

**THE EFFECTS OF POLITENESS PRINCIPLE IN
A MULTIMEDIA COURSEWARE ON
ACHIEVEMENT AND EMOTION OF
STUDENTS WITH DIFFERENT
ABILITY**

SHUHAILA BINTI HURMUZAN

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by

SHUHAILA BINTI HURMUZAN

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In the name of ALLAH, Most Gracious, Most Merciful.

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**KESAN PRINSIP KESOPANAN DALAM KOSWER MULTIMEDIA KE
ATAS PENCAPAIAN DAN EMOSI PELAJAR YANG BERBEZA
KEUPAYAAN**

ABSTRAK

Amalan reka bentuk terbaik adalah penting untuk dimasukkan ke dalam proses mereka bentuk dan membangunkan strategi kandungan subjek dengan tujuan untuk membantu meningkatkan pembelajaran pelajar. Kajian ini bertujuan untuk mengkaji kesan prinsip kesopanan dalam pembinaan bahan multimedia sebagai strategi pengajaran terhadap pencapaian pelajar dan emosi dalam mempelajari sub-topik tajuk Teknologi Maklumat dan Komunikasi - Membangunkan Persembahan Multimedia Interaktif Tidak Linear. Prinsip kesopanan pada dasarnya adalah hasil daripada kajian yang berdasarkan kepada teori kesopanan oleh Brown dan Levinson. Bahagian pertama kajian ini adalah untuk mereka bentuk dan membangunkan perisian pembelajaran multimedia yang bertujuan untuk menyampaikan topik yang dipilih dengan dua pendekatan yang berlainan. Bahagian akhir kajian ini adalah untuk mengkaji kesan kedua-dua pendekatan yang berbeza ini di kalangan pelajar berbeza tahap keupayaan terhadap pencapaian dan emosi berdasarkan bahan pembelajaran yang dibangunkan. Reka bentuk kuasi eksperimen dengan ujian pra dan ujian pasca dipilih, reka bentuk faktorial 2 x 2 digunakan dalam kajian ini untuk menguji hipotesis. Statistik deskriptif dan inferensi digunakan dalam menganalisis pencapaian pelajar yang berbeza tahap keupayaan. Bahan pembelajaran multimedia untuk kedua-dua mod persembahan telah dibangunkan berdasarkan panduan Model Pembangunan Alessi dan Trollip. Bahan pembelajaran ini telah direka dan dibangunkan kepada bahan

pembelajaran multimedia berdasarkan prinsip kesopanan (MPMC) dan tanpa prinsip kesopanan (MDMC). Hasil kajian menunjukkan bahawa MPMC mempunyai pengaruh yang lebih baik terhadap pembelajaran pelajar berbanding dengan MDMC. Kajian ini juga menunjukkan bahawa emosi berperanan penting dalam pembelajaran. Kajian ini juga mendedahkan bahawa MPMC sesuai untuk pelajar berkeupayaan kognitif tinggi dan rendah tetapi kesannya lebih efektif kepada pelajar berkeupayaan kognitif tinggi. Dapatan kajian ini juga mendapati bahawa prinsip kesopanan sesuai untuk diaplikasikan ke dalam Bahasa Melayu kerana kajian-kajian terdahulu mengenai prinsip ini kebanyakannya dilaksanakan di dalam Bahasa Inggeris. Prinsip kesopanan yang dimasukkan ke dalam bahan pembelajaran multimedia mempunyai kesan dalam membantu mempromosikan pembelajaran pelajar dan mempengaruhi emosi mereka kepada lebih positif dan ini membawa kepada suasana pembelajaran yang kondusif.

**THE EFFECTS OF POLITENESS PRINCIPLE IN A MULTIMEDIA
COURSEWARE ON ACHIEVEMENT AND EMOTION OF STUDENTS
WITH DIFFERENT ABILITY**

ABSTRACT

The best design practices are essential to be embedded into designing and developing the strategies of any subject content to promote students' learning. This study aims to examine the effects of politeness principle in multimedia with coaching as an instructional strategy on student achievement and emotion of learning on the ICT sub-topic – Developing Non-linear Interactive Multimedia Presentation. The politeness principle is essentially the result of studies based on Brown and Levinson's politeness theory. The first part is to design and develop a multimedia learning courseware that is intended to deliver the chosen topic with two different treatment approaches. The final part of this study is to investigate the effects of the two different treatment approaches among students with different ability on their achievement and emotion towards the learning material. A quasi-experimental design with pre-test and post-test is chosen, with a 2 x 2 factorial design is employed in this study to test the hypotheses. Descriptive and inferential statistics are used in analysing the dependent variable i.e. student achievement and emotion upon exposure of the MLC with different student ability. The multimedia learning courseware for both modes of presentations were developed in guidance of Alessi and Trollip Developmental Model. The modes of presentation are designed and developed into: i) Multimedia-aided polite manner coaching (MPMC – with politeness principle) and Multimedia-aided direct manner coaching (MDMC – without politeness principle). The finding in this study showed that polite wording in MPMC has better influence on student learning

compared to direct wording in MDMC. The study also revealed that MPMC is suitable for high and low ability student but the impact is stronger on high ability student. This study also revealed that emotion plays an important role in learning. The outcome derived from this study discovered that the politeness principle is suitable to be adopted in Malay Language as previous studies on this principle were mostly done in English language. Politeness principle incorporated in a multimedia learning material has the effect in promoting student learning and affecting their emotion that leads to a conducive environment for learning.

