

THE DEVELOPMENT OF COMPETENCY MODEL
FOR PRIMARY SCHOOL TEACHERS
IMPLEMENTING AUTHENTIC
LEARNING APPROACH

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THE DEVELOPMENT OF COMPETENCY MODEL FOR PRIMARY SCHOOL
TEACHERS IMPLEMENTING AUTHENTIC LEARNING APPROACH

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ABSTRACT

A competency model for primary school teachers implementing authentic learning approach was developed through this study. This study had identified and evaluated the effects of mediator variables and moderator variables on the study constructs. The research design is mixed method approach. In total there are five objectives to be achieved in this study. Constructs and research instruments were constructed based on a review of the literature on previous competency theories and models, the results of the analysis of focus group interviews and expert panel evaluation. The developed instrument was used for data collection from primary school teachers in Perak (n = 565) with a response rate of 52 %. Structural Equation Modelling (SEM) statistical testing through IBM SPSS Amos software was used to analyse the main statistics of this study to obtain parameter estimates and model testing which in turn will produce a proposed model that meets the specified fit index. The main findings of the study have successfully identified that Assessment Knowledge (ASK), Curriculum Knowledge (CUR), Classroom Management Skills (MAN), Communication Skills (COM) and Teacher Sensitivity (TES) are the main factors influencing the Professional Commitment (PRO) and Authentic Learning Competency (ALCoM) significantly. The overall SEM analysis had identified that the variables ASK, CUR, MAN, COM, and TES accounted for 66% of the variance for PRO and 73% of ALCoM. The study had also identified that PRO acted as mediator variable between ASK, CUR, MAN, COM, TES and ALCoM. Gender and Work Experience constructs were the moderating variables in this study. In conclusion, this study has been able to identify the components involved in developing the competency model implementing the Authentic Learning approach amongst the primary school teachers, which can support the process of instilling 21st Century Skills contextually in line with the requirements of the Malaysian education system. The development of the competency model can serve as a constructive guide to policy makers, MOE and other stakeholders to intensify the development of professional teaching competencies and further increase the level of knowledge, skills and values needed by primary school teachers to implement Authentic Learning approach based on ALCoM Model.

PEMBANGUNAN MODEL KOMPETENSI UNTUK GURU SEKOLAH RENDAH MELAKSANAKAN PENDEKATAN PEMBELAJARAN AUTENTIK

ABSTRAK

Sebuah model kompetensi bagi guru-guru sekolah rendah melaksanakan Pembelajaran Autentik telah dibangunkan melalui kajian ini. Kajian ini telah mengenalpasti kesan pemboleh ubah mediator dan pemboleh ubah moderator ke atas konstruk kajian. Rekabentuk kajian yang digunakan adalah pendekatan rekabentuk kaedah bercampur. Secara keseluruhannya terdapat lima objektif yang perlu dicapai dalam kajian ini. Konstruk serta instrumen kajian telah dibina berdasarkan tinjauan literatur terhadap teori serta model kompetensi dari hasil analisis temubual kumpulan fokus serta penilaian panel pakar. Instrumen yang dibina digunakan untuk mengutip data utama kajian daripada guru sekolah rendah di Perak ($n=565$) dengan kadar maklum balas sebanyak 52 %. Ujian statistik *Structural Equation Modelling* (SEM) melalui perisian IBM SPSS Amos telah digunakan untuk menganalisis statistik utama kajian bagi mendapatkan anggaran parameter dan pengujian model yang seterusnya akan menghasilkan model cadangan yang memenuhi indeks fit yang ditetapkan. Dapatan utama kajian telah berjaya membuktikan bahawa Pengetahuan Pentaksiran (ASK), Pengetahuan Kurikulum (CUR), Kemahiran Pengurusan Kelas (MAN), Kemahiran Komunikasi (COM) dan Kepekaan Guru (TES) adalah faktor utama yang mempengaruhi konstruk Komitmen Profesional (PRO) dan konstruk Kompetensi Pembelajaran Autentik (ALCoM) secara signifikan. Analisis SEM keseluruhannya telah membuktikan bahawa pemboleh ubah ASK, CUR, MAN, COM dan TES menyumbang 66% varians bagi konstruk PRO dan 73% kepada konstruk ALCoM. Kajian juga membuktikan bahawa PRO adalah pemboleh ubah mediator antara ASK, CUR, MAN, COM, TES dan ALCoM. Konstruk jantina dan pengalaman bekerja merupakan pemboleh ubah moderator di dalam kajian ini. Kesimpulannya, kajian ini telah dapat membuktikan komponen yang terlibat dalam pembinaan model kompetensi guru bagi melaksanakan pendekatan Pembelajaran Autentik, yang dapat menyokong kepada peneguhan Kemahiran Abad ke 21 secara kontekstual seiring dengan kehendak sistem pendidikan di Malaysia. Pembangunan model kompetensi dapat berfungsi sebagai panduan konstruktif kepada penggubal dasar, KPM serta pihak berkepentingan lain untuk memperhebatkan pembangunan kompetensi profesional keguruan dan seterusnya meningkatkan tahap pengetahuan, kemahiran serta nilai yang diperlukan oleh guru sekolah rendah bagi melaksanakan Pembelajaran Autentik.

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LIST OF ABBREVIATIONS

AGFI	AGFI Adjusted Goodness of Fit
ALCOM	Authentic Learning Teacher Competency Model
ALCOS	Authentic Learning Teacher Competency Scale
AMOS	Analysis of Moment Structures
ANOVA	Analysis of variance
ASK	Assessment Knowledge
CB-SEM	Covariance based- Structural Equation Modelling
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CMIN/DF	Chi Square/Degrees of Freedom(χ^2/df)
COM	Communicative Skill
COT	Content Knowledge
CUR	Curricular Knowledge
CVI	Content Validity Index
EFA	Exploratory Factor Analysis
EPRD	Educational Planning and Research Division (Bahagian Perancangan dan Penyelidikan Dasar Pendidikan)
Gen	Gender
GFI	Goodness of Fit Index
GOF	Goodness of Fit
IBM	International Business Machines
ICT	Information and Communication Technology
I-CVI	Item-Content Validity Index



IR 4.0	Industrial Revolution 4.0
MAN	Classroom Management Skill
MEBP	Malaysian Education Blueprint
MoE	Ministry of Education
MTEP	Malaysian Economic Transformation Programme
NED	Number of From Each District
NFL	Normed Fit Index
OECD	Organisation for Economic Co-operation and Development
PPPM	Pelan Pembangunan Pendidikan Malaysia
PRO	Professional Commitment
PS	Population Size
RMSEA	Root Mean Square of Error Approximation
RR	Response Rate
RS	Research sample
SD	Sampling According to District
SED	Sensitivity Towards Diversity
SEM	Structural Equation Modelling
SGM	Malaysia teacher Standard
SPSS	Statistical Package for the Social Sciences
SRMR	Standardised Root Mean Square Residual
SS	Sampling Size
TE	Teaching Experiences
TES	Teacher Sensitivity
TLI	Tucker-Lewis Index





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CHAPTER 1

INTRODUCTION

Technology is always evolving, and this, combined with the changing nature of work, has produced an atmosphere in which even pros and specialists are trying to catch up as rapidly as possible. Significant developments are having a direct impact on the types of talents that employers are looking for in job applicants. As a result, additional pressure is placed on students at school, which has an impact on how schools handle teaching and learning activities. Conventional learning together with rote learning is a thing of the past. We are now witnessing a paradigm shift in learning methods at school.

Though it is difficult for us to predict the technologies of the future but we can prepare our students by instilling fundamentals skills that are needed by them to survive in these changing times. They will require 21st-century talents. These abilities are



referred to as transferrable soft skills since they may be used in a variety of situations to aid in the mastery of more technical abilities.

In today's world, learning, reading, writing and arithmetic are not enough to sustain our education system, which was designed for an economy and society that no longer exists. Students require 21st century competencies that, unlike the software or technologies they use, will not be obsolete in the next twenty years. Conversely, developed 21st century skills will last a lifetime.

In the twenty-first century, knowledge is becoming more specialised and rapidly expanding. As a result, many changes in the social, economic, political, and technological areas have occurred from the growth and transmission of knowledge.

These shifts have an impact on education systems, as well as the necessity for individuals to adjust their knowledge, skills, and abilities (Arpaci & Cansoy, 2018). People's ability to adapt to rapid change and transition should be taken into account. A set of abilities labelled "21st century skills" begins to emerge at this point. Collaboration, problem-solving, the use of digital tools, and the use of language, symbols, and texts are among the OECD's list of 21st-century skills and labelled as the necessities of the 21st century education.

There are many connotations of 21st century skills, but fundamentally it has come down to three categories: Learning Skills, Literacy Skills and Life Skills. Information is represented and presented via learning skills. Creativity, critical thinking, cooperation, and communication are some of the most well-known examples. The development of thinkers and well-informed research is aided by literacy skills. It





allows students to gain the ability to evaluate and process new information. Life skills will create students that can adapt to new situation, efficient, have leadership quality with good social skills.

It is critical to emphasise 21st century learning abilities in our students if they are to be successful in the future workforce. Malaysians require students who can think critically, solve problems, and apply classroom learning to the actual world. It is high time for Malaysians to realize that obtaining good grades is not a guarantee for job position in a workforce nowadays. Unfortunately, many of our students are entering the world of work without the knowledge of bridging their learning to real life situations that later causes graduates employability issues since a decade ago in Malaysia. Students are intended to gain real-world experiences through authentic learning activities. In order to bridge the gap between the complexity of real-life situations and classroom learning, it is crucial to give students access to actual environments (Hui & Koplin, 2011). This method of instruction, which enables students to engage in actual work utilising genuine resources and equipment, also enables students to think and behave like experts while addressing genuine issues (Herrington, Parker & Boase-Jelinek, 2014). It gives students the chance to conduct research and advance their education. Students participate in the real learning process and gain knowledge via doing (Aina et al., 2015). According to Yeen-Ju, Mai, and Selvaretnam (2015), authentic learning practises build learning environments that not only connect students to real life but also increase student engagement.





As a result, a passive learning environment with traditional pedagogy that prioritizes memorization over deep mastery makes it difficult to transfer learning to the job (Christmas, 2014). Students require teachers who can deliver information that is accurate, timely, stimulating, and relevant to their needs. They appear to be more motivated when exposed to an Authentic Learning setting that is similar to their real-life circumstances (Stanculescu, 2013). However, it has been extremely difficult to put into action. must be prepared to face the challenges of 21st century education (Chavan & Yoshikawa, 2013; Kim, Raza & Seidman, 2019; Pianta et al., 2009).

The traditional teaching pedagogy taught in schools which is commonly seen in real life have created a scenario where problem solving context is taught by separating the knowing from doing (Hui & Koplin, 2011). This makes it difficult for our students to apply what they've learned in class to real-world scenarios, and they're unfamiliar with the type of environment they'll be working in later in their careers. Thus, Authentic Learning approach in classrooms is seen ideal in overcoming these issues and later emphasizing 21st skills among the students to allow them to perform in the Industrial Revolution 4.0 (IR 4.0).

Instructional designers can integrate conceptual, strategic, and conditional knowledge to real-world activities by using authentic learning challenges in real-world contexts (Herrington & Parker, 2013). Students can be helped with these contextual activities in a variety of methods, including encouraging collaborative knowledge development, encouraging reflective practise, and using instructor-imposed coaching and scaffolding processes (Ertmer & Cennamo, 1995; Nacu et al., 2018; Sharma & Hannafin, 2004; Stefaniak, 2017). Authentic learning exposes students to contextual



aspects that may aid or hinder performance. Contextual variables pertinent to the topic content and current developments in the field guide these experiences. As a construct in this paradigm, contextual analysis provides for a more in-depth assessment of how the student responds to a variety of contextual circumstances that may influence their application of conceptual, strategic, and conditional knowledge (Sentz & Stefaniak, 2019).

Therefore, two important policy documents have been developed, Malaysian Economic Transformation Programme (MTEP) which was validated in 2010 and the Malaysian Education Blueprint 2013-2025 ratified in 2013 to transform Malaysian education system to face the global economic and social challenges by preparing future curriculum for the students. The Malaysian Education Blueprint (2013-2025) had promoted activities that includes thinking and decision making among students to familiarize them with their future workforce (Ministry of Education, 2017).

These two policies originated from the need and quest for high quality education system that will allow its citizen to be a power to be reckoned with in the global landscape in order to produce worthy students, they must be able to adopt professional roles that simulate real-life situations in attempt to optimise knowledge transferability.

Our teachers must adapt their teaching methods to turn our students into more active participants in the classrooms and to fit the needs of the MEBP (2013-2025) Teachers must be able to integrate essential features of the 21st Century Learning environment in their teaching. Our educational system must focus on improving life skills. Students must be taught how to acquire knowledge on their own and how to work



in ways that allow them to generate new ideas. The Authentic Learning approach is one method for activating our students in the classroom to be functional in that nature.

As a result, our teachers' classroom duties must change from sage on the stage to guide on the side. They must be able to engage students in studying by making the learning atmosphere more conducive (Zain, 2017). Teachers who are creative and innovative are the key players in preparing our students to face challenges in their future workplaces and raising awareness about the nature of the Fourth Industrial Revolution (IR 4.0).

Teachers must be able to teach to prepare future ready students. It can be done by preparing them for a workforce of tomorrow, teaching them to teach themselves, and highly adaptable in an ever-changing world. The curriculum, pedagogy and assessment that are carried out in the classroom must be based focusing on the ability of the students to leave the education system with polished work place readiness. Learning must be more personalized and authentic. It involves the process of empowering them and tailoring the content to fit individual students and allowing them to take ownership of some aspects of their learning.

Learning can only be authentic if it connects the learner to their environment. According to Pearce (2016), any experiences that do not motivate students to create meaning from their learning are quickly forgotten. Learning authentically happens when teachers can integrate the outside world together with the classroom and later allowing students to reflect the knowledge and skills gained through this method (Bektaş & Horzum, 2014; Aynas, 2018). Authenticity in the classroom is required for



21st-century students to master 21st-century learning skills. When students apply what they've learned in school to real-life problems, events, or applications, they're engaging in authentic learning. Real-life complexity and ambiguities should be reflected in the classroom.

Teachers must be able to integrate curriculum, instruction, and assessment approaches that instil 21st-century abilities to prepare students for the upcoming challenges. Teachers are responsible to apply a personalized, flexible and consistent approach while teaching to incorporate 21st century skills. Students must be able to comprehend the significance and complexities of the issues that surround them. Teachers must be able to deliver high-quality academic content while also incorporating elements of deeper learning and incorporating authenticity into their teaching and learning strategies. As a result, the primary goal of this study is to identify the competencies needed by modern teachers to deliver lessons using an Authentic Learning approach based on future curriculum, instructions, and assessment methods in order to integrate 21st-century skills among students and create a future-ready workforce.

Students must be able to communicate, produce, and apply information to solve challenging problems, as well as command and increase the power of technology to build new knowledge, in order to prosper in today's society (Ledward & Hirata, 2011). Providing prospective teachers with both online learning competency and teaching skills using digital technology is critical in the context of 21st-century competencies during the teacher training process (Cooper et al., 2020).



1.2 Problem Statement

Higher Order Thinking Skills (HOTS) refer to three skills that are at the fourth, fifth, and sixth levels in Bloom's Taxonomy, which are analysis, synthesis, and evaluation (Othman & A.Y Kassim, 2017). In addition, Higher Order Thinking Skills also refers to a person's ability to apply knowledge, skills and values in reasoning, reflection, problem solving, decision making, innovation and creating something new (MoE,2013).

According to Karim & Puteh (2019), Higher Order Thinking Skills is one of the important aspects that need to be paid attention to in the context of teaching and learning. This is because, it allows a student to apply critical, logical, reflective, and creative thinking skills. In addition, Higher Order Thinking Skills also allows students to be more imaginative, innovative, and creative and also allows analysing, evaluating, and making innovations in solving problems that occur in real life. Higher Order Thinking Skills among students is one of the aspects that is given attention in student aspirations as stated in PPPM 2013-2025. In order to achieve these aspirations, various transformations have been carried out, including the implementation of the Primary School Standard Curriculum (KSSR) to replace the Primary School Integrated Curriculum (KBSM) in 2011 (Karim & Puteh, 2019).

The 21st century teaching and learning method requires teachers to face the challenges of the Malaysian education curriculum. Approaches, strategies, methods and teaching techniques that are being carried out must be centred in developing Higher Order Thinking Skills and also student-centred teaching (Raja Abdullah Raja Ismail &





Daud Ismail, 2018). They are required to produce students who are balanced, resilient, curious, principled, have Higher Order Thinking Skills and communicate with to be effective, students should be provided with the skills and competencies of the curriculum. Teachers must be highly committed in producing students who has Higher Order Thinking Skills to become the human capital market of the future.

In Malaysia, the Malaysian Education Blueprint (2013-2025) have outlined various strategies that have been planned by the government over a period of 13 years to improve the quality of education in Malaysia, further ensuring Malaysia's success in facing the challenges that exist in the 21st century (Othman & Puteh, 2019). This coincides with the 21st century learning principles that requires students to have Higher Order Thinking Skills (Ichsan et al.,2019).




Teachers play an important role in ensuring that student aspirations as stated in PPPM 2013-2025 can be realized. This is because, in addition to being the backbone of the education system, they are also the initiators of the policies and goals set by the government through the Malaysian Ministry of Education. Therefore, in the process of instilling 21st century learning skills, they are responsible for ensuring that these elements are applied to encourage in depth thinking activities among students (Sulaiman,2017) and the effectiveness of learning is influenced by how well they can implement Higher Order Thinking Skills during the teaching and learning processes.

Unfortunately, these teachers are facing difficulties in instilling these Higher Order Thinking Skills in their teaching and learning activities. The amount of workload that they are currently facing at schools are effecting their effort in implementing 21st



century skills. They are rushing to meet the deadline of finishing the syllabus and it had resulted in giving less attention to the teachers' efforts in implementing Higher Order Thinking Skills in their classroom (Hassan et al., 2021).

Instilling Higher Order Thinking Skills in the classrooms is emphasized in the transformation of the Malaysian education curriculum through PPPM 2013-2025. It aims to produce a creative and critical generation. However, students in Malaysia are still found to be weak in mastering high-level thinking. This also happens among teachers. Although, throughout the implementation of Higher Order Thinking Skills in Malaysia through trainings and workshops have been carried by the State Education Department, District Education Department and in schools, but the mastery of Higher Order Thinking Skills among students has not yet reached a satisfactory level

 05-4506832 (Mohamad Zaidir Zainal Abidin & Kamisah Osman, 2017). This happens due to the lack of integration of teachers' thinking skills during the teaching and learning processes.

Teaching and learning practices that involves Higher Order Thinking Skills at a low level (Norlaila & Md. Nasir, 2019). This is because, a teacher's knowledge about the concept of Higher Order Thinking Skills is very important because it will affect the effectiveness of the teacher's teaching and learning for the students (Nor Laila & Md Nasir, 2019).

The implementation of 21st century skills are highly dependent on the readiness of teachers. A study conducted by Farah Aziana Abdul Aziz and Fadzilah Abd Rahman (2018) had found that most teachers are still not ready to implement Higher Order



Thinking Skills in teaching due to the lack of exposure on how to integrate it in their daily teaching and learning practices and the amount of workload that these teachers are facing. Wan Nor Shairah Sharuji and Norazah Mohd Nordin (2017), also explained that teachers are less prepared to instil Higher Order Thinking Skills in the teaching and learning processes due to the lack of exposure to 21st century learning skills teaching methods and pedagogy. Therefore, the readiness of teachers in the implementation of Higher Order Thinking Skills is important in enabling the students to master the much needed thinking skills.

Conventional methods centred on teachers does not encourage students to give their own opinions in the learning process even though it is most likely that they have existing ideas and information in themselves based on life experience or observation



(Nor Azilah et al., 2017). Teaching and learning activities nowadays require teachers

to always keep up with the use of media as teaching aids to ensure knowledge can be delivered smoothly and effectively (Mohd Amin, Mohd Faez, Kalthom, Muhammad Syakir, & Murihah, 2016). Emphasis on mastering 21st century skills in the teaching and learning should start by applying the elements of 21st century skills in the teaching and learning processes (Ainun Rahmah, Zamri & Wan Muna Ruzanna, 2017). Any teaching and learning that is carried out without involving students in learning activities will cause them to become inactive throughout the lesson.

Teachers are facing difficulties with student readiness in learning Higher Order Thinking Skills, where the level of student knowledge to some extent affects the smooth implementation of Higher Order Thinking Skills elements that needs to be implemented during the teaching and learning session. Higher Order Thinking Skills is important for





students to master because according to Anggraini et al. (2019), it is a thinking skill that is activated when an individual faces problems, uncertainties, questions, and dilemmas in which the situation stimulates a person to think systematically and more rationally. This is because, in facing the challenges of the 21st century and the era of industrial revolution 4.0 that the world is currently facing, systematic and planned problem solving skills are essential for every individual.

Without Higher Order Thinking Skills and 21st learning elements students will have to face the consequences of lacking in a first-class mindset and competing at the global level. These students will be seen not resilient and unable to become thinkers, communicate eloquently and work in a team. Failure of producing students who are curious, principled, informative, caring and have a patriotic spirit towards the nation.



Students will be seen failing in being critical and creative and therefore, the nation will have issues to produce people who have characteristics of a leader and , failure to produce people who have critical and creative thinking skills, failure to produce people who have the characteristics of a leader and achieve student aspirations as stated in the Malaysian Education Development Plan 2013-2025. (MEDBP, 2013-2025)

Based on the study of Norulbiah and Effandi (2016), students' attitudes towards problem solving and the ability to solve problems given during teaching and learning process are at a moderate level where students are found to be easily discouraged when they cannot solve any given problems and become engaged during that learning process. This means that students are having negative attitude towards questions with Higher Order Thinking Skills element. In addition to having a negative attitude towards 21st century learning skills, previous studies have also confirmed that students are less





prepared in getting involved in any activity that implements Higher Order Thinking Skills (Kusaeri et al., 2019; Maharani et al., 2019). These findings confirmed that the attitude and readiness of students towards the learning in an environment instilling 21st century skills are still not reached a satisfactory level for them to master those skills. This gives rise to the need to assess the current state of students' attitude and readiness towards the implementation of Higher Order Thinking Skills in the teaching and learning practices.

Raja Abdullah and Daud (2018) had stated that aspects of time constraints, uncondusive classroom environment and teachers' understanding of Higher Order Thinking Skills are problems that are faced by teachers during the 21st century education era. A study conducted by Nurul Nadirah and Muhamed Yusof (2018) found that teachers are still implementing teacher-centred teaching and learning activities. Issues occur when teachers are not expert in technology and communication skills, and teachers cannot accept changes in the latest education system. Weaknesses in teachers' teaching are caused by the teaching strategies used (Norazlin & Siti Rahaimah 2019).

The Malaysian Ministry of Education (KPM) has made various efforts to help teachers to introduce 21st century learning skills to all teachers across the country, whether through organizing courses, workshops, webinars and also publications about those skills. This effort is aimed at making teachers more prepared to implement 21st century skills in their teaching and learning activities. Some studies have reported on readiness of teachers implementing these skills in our country, however, this study reports that the level of teacher readiness to instil Higher Order Thinking Skills in the





classroom is at a moderate level as per to Nor Hazizah and Aniza (2019) and Norazlin (2018).

Similarly a report in 2018 by 115 head coaches from the State Education Department (JPN) indicated that of the 1476 teachers surveyed, 1077 (73%) achieved only the “minimum good” level in teaching, with only 399 (27%) achieving the “excellent” level. These findings show that most teachers are still comfortable practicing a teacher-centred teaching style. This is also similar to a study by Nor and Kamarudin (2017) explaining that most teachers are more interested in implementing traditional, passive teaching strategies compared to new pedagogies that emphasize student involvement.



overall concept of Higher Order Thinking Skills through 21st century learning method is still not clearly understood by teachers from the perspective of planning and implementation. 21st century teaching is often associated with the use of information and communication technology (ICT) (Faridah Nazir et al., 2016).

In Malaysia, various efforts have been made by the MOE to produce quality teachers that adheres to 21st century learning concept. The application of these elements of the 21st century skills can achieve through the Malaysian Education Quality Standard 2 (SKPMg2) with particular attention to Standard 4 (MoE. SKPMg2,2017). The outcome of the standard is promoting active student engagement and producing competent and highly motivated teachers. It requires highly competent teachers to be able to teach according the standards prepared by the Ministry.





Chouhan and Srivastava (2014) explain that competence is a crucial characteristic of how a person behaves or thinks in different situations and adapts to the changing times. Attributes of expertise are a combination of knowledge, skills, and abilities that translated through specific behaviours in completing a task or position. According to Spencer and Spencer (1993), competence is acquired through either work experience, life experience and can be learned or practiced. Therefore, competence formulated as a set of knowledge, skills, personal characteristics, and ways of thinking of a teacher in performing the tasks efficiently and effectively according to current demands. What matters is that are these skills or competence can be learnt and upgraded according to current needs.

Thus, 21st century skills implementation mechanisms need to be refined and applied by teachers to improve their competence. This situation has a massive impact on the teaching and learning process. Teachers' ability to use 21st century skills based teaching has successfully increased student motivation and engagement in developing these skills (Arbaa et al., 2017). However, large class sizes, lack of teaching and learning facilities and a less conducive environment are vital challenges for teachers in implementing 21st century skills based teaching (Radzi et al., 2018 ; Ismail et al., 2018). The weakness mentioned above is something that never solved until now. If this phenomenon persists, it is unlikely that teachers will be able to demonstrate high self-esteem in developing 21st century skills.





The 21st century has changed all aspects of human life. The various challenges that need to be addressed are the effects of globalization, liberalization, and the development of ICT. Among the significant challenges of the national education system to produce highly skilled Malaysians in various fields through dynamic learning spaces (Buletin Anjakan, 2015). In this regard, Partnership for the 21st century has developed the P21 Framework Definition as an effort to help teachers integrate 21st-century skills in teaching, as a competency model.

Undeniably, the quality of the education system depends on the quality of the teachers who manage it. This statement shows that teachers play an essential role in the success of any educational program, including influencing student learning at a higher level. Teachers are also vital to economic success and education sustainability based on 21st century skills (Friedman, 2017). But it's not an easy task. The process of understanding the concept of Higher Order Thinking Skills is very complex and requires high levels of competence among teachers. In addition to mastering the curriculum, teachers should have robust and empathic teaching skills and be able to learn current technology skills (Omar et al., 2019). Especially when we are dealing with Education 4.0 which is a response to the requirements of IR 4.0 (Hussin, 2018). According to Fisk (2017), in the new style of learning, students must not only know the skills and information, but also find a source from which they may obtain these skills and knowledge.

The credibility and success of 21st-century learning in producing scholars requires special studies to be documented as evidence. According to Abdullah et al. (2017), Philippe (2018), and Palmer and Johansson (2018), the success of curriculum



and education is when, students can solve problem-solving on a regular or non-routine question, applying concepts and building relationships among them, selecting appropriate skills to higher-order thinking skills and tasks. Besides, students must be able to demonstrate their creative and critical thinking skills at a higher level (Philippe, 2018; Su et al. 2016).

Therefore, The Malaysia National Education Blueprint, (MNEB 2013-2025) has been introduced with six key milestones and 11 moves that are seen as underpinning the reform of the education curriculum in Malaysia (MOE, 2013; Jamil et al., 2017). The industrial revolution 4.0 has brought about changes in the education system. The goal of education is to transform individuals who can compete globally with mental strength and knowledge (Philippe, 2018; Tamuri & Hussin, 2017; Warner & Kaur,

The discontinuation of the Ujian Penilaian Sekolah Rendah (UPSR) exam, as stated by Education Minister Datuk Dr. Mohd Radzi Md Jidin, is a step toward ensuring that the present generation of students may take advantage of a world-class educational system. It is the first change in the Malaysian Education Blueprint, which is nothing new (2013-2025). The abolishment enables the teachers to really consider in thinking about each students' potential and talents, where it needs to be developed in accordance with the educational needs of the 21st century and the country towards IR 4.0 (Industrial Revolution 4.0).

Teachers must be retrained to present material in an interesting way in order to do this. They must refer to a primary education model that is more comprehensive, engaging, and tailored to the needs of the student by utilising the personalised and experiential learning strategy that will be able to implement meaningful learning method in the classrooms. Teachers must also be able to create content specifically for Malaysia and support primary school students' holistic development, which will prepare them for higher education.

Alternative assessment methods must be considered rather than just focusing on paper pencil assessment method. These alternative assessment must be done as authentically as possible to really nurture and develop students' Higher Order Thinking Skills. While studies by Lim, Wun & Chew (2014) and Sivapakkiam et al. (2016) have noted the lack of assessment literacy skills among Malaysian teachers, it is also noteworthy to note the difficulties that teachers encountered when creating high-quality assessments. According to Wirawani and Wirawahida (2016), teachers acknowledged that the school based assessment evaluation tools are insufficient for fostering students' Higher Order Thinking Skills.

Education system must be oriented towards the future, where it need combinations of skills and competencies that will go aligned to the 21st century educational policy. Changes must be made to prepare the students facing the unknown territory of tomorrow. The territory where students will have to perform in the Fourth Industrial Revolution 4.0 (IR 4.0). The Fourth Industrial Revolution 4.0 (IR 4.0) has arrived and changed our lives forever. It had resulted in a slew of substantial changes in developing economies, especially in the labour sector. The Malaysia Education

Blueprint for Higher Education 2015-2025 addressed the issues of the Fourth Industrial Revolution (IR 4.0). Therefore, in order to be future-ready workers, students need 21st-century abilities.

Graduate employability is likewise a concern in Malaysia. In 2019, close to 60% of fresh graduates (first degree and above) failed to gain employment within a year of graduation (D'Silva, 2020). An annual report published by Bank Negara Malaysia revealed a considerable mismatch between supply and demand as the number of diploma and degree holders had increased annually from 2010 to 2017 with the figure surpassing the number of high-skilled workers that were being employed (Murugasu, Hakim & Yau, 2019). The report highlighted the need to create more high-skilled work positions as a means of addressing or mitigating this imbalance between supply and demand.

Malaysia had a 3.2 percent unemployment rate until October 2019, with 512,100 unemployed people (DOSM, 2019c). In 2018, the unemployment rate is 514,200 (3.3 percent). The unemployment rate fell by (0.1 percent) in 2019 compared to 2018 (Shakur et al., 2020). In contrast, even while the ratio of job vacancies to job seekers for university and college graduates is improving, it is still deemed poor. Yelasmachili (2018) have stated that critical thinking is one of the employability skills required by students in order to build more competitive teamwork within an organisation. Students in the school now must be able to perform according to what their employers will be requesting them to be and this is creating a need to expose these students to real-life working environment while they are still at school.

Countries are investing in education on the expectation that it will contribute to their long-term economic well-being and sustainability. The problem, nowadays, is that although imperatives in the world of work have changed, education has not. The IBM 2010 Global CEO Study revealed that in the business world what is held of importance today is creativity, an ability much underestimated in the conditions of the industrialization imperative (<https://www03.ibm.com/press/us/en/pressrelease/31670.wss>, last access on December 15th, 2017).

The education system has been challenged to change its way of operating to cultivate meaningful competencies for the future workforce, such as critical thinking, problem-solving, and self-management skills including active learning, resilience, stress tolerance and flexibility (World Economic Forum, 2020). However, there is still work to be done in shifting the mindset from the traditional teacher-centred approach of filling students with knowledge (as if they were empty vessels) to more relevant, transformational, sustainable and co-creative forms of higher education (Giesenbauer & Müller-Christ, 2020; Scharmer, 2019).

Work ready skills are defined as the abilities, knowledge, attitudes, and business awareness that allow graduates to contribute effectively once hired (Priksat et al., 2018). Based on these definitions, it is possible to conclude that graduate work readiness is dependent on graduates' ability to apply their academic skills to their desired career. Many employers expect graduates to have generic skills and competences, such as problem-solving ability, communication skills, and a



commitment to lifelong learning, that will enable them to handle difficult job scenarios (Ahmad et al., 2019).

Unfortunately, Malaysian graduates have been shown to exhibit low self-confidence, poor time management, communication issues, problem solving, critical thinking, a lack of originality, innovativeness, low interpersonal behaviour, and leadership potential (Nazron, Lim, & Nga, 2017). Employers claimed that lack of a strong work ethic, teamwork, decision-making skills, communication skills, and leadership abilities were all factors that would influence graduate employment in Malaysia (Nazron et al., 2017). Malaysian graduates are currently experiencing skills gap in the IR 4.0 workplace setting (Pitan, 2017).



(Chavan & Carter, 2018). Expectation mismatches and talent mismatches are examples of mismatches. As Green and Henseke (2016) pointed out, when it comes to IR 4.0 job requirements, there is always a degree of mismatch between academic success and employment needs. An expectation mismatch occurs when there is a gap between the skills needed by employers and the skills demonstrated by graduates (Norman, Razman, Latiff, & Said, 2018). Graduate unemployment is caused by a misalignment of views between job searchers and employers (Belwal et al., 2017). In an interview with Rohit Sharma, CEO of INTI, Hsu (2015) saw a significant gap in perspective between graduates and employers, which, if left unaddressed, might lead to a massive problem of graduate unemployment.





As a result, promoting the use of an Authentic Learning approach is crucial to achieving the Malaysian Ministry of Education's goal of producing graduates with transferable skills through developing learning environments that foster creativity and critical thinking. Related to that, it is imperative to develop a competency model for these teachers to implement Authentic Learning approach in the classrooms.

Construction of instruments that is unique to the local environment based on dimensions and constructs through literature and semi structured interviews, can measure and produce insights describes the true state of the study. Therefore, the need to develop a research instrument based on the characteristics of Malaysian is a priority to identify the determining factors of teacher competencies in conducting Authentic Learning approach at schools.



Producing holistic and comprehensive research findings in determining the factors influencing the Authentic Learning Teacher Competency Model by identifying new variables that impacts the relationships on other variables is crucial. Through literature review and content analysis, there have been much research carried in the field of teacher competencies. But very few have focused on teacher competencies in the implementation of Authentic Learning approach in the classroom.

Much research that has been conducted on Teacher Competency Model have side lined the effects of the mediator and moderator variables towards the main endogenous variable. Thus, that research can only show the effect towards the relationship between the main independent variables towards the dependant variables (Alkharusi, Hussain, Kazem, Ali, Al Musawi & Ali ,2011; Guerrio.,2017; Borg, 2003;





Freeman, 2002; Van Driel, De Jong, & Verloop, 2002) as quoted in Kurt et al., (2010); Blomeke (2017), Baumert and Kunter (2013); Collie, R.J.& Martin (2016); Kabita Das (2018) ; Ansari (2013).

In addition to the influence of key factors on teacher competence, there are also other factors that influence the relationship between the major factors (Saltson & Sharon, 2015). These factors are believed to have a bearing; (1) the strength of the relationship or weakening the relationship between key factors (moderator variables), and (2) an explanation of how and why an effect or relationship exists between two variables possible change (mediator effect factor) (Baron & Kenny, 1986; Hayes & Preacher, 2014).



specific factors. It is critical to identify these effects to provide a precise and thorough explanation of the elements that influence the Authentic Learning Teacher Competency Model, particularly in the context of Malaysian education. To supplement the findings of the investigation, the study investigated the effect of mediator variables and the moderator.

Without a clear and comprehensive research on the factors effecting the model, it would be disruptive towards the government's efforts in particular the MOE in transforming the country's education system that focuses on delivering and promoting meaningful learning among students. Hence, for us Malaysian to move forward to empower our country, we need to energize our education system. Our students must get familiar with the intricacies of ill-defined real-world circumstances in order to compete



in a global labour market. The exposure to authenticity in our school system will help them deal with ambiguity and practise the higher-order thinking and sophisticated communication skills that professionals require.

1.3 Purpose of The Study

Learning had changed tremendously over the past years certainly due to demands of the 21st century learning era that involves various aspects of learning. 21st century learning at various levels has changed the practice from teacher centred to becoming student centred (Quieng, Lim, & Lucas, 2015; Sharif & Cho, 2015). The competencies required by students in 21st century learning are also changing. Previously, students were only required to memorize concepts and understand them. Students are only taught to memorize various concepts that can be learned on their own and are not contextualized to learn in class. In the 21st century learning environment, students are required to analyse problems around them and more than just memorize concepts (Chalkiadaki, 2018; Saputri, Sajidan, Rinanto, Afandi, & Prasetyanti, 2018).

Students should be taught to identify problems and solve them to show that they have gained Higher Order Thinking Skills (Baris, 2015; Copley, 2013; Heong et al., 2012; Lile & Bran, 2014; Saltan & Divarci, 2017). Since the world is currently dealing with rapid and unexpected pace of information and innovation in all fields, obtaining Higher Order Thinking Skills is arguably necessary to survive this era (Swestyani, Masykuri, Prayitno, Rinanto, & Widoretno, 2018). Higher Order Thinking Skills in the field of education play a strategic role in helping students to construct the knowledge



and information learned by students, which in turn are improving student's achievement, therefore assure that students' Higher Order Thinking Skills are positively correlated with their learning achievements (Tanujaya, Mumu, & Margono, 2017).

Higher order thinking abilities are the ability for students to assess options and ideas for making decisions (Apino & Retnawati, 2017). The ability to analyse problems, evaluate difficulties, and build arguments are all examples of Higher Order Thinking Skills. The aptitudes to separate the content into components and ascertain how the parts are connected are the elements of analysis. Organized, visible, and distinct components or sections make up the indications for the assessing aspects. The capacities to decide, to express opinions, or to judge in accordance with predetermined standards are aspects of evaluation. The domain indicators for evaluating include making judgments, conclusions, comparisons, criticisms, interpretations, and decisions.

More than 60% of 15-year-old Malaysian students who completed lower secondary school performed poorly and attained low proficiency levels in thinking skills such as understanding, reasoning, and transferring knowledge and skills learned in the classroom for application in real-life situations, according to a recent report from the Malaysian Ministry of Education (MOE, 2013). When these results were compared to 15-year-olds from Hong Kong, Singapore, China, and South Korea, they revealed that the students had more than a three-year educational gap.





The Malaysian Ministry of Education's (2013) assessment on the students' poor performance revealed that it is time for the Malaysia Education Blueprint 2013–2025 to concentrate on and emphasise the value of calculating thinking skills. Every student will master a spectrum of crucial cognitive skills, including as critical thinking, reasoning, creative thinking, and innovation, according to the Malaysian Education Blueprint (MOE, 2013). In order to develop students that are proficient in Higher Order Thinking Skills, the Malaysian Ministry of Education (MOE) has deliberated and implemented a number of curriculum reforms and innovations in teaching and learning (Yusoff & Che Seman, 2018).

In order to promote the value of mastering Higher Order Thinking Skills, the Ministry of Education has made several attempts to guarantee that these skills are ingrained throughout the curriculum, syllabus, teaching and learning methodologies, as well as the activities. Additionally, instructors were given training so they could develop Higher Order Thinking Skills before passing such skills on to their students in the classroom (Rajendran, 1999). The Ministry of Education has mandated that all teachers train students practically in addition to having a working knowledge of Higher Order Thinking Skills.

It is crucial for teachers to possess higher order thinking abilities so they can help students apply their knowledge and skills to come up with fresh solutions for challenges in their daily lives and make wise judgments (Rajendran, 2013). The division of thought into lower- and higher-order categories must be taught to students. According to Singh et al. (2018) study, teachers only had a basic understanding of





Bloom's taxonomy of cognitive processes and differentiating between lower and Higher Order Thinking Skills proved difficult for teachers.

Additionally, it was revealed that teachers struggle to introduce higher order thinking abilities and struggle to use the most effective teaching and learning techniques (Abdul Halim & Siti Muhibah, 2015). The implementation of higher order thinking abilities in the classroom is hampered by teachers' inability to develop and carry out effective procedures, strategies, and approaches for teaching them (Singh, 2017).

The teaching of Higher Order Thinking Skills in classrooms needs to be emphasised because it is crucial for students to have these abilities in today's globalised world (Malaysian Education Blueprint 2013-2025). In Bloom's Taxonomy, the steps of analysis, synthesis, and evaluation make up Higher Order Thinking Skills (HOTS). It entails achieving mastery over the earlier phases of recollection, comprehension, and application (McDavitt, 1994; as cited in Nagayar, Aziz, Kanniah, 2015). According to King et al. (2012), higher order thinking abilities include the ability to think critically, logically, reflectively, and creatively. It typically gets turned on when someone is dealing with challenging issues or unfamiliar situations. According to Abdul Aziz (2017), encouraging students to use higher order thinking abilities calls for a lot of preparation, planning, and resources.

Despite the fact that teaching Higher Order Thinking Skills is a requirement for the curriculum in Malaysia, teachers lacked the necessary training to do so (Abdul Aziz, 2017). Higher Order Thinking Skills need to be taught in the classroom. This is due to





the fact that in order to comprehend and analyse contents taught more fully, students must be able to think critically and creatively.

Teacher readiness is a process that involves the integration of the physical, mental, and emotional aspects of a teacher in carrying out an action (Nurliyana Abd Halim, 2015). A teacher who lacks preparation before teaching will certainly not be able to solve the student's confusion and even at the end of the lesson will raise more questions for the student. Teacher preparation includes teaching materials, content, extensive knowledge in pedagogy and also skills in applying high-level thinking skills. Teacher readiness is crucial in implementing Higher Order Thinking Skills among those students.



that teachers are still having problem in understanding Higher Order Thinking Skills in the Malaysian education curriculum. The teacher's level of understanding, which is low certainly has an impact on the students' level of Higher Order Thinking Skills in schools. It had been found that teachers are still finding it difficult to implement Higher Order Thinking Skills in school. For teachers to be ready in implementing Higher Order Thinking Skills, they must have the knowledge, skills and a positive attitude towards it.

Higher Order Thinking Skills refers to pedagogic knowledge, knowledge of appropriate teaching strategies, content knowledge, knowledge of student abilities and knowledge of concepts, elements, advantages and methods used to cultivate those skills among the students (Siti Mariam Zazam & Kamisah Osman, 2018). Skill means





training to do something efficiently, smoothly and cleverly (Vespanathan, 2015). The diversity of teachers' techniques in creating new ideas, implementing and communicating with students effectively with the aspect of creative thinking is very important in the teaching and learning process (Ahmad, N.L et al., 2018) Attitudes are divided into three main components which are cognitive (ideas and beliefs), affective (feelings and tendencies), and behavioural (actions and responses) (Padmanaban et al., 2017).

Particularly, when compared to traditional teacher-centred learning, giving students the opportunity to engage with challenging learning material through student-centred, collaborative, multimodal strategies greatly improves student learning (LoPresto & Slater, 2016). Additionally, the employment market of today demands the possession of 21st century talents, such as the capacity for communication, collaboration, critical thought, and creativity (Dede, 2010). In order to prepare students for entry into one of the most competitive and diverse economic marketplaces to date, it is crucial to equip them with 21st century capabilities (Ali, 2017; Casner-Lotto & Barrington, 2006; Dede, 2010; Ghaffar zadegan et al., 2014; Maddux et al., 2014; Saavedra & Opfer, 2012). Although active learning is more successful, issues might develop when students' opinions of active learning approaches change for the worst during the course of a learning period as the novelty wears off (McDougall, 2013; Nguyen et al., 2016; Cooper, Downing & Brownell, 2018).

The learning strategy is a unique technique or method that the instructor uses to arrange the students, materials, methods, media, tools, and time in order to effectively carry out the learning process (Ragin, G. et al., 2020; Santosa, D. S. S et al., 2020). In



order to ensure that the learning process proceeds smoothly, teachers must follow patterns or sequences that are deliberate and methodical (Jovanovic et al., 2017; Rosari, I, 2019). Putting into practise a learning technique that nevertheless allows for successful learning (Cleveland et al., 2017; Hasan, M. S. R & Chumaidah, N, 2020).

We are ensuring that our country is future-proof and has a workforce that is agile and flexible by moving away from an education system based on memorization to one that enables our children to improve their cognitive and Higher Order Thinking Skills today. This way, the next generation will be able to develop their core skills when it matters the most. Our primary school students will be able to improve their fundamental abilities and excel in their education through this customised teaching and learning strategy, supported by management and assistive tools.

Meanwhile, one of the elements of intrinsic motivation and a reason why students may like learning is interest. It differs from other forms of entertainment in that interest is constantly focused on a particular thing, activity, subject of study, or objective (OECD, 2016). Interest is a powerful motivator, and emotional tension indirectly aids memory functions and significantly facilitates learning. The desire to learn is a crucial component of education (Cheung, 2018). Learning results will be affected since it will increase students' interest in learning (Kayalar & Ari, 2017; Lin & Huang, 2016). Learning interest develops through time as a result of experiences, behaviours, and participation in learning rather than suddenly or arbitrarily (Nugroho, 2020). Instilling interest in learning among students has become quite difficult among teachers nowadays. They have to be exposed to a learning strategy that is meaningful



and relatable to their daily lives experiences. It can be done through authentic learning approach.

Graduate employability has been a problem in Malaysia for more many years. According to a research conducted by the Malaysian Department of Statistics, there were 170,300 graduates without jobs in 2019, an increase of 5.5% from the previous year (161,300). Graduates who were still looking for work made up 74.8% of all unemployed graduates (127,400). Furthermore, 29.5 percent (37,500) of the active unemployed graduates had been out of work for three to six months, while 51.6%, or 65,700, had been unemployed for less than three months. But among them, 10.9 percent (13,900) had been jobless for six months or less than a year, while 10.1 percent (10,300) had been jobless for more than a year.



Graduates now face greater competition as a result. It has been found that a graduate's employability does not necessarily depend on having high grades (Azmi, Hashim, & Yusoff, 2018). In addition, it has been claimed that students lack some hard skills, such as technical knowledge, difficulty applying knowledge, and English communication skills, as well as soft skills, such as the ability to solve problems and communicate (Hanapi & Nordin, 2014).

From the perspective of employers, they need graduates with multiple skills who can multitask and perform any work that is assigned to them, including ones that they have never encountered or learned in university. Employers look for particular employability abilities in graduates based on the type of work and scope of the job market (Lim, Teck, Ching & Chui, 2016). Employers prefer individuals that can adapt





to every condition in the workplace, as seen by this quote. This condition will have a major impact on job performance, according to Rosenberg, Heimler and Morote (2012). Hossain et al. (2018) claimed that graduates exhibit poor performance and a lack of employability skills. According to reports, a sizable portion of Malaysian companies have a negative opinion of graduates, stating they lack the knowledge and credentials required for the industry.

As a result, there are numerous crucial issues that must be addressed in order to improve the calibre of graduates and hence potentially solve the problem of our graduates' employability. To generate graduates that are holistic, these qualities—such as an entrepreneurial orientation, university traits, and a learning orientation—must be modelled simultaneously. These qualities are crucial for improving graduates' employability. This is due to the importance of the university's role in providing students with motivation or support in ensuring that they are persistently working to advance academically. By offering cross-curricular courses along with specialised training, universities may be able to assist students in improving their opinions, competence, confidence, and self-esteem (Iglesias-Sánchez et al. 2016).

Graduates must be given the opportunity to gain early work experience, and they must also receive the necessary training and encouragement to begin working as soon as possible. This is crucial since it will broaden their perspective on the events and changes that are occurring in today's industries. Graduates are regarded as the foundation of our nation. They will arm themselves with the knowledge necessary to compete and survive in this era of IR 4.0, when technology is changing quickly, when they are properly guided and concerned about their future. It is crucial that our



educational system incorporate the 4C characteristics and talents. These four skills include communication, teamwork, creativity, and critical thinking and problem-solving (Hwa, 2016).

The quality of education will be improved when the quality of teachers in schools are improved. , being the primary implementers of education, teachers bear a significant burden in achieving that goal. Too many changes are happening in the curriculum constantly that requires teachers to adapt and always evolving in creating a learning environment that is more relatable and meaningful to the students. As a result, this research is being conducted in order to establish a competence model that will lead teachers in mastering the sorts of information, abilities, and attitudes required to help improve their competency in conducting lessons using an Authentic Learning approach.

It will be easier for teachers to nurture Higher Order Thinking Skills among the students for them to perform in the future workforce.

The logic of our educational systems should be flipped so that the system conforms to the students instead of the students conforming to the system. For the students, this is the essence of Authentic Learning. The importance of a student's voice cannot be overstated. To improve knowledge transferability, students must learn to act like experts by simulating real-life scenarios. Students are encouraged to think critically, acquire 21st-century learning abilities, and apply what they've learned in class to real-world circumstances when they use strategy. Developing 21st-century skills necessitates the identification of a set of knowledge, talents, and attitudes that will assist in providing an Authentic Learning approach in the classroom.

Therefore, this study had also been carried out to identify the independent constructs (Knowledge, Skills and Attitude), dependant constructs (Teacher Competencies), mediator variables (Professional Commitment) and moderator variables (Gender and Working Experience) and the relationship between those variables in the development of the Authentic Learning Teacher Competency Model that will be used in guiding the teachers to apply Authentic Learning in our Malaysian classroom.

1.4 Research Objectives

This research is carried out to develop Teacher Competency Model that will help the teachers to prepare themselves in inculcating authenticity in their lessons and an Authentic Learning Teaching Scale to help to determine their Authentic Learning teaching self-efficacy. Hence the objectives of this research are:

- a. To develop an instrument or scale to measure the constructs affecting Teacher Competences in implementing Authentic Learning.
- b. To assess the relationship between the exogenous constructs (Assessment Knowledge, Content knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity and Sensitivity Towards Diversity) with endogenous variable (Authentic Learning Teacher Competency).
- c. To identify the effect of mediator constructs (Professional Commitment) towards the relationship of the exogenous constructs (Assessment Knowledge,

Content Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity and Sensitivity Towards Diversity towards Teacher Competency (endogenous construct) conducting Authentic Learning.

- d. To identify the effect of moderator variables (Gender and Teaching Experiences) towards the relationship between Professional commitment and Authentic Learning Teacher Competency.
- e. To develop and validate a substantiated Authentic Learning Teacher Competency Model to facilitate the process of instilling 21st Skills among students.



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1.5 Research Questions

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Based on the study's objectives, these are the research questions that will be answered by the end of the study.

- a. What is the instrument or scale that can help to identify and measure the constructs affecting Teacher Competences in implementing Authentic Learning approach?
- b. Is there any relationship between the exogenous constructs (Assessment Knowledge, Content Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity, Sensitivity Towards Diversity and Professional Commitment) with endogenous constructs (Authentic Learning Teacher Competency)?

- c. Is there an effect from the mediator construct (Professional Commitment) towards the relationship of the exogenous constructs (Assessment Knowledge, Content Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity and Sensitivity Towards Diversity towards Teacher Competency (endogenous constructs) conducting Authentic Learning?
- d. Is there any effect of moderator variables (Gender and Teaching Experiences) towards the relationship between Professional Commitment and Authentic Learning Teacher Competency?
- e. What is the best substantiated Authentic Learning Teacher Competency Model to facilitate the process of instilling 21st Skills among students?

1.6 Research Hypothesis

There are many hypotheses that had been evaluated in this study. Therefore, those hypotheses and sub-hypotheses have been categorized according to research objectives. They have been categorized as stated below:

1. To identify the significant parameter that influences the Authentic Learning Teacher Competency Model.
2. To empirically measure the constructs that influences factors towards Teacher Competency conducting Authentic Learning.
3. To measure the influence of the mediator constructs (Professional Commitment) towards the relationship of the exogenous constructs

(Assessment Knowledge, Content Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity and Sensitivity Towards Diversity) towards Teacher Competency (endogenous constructs) conducting Authentic Learning.

4. To measure the influence of the of moderator variables (Gender and Teaching Experiences) towards the relationship between Professional Commitment and Authentic Learning Teacher Competency.

Based on these 4 categories of research objectives, the hypotheses of this study had been described as follows:

1. Assessment Knowledge, Content Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity, Sensitivity Towards Diversity and Professional Commitment are the factors influencing Teacher Competency in conducting Authentic Learning approach.

H1: Assessment Knowledge has significant and direct effect towards

Professional Commitment in conducting Authentic Learning method in the classroom.

H2: Content Knowledge has significant and direct effect towards

Professional Commitment in conducting Authentic Learning method in the classroom.

H3: Curricular Knowledge has significant and direct effect towards

Professional Commitment in conducting Authentic Learning method in the classroom.

H4: Communication Skill has significant and direct effect towards

Professional Commitment in conducting Authentic Learning method in the classroom.

H5: Classroom Management Skill has significant and direct effect towards Professional Commitment in conducting Authentic Learning method in the classroom.

H6: Teacher Sensitivity, has significant and direct effect towards Professional Commitment in conducting Authentic Learning method in the classroom.

H7: Sensitivity Towards Diversity has significant and direct effect towards Professional Commitment in conducting Authentic Learning method in the classroom.

H8: Professional Commitment has significant and direct effect towards

2. Professional Commitment mediates the relationship between exogenous constructs (Assessment Knowledge, Content Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity, Sensitivity Towards Diversity) and Authentic Learning Teacher Competency (endogenous constructs) to conduct Authentic Learning.

H9: Professional Commitment mediates the relationship between Assessment Knowledge and Teacher Competency in conducting Authentic Learning.

H10: Professional Commitment mediates the relationship between Content Knowledge and Teacher Competency in conducting Authentic Learning.

H11: Professional Commitment mediates the relationship between Curricular Knowledge and Teacher Competency in conducting Authentic Learning.

H₁₂: Professional Commitment mediates the relationship between Classroom Management Skill and Teacher Competency in conducting Authentic Learning.

H₁₃: Professional Commitment mediates the relationship between Communication Skill and Teacher Competency in conducting Authentic Learning.

H₁₄: Professional Commitment mediates the relationship between Teacher Sensitivity and Teacher Competency in conducting Authentic Learning

H₁₅: Professional Commitment mediates the relationship between Sensitivity Towards Diversity and Teacher Competency in conducting Authentic Learning.

3. Gender and Teaching Experiences moderates the relationship between Assessment Knowledge, Content Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity, Sensitivity Towards Diversity and Teacher Competency conducting Authentic Learning in classroom.

H₁₆: Gender moderates the relationship between Professional Commitment and Authentic Learning Teacher Competency by being more pronounced among female .

H₁₇: Teaching experiences moderates the relationship between Professional Commitment and Authentic Learning Teacher Competency by being more pronounced among teachers who have less than 15 years of teaching experiences.

The table below describes the main hypotheses involved based on the variables in the research.

Table 1.1

Research Hypotheses Between Exogenous Variables And Endogenous Variables.

Hypothesis	Exogenous Variables	Endogenous variables
Assessment Knowledge, Content Knowledge, Curricular Knowledge, Communication Skill, Teacher Sensitivity Towards Diversity and Professional Commitment has significant effects in conducting Authentic Learning in classroom.	COT, ASK, CUR, COM, MAN, TES, SED	ALCOM
H1: Assessment Knowledge has significant and direct effect towards Professional Commitment in conducting Authentic Learning method in the classroom.	ASK	PRO
H2: Content Knowledge has significant and direct effect towards Professional Commitment in conducting Authentic Learning method in the classroom	COT	PRO
H3: Curricular Knowledge has significant and direct effect towards Professional Commitment in conducting Authentic Learning method in the classroom.	CUR	PRO
H4: Communication Skill has significant and direct effect towards Professional Commitment in conducting Authentic Learning method in the classroom.	COM	PRO

(continue)



Table 1.1 (continue)

Hypothesis	Exogenous Variables	Endogenous variables
H5: Classroom Management Skill has significant and direct effect towards Professional Commitment in conducting Authentic Learning method in the classroom.	MAN	PRO
H6: Teacher Sensitivity, has significant and direct effect towards Professional Commitment in conducting Authentic Learning method in the classroom.	TES	PRO
H7: Sensitivity Towards Diversity has significant and direct effect towards Professional Commitment in conducting Authentic Learning method in the classroom.	SED	PRO
H8: Professional Commitment has significant and direct effect towards Authentic Learning Teacher Competency.	PRO	ALCOM
Professional Commitment mediates the relationship between exogenous constructs (Assessment Knowledge, Content Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity, and Sensitivity Towards Diversity and Teacher Competency in conducting Authentic Learning.	ASK, COT, CUR, COM, MAN, TES, SED	PRO, ALCOM
H9 Professional Commitment mediates the relationship between Assessment Knowledge and Teacher Competency in conducting Authentic Learning.	ASK	PRO, ALCOM
H10 Professional Commitment mediates the relationship between Content Knowledge and Teacher Competency in conducting Authentic Learning.	COT	PRO, ALCOM
H11 Professional Commitment mediates the relationship between Curricular Knowledge and Teacher Competency in conducting Authentic Learning.	CUR	PRO, ALCOM

(continue))





Table 1.1 (continue)

	Hypothesis	Exogenous Variables	Endogenous variables
H12	Professional Commitment mediates the relationship between Classroom Management Skill and Teacher Competency in conducting Authentic Learning.	MAN	PRO, ALCOM
H13	Professional Commitment mediates the relationship between Communication Skill and Teacher Competency in conducting Authentic Learning.	COM	PRO, ALCOM
H14	Professional Commitment mediates the relationship between Teacher Sensitivity and Teacher Competency in conducting Authentic Learning	TES	PRO, ALCOM
H15	Professional Commitment mediates the relationship between Sensitivity Towards Diversity and Teacher Competency in conducting Authentic Learning.	SED	PRO, ALCOM
	Gender and Teaching Experiences moderates the relationship between Professional Commitment and Authentic Learning Teacher Competency.		
H16	Gender moderates the relationship between Professional Commitment and Authentic Learning Teacher Competency by being more pronounced among female teachers.	Gen	ALCOM
H17	Teaching experiences moderates the relationship between Professional Commitment and Authentic Learning Teacher Competency by being more pronounced among teachers who have less than 15 years of teaching experiences.	TE	ALCOM

Indicators: ASK: Assessment Knowledge, COT: Content Knowledge CUR: Curriculum Knowledge, COM: Communication Skill. MAN: Classroom Management Skill, TES: Teacher Sensitivity, SED: Sensitivity Towards Diversity, PRO: Professional Commitment, ALCOM: Authentic Learning Teacher Competency, Gen: Gender, TE: Teaching Experience.





1.7 Theoretical Framework

1.7.1 Teacher Competence

Generally, competency is addressed as a standard that is used to determine an employees' performance of a given task (Ibrahim, 2015). Meanwhile, in the educational context, teacher competence is the standards that teachers must master to meet the current educational needs and transformation, since a teacher's duty is to fulfill many educational reforms that is happening in today's world.

Teaching professionals should be able to face and respond to complex difficulties and demands in the globalized world and society to the extent that their line of work can handle it thanks to their teaching skills. In order to benefit from increasing openness and connectedness, teachers should put their global competence—which, per the Organization for Economic Co-operation and Development (OECD) (2018), is a multidimensional capacity—to use in the classroom. Teachers should have the ability to "analyze local, global, and intercultural challenges, comprehend and accept other viewpoints and world views, engage productively and respectfully with others, and take responsible actions towards sustainable and collective well-being" (OECD, 2018, p. 4).

As explained by Azhari Mariani and Zaleha Ismail (2013), teacher's competency refers to their knowledge, skills, and attitude in conducting their duty efficiently and effectively. The given statement is similar to the Iceberg Model that was popularized by Hay McBer (1996) which was derived from the Spencer & Spencer Theory (1993). It includes knowledge, skills and personal attributes had been adapted



in this teacher competency model too. The same model had been adapted by the Malaysia teacher Competence Standard (2009).

As a result, the teacher competency in this study was determined by examining numerous models and ideas while concentrating on the characteristics of teachers' knowledge, abilities, and attitude. The three main components of competence discussed here are based on the Malaysia teacher Competence Standard (2009):

- (a) Knowledge: The ability of teachers to continuously improve their knowledge to effectively improve their performance.
- (b) Skills: The ability to use and practice newly acquired knowledge and skills to complete activities effectively and meet organizational objectives.
- (c) Attitude: Personal characteristics and behaviours that teachers should observe

The Iceberg Competency Model is used as a reference because it helps to better understand competencies. The tip of that model is technical competencies - the piece above the waterline that is readily visible and hence easy to access.

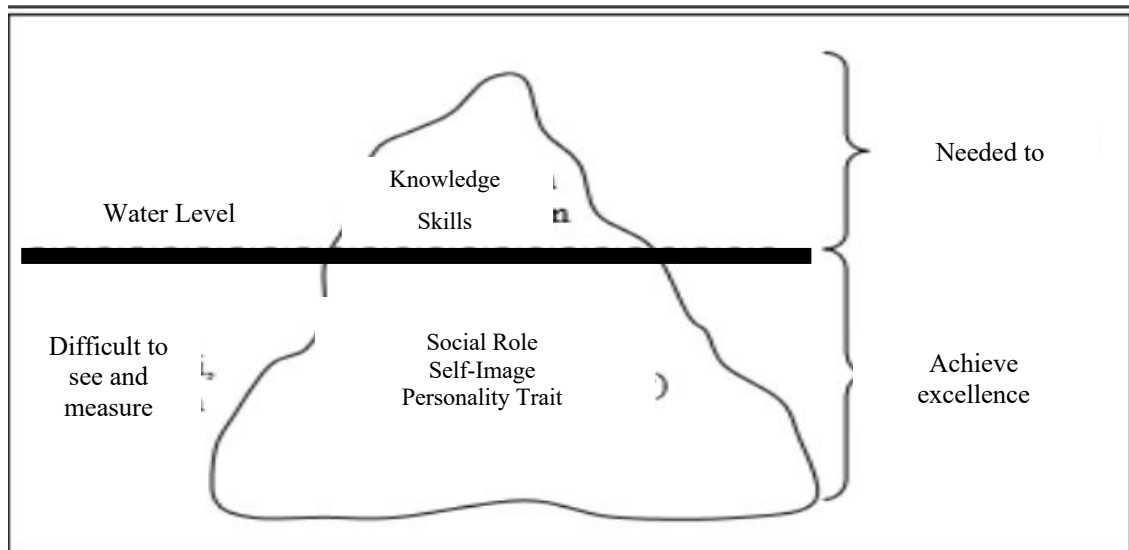


Figure 1.1. The Iceberg Model of Competencies by Hay McBer (1996). Source: Saedah Siraj & Mohammed Sani Ibrahim, 2012

Behavioral abilities, as seen in the model, are below the waterline, making them difficult to assess and even more difficult to develop. Observing how he or she portrays himself or herself can help to explain behavioral competencies for teachers. It can also be represented by looking at how they typically behave and understanding what motivates them.

The Iceberg Model had been referred by many researchers discussing on teachers' competency (Saedah Siraj & Mohammed Sani Ibrahim, 2012; Jupri et al., 2016). This model is also like the competency model that had been used in a study by Syed Jaafar Syed Ali (2014), which also referred to Spencer & Spencer Theory (1993).

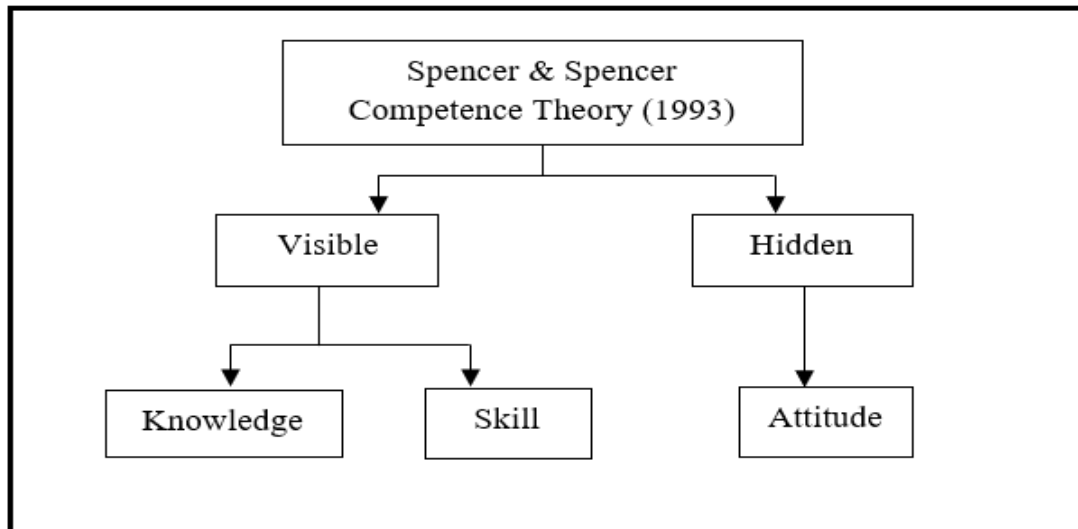


Figure 1.2. Syed Jaafar (2014) Competency Model. Source: Syed Jaafar Syed Ali (2014)

Industrialization has been successful in emphasizing its competency model up till the idea has been embraced in education. Competence is defined from an educational standpoint as a combination of information acquired through experience and teachers' comprehension of teaching practice (Arbaa et al.,2017) A set of behaviors known as an expertise also contribute to getting the intended result. In the meantime, Chouhan & Srivastava (2014) have explained that while developing and applying the competency model is a complicated endeavor, it is an investment in tested human resources to create a more effective and productive workforce.

Prior research has painted a favourable picture of competency development in order to produce quality and professional instructors (Arba et al., 2017). An important turning point for the effective adoption of 21st century skills practises was the ability of instructors to interpret techniques, integrate knowledge, and skills through reflective practise. Additional research demonstrates that effective teachers are those that help their students (Muin,2020).



In this study, the competencies are categorized following the Iceberg Model of Competencies and the Malaysia teacher Competence Standard (2009). The components fall under 3 main categories of competency model, which is knowledge, skill, and attitude. These components will be extensively discussed and researched as individual components by themselves. As such here the knowledge competency is represented by Content Mastery, Assessment Knowledge, and Curricular Knowledge. The skill competency is represented by Communication Skill and Classroom Management Skill. Meanwhile, the behaviorism or the attitude component is represented by Teacher Sensitivity and Sensitivity Towards Diversity.

1.7.2 Knowledge Competency



Many researchers have long been fascinated by the concept of a teacher's knowledge because it entails many distinct components of knowledge that must be integrated to improve a teacher's competency (Borg, 2003; Freeman, 2002; Van Driel, De Jong, & Verloop, 2002), as quoted in Kurt et al (2010).

The Pedagogical Content Knowledge model that has been inspired by Lee Shulman (1986) is used widely in the literature to discuss about the knowledge base that teachers use in the teaching process. This model explains types of knowledge that are required by to make subject matter easily achievable by students. Fernandez (2014) have concluded that the Pedagogical Content Knowledge as the best model for investigating the knowledge that is required by a teacher to be competent.





Pedagogical content knowledge puts an emphasize on the teachers' knowledge of subject matter that is combined with pedagogical knowledge that is specialized according to topics that are being taught. He concluded that Pedagogical Content Expertise is created by combining subject matter expertise (content knowledge), general pedagogical knowledge, and an awareness of how students learn about certain subjects. He concluded that Pedagogical Content Expertise is created by combining subject matter expertise (content knowledge), general pedagogical knowledge, and an awareness of how students learn about certain subjects (Shulman ,1987). Adapting to that model, this study will be focusing on the content knowledge, curricular knowledge, and the assessment knowledge of a teacher. These knowledge base will help the teachers to implement Authentic Learning teaching method in their classrooms.



1.7.2.1 Assessment Knowledge (ASK)

Authentic Learning method requires authentic assessments.. Assessments, which affect students' learning performance and prospects, can have a long-term impact on their learning habits (Zhan & Andrews, 2014; Heeneman, Oudkerk Pool, Schuwirth, Vleuten, & Driessen, 2015).

It is teachers' duty to make sure that Malaysia's public schools' new evaluation system properly enables students to learn at the pinnacle of the field's most recent educational advancements. Thus, in order to implement the best assessment in the classroom and ensure that students learn effectively, teachers continuously increase their knowledge and skills (Nawi, 2011).



A high level of teacher expertise is required for curriculum innovation, notably in assessing students' development through assessments (Hasnah 2017). According to Sh. Siti Haizumah (2019), the effectiveness of a teacher depends on how well they can predict and facilitate learning. The qualities of a teacher include being skilled, competent, qualified, passionate, committed, and having the soul of a teacher (Ministry of Education Malaysia, 2006). So it is abundantly evident that in order to implement classroom assessment that is efficient and achieve the stated classroom assessment's goal, teacher competency is crucial.

In addition, based on Standard Four of Learnings and Facilitating SKPMg2 by Quality Assurance of Education Ministry (2017); Teacher's position as an Assessor, proficiency in assessment should be determined by measuring the students' levels of mastery, teachers must adhere to certain standards.

The assessment-based classroom is a recent strategy in Malaysia's educational system, and instructors must spend years developing the abilities necessary to perform their jobs effectively. Professional judgement is a competency area that works best for classroom assessment requirements (MoE, 2018).

Teachers must improve their students' performance in terms of knowledge, experience, student input, and professional responsibility during classroom evaluation. The major goal is to ensure that a student learns, which is consistent with the idea and goal of adopting classroom assessment through formative and summative assessments (MoE, 2018).

1.7.2.2 Content Knowledge (COT)

According to Guerrio (2017), a teacher's content knowledge serves as an indicator of the teacher's quality. Although competent teaching performance is based on instructors' pedagogical content knowledge, content knowledge, or teachers' content knowledge, is critical in distinguishing teaching quality. Many characteristics of a competent teacher have been identified by Baumert and Kunter (2013).

Shulman's (1986) initial effort in describing teacher professional knowledge identified a range of knowledge bases, including content knowledge and (general) pedagogical knowledge. Meanwhile, content knowledge in this study refers to actual knowledge of the content of the subject being taught, knowledge of the main facts and concepts in the field and the relationship between them.

Content knowledge is an important element that teachers must have when implementing teaching and learning process. The teacher's content knowledge in teaching must first precede the increasingly challenging educational requirements (Naquiah & Jimaain, 2018). The term used for the teacher's ability to master the content and deliver it to students which was introduced by Shulman in 1986 and 1987 (Norashilah et al., 2013). Content knowledge is also a construct that represents an element that describes aspects of a teacher's understanding of the subject he teaches before being translated as an activity or teaching and learning process in class (Muhammad Hafizan & Anuar, 2017).

Authenticity in learning requires teachers to really understand the subject that they are teaching by knowing the structure and sequence the knowledge that are essential to each subject and exposing the students to different ways that will be delivered. Teachers are required to arrange and develop factual knowledge that essential to each subject that are being taught.

1.7.2.3 Curricular Knowledge (CUR)

Authentic Learning requires teachers enrich the learning opportunities by combining different subjects and conceptualized the learning process. To teach that way, they must master the content that they are teaching and relating it to the curriculum of the learning process itself. Knowledge of the curriculum taught by teachers is the main factor that needs to be discussed by teachers because with deep curriculum knowledge, teachers will understand differentiated pedagogy well. This is clear from Ahmad Taufik (2019) study which states that the curriculum functions as a guide that guides teachers in guiding and educating students.

Teachers should master the curriculum taught in the classroom to facilitate the practice of authentic learning approach. Through the curriculum, there will be a two-way interaction that is the interaction between the teacher and the student and will result in behavioral changes (Curriculum Development Department, 2018). In addition to mastering the curriculum, teachers should also be sensitive to changes in the curriculum from time to time. This is evidenced by the changes in the Primary School Standard



Curriculum (KSSR) which changes the content of lessons and the way they are implemented (Abu Bakar Nordin, 2013).

Curriculum knowledge is very important among teachers because it is a driving force in teacher teaching. A teacher who masters the curriculum means that the teacher masters the content and can deliver good content to the students. This statement is in line with the content pedagogic knowledge model by Shulman in 1986 (Shulman, 1986).

Thus, curricular knowledge refers to a teacher's grasp of the learning programmes at every level, which comprise specific themes and disciplines. This comprises the numerous instructional materials as well as the many types of exercises that will aid the students in their learning. Teachers are supposed to understand how to enrich the curriculum to meet the requirements of individual students.

1.7.3 Skill Competency

Teaching is engaging students in learning, hence teaching involves students getting active in construction of knowledge. In this case, teaching demands the teachers not only to master the knowledge of subject matter and the ways to transform them into being an active student but also having teaching skills that helps them to fulfill the demands of modern society and standards of quality education.





Experienced teachers to have developed sets of teaching skills that will help them to act appropriately according to the situation needed by the students and it can be adapted with little mental effort to suit the needs. The fields of education and methodology in education maybe varied (Andavar et al., 2020), but they all share the fundamental common notion that the student understands the idea (Ali, 2014), uses it in real life and follows the ethical norms in the subject chosen (Ali et al. 2021).

The students' solitary demands may not be satisfied by a single technique of teaching since they have numerous queries with relation to teaching concepts and their attention will be divergent (Ahmed et al., 2021). According to (Hameed & Anwar, 2018), learning tasks that affect different kinds of knowledge production and student participation in the course curriculum would be the key role in obtaining learning results in a technologically oriented setting (Faraj et al., 2021).

If the education systems are to improve schools for the 21st Century, then they must increase the supply of teachers with strong working knowledge of their content and the pedagogical techniques necessary to link their content with real-world application. Programs must be well-designed and provide a curricular focus on the following key concepts: a collaborative, interdisciplinary instructional model aimed at dramatically increasing student engagement; career-technical standards and work-based learning approaches with academic standards and a focus on the social-emotional well-being of students (Ball & Cohen, 1999; Darling-Hammond et al., 2017; Farnan et al., 2014; Garet et al., 2001; Schleicher, 2012).





1.7.3.1 Communication Skills (COM)

School is the most important educational space to build a quality community with the practice of effective communication skills. Communication skills are skills used to describe, explain, make predictions, evaluate to understand communication phenomena. It can help students to collect all existing experiences and make a communication behavior in several propositions or statements. Language skills are an important aspect and known as an intermediary medium that goes through a person's daily life (Noor Aini, Zamri & Zahara, 2012).

A teaching activity related to communication skills is the process of disseminating knowledge and abilities so that students can learn and master them successfully.



Communication skills are one part of teaching skills that every teacher needs to possess, according to Nurul Salmi Mohd Dazali and Mohd Isha Awang (2014). For the teacher to be able to meet students' requirements throughout the teaching and learning activities or in social interaction, they must be prepared to master certain communication skills.

In addition, Nordin Halias et al. (2017) also stated that communication and interaction in a teacher's teaching is important to create an effective teaching and learning process. Through effective communication skills, teachers can attract students' interest in their studies because they will feel the interweaving of two-way interaction and the teacher's concern. Teachers who are good at communicating will be able to create a cheerful, calm, and cheerful classroom atmosphere. Although teachers need to master both types of communication, i.e., verbal, and non-verbal communication (Nordin Halias et al., 2017)



A teacher who are highly skilled in communicating with these students will be able to teach accordingly and motivate them towards their learning processes (Sng Bee,2012). Any communication that occurs in the classroom will be successful when the message is delivered successfully and in understandable way by the teachers. In this study, good communication skill has been chosen as one of the components that is vital in delivering content to learn authentically.

1.7.3.2 Classroom Management Skill (MAN)

The Malaysian Ministry of Education (KPM) has carried out a review of the country's education system in the context of international education standards. As a result of the study, the Malaysian Education Development Plan (PPPM) 2013-2025 was launched (KPM, 2013). Through PPPM 2013-2025, the culture of the 21st century classroom is one of the plans that has been identified as a channel to guarantee the delivery of important 21st century skills among students (Muar District Education Office, 2015).

The necessity of classroom transformation is supported by the opinions of Evertson and Weinstein (2006) and Greenberg, Putman, and Walsh (2014), who see the classroom as the cornerstone of a nation's educational system. Teachers are fully responsible for ensuring the success of classroom management in accordance with their role as significant change agents (Sellars, 2012; Manning & Bucher, 2013).

Effective classroom management is very important to ensure that students in Malaysia can achieve the aspirations of the 21st century, which are knowledge, thinking skills, leadership skills, bilingual skills, having ethics and spirituality, and having a national identity (KPM, 2013). The targeted aspirations are in line with the urgent skills of the 21st century society that have been neglected in most education systems, namely collaboration, communication, digital literacy, problem solving, critical thinking, national identity, creativity, and productivity (Mishra & Kereluik, 2011; Fraillon, Ainley, Schulz, Friedman, & Gebhardt, 2014).

In order to support student learning, the system heavily relies on perceptive teaching that anticipates and prevents issues in the classroom and less heavily on disciplinary measures that deal with disruptive student behavior (Bear 2015).

Therefore, classroom management skills are important in allowing the students learn in an environment that is suitable in constructing knowledge authentically.

1.7.4 Attitude Competency

Attitudes are described as a tendency to react favorably or unfavorably based on designated class of stimuli, such as different level of students' background, custom or institution. As a result, an attitude cannot be measured or observed directly, but must be deduced from overt and covert behaviors (Sivakumar, 2018). It is an emotional component. Therefore, the attitude is an important concept in measuring competence and must not be neglected. Therefore, what are the positive attitudes that a teacher should have to sustain and develop meaningful learning in the classroom? Here in this



study two main attitude of a teacher has been identified to conduct learning in an authentic manner.

1.7.4.1 Teacher Sensitivity

Students who work with a sensitive teacher will find them to be a source of support, guidance, and reassurance. As a result, students can learn more easily by expressing their ideas, taking chances, and putting themselves in difficult situations. Learning will become more meaningful as a result of this. Teachers who are attentive to their students' needs are able to recognise their students' needs. Sensitive teachers are not only compassionate and loving, but they are also always aware of their students' needs.



They will be able to demonstrate awareness and responsiveness towards the students' academic and emotional abilities and needs (Teacher Sensitivity: A Sensitive Coaching Topic, 2016).

Teachers who are always aware of their students' needs will be able to provide appropriate and effective classroom support. Hence, it will allow the students to make the most progress when learning. Learning authentically means learning that mimics their daily lives. Thus, this aspect of Authentic Learning requires teachers to be more sensitive towards the students' needs.





1.7.4.2 Sensitivity Towards Diversity

A genuinely caring and kind teacher have the patience in identifying the needs and abilities of the students which come from different background and walks of life. Attitude that is related to the persona of the teacher is the ability of demonstrating kindness and caring. A kind and caring teacher will genuinely share the emotion such as enthusiasm, affection, patience, sadness and their sincere interest and care about their students.

Teaching must be able to take place without judging or analysing the students' ability and background. A teacher must have the attitude and ability to make any student in the class more special and appreciated. Compliments should be shared in front of others and listening and talking to the students will help them to feel valued and important. When an instructor can develop personalised instruction in the classroom, learning can be more meaningful and authentic. This mindset will aid in the creation of relevant learning experiences for all students. Individualized instruction will allow students learn without having doubt in them.

1.7.5 Professional Commitment

This study also discusses on two different variables: mediator variables and moderator variables. The mediator variables identified in this study is Professional Commitment. Mediator variables are those that act as a bridge between the dependent and independent variables. It explains how the dependent and independent variables are related.





Mediator variable will cause complete mediation that will be defined as the complete intervention. In this research, the hypotheses regarding the mediator variables are

1. Professional Commitment is the mediator between Assessment Knowledge, Content Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity and Sensitivity Towards Diversity and Authentic Learning Teacher Competency in conducting Authentic Learning.

According to Ibrahim and Iqbal (2015), professional commitment as an essential component of a teacher's routine would be an added value for successful teaching. The commitment being discussed in this context is the pedagogical approach,



which includes the use of skill-based knowledge, a code of professional conduct, and working within a professional organisation.

The success of the school depends greatly on the professionalism and commitment of the teachers. Motivated and committed teachers are more effectively involved in school activities and consequently perform better at work, because they want to use their efforts to achieve organizational goals. Teachers' professional commitment has been considered an important element for the progress of any educational institution (Song et al., 2020) and a significant predictor of teacher performance (Tsui, 1999; Dee et al., 2006; Indrawati et al., 2021). Similarly, teacher commitment is an important element that contributes to school effectiveness. School effectiveness involves students' academic performance and their personalities.



Professional commitment is an important variable in the discussion about competency model since it has been found that strong commitment to a profession is associated with the quality of education (Nordin, Darmawan & Keeves, 2010). This is because teachers who have a high level of commitment in school are responsible teachers (Relly, 2015; Shafiq & Rana, 2016). Therefore, teachers' professional commitment needs to be given serious attention considering that it can improve student academic achievement and school performance (Mohamad, Zakaria & Nasir, 2017; Stan, 2013; Siti Fairuz, Norshidah, Afni & Norsiah, 2013; Hanaysha, 2016; Karim & Rehman, 2012 ; Cheasakul & Varma, 2016; Hayden, 2011; Ambotang & Bayong, 2018).

In the context of teaching, this means that the more committed the teachers are, the more likely it is that they will stay devoted to the profession and the organization.

Adding to existing literature, the aim of this study is to examine whether Professional Commitment contributes as a possible mediator to the relationship between constructs of Knowledge, Skills, and Attitude in the competency model.

Moderator variables are variables that alter the degree or direction of an effect between two variables: independent and dependent variables. The moderators in this study were determined based on their gender and work experience. Therefore, the hypotheses regarding the moderator variables reported in this study are

1. Gender and Working Experience moderates the relationship between Professional Commitment and Authentic Learning Teacher Competency in conducting Authentic Learning.



Gender is a universal term which refers to male and female. The objective of this study is to test the full model of teacher competency model empirically using the structural equation modeling (SEM) approach based on the data of male teachers and female teachers. It is hypothesized that the model fit the male and female data well. It is aimed at gaining in-depth understanding on the role of gender in the competency model implementing authentic learning approach among the primary school teachers.

Traditionally in educational research, teacher quality has been measured by formal qualifications and experience. Numerous studies have investigated the effects of teacher educational background, level of education, certification status and years of teaching experience on student achievement but has not managed to locate any reliable and statistically significant links between student achievement and instructor experience (Blomeke et al. 2016; Gustaffsson and Nilson 2016; Hanushek & Luque 2003; Luschei & Chudgar 2011; Wilson & Floden 2003). In the early years of a teacher's profession, experience matters a lot, but there are little to no further benefits (Boyd et al., 2006; Rivkin et al., 2005; Staiger & Rockoff 2010). Therefore in this study the effect of teaching experiences will be looked into as moderator variable in understanding the competency mode of primary school teachers implementing authentic learning approach.

1.7.6 Authentic Learning

Authentic learning is a term that originated when the apprentice-mentor connection was employed as a way of job or trade training. Authentic Learning approach has been





derived from the Theory of Constructivism. According to Lombardi (2007), Authentic Learning has had a significant impact in means of knowledge acquisition where teachers teach real-world' experiences such as apprenticeships were difficult to be implemented because of the complexity in meeting real-world' learning environment during training period. Researchers concluded that students may obtain an identical level of authenticity in contextual Authentic Learning after addressing these complications (Lombardi ,2007).

Students in constructivist learning contexts use existing information as a foundation for generating new knowledge, which is why constructivist theory includes authentic learning. Like constructivism, authentic learning embeds learning in genuine and relevant settings and then requires students to create direct connections between their new knowledge and the actual world.

As explained by Behizadeh and Fink (2015) and Latham and Carr (2012), authenticity in learning occurs when students are assigned tasks that are relevant to their lives and require disciplined inquiry, Higher Order Thinking Skills, and problem solving, and can be summarised as the evolution of constructivist learning. Learning is a social connection that occurs between students in a real-world activity, context, and culture. To have a thorough comprehension of concepts, students must be able to generate knowledge by applying concepts in authentic social and physical situations (Amory,2014; Brown, Collins, & Duguid,1989; Wenger & Lave, 1991).





Teacher-centered learning activities in the classrooms have been shown to be overly passive and ineffective in improving students' knowledge, as all teaching and learning activities were limited to the teacher's instructions alone. This has been agreed by Nicaise, Gibney, and Craney (2000), Rule (2006) and Herrington, Reeves, and Oliver (2006) where their research have stated that in a teacher centered environment, students were seen lacked initiatives to learn. Implementing an authentic teaching and learning strategy in the classroom will be the solution to this challenge.

As a result, Herrington, Reeves, and Oliver's (2010) The Real Teaching and Learning Approach was chosen as the instructional design model for this study to support teachers in implementing authentic teaching and learning activities in the classroom. The more teaching and learning activities that connect students to real-life circumstances, the greater their knowledge and abilities, and the more relevant their learning, according to Herrington et al (2010). As a result, Herrington et al. (2010) identified nine essential components for establishing an Authentic Learning environment. The elements are as follows

1. Provide authentic contexts that reflect the way the knowledge will be used in real life.
2. Provide authentic tasks and activities.
3. Provide access to expert performances and the modelling of processes.
4. Provide multiple roles and perspectives.
5. Support collaborative construction of knowledge.
6. Promote reflection to enable abstractions to be formed.
7. Promote articulation to enable tacit knowledge to be made explicit.
8. Provide coaching and scaffolding by the teacher at critical times.



9. Provide for authentic assessment of learning within the tasks.

In the list above authentic activities do not refer to the real task as in stated in the real world (e.g.: internship/practicum) but it refers to the realistic tasks that allow students to act as they would in the real world.

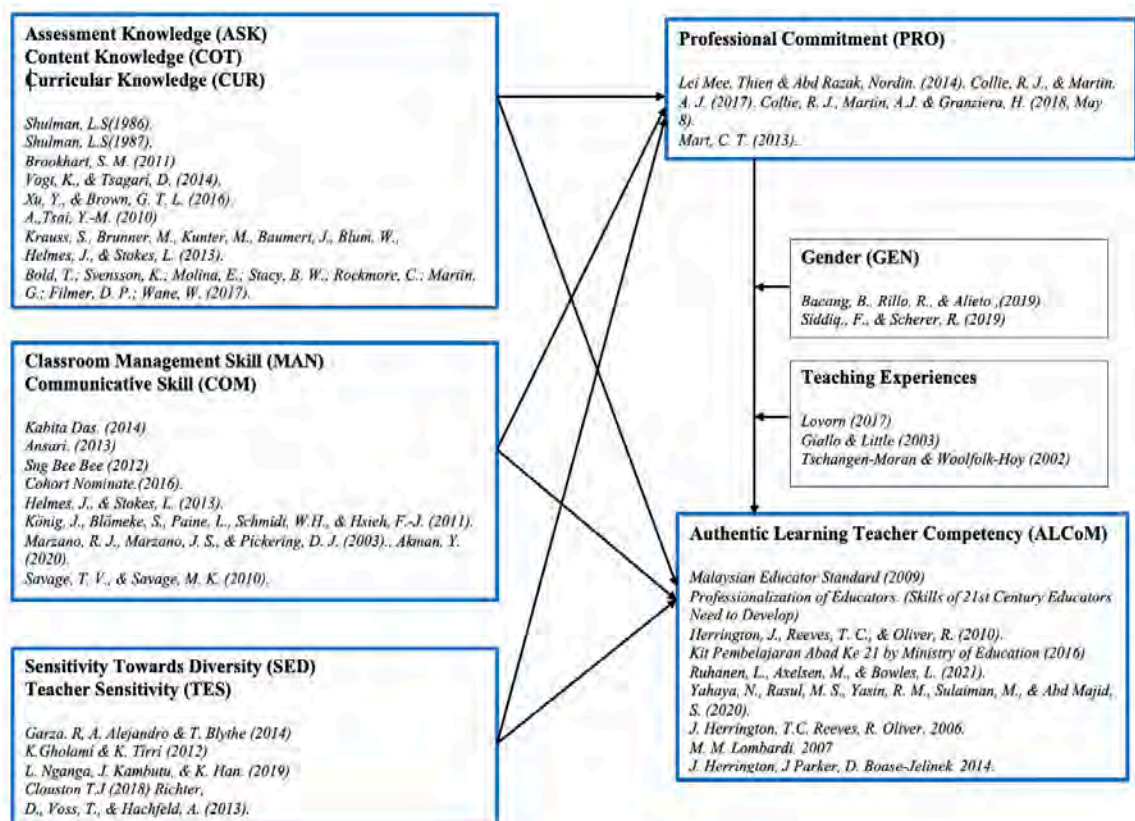


Figure 1.3. Theoretical Framework

Herrington, Reeves, and Oliver (2010) discovered that by following a matrix form of the four sectors in the Herrington, Reeves, and Oliver Authentic Learning Model (2010), it was determined that authentic teaching and learning activities do not have to be undertaken outside of the classroom or off-campus but may also be conducted in the classroom.



1.8 Conceptual Framework

Two key competency models were adapted in this study: Malaysia teacher Standards (2009) and Hay McBer's Iceberg Competency Model (1996), both of which were drawn from Spencer & Spencer (1993). The competency model will be linked to the classroom's Authentic Learning approach.

Authentic Learning approach will help students to get connected with 21st century skills. It can be represented by students' centered teaching methods that promotes students to collaboratively work on authentic task given to them (Rotherham & Willingham ,2010). Thus, this study is carried out to map out the key competences of a teacher to be familiar with Authentic Learning to instill 21st century skills among the students.

As articulated by Herrington et al. the pedagogical framework utilised to construct an instructional strategy to instil 21st century abilities in students is essentially that of Authentic Learning or authentic e-learning (2010). Any learning that adheres to the Authentic Learning idea is said to comprise the following nine components: (1) authentic settings, (2) authentic tasks and activities, (3) access to expert performances, (4) multiple views, (5) cooperation, (6) reflection, (7) articulation, (8) coaching and scaffolding, and (9) authentic assessment are all essential. Following the mapping of these key elements onto development of a teacher competency model, a subsequent study will be conducted to identify the elements of competences needed by a teacher to promote Authentic Learning.



Conceptual framework of a study is the description of the network of relationships among variables, therefore it is important to identify the constructs that are involved in the study itself (Swanson, 2007; USC Libraries, 2016). Through extensive literature review on empirical studies and previous acceptance theories, as well as analysis of semi structured interviews, this study has been able to identify and determine the research constructs and their relationships.

The main constructs in this research are Assessment Knowledge, Content Knowledge, Curricular Knowledge, Communication Skills, Classroom Management Skill, Teacher Sensitivity and Sensitivity Towards Diversity have significant and direct effect towards Professional Commitment in conducting Authentic Learning method in the classroom.


Meanwhile, Professional Commitment mediates the relationship between exogenous constructs (Assessment Knowledge, Content Knowledge, Curricular Knowledge, Communication Skills, Classroom Management Skill, Teacher Sensitivity and Sensitivity Towards Diversity) towards Authentic Learning Teacher Competency (endogenous construct).

Gender and Working Experience acts as the moderator constructs that moderates the relationship between Professional Commitment and Authentic Learning Teacher Competency.

Teacher competencies have been identified by eight constructs. Listed below are the constructs.

1. Assessment Knowledge
2. Content knowledge
3. Curricular knowledge
4. Communication skill
5. Classroom management skill
6. Teacher Sensitivity
7. Sensitivity Towards Diversity
8. Professional Commitment

Each element will be studied and discussed to identify the relevancy of those elements to the application of Authentic Learning framework by Herrington et al.

 05-4506832 (2010). In the framework below, it has been listed the constructs and domains that are profoundly important in developing a teacher competency model that supports Authentic Learning approach in the classroom. The link between exogenous and endogenous constructs, as well as mediator and moderator structures, is depicted in this conceptual framework. Fig 1.4 describes the possible relationship among these constructs.

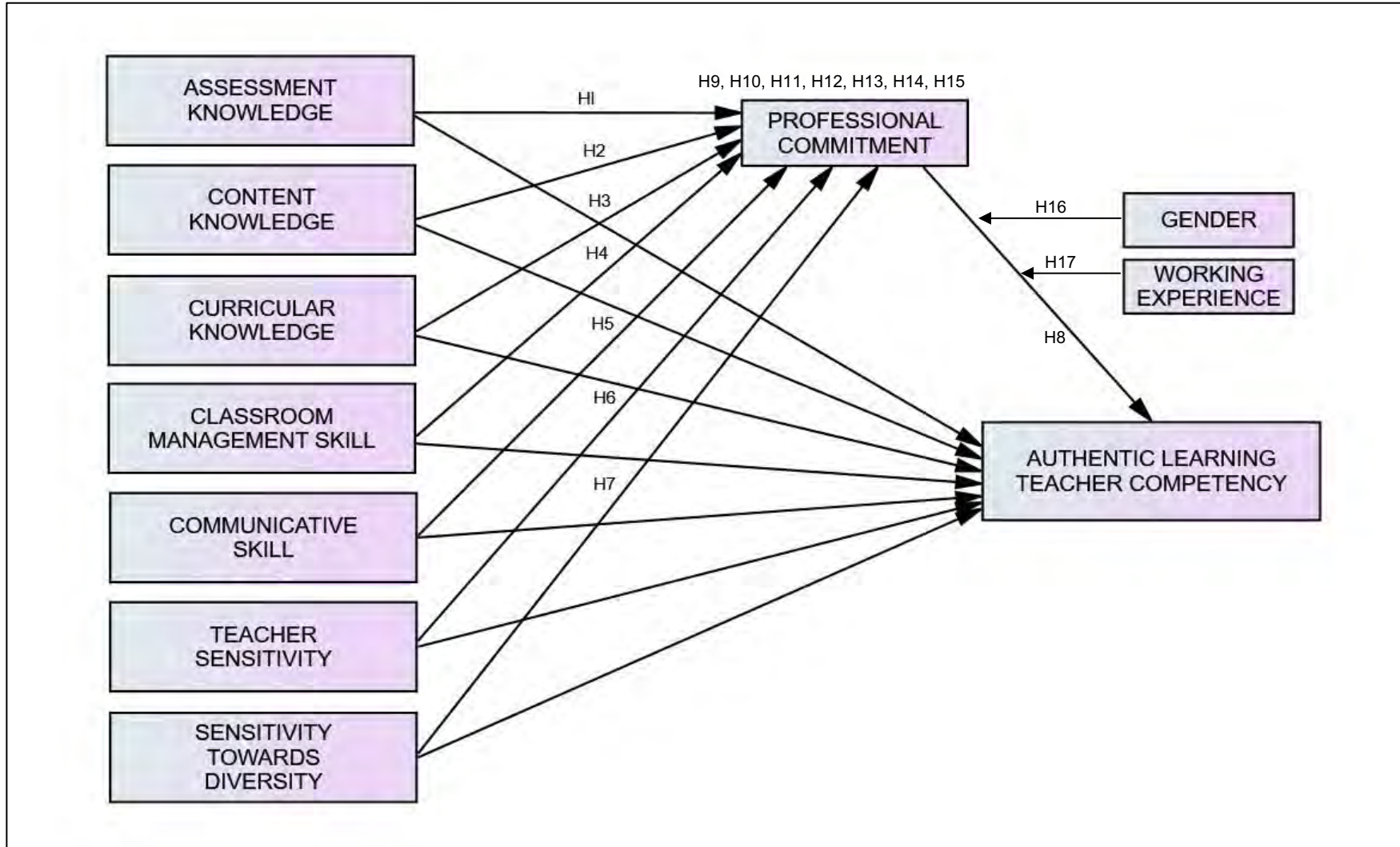


Figure 1.4. Conceptual Framework.

1.9 Significance of The Study

The development of globalization which is so rapid and dynamic demands that national education continues to be improved. The field of education has a close relationship in ensuring the excellence and quality of citizens, especially in Malaysia. Educational organizations play a role in improving the cognitive level of students, in addition to giving birth to a new generation that is balanced from physical, emotional, spiritual, intellectual, and social aspects (JERIS).

The development of the world of education, which is so significant and rapid, requires teachers as agents of change to prepare themselves with a variety of knowledge, skills, and expertise. The teacher's responsibility is very large in ensuring the success of students in school and being a role model to be emulated (Ministry of Education Malaysia, 2016). Students must be able to function effectively in the era of IR 4.0, and they must have 21st century skills to do so. In aligning the needs of the quintessential elements of the 21st Century Learning environment, the Malaysian Education Blueprint (2013-2025) states categorically that teachers must adapt their instructional style to transform students into more active participants in the classrooms.

The transformed pedagogy now must be able to deliver an authentic and meaningful learning in the classrooms. Teachers must equip themselves with a competency level that will make them confidence enough to deliver an authentic teaching and learning activities for their students. By introducing latest information, this study will be able to add to the corpus of knowledge on Authentic Learning in Malaysia.

By incorporating 21st Learning Skills and Higher Order Thinking Skills into the curriculum, the Malaysian educational system is currently working hard to produce students who can thrive in the period of Industrial Revolution 4.0 (IR4.0). Malaysia demands flexible-thinking students to apply poorly organised problem-solving techniques to actual situations, this will require teachers who are very skilled at delivering instructional design that places an emphasis on contextualised learning environment.

To attain a teacher's level of self-perfection in educating students at school, it is essential to take teacher quality seriously (Trude & Gustafsson, 2016). A teacher's degree of job satisfaction can also be shown by their quality of instruction (Yahya, Azizah and Yaakob, 2014). Due to their high standards, teachers are more dedicated to fulfilling their tasks, acquiring the necessary information and abilities, taking an interest in what they do, performing their obligations voluntarily and without being forced, and being devoted to their profession (MoE, 2016).

The Malaysian Education Blueprint (PPPM) 2013–2025 (KPM, 2013) outlines the ministry's goal of developing qualified instructors who are committed to the growth of their students. Similar reasoning can be applied to the Continuous Professionalism Development Plan (PPPB), which serves as a roadmap for all parties involved in developing and enhancing teacher professionalism, including ministries, education departments, offices, and schools. Student excellence and achievement are directly impacted by raising the professionalism of teachers. The key metric for assessing a nation's educational accomplishment and serving as a yardstick for its development is student achievement.

As a result, this study was able to pinpoint the precise knowledge, abilities, and attitudes that teachers need in order to execute authentic learning in contextual learning environments. In order to increase dynamic decision-making processes and encourage knowledge acquisition for both students and ,teachers might employ a pedagogical technique that encourages students to analyse their surroundings with the use of certain skills, knowledge, and characteristics.

Malaysian education system can only be transformed when the issues of non-competent teachers are resolved. Lim (2012) and Zachariah (2013) emphasized that high quality and competent teachers would develop high quality education systems, but unfortunately, the quality of competent teachers that stems from teaching profession preparedness is becoming more complicated and obsolete. Even though we have many exceptional teachers, only 50percent of classes are given in an effective manner, according to the 7th shift (MEBP,2013-2025). The key player in transforming our nation's educational system is through competent.

According to the Organization for Economic Cooperation and Development (OECD, 2016) based on the Teaching and Learning International Survey (TALIS), teachers' professionalism in relation to elements of knowledge, skills, and practises that every effective teacher should possess is evident. The knowledge base, autonomy, and network of peers are the three primary facets of teacher professionalism. The term "knowledge base" refers to pedagogical expertise and subject-matter expertise, or it can also be used to denote teachers' subject-matter expertise and their students' prior knowledge.

Therefore, Malaysia Teacher Standard (2009) had listed three main standards that can be used as a guide for teachers, namely the practice of the value of teaching professionalism, knowledge and understanding as well as teaching and learning skills (PdP). Aligning to the Malaysia teacher Standard (2009), the authentic learning competency models specifically for primary school teachers will be able to state explicit series of knowledge, skills, and attitude along with traits of teachers' Professional Commitment needed to conduct authentic learning in the classroom. Professional commitment is also predicted to have a significant impact on ALCoM as well, demonstrating the need for highly devoted teachers to apply realism and authenticity in the teaching processes.

The teacher is solely responsible for the academic progress of the students. The achievement of the students is regarded as the teacher's accomplishment. It is sometimes claimed that teachers underperform their tasks, which leads to some students leaving school early or failing to graduate. If teachers are successful in producing academically exceptional students, they may nevertheless struggle with poor personality and strict disciplinary issues. Due to this issue, instructors are frequently misunderstood and blamed by other parties, particularly parents and the community. The problem of ineffective teachers that don't fulfil their obligations results in causing the teaching and learning abilities to not to be fully achieved.

According to the Malaysian Education Development Plan (2013–2025), teachers have a role in enhancing Malaysia's educational system over time (Mohd Aizat & Kamarudin 2020). To carry out their duties as teachers in accordance with teaching ethics, all teachers must possess the qualities of trustworthiness and honesty. The



degree of the teacher's professionalism would influence the effectiveness of teaching and learning activities in the classroom, and the effectiveness of it will have a significant impact on the change in education, according to Mohd Aizat (2019) study, especially in student outcomes. Student outcome has been stated clearly in the 5th standard of SKPMg2. Student development is defined as students who are nurtured and educated holistically through an efficient school management system and are able to work on their potential as a whole, especially from the aspect of skills, noble character, ability to achieve personal well-being and responsibility in addition to their ability to master knowledge and skills.

This study also will be able to identify the mediation effect of Professional Commitment, between assessment knowledge, curriculum knowledge, communicative skills, classroom management skills, and teacher sensitivity. This study will be able to also demonstrate the influence of moderators such as gender and teaching experiences, on the connection between professional commitment and teacher competency implementing authentic learning approach.

This study will be able to develop a competency model for primary school teachers implementing authentic learning approach that reflects a complete and ideal teachers who can successfully integrate authentic learning approach in their teaching and learning activities. From the practical view of the study, it can contribute to the creation of a research instrument that can be used in assessing teachers ability in utilizing authentic learning approach systematically. Students will be able to study, work together, and meaningfully develop ideas and connections in environments with real-world difficulties by incorporating authenticity into their learning. The competency





model's underlying elements and its strong points will be demonstrated by research findings.

Consequently, statistical explanations are provided for the degree of comprehension that teachers have of the authentic learning strategy. These findings will greatly inspire and drive primary school teachers to employ authenticity and incorporate reality into the educational process while working with students.. Consequently, it can serve as a framework and instrument for stakeholders and policy makers to implement the precise and necessary changes in the country's educational system that will result in producing students who can perform in the future.

The competency model that has been created in this study was constructed through i) identification of constructs required in the competency model. ii) testing the effect of mediator constructs (Professional Commitment) iii) the effect of moderator constructs (Gender and Working Experience) has been identified also. This research also had tested the relationship between the exogenous constructs (Content Mastery, Assessment Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity and Sensitivity Towards Diversity) towards the endogenous constructs (Authentic Learning Teacher Competency). Therefore, ALCoM (Authentic Learning Teacher Competency Model) can represent the competency constructs needed by primary school teachers in implementing Authentic Learning approach in the classroom, specially designed to suit the Malaysian education context. This model is designed to serve as a guide and reference for the Ministry of Education as it works to improve the Authentic Learning approach in the classroom, which will help students develop 21st-century abilities.





This study has been conducted based on the Malaysian education context, therefore it would be the right tool and exact findings that will portray the constructs needed by our Malaysian teachers for them to conduct Authentic Learning approach competently and confidently especially among primary school students. With accurate representation and explanation needed by our teachers to teach authentically, efforts that have been put in by our government to instil 21st century learning skills among the young students will not be hindered. Thus, Malaysia will be able to produce high quality graduates that are able to perform in the Industrial Revolution 4.0.

In a nutshell, this research is being carried out as a first step for another research to follow. This study has its added novelty especially in Malaysia where implementation of Authentic Learning is still very new and capable in instilling Higher Order Thinking Skills among students. Thus, Authentic Learning approach is seen one part of the 21st Century Learning. Significantly, this study had developed a scale that can be used by teachers to identify the constructs needed for them to be competent in implementing Authentic Learning approach.

1.10 Limitation of Study

The primary purpose of this study is to determine a teacher's primary competencies and abilities for them to successfully apply Authentic Learning in their classrooms. Implementing authenticity in the learning, requires a teacher to be competent in the constructs that will be investigated in this research. The constructs are Content





Knowledge, Assessment Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity and Sensitivity Towards Diversity.

The research aim is to identify the components that is the foundation that forms competencies among teachers to implement Authentic Learning but, Authentic Learning is difficult to implement since it is time consuming. It is a challenge to set a learning environment that is like real life. Planning compelling Authentic Learning encounters requires serious effort which can be a barrier for many . Furthermore, students who are used to guidance by their will probably going to struggle at first when they are required to take control of their own learning. These reasons can be the limitations that will be faced in this research.



out through respondents answering few questionnaires that is prepared to identify the competencies needed by a teacher to implement Authentic Learning in their schools. Questionnaires are given to identify the knowledge, skills, and attitude of an to measure their competency level. A questionnaire is an instrument that is used in collecting data, and that involves in asking the respondents to answer a set of written questions, as for this research.

Dishonesty can be an issue when data is collected through a series of questionnaires. Many respondents were observed to be dishonest in their responses. This happens for a variety of reasons, including social desirability bias and a desire to keep their personal information private. Since the focus of this research is to draw conclusions about the constructs needed in a teacher competency model, any setbacks,





or obstacles, such as data that is too large or samples that do not completely fill out questionnaires during the data collection process, will jeopardise the sample data scattering. One of the survey method's faults is that the number of completed and collected questionnaires is smaller than the sample size (Saunders, Lewis & Thornhill, 2012).

Every researcher wants thoughtful responses, but there's no way of knowing if the responder has considered the issue before responding. Answers are sometimes chosen before thoroughly reading the inquiry or potential answers. Respondents may avoid by asking questions, or they may make split-second decisions, influencing the legitimacy of the information.



respondent may have a unique translation of the questionnaires. Without someone to clarify the questionnaire, every individual will have the same understanding, and the results will be subjective.

Referring to the data collection method, this study is limited to only one procedure, which is cross-sectional method. Thus, it implies that this study is only interested to collect the feedback from the respondents one time only and not regularly. Therefore, the research findings are bound to analysis of conclusion of the respondents' feedback during that duration of data collection. Issues that arise regarding the research that occurs at different time and context can never be collected and analysed.





Based on Malaysian context, in a normal school environment, it is not often that Authentic Learning is implemented since they are still vague about the idea of mirroring the problem that might occur in real life with the classroom teaching and learning activities. But this research is focused more on the competencies needed by the teachers to implement Authentic Learning. Research and studies that links teacher competencies and authenticity in learning is difficult to get and not many is available to be referred to. This is also one of the main issues that is limiting the nature of this study. The limitations of this research may vary, but with proper guidelines and method this research can be carried out to develop the Authentic Learning teacher competency model.



1.11.1 Development of Competency Model

A standard that assesses an employee's performance in carrying out their duties is called competency (Ibrahim, 2015). Teacher competency is the benchmark established for teachers to ensure that they are proficient in a variety of curricular areas in order to satisfy the requirements of their students and improve their ability to lead engaging classroom discussions.. These elements require knowledge, skills and a positive attitude of teachers to produce effective classroom assessment in schools. The competency model will be able to offer a framework and vocabulary for the definition of declarations of professional standards.





It serves as a common point of reference for conversation between professionals in the field and the general public by outlining the fundamental components of effective teaching. It also aids in promoting and supporting great teaching by making the information, abilities, and qualities that define effective teaching practise clear. To raise the visibility and reputation of the profession, it is crucial to comprehend what teachers know, do, and value.

Being an educator in the current socio-environmental climate is a difficult job. It necessitates the development of a variety of competencies, including a range of professional knowledge and abilities, as well as a critical awareness of the causes of social and environmental injustice both inside and outside of the classroom (Pereira ,2019). Subsequently this research talks about the development of a model. A model is fundamentally a visual guide or picture which features the principles, thoughts and factors in a procedure or a framework. The model created here examines about the capabilities required by a teacher in leading legitimate learning in their respective classrooms.

1.11.2 Authentic Learning

Authentic learning connects what students learn in school to real-world situations, issues, and applications. The complexity and ambiguity of real life should be reflected in students' learning experiences. Students must use the learning-by-doing paradigm to create discourse, products, and performances that have meaning or significance beyond academic success.





The goal of authentic learning is to provide students with numerous opportunities to hone their cultivated 21st century skills, such as critical thinking and effective communication (Lombardi & Oblinger 2007; Bell, 2010). To engage a broad population of students, authentic learning refers to a variety of adaptable teaching and learning methodologies. Utilizing creative methods to make sure that students are engaged active students is one of the most useful and productive strategies (Herrington, 2006; Shin, Sutherland, Norris & Soloway, 2012; Tschida, 2020). However, real-world situations are where learning and teaching techniques are most successful for authentic learning. It is now clear that the benefits of real learning may be obtained in a technologically based environment and are no longer restricted by physical locations (Harper & Milman, 2016).



for life outside of school and the future, which can be accomplished through creating connections between past and new information. As stated by Barnes and Shirley (2007), setting every student's personal quest for significance at the core of curricular and instructive choices is one well on the way to create resilient communities expected to confront a fate of incomprehensible test and change. Authentic learning is being investigated in this study to help students to grasp 21st Century learning skills. It is also being researched to provide teachers with a clear grasp of how to implement it in the classroom.





1.11.3 Teacher Competency

Competencies one of the characteristics of a person related to performance (Spencer & Spencer, 1993). Competency includes knowledge, skills, attitudes, values, motivation, and beliefs that a person requires to be successful in work (Gupta, 1999; Amolloh, Wanjiru, & Lilian, 2018). Knowledge, talents, and behaviour can all be used to describe a person's competences. Competence is a person's aptitude or capability to complete a task successfully or efficiently. Thus, in this research, to understand the competence of a teacher, the definition of a teacher must be defined.

Teacher competency is defined in this study as the knowledge and abilities that enable a teacher to be effective. A series of questionnaires will be used to establish the set of abilities, knowledge, and attitude that a teacher must possess in order to be considered a competent teacher. An important turning point for the effective adoption of 21st century skills practises was the ability of instructors to interpret techniques, integrate knowledge, and skills through reflective practise. Many research has demonstrated that effective teachers are best for their students (Muin et al., 2020). High teacher competency is demonstrated both in the classroom and when co-curricular activities are implemented (Husin et al., 2017).



1.11.4 Constructs and Variables.

Constructs are concepts that must be observed and measured. The concept is an abstract picture which is formed by the specific characterization of any aspect. After the concept can be restricted and specially specified in a field until it can be observed and measured, then the concept can be translated as a construct (McWilliams, 2013). In an empirical study of the field of social sciences, study constructs are dimensions of abstract or concrete that are assessed numerically to determine its characteristics. These constructs can then form research variables, whether dependent or independent.

This research has classified the research constructs into 4 categories of constructs that are (1) exogenous constructs, (2) endogenous constructs, (3) mediator constructs and (4) moderator constructs. Based on the literature review, the exogenous constructs are Assessment Knowledge, Content Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity, Sensitivity Towards Diversity and Professional Commitment meanwhile the endogenous construct is Authentic Learning Teacher Competence in conducting Authentic Learning. The mediator variable is Professional Commitment, and the moderator variables are Gender and Working Experience.

1.11.5 Assessment Knowledge (ASK)

Assessment is an useful tool for improving student learning and performance. As a result, teachers must apply their knowledge in assessment to provide more meaningful



learning in their classrooms. Teachers should be able to identify and construct assessment techniques that are appropriate for Authentic Learning instructional strategies, administer scores, and interpret those scores to make educational decisions, so assessment knowledge is vital in developing the competency model. Therefore, assessment knowledge is also important in providing effective meaningful feedback on students' work and communicate assessment information with them to motivate them to learn.

For documenting students' achievement during classroom evaluations, a continual sequence of learning and facilitation sessions is needed. In order to better meet the demands of the curriculum, classroom evaluation entails a continuous process of gathering, evaluating, and reflecting. An accurate application of this evaluation can give a clear picture of students' performances, assisting teachers, parents, and schools in planning follow-up steps to increase students' learning success. Teachers must participate effectively in this process in order for the classroom assessment to accomplish its goals. Teachers are in charge of creating exceptional and high-calibre students through efficient teaching methods.

1.11.6 Content Knowledge (COT)

Shulman (1986) stated that Content Knowledge is the understanding of a subject as a discipline. According to him, content knowledge is a knowledge structure that covers the theory, concepts and principles of a learning discipline or subject. Therefore, to teach a subject, teachers need to have good and up-to-date content knowledge (Koehler,



Greenhalgh, Rosenberg & Keenan, 2017; Cherner & Smith; 2016; Hasniza Nordin, 2014; Abd Shatar, 2007; Yusminah, 2004; Usiskin, 2002).

The quality of a teacher's teaching skills, for example, is not directly witnessed and measured in the classroom. The more precise indicator of teacher's competency can be measured by looking into the matter of a teacher's knowledge (Guerrero, 2017). Thus, in this research content knowledge has been identified to define the competency framework of a teacher. The content knowledge of teachers is crucial in how they understand the stuff that needs to be conveyed to students. Mastery in content knowledge will allow them to listen and respond to students and their needs.

1.11.7 Curricular Knowledge (CUR)

According to Carlson and Daehler (2019), instructors' knowledge of how to organise lessons to increase students' learning, their awareness of different methods of evaluation, and their abilities for effective teaching are all examples of their subject matter expertise. En, Ztekin, and Demirdöen (2018) concur that curricular knowledge encompasses instructors' knowledge of the curriculum's goals, their familiarity with the subjects they teach, and their comprehension of students' conceptual frameworks to identify potential issues. They define curricular knowledge as teachers' awareness of particular curricular programmes related to the subject matter they teach.

Curriculum includes all the educational experiences and planning that student go through in school. It is essentially a set of activities and learning outcomes for each subject. Referring to this definition, curricular knowledge refers to a teachers understanding of the framework of the educational system. It entails being aware of a variety of educational resources, as well as learning techniques and objectives. According to Tomaevi and Trivic (2015), learning curricular knowledge will aid in the structure, presentation, and adjustment of curriculum materials, topics, and subjects that need to be taught based on the students' ability.

1.11.8 Communication Skill (COM)

School is the most important educational space to build a quality community with the practice of effective communication skills. Communication skills are skills used to describe, explain, make predictions, evaluate in order to understand communication phenomena. It can help students to collect all existing experiences and make a communication behaviour in several propositions or statements. Language skills are an important aspect and known as an intermediary medium that goes through a person's daily life (Noor Aini, Zamri & Zahara, 2012).

Disturbance in a learning environment can only be controlled through managing the classroom itself. The abilities and strategies used by teachers to keep students organised, orderly, attentive, and academically productive during lessons are referred to as classroom management. Mastering the classroom management skills will enable to minimize disturbances while at the same time maximize the behaviours that facilitate

learning. Teachers are effective when they can display strong classroom- management skills. The communication process occurs in almost all types of teaching and learning activities in the classroom (Guat TM, 2013). The communication process in the class can happen verbally and non-verbally where the teacher who conveys the knowledge and skills conveyed aims to get the desired response.

1.11.9 Classroom Management Skill (MAN)

Classroom management, as the best way of an effective teaching and learning, transforms student potentials and provide outputs such as knowledge, skill and behaviour (Aydın, 2017; Balay, 2012). In addition, it also has a great impact on developing students' academic knowledge, cognitive competence and affective qualifications (Dincer & Akgun, 2015). Generally, classroom management is defined as an extensive body of activities including systematic implementation of principles, concepts, theories, models, and techniques related to functions of planning, organizing and evaluation to accomplish the specific educational goals (Erdogan, 2011).

Teachers are required to run their classes efficiently so that students get the most out of their time in class. Therefore, teachers need to be adept at classroom management since it is essential to successful teaching and learning. In other words, the efficacy of the teaching profession greatly depends on having strong classroom management skills. Effective classroom management techniques and classroom management programmes has positive effects on students' academic achievement levels, affective dimension, and other behaviours (Marzano, Marzano, & Pickering, 2003; Mashburn, Hamre, Downer,

& Pianta, 2006; Poulou, 2017; Mujis & Reynolds, 2002; Stronge, Ward, & Grant, 2011; Korpershoek, Harms, de Boer, van Kuijk, & Doolaard, 2016).

An important component of the teaching profession is the efficient management of the teaching and learning process. All of these aspects should be taken into account as we evaluate classroom management abilities and the factors that primarily affect such abilities. In order to foster a healthy learning environment, it is crucial to investigate how these characteristics affect teachers' classroom management abilities.

1.11.10 Teacher Sensitivity (TES)

A instructor's behaviour in a learning setting is crucial in the transmission of the teaching and learning process. Students' learning behaviour is influenced by the teacher's psychological behaviour, or how he or she responds to and interacts with their needs. The human dimension in the teaching and learning process is explored by teacher sensitivity. Teacher sensitivity refers to teachers knowledge of students' needs and response to students' needs and emotional capacities.

Rather than focusing on how "pleasant" or "caring" teachers are, teacher sensitivity emphasises how they continuously show awareness of and response to students' current academic and emotional needs. The classroom is filled with students who are comfortable taking risks, sharing ideas and working cooperatively with their peers. Consistent and effective Teacher Sensitivity cultivates in the classroom.



Teachers who are aware of and respond to each child, supportively facilitate the ability of all students in the classroom to explore actively and learn.

1.11.11 Sensitive Towards Diversity (SED)

Diversity is now widely acknowledged as an essential component of our sociocