

OUTCOMES

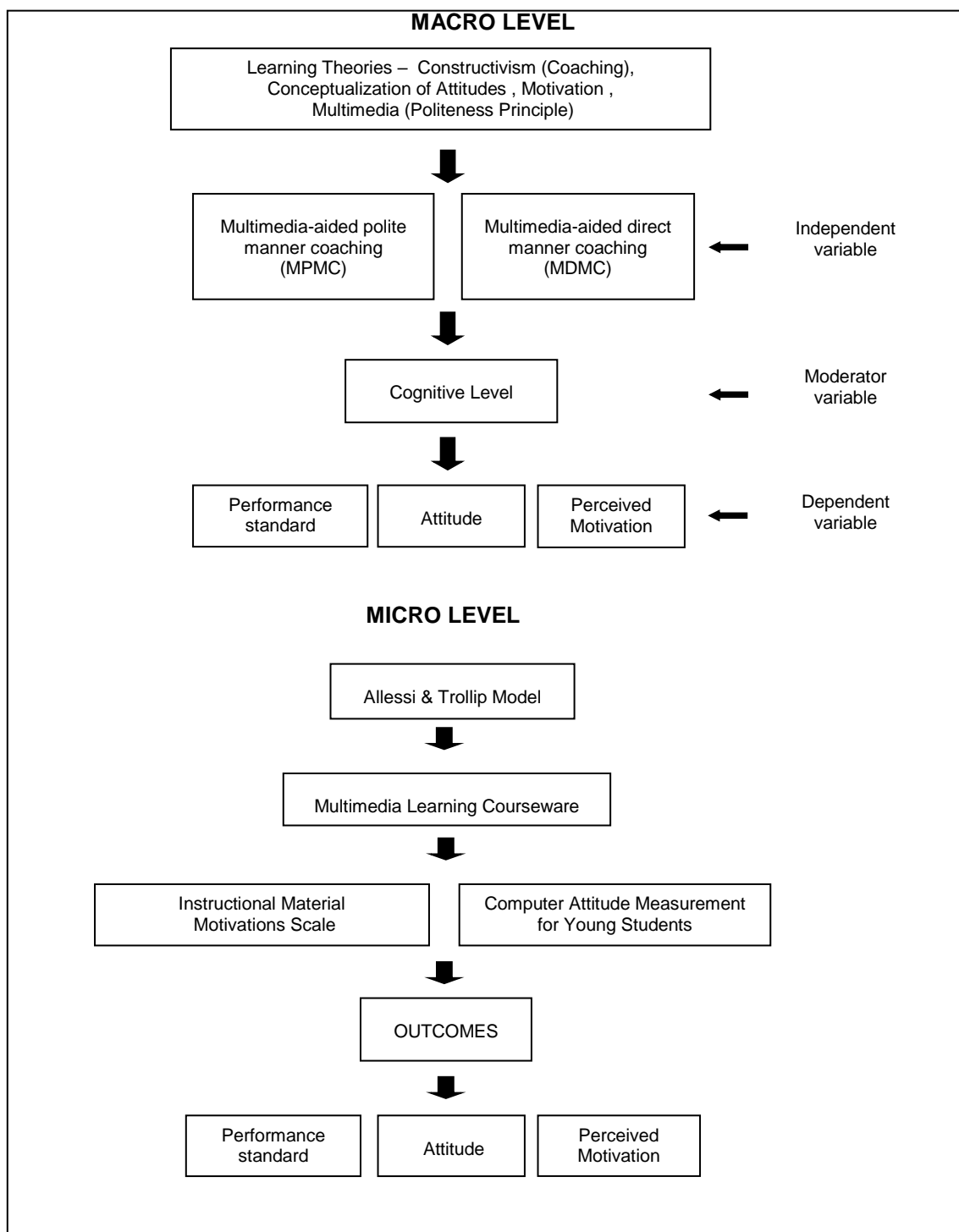| Performance standard | Attitude | Perceived Motivation |

Fig. 1: Theoretical Framework of the Multimedia Learning Courseware (MLC)

Two modes of instructions will be developed in this study, there are: (i) Multimedia-aided polite manner coaching (MPMC) and (ii) Multimedia-aided direct manner coaching (MDMC). These two presentation modes will act as the independent variable in this study. Coaching is one of the instructional activities listed in the constructivist-learning environment which can be applied to support students' learning. Coaching for students enabled the development of students' coping skills and resilience, increased well-being, cognitive hardiness and hope, decreased level of depression, and the development of study skills and personal learning goals which contributed to enhance performance (Devine, Meyers & Houssemand, 2013).

Succeeding the identification of the related theories for this study, the development phase of the MLC will follow. Alessi and Trollip Model for Design and Development (2001) have been selected in designing and developing the MLC for this study. Students' cognitive level has been selected as the moderating variable for this study. The effects of the developed MLC will be analyzed on three dependent variables, which are performance standard, attitude and perceived motivation.

The learning theories, multimedia principles and instructional strategy chosen for this study have been carefully selected in order to achieve the expected outcomes, which are to increase the students' performance standard, attitude and motivation. The process of converting all the theories, multimedia principle and instructional strategy together from the theoretical framework is important because it will lead to a solid foundation in the development of the MLC. Furthermore, the application of theoretical framework in this study is to support the researcher's hypothesis that certain learning theories, multimedia principle and instructional strategy have the possibility in facilitating students' learning through a well design and developed multimedia learning courseware.

2.1 Multimedia in Learning

Multimedia is defined as the presentation of material using both words - material is presented in *verbal* form, such as using printed or spoken text and pictures - material is presented in *pictorial* form, such as using static graphics, including illustrations, graphs, photos or maps, or using dynamic graphics, including animation or video (Mayer, 2001). For a multimedia presentation to be necessarily benefits students in their learning, it must be designed in accordance to the students' need, the expected learning outcomes and applied in a suitable learning environment to stimulate students' learning as well.

According to Reddi and Mishra (2003), the pedagogical strength of multimedia is that it uses the natural information-processing abilities that we already possess as humans. By combining the learning materials verbally and visually, they are able to aid learners' to understand a certain topic to be learnt. Dalal (2014) has identified several benefits of learning with multimedia. There are: i) multimedia learning allows individual needs to be to be adjusted according to the time, place and the dynamics of learning, ii) it also can provide a good introduction to complex topic by using animations and video, iii) multimedia encourages and engages students in real-time learning, and iv) promotes independent learning (Dalal, 2014).

Cottrell (2014), stated that multimedia-based instruction provides a more student-centred learning experience that allows students to create their own learning sequence, something that helps students achieve better and foster the critical skills necessary in order to become independent learners. Dalal (2014) also added that multimedia can be a factor that affect students' achievement because multimedia learning supports the idea that learning is not a process of knowledge absorption but rather a process of knowledge construction that promotes critical thinking and can help students shift from a teaching mode to a learning environment where they are in control of what they learn and how they learn.

For a multimedia presentation to be helpful in assisting students in their learning it must be design instructionally and its application is properly done. To avoid learner's distraction from its content, a multimedia presentation should not have too many attractive choices. A sound-developed multimedia learning presentation will be able to influence students' motivation as well. An organized and interactive multimedia learning presentation converted into a learning courseware may assist the structure of ICT-facilitated learning activities, and allows students to learn individually without restriction of place and time.

2.2 Coaching in Learning

Cox, Bachkirova and Clutterbuck (2010) see coaching as a human development process that involves structured, focused interaction and the use of appropriate strategies, tools and techniques to promote desirable and sustainable change for the benefit of the coachee (a person who receives training from the coach) and potentially for other stakeholders (people who will benefit from the person who receives the training). There are many definitions of coaching as it is defined according to its field of practice. The coaching definition by Griffiths and Campbell (2009) which is coaching is a goal-directed, multi-faceted process for enhancing people, work and life will be used for the purpose of this study. Several studies on coaching in the learning environment and education field revealed the potential of coaching in facilitating students' learning.