CHAPTER 1

INTRODUCTION

1.1 Overview

As the half-life of information continues to shrink and access to information continues to grow exponentially, schools cannot remain mere venues for the transmission of a prescribed set of information from teacher to student over a fixed period of time. Rather, schools must promote “learning to learn,” i.e., the acquisition of knowledge and skills that make possible continuous learning over the lifetime. With the advancement in technology, educators around the globe are taking advantage of the promising offer that technology has in facilitating students learning for better learning outcomes and assisting the instructional process simultaneously.

Information and Communications Technology (ICT) is a part of technology that is advancing and fostering from decades has become an essential and accepted part of everyday life for most people currently. The importance of technology is increasing in people’s lives and it is already a trend, to the extent that technological literacy has become a functional requirement for people’s work, social, and personal lives. United Nations Educational, Scientific and Cultural Organization (UNESCO) considers that ICT 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).

Due to the rapid changes, development and innovation in technology, it is undeniable that if we were to compete in acquiring knowledge in this borderless world, ICT is a compulsory need. ICT has the potential to foster teaching and learning

processes; it has become a major attention and importance to primary schools across the globe as the potential has been realised. In 2010, the Malaysia Ministry of Education (MOE) has conducted a study regarding ICT and it was found that 80% of teachers spend less than one hour a week using ICT. The study also found that only a third of students perceived their teachers using ICT regularly. Based on the study, it can be concluded that ICT usage in schools continues to lag expectation, in terms of quality and also quantity. Prior to the development of the Policy on ICT in Education in Malaysia, there have been several impetuses to its development. The Committee in MOE agreed to look at strengthening the policy on ICT in education to align all ICT projects and further emphasize on the role of ICT towards maximizing the impact on students' outcome.

“The new information age indeed has a deeper connotation on the nature and purpose of education. Education can no longer be an institution where teachers impart a set of information, which students then capture and memorize. With ICT as an enabler, education is totally transformed where teachers act as facilitators of the use of ICT to allow the students to gain unlimited amount of information in order to generate an in-depth understanding of a particular subject or topic. Hence, the quality of students produced will be able to meet the requirements of employers and the demands of the nation's progressive economic development. In essence, ICT has the potential to increase the quality and relevance of education besides providing equal educational opportunities for all sections of the population.”

(Policy on ICT in Education Malaysia, 2010, p. 13)

The Eleventh Malaysia Plan 2016-2020, is the final leg in the journey towards realising Vision 2020 with the theme Anchoring Growth on People with six focus area. In Focus Area D - Improving the Quality of Education for Better Students Outcomes

and Institutional Excellence, for preschool to post-secondary, the first strategy is to enhance access and quality to improve students' outcome. Under this strategy, the second sub-strategy is enhancing the curriculum to build 21st century skills. Based on this, one of the aims is to continuing reinforcing STEM (science, technology, engineering, and mathematics) education through enquiry-based and hands-on learning opportunities.

In continuing the implementation of the Malaysia Education Blueprint 2013-2025, Malaysia Ministry of Education (MOE) has taken the initiative to introduce new teaching and learning strategy to improve the current practice in schools. The recent practice is the implementation of the 21st Century Learning in schools all over Malaysia. As written in *Panduan Pelaksanaan Pendidikan Abad ke-21* by Ministry of Education (2017), one of the components in the 21st Century Learning framework is information skills, media and technology. It can be concluded that ICT will remain one of the focus in teaching and learning strategy for in schools.

Recent technological developments have contributed to the evolution of pedagogical designs aimed at harnessing ICT for better instructional learning (Elliot, Wilson & Boyle, 2014). ICT is listed under the technology area; therefore, ICT is an important aspect to focus and the knowledge and skills about it need to be acquired by all and it has to begin from the early stages of education, in this context primary education.

1.2 Background of the Study

The enormous potential of ICT for technology-enhanced learning is recognised; nevertheless, constant development also demands constant re-evaluation of the technological resources that best support effective learning and pedagogies

(Elliot et.al. 2014). One of the important criteria of a good student in today's technologically demanding world is to have a basic understanding of ICT, and the ways to make productive use of it (Shuhaila & Wan Ahmad Jaafar, 2015). Learning about ICT and acquiring the knowledge and skills are essential as they are the purpose of the ICT Level II Standard Curriculum, i.e. to prepare the benchmark in students' achievement from Year 4 until Year 6. This aligned with the Blueprint aspirations, to ensure that every student in every school and in every state achieves their full potential. Leveraging ICT to scale up quality learning across Malaysia is one of the shifts listed in the Blueprint. Under this shift, among the measures for ICT in education taken are providing students with the skills and knowledge to learn effectively and live productively in an increasingly global and digital world, and piloting ICT innovations for delivery such as distance-learning and self-paced learning.

“Findings from previous studies conducted by MDEC (The Malaysian Digital Economy Corporation previously known as Multimedia Development Corporation) and MOE between 2003 and 2009 clearly showed that there is a critical need to conduct an architecture review of the smart school initiative to align it with the changes coming from the dynamics of internal needs and external environment that has a major impact on the next wave of ICT in education. Hence, an Architecture Review study was completed in May 2010 to provide concrete findings on areas of improvement in the structural design of the initiative and the manner ICT initiatives are implemented. Findings and strategic recommendations from the Architecture Review need to be acted upon and this spurred the development of a Policy on ICT in Education.”

(Policy on ICT Education Malaysia, 2010, p. 4)

Malaysia Ministry of Education (MOE) had been introducing various form of practices to promote students' learning at all level of education. As the growth of ICT in promoting students' learning has been recognised globally, Malaysia also took the opportunity in utilising ICT into its local education system. The Malaysian technology-rich schools or smart schools that were launched in 1999 acted as a platform for the Ministry of Education to produce technologically literate, critically thinking work force, which is prepared to participate fully in the global economy of the 21st century. The Smart School project was built on international best practices in both the primary and secondary education (MOE, 1997). Started from this, MOE had taken a further step in integrating ICT into other schools throughout Malaysia.

Being the initial stage of institutional compulsory education, primary education has specific goals to meet the special needs that children have. In Malaysia, course of study at primary level is planned for duration of six years, but maybe completed in five to seven years (Ministry of Education, 2015). According to MOE, a child can complete his/her primary schooling a year earlier or a year longer than the normal time allocated by MOE with strong supportive reasons and the approval given by MOE. In Malaysia, primary education is divided into two phases - Phase I (Standard 1 to 3) and Phase II (Standard 4 to 6). At Phase I, the emphasis is on acquiring strong reading, writing and arithmetic skills. At Phase II, the mastery of these skills is reinforced, and emphasis is given to building a strong foundation in content and basic science. As Standard 4 is the starting point for Phase II, it is important to focus on strengthening the foundation of this phase.

ICT has been acknowledged globally on its ability to foster learning based on researches and has been integrated in teaching and learning in schools all over the world. Consequently, ICT is being exploited in subjects and across subjects

(UNESCO, 2014). Therefore, in order to integrate ICT in learning, primary school students need to be taught the ICT basic knowledge and skills as an enabler for them to apply it in their learning and take advantage of the learning opportunities offered in ICT.

Ministry of Education (MOE) has introduced Information and Communication Technology Literacy (ICTL) for Primary Schools Programme in April 2005. This programme is implemented in stages beginning with Year 1 in 2005 and to be completed until Year 6 in 2010. ICT Literacy (ICTL) for primary schools is a programme designed to lay the foundation for all pupils to develop their ICT capabilities in future. Basic ICT literacy is packaged in teaching and learning modules appropriate for pupils according to their academic levels. The ICTL for Primary Schools Programme in national schools (SK) and national type schools (SJK) is introduced after the Transition Programme in Year 1. The programme is implemented from Year 1 to Year 6, for 720 minutes per year in a continuous three-month period. Two teaching periods or 60 minutes of the timetable are allocated for this programme. It is to be carried out during the English Language period for SK and the Chinese Language or Tamil Language periods for SJKC and SJKT (Curriculum Development Centre, 2008).

Malaysian National Curriculum transformation emerged based on the decision by the Cabinet Follow-Up Meeting No. 6/2008 chaired by the Education Minister on 23 May 2008. An improvement effort in national education system especially in primary school level need to be carried out to enable our schooling curriculum to fulfil the needs of current and future challenges. In accordance with that, Malaysian Ministry of Education has implemented a study and identified the existence of need for a primary school curriculum transformation (Curriculum Development Division, 2011).

In 2011, Ministry of Education (MOE) has launched the new Standard Curriculum for Primary Education (*Kurikulum Standard Sekolah Rendah - KSSR*). The curriculum design is based on six elements representing comprehensive disciplines to produce a balance and well-developed individual explicitly. The listed elements in the curriculum are (1) communication, (2) spirituality, attitude and values, (3) humanity, science and technology, (5) aesthetic and physical development, and (6) self-appearance. The curriculum design is shown in Figure 1.1.

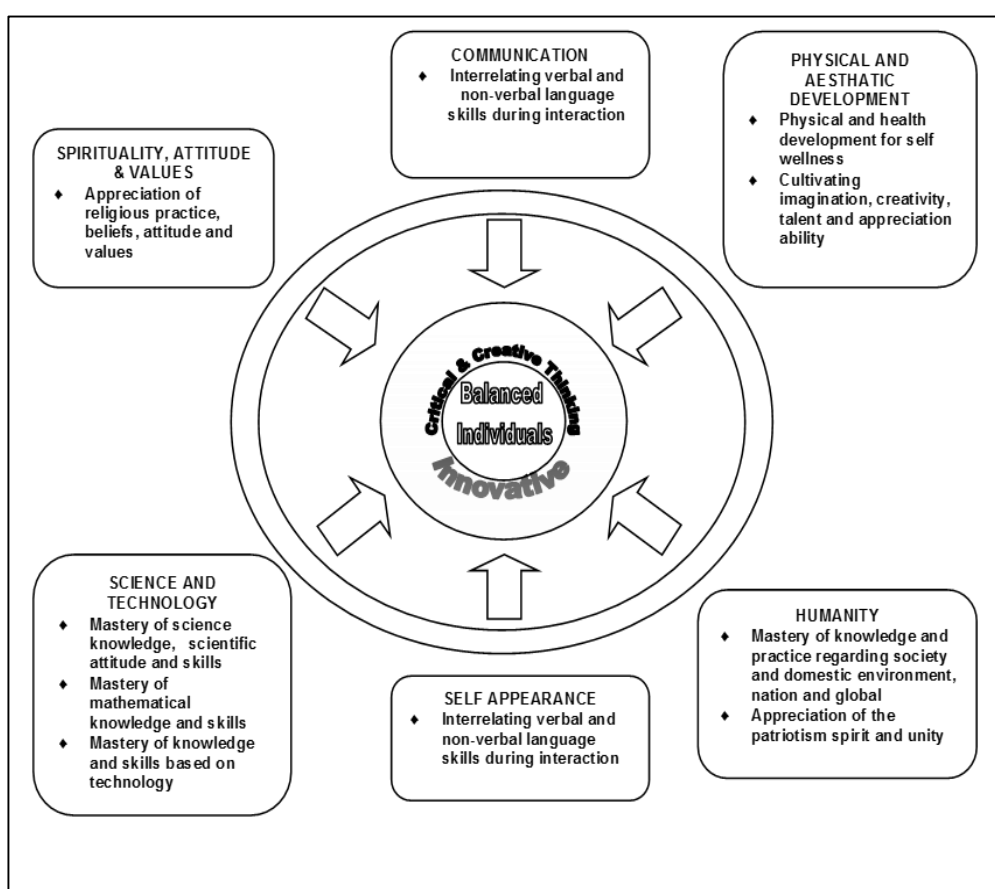


Figure 1.1. KSSR curriculum design adaptations

(Source: Curriculum Development Division, 2011)

ICT subject is listed under the science and technology element and is being taught in Level II starting from Year 4 to Year 6. This subject is introduced to replace

the ICT Literacy for Primary School (ICTL) programme. In this new curriculum (KSSR), students will be assessed based on the Curriculum Standard Document and Assessment 2013. The document consists of Content Standard, Learning Standard, and Performance Standard. The achievement level is constructed based on Bloom's revised taxonomy. Each learning standard consists of six level of achievement with the description written in the performance standard. Students are expected to achieve all the content and learning standard contains in the Curriculum Standard Document and Assessment. The Performance Standard will be the indicator on student's mastery level after each teaching and learning session as written in the Content Standard and Learning Standard. Teachers will record the students' achievement in a standardised form provided by the Curriculum Development Centre. This record will be used as references in indicating each student achievement in this ICT discipline.

Jarosievitz (2011, 2009) stated the importance of taking advantage of the ICT, multimedia (text, pictures, animation, sound, video and interactivity) and new devices in providing students with adequate knowledge and applicable skills after they left universities, colleges or schools. ICT and multimedia can make different forms of knowledge and learning visible in teaching, learning and assessment (Mårell-Olsson & Hudson, 2008). The support that ICT and multimedia provide to teaching and learning when both collaborate is aiding the learners in visualizing abstract/text information. This allows them to understand better the subject-matter learned and the result would be better learning outcomes.

Multimedia has the potential in creating a quality-learning environment and increases the effectiveness of instruction on learning outcomes. Based on previous research of multimedia application in learning (Hwang, Shadieff, Hsu, Huang, Hsu & Lin, 2016; Lenny Yusrina, Adeline & Suriani, 2014; Rackaway 2012; Wawan, Sarah

& Harsa, 2015), positive impact has been reported in terms of learners' performance evaluation. An effective multimedia presentation is design with thorough selection on the theories that underpinned the presentation and developed with consideration that will be best suitable for the intended learners.

Many multimedia studies (Brummernhenrich & Jucks, 2016; McLaren et.al, 2011a & 2011b; Schneider, Nebel, Pradel, & Rey, 2015) have shown that politeness in instructions and feedback can enhance learning outcomes (Mikheeva, Schneider, Beege, & Rey, 2018). The politeness principle in multimedia refers to the use of polite strategy in human-computer communication for the design of computer-based tutors (pedagogical agent) that are socially sensitive to enhance performance and motivating learners (Mayer, Johnson, Shaw & Sandhu, 2006). Besides focusing on cognitive aspect in promoting learning, the role of motivation and social considerations should also be given attention as according to Mayer (2014b), social cues may prime social responses in learners that lead to deeper cognitive processing during learning and hence better test performance.

According to the conversational politeness hypothesis, people will see certain ways of wording suggestions and requests as polite and others as impolite (Mayer, 2006). With this, politeness in multimedia educational setting has a promising effect in promoting learning and boost students' performance. In instructional design, the cognitive aspects help the instructional designer to determine what the tutor should say (mostly on the subject content) whereas the social and motivational aspects of instructional design help determine how the tutor says it (Mayer, 2006).

Reeves and Nass (1996), found that learners are sensitive to the politeness tone of statements from computer-based tutors is consistent with the idea that people can

accept a computer as a social partner. By embedding politeness principle in a multimedia learning, it may help to facilitate students' learning by providing them a sense of ease in learning when the wordings and narrations of the presentation are considered as warmer and closer to the learners.

Wang, Johnson, Mayer, Rizzo, Shaw, and Collins (2008) study on politeness for graduate and undergraduate students from two different universities concluded that students who received the polite treatment scored better. In addition to this, their study also found that students with average computer skills who received the polite treatment performed marginally better than those who received direct treatment. McLaren, DeLeeuw and Mayer (2011a) claimed that politeness may be beneficial for more needy students; and the polite tutor ultimately led to more learning as compared to the direct tutor. The strongest result in support of the politeness effect McLaren et.al (2011a) come from the studies by McLaren, DeLeeuw and Mayer (2011b) and Wang et.al (2008), which provide strong evidence pointing in the direction of polite tutoring making a difference to low prior knowledge students.

As mentioned by Griffiths (2005), it must be acknowledged that a substantial part of learning in coaching has its roots in constructivist schools of thought and psychology as well as learning theory. According to Sleeper-Triplett (2008), coaching can help children and teens with numerous important yet challenging tasks, such as improving focus, staying on task, managing time, developing organizational skills, strengthening motivation, building self-awareness and confidence, and developing structures and routines to promote success. With the various possible potential of coaching on children and teens, coaching can be applied in schools.

Coaching could be seen 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 (students) and potentially for other stakeholders (Cox, Bachkirova & Clutterbuck, 2010). Jonassen (1999) stated that at each of the stages i.e. crude imitation, advancing through articulating and habituating performance, to the creation of skilled, original performance, learners' performances will likely to improve with coaching. Learning is inherently recognised in the process of coaching in both the prescriptive and the evidence-based literature (Griffiths & Campbell, 2009). Griffiths (2005), also describe coaching as a model for effective learning. Therefore, with the potential of coaching as an instructional strategy and simultaneously act as a model for effective learning, it is a great hope that by consolidating it in the MLC with polite manner, students' performance standard in this particular topic can be increased. Student achievement is assumed to be increased, with the application of politeness principle and coaching as the instructional strategy.

Affective-cognitive models of learning seek to incorporate the learner's emotional state during learning within the causal chain that produces a learning outcome (Mayer, 2019). According to Duffy, Lajoie, Pekrun, and Lachapelle, (2018), emotion is short-term, intense affect caused by a particular object or event. The appropriate design of multimedia learning materials can enhance students' positive emotions and motivation and hence support the learning process (Heidig et al., 2015).

Langley (2013) has identified five themes of cognitive systems research in his writing claims on learning and cognition. Under each theme, Langley (2013) has listed his findings about learning and cognition. Langley (2013) stated that learning occurs in the context of high-level cognition, learning involves the creation of new cognitive

structure and buildings on existing cognitive structures. Cognitive is usually refers to one's intelligence or intellectual ability. Each person has different ability. Researchers have also recognized that an important factor influencing learners' understanding of the content, when taught with the use of any technological tools, is individual cognitive differences (Angeli, Valanides, Polimetou & Fraggoulido, 2016). Based on this statement, it can be assumed that students' ability has an effect on learners' achievement. Learning achievement has always been connected to cognitive ability therefore this study has selected the students' ability as the moderator variable in investigating the effect of politeness theory on students' performance standard and emotion.

A preliminary investigation has been conducted by interviewing three ICT teachers from three different schools. The preliminary investigation is conducted to gather information on the implementation of the ICT subject, if there any problems and difficulties arise within the teaching and learning process of the subject in national primary schools. As it is a new subject being introduced into the curriculum in 2013, no previous study or report about its implementation has been done, either by the MOE, individual bodies or researcher. The preliminary investigation is focusing on the acquisition of ICT skills and knowledge within the curriculum; and student attitude towards learning the subject. From the preliminary investigation conducted, the ICT teachers have expressed their concerns about their students' learning on the ICT subject. They are facing some difficulties in transferring the knowledge and skills listed in the curriculum. The teachers concerned are reported in the following segment. They also reported the difficulties faced by the students in learning some of the topics in the subject and also the issue of students' attitude during the lesson. The thorough

details of the preliminary investigation are reported in the preliminary investigation sub-topic.

1.3 Problem Statement

Politeness is a part of student-tutor interactions and research in affective computing has shown that this social convention may also be applicable when a computer plays the role of tutor (Thomas, 2013). Mayer, Johnson, Shaw, and Sandhu (2006) found that learners are sensitive to the politeness tone of statements from computer-based tutors. By referring to Taleghani-Nikazm (2013), overall research of politeness in computer-mediated communication has shown that politeness plays a major role participants' construction of their discourse. With scientific studies result on the positive effect of politeness have been reported by researchers in education (McLaren, DeLeeuw, & Mayer, 2011a; Schneider, Nebel, Pradel, & Rey, 2015; Wang & Johnson, 2008), the researcher believed that this principle will also be able to assist the learners in the current situation to ease their learning and increase their achievement in this ICT subject.

The researcher has conducted a preliminary investigation to identify the research problem. The investigation was done by applying the semi-structured interview technique. According to Chua (2012), semi-structured interview allows the interviewer not only asks a number of formal questions which have been prepared before the interview, but the interviewer was also given the freedom to question and explore the answers given by respondents in a more in-depth manner. The teachers were interviewed to seek information about teachers' perception on the implementation of ICT subject and their experiences in conducting the lesson in national primary schools. The findings of these interviews will be referred to in identifying the problem.

1.3.1 Preliminary Study

During the preliminary study, the researcher interviewed three ICT teachers, who are also the ICT Head of Panel from each respective school to gain in-depth understanding regarding the proposed issue. Based on the interviews, the researcher was able to collect valuable and relevant information regarding the ICT subject implementation in schools for the purpose of this study.

The teachers are also in consensus that students are having difficulties in learning the knowledge about data measurement and multimedia. In these topics, students need to learn about converting data into the respective standard unit and the elements in a multimedia presentation. Majority of the students were unable to acquire the knowledge and skills due to the complexity of sub-elements in these topics and also time-constraint. All the teachers unanimously agreed that most students able to achieve only an average level performance standard for these two topics. As this is a non-examination subject, the form of assessment varies among schools. Based on the interviews, due to parents request to have details result on their children achievement of this subject, one school includes this subject in their mid-term and final-term examination while the other two schools just assessed students using the standard form provided by the Ministry of Education for teachers to record students' mastery level on each content standard.

Learning the ICT terms in Malay Language is also considered as a challenge for the teachers as the ICT terms in English is widely used and globally accepted. There is also equipment that need to be used in the lesson are out of order and irreplaceable due to budget constraints. For the low achievers, they are lack of basic ICT skills such as basic keyboard functions and mouse skills. The pack schedule of

computer lab also has been recognized as one of the challenges especially when there is only one lab available for the whole school.

Based on these interviews, it can be concluded that problems regarding student learning ICT in some topics of the ICT subject does exist. Not every student able to acquire all the knowledge taught especially the low achiever students. Even the high achiever students have problems in knowledge retention learnt. Teachers need to recall the previous lesson learnt before starting a new lesson. For the low achievers, the teachers had to conduct the lesson in a slower pace as the students faced difficulties in following the lesson due to their lack of basic knowledge, unable to understand teachers' instructions and still struggling on their reading literacy level. In terms of the skill taught, high achiever students do not have many difficulties in acquiring the skills but low achiever students do.

All the teachers agreed that the most difficult topic for the students to acquire is the topic on data measurement and multimedia, as the students need to combine all the multimedia elements in one presentation. In completing any given task, not every student has the creativity. Most of them just follow teachers' instructions and some were not able to complete the task due to their difficulties in acquiring the knowledge and skills. No teachers in this preliminary investigation used the courseware provided in their lesson. They agreed that the information in the textbook is sufficient for them to conduct the lesson and assist students in their learning.

Teachers commented that the students are not able to combine all the necessary skills required especially in producing a non-linear multimedia presentation under the topic Exploration of Multimedia. This confirmed that students are facing problems in acquiring the listed ICT skills. All teachers agreed that their students showed

excitement when entering the computer lab. But there are some other issues. The high achiever learners showed commitment during the lesson. Some students just followed the actions taken by their friends as they shared the computers. Some of low achiever learners did not have interest in learning the listed topics. They are more interested in playing games on the computers. They assume that the topic is not important for them to learn such as the networking, as now people are more on mobile. The ICT teachers did not practise students-centred learning much. The main reason addressed by the teachers that the class will become noisy and it is uneasy to be controlled. None of the interviewed teachers used the provided courseware. As a result, the researcher was unable to retrieve the benefit for students from it. The students used the textbook for each lesson for their learning.

As a conclusion from the preliminary investigation, it is visible that the teachers are encountering some difficulties in teaching and students facing difficulties in learning some of the contents in the ICT subject. The sharing timetable with another subject, no assistance during the lesson, students' attitude towards learning, and combination of different level of students' ability in a class are some of the identified factors that lead to the problem in the early stage of this particular study. As a proposed solution to the identified problem, a multimedia learning courseware (MLC) would be a great contribution in assisting the teachers to deliver the intended contents of this ICT subject, so that students will be able to learn better, acquiring the knowledge and skills; and will be able to achieve the highest level in the subject performance standard. The developed MLC only focuses on the subject that the students are facing difficulties in understanding the knowledge and acquiring the intended skills. It is different from the existing courseware that has been pooled with all the topics to be learned. This MLC simplify the complexities of the topic and embedded the politeness principle in

it with the intention to facilitate student learning and lead to the achievement of the learning objectives. The information gathered from the preliminary investigation supported the potential of developing an MLC to facilitate students' achievement standard in ICT subject. It would be a great opportunity to contribute to students' learning as well as teachers' teaching with the developed MLC.

Referring to the preliminary investigation, students are facing problem in learning a few of the knowledge and skills listed in the Year 4 ICT Curriculum Standard Document and Assessment. Based on the interviews, most students are facing difficulties in understanding the topics of Data Measurement and Developing a Non-Linear Multimedia Interactive Presentation. Although ICT has a lot of potential in developing students' knowledge and skills, there exist some issues in its implementation as a subject in the primary schools (Shuhaila & Wan Ahmad Jaafar, 2015). This is a new subject introduced in 2013 as a result from the primary school curriculum transformation with the launching of Standard Curriculum for Primary Education (*Kurikulum Standard Sekolah Rendah – KSSR*) in 2011. There are various reasons due to the difficulties of students in learning the knowledge and skills for the two topics. Among them are the students' ability in understanding the contents, students' attitude, and lack of appropriate and suitable educational resources that caters students' ability. The promises that ICT brings to education is relevance for future utilisation by the students in their life. Serious efforts have been taken by the MOE with the hope that ICT will be able to equip students with the necessary knowledge and skills needed them to be competitive in a technologically driven world.

According to the new curriculum (KSSR), students' achievement in ICT subject will be measured in accordance with the performance standard listed in the Year 4 ICT Curriculum Standard Document and Assessment. The student achievement

will be the indicator on students' mastery level following the teaching and learning session as listed in the Content Standard and Learning Standard. From the preliminary investigation, it has been found that the student achievement is at their average level only. As this is a subject being introduced to Year 4 students as an exposure to ICT, it is better for the students to overcome any difficulties and problems arise in it during this level. No study has been done for this subject in terms of identifying students' achievement or problems encountered by the teachers. This research aims to provide an alternative to assist teachers in teaching and facilitate students' in their learning by developing an MLC.

Instructional materials enhance the teaching/learning process by exhibiting information necessary to acquire knowledge and skills (Delacruz, 2012). Delacruz also added that the success in the skill and knowledge acquisition in an instructional situation depends on the suitability of the instructional material, adequacy and effective utilization of the available materials. Delacruz (2012) also mentioned that the relevance of instructional materials to the objective of the lesson and the ease of use of the instructional materials are serious considerations in instructional materials utilization to better the learner's performance. Developing a good instructional material needs thorough preparation and as for this research purpose, the multimedia learning courseware (MLC). One of the most utilised instructional materials in line with the rapid advancement in educational technology is multimedia. Based on thorough and empirical researches on the effect of various aspects of multimedia in learning, multimedia instructional messages that are designed in light of how the human mind works are more likely to lead to meaningful learning than those that are not designed (Mayer, 2014c).

In this research, designing the MLC is a particularly important part as the main purpose for the development of the MLC is to facilitate learning in a more effective possible method and successively improve the learning outcomes. Mayer (2009) has listed and explained in details the principles associated to the design of multimedia to foster learning outcomes. In 2006, Mayer conducted a study to develop research-based principles for the design of computer-based tutors that are socially sensitive and motivating to learners, i.e. principles for creating polite tutors.

In 2014, Mayer presented the evidence-based principles of pedagogical agents (PA) design. One of the principles in the design for effective PA is Politeness Principle. The Politeness Principle states that people learn better when the PA's advice is in polite style that uses polite manner instead of direct manner. The direct manner format in wording for example, "Save your work now". Whereas in polite manner wording, the phrases would be like "Can we save our work now?". Interactions that governed by politeness as in a media equation (Reeves & Nass, 1996), holds that people tend to response to interactive media much as they do to human beings, that is they respond as if the media were social actors.

With the belief that students will response more when polite manner is integrated, it is especially important to include this element in developing the MLC. When students' response increased, it will facilitate their learning for better understanding of the focus lesson. As a result, the student achievement on this topic will be better and attitude towards learning with computer will be better as well. Ginns, Martin and Marsh (2013) meta-analysis showed that politeness could enhance the retention ($d=0.38$) and transfer ($d=0.11$) of knowledge. Their reviews also identified that no studies of the politeness effect have been conducted in languages other than English. Only in 2015, Schneider, Nebel, Pradel and Rey conducted a study in German

Language. This is seen as an opportunity to use Malay Language as a medium of instruction in the MLC and study the effect of politeness principle on the predetermined dependent variables.

In developing the MLC, it is also a priority in this research to insert an appropriate learning strategy that could be combined with multimedia instructional design. In order to learn, for most instruction, the assumption is that learners will attempt to perform like the model, first through crude imitation, advancing through articulating and habituating performance, through the creation of skilled, original performances (Jonassen, 1999). These stages will likely improve with coaching (Jonassen, 1999). As students are struggling in learning the intended knowledge and skills in this subject, it is hoped that coaching when combined with instructional technology will be able to ease students learning and help them to achieve better result in this subject.

This research also intends to study the relationship between students' ability and the politeness effect. The result from this study later will determine which group of students based on their students' ability is more suitable in receiving the polite-manner or direct-manner learning material. It is expected that students' learning will be improved and hence they will have better achievement and good emotion in learning that will help them to achieve the learning objective.

1.4 Purpose of the Study

The purpose of this study is to examine the effects of politeness principle in multimedia with coaching as an instructional strategy on student achievement and emotion of learning on the ICT sub-topic – Developing Non-linear Interactive Multimedia Presentation. The independent variable is the mode of instruction with two

treatment conditions, namely (i) Multimedia-aided polite manner coaching (MPMC) and (ii) Multimedia-aided direct manner coaching (MDMC). The dependent variables for this study are: (i) student achievement and (ii) student emotion. The moderator variable in this study is student ability.

This study has two parts:

- i. The first part is to design and develop a multimedia learning courseware that is intended to deliver the chosen topic with two different treatment approaches. Chapter 4 will describe the two different treatment approaches in details.
- ii. The final part of this study is to investigate the effects of the two different treatment approaches (the independent variable) among students with different ability (the moderator variable) on their achievement and emotion (the dependent variables) towards the learning material.

1.5 Research Objectives

The objectives of this study are listed below:

- i. To design and develop a multimedia learning courseware with two different presentation modes (MPMC and MDMC) that is intended to deliver the content of the selected topic of the Year 4 ICT subject.
- ii. To investigate the effect of two different presentation modes (MPMC and MDMC) with different student ability towards student achievement.
- iii. To investigate the effect of the two different presentation modes (MPMC and MDMC) with different student ability towards student emotion.

1.6 Research Questions

This study is designed to answer the two (2) major research questions:

- A. What is the effect of using two different presentation modes i.e. MPMC and MDMC towards student achievement? The subsidiary research questions are:
1. Is there any significant difference in student achievement between the two different presentation modes (MPMC and MDMC)?
 2. To what extent does MPMC effect student achievement based on their ability (high and low)?
 3. To what extent does MDMC effect student achievement based on their ability (high and low)?
 4. Is there any significant difference in student achievement between high ability students on MPMC and MDMC?
 5. Is there any significant difference in students' achievement between low ability students on MPMC and MDMC?
- B. What is the effect of using two different presentation modes i.e. MPMC and MDMC towards students' emotion? The subsidiary questions are:
6. Is there any significant difference in student emotion between the two different presentation modes (MPMC and MDMC)?
 7. To what extent does MPMC effect student emotion based on their ability (high and low)?
 8. To what extent does MDMC effect student emotion based on their ability (high and low)?
 9. Is there any significant difference in student emotion between high ability students on MPMC and MDMC?

10. Is there any significant difference in student emotion between low ability students on MPMC and MDMC?

1.7 Research Hypotheses

These study research hypotheses are formulated as null hypotheses. The research null hypotheses will be rejected when the p-value is less than the significance level, 0.05 ($p < 0.05$). The hypotheses are formed based on the research objectives and questions as follows:

- A. The effect of using two different presentation modes i.e. MPMC and MDMC towards student achievement. The subsidiary null hypotheses are as follows:

HO_{A1}: There is no significant difference in student achievement between the two presentation modes (MPMC and MDMC).

HO_{A2}: There is no significant difference in student achievement between high and low ability students on MPMC.

HO_{A3}: There is no significant difference in student achievement between high and low ability students on MDMC.

HO_{A4}: There is no significant difference in student achievement for high ability students on MPMC and MDMC.

HO_{A5}: There is no significant difference in student achievement for low ability students on MPMC and MDMC.

- B. The effect of using two different presentation modes i.e. MPMC and MDMC towards students' emotion. The subsidiary null hypotheses are as follows:

HO_{B6}: There is no significant difference in student emotion between the two presentation modes (MPMC and MDMC).

H_{OB7}: There is no significant difference in student emotion for high and low ability students on MPMC.

H_{OB8}: There is no significant difference in student emotion for high and low ability students on MDMC.

H_{OB9}: There is no significant difference in student emotion for high ability students on MPMC and MDMC.

H_{OB10}: There is no significant difference in student emotion for low ability students on MPMC and MDMC.

1.8 Research Framework

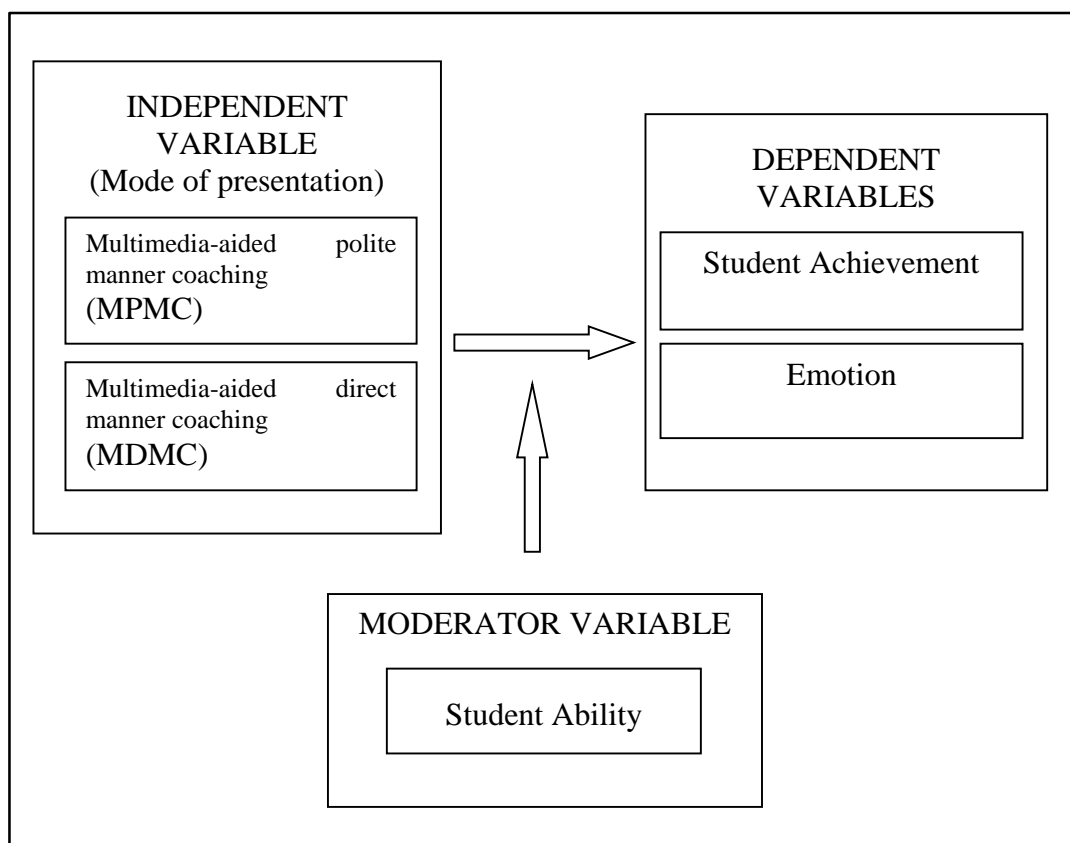


Figure 1.2. Research framework of the study