For Devine, Meyers and Houssemand (2013), coaching for students enabled the development of students' coping skills and resilience, increased well-being, cognitive hardiness and hope, decreased level of depression, and the development of study skills and personal learning goals which contributed to enhance performance. Wang (2012), in an investigation on implementation of coaching strategies in inquiry-based

learning among secondary school students, the findings from the study showed that there were significant increases in critical curiosity, meaning making, creativity, learning relationships and also learning engagement.

Coaching has been in practice for decades, mostly in sports related field. Due to its positive effects on coachees, coaching has been brought into the business related area, where most of the pro-founding coaches are available. Even though coaching enters the field of education a little later, it has showed some promising effect in facilitating people performance. As coaching showed positive impact in facilitating learning, this study has chosen to integrate coaching in a multimedia learning courseware with the intention to assist students in their learning.

2.2.1 Integrating Coaching in Multimedia

In this study, a multimedia learning courseware (MLC) will be developed as a tool in facilitating students' learning in a selected topic for ICT subject. Coaching has been selected as the instructional design to be used in developing the MLC. The learning centred-theory of coaching by Griffiths and Campbell (2009) will be used as guidance in developing the instructional strategy of the multimedia learning courseware. In this model of learning in coaching, eight (8) levels of different action/task need to be applied in the development of the MLC which are i) relating, ii) questioning, iii) reflecting, iv) listening, v) holding clients accountable, vi) taking action, vii) taking responsibility, and viii) self-coaching. Each process has its own importance in ensuring the success of learning in coaching as an instructional strategy in this MLC. Table 2 shows the steps involved in learning by coaching, adapting it to the hybrid digital coaching (MDC). The detailed interpretation of each individual steps and the suggested activities for each level to be developed in the multimedia learning courseware are included.

Table 1: The Adaptation of Coaching Model into the Hybrid Digital Coaching (HDC)
(Griffiths & Campbell, 2009)

Steps in Coaching	Detailed Interpretation	Suggested Activity (Digital)
Relating	An accepting, honest, trusting, equal, purposeful and attraction-based relationship between coaches and client formed a foundation for and supported the process of discovering new knowledge.	The courseware pages are designed to gain students' interest.
Questioning	Drove the process of discovering new knowledge, as coaches used questions to explore, challenge and extend clients' new knowledge and trigger the process of clients reflecting.	Students are asked about the learning content to be learnt.
Reflecting	Within the process of reflecting, clients first discovered new knowledge.	Reflective questions are asked and students explain accordingly.
Listening	Coaches listened to clients' reflections, within which process clients discoveries and new knowledge were identified and noticed.	Students' explanations are read.
Holding clients accountable	By fostering commitment, clients were held accountable to learning, to their newly discovered knowledge and, with that, to themselves, to taking action and to making progress.	Students applied the learning content.

Taking action	Various forms of action were designed to stimulate reflection, implement new knowledge and learning, and progress clients toward their desire.	Students are encouraged to suggest a project.
Taking responsibility	Clients owned the new knowledge, made choices based on the emergent knowledge and used this knowledge to set themselves free, resulting in enhance confidence.	Students applied what they have learnt independently.
Self-coaching	Clients' facilitation of these processes independently, resulted in an iterative cycle of discovering, applying and integrating new knowledge, even in the absence of a coach.	Students take control of their learning.

3. DISCUSSION

Thorough review of literature on related issues concerning this particular study allow us to select the most appropriate theories help us in building the best multimedia learning courseware that will assist students' learning and improve their performance standard in the ICT subject. By referring to previous studies on coaching and learning, it is in our trust that by integrating coaching in learning through multimedia may has a positive impact on students learning outcomes.

A good multimedia learning courseware has huge potential in facilitating students' learning and we expect better learning outcomes by the students. Integrating coaching in this study will also be supported by other learning theories namely multimedia learning theory, constructivist theory and motivation theory. It would be a great opportunity for us to contribute to students' learning as well as teachers' teaching with the developed multimedia learning courseware.

4. CONCLUSION

The success of this study will be completely dependable upon students' achievement performance standard results. The objective of integrating hybrid digital coaching (HDC) through a well-developed multimedia learning courseware is to introduce it as a strategy in advancing learning with multimedia, which adheres to its prime objective that is to assist students' in their learning.

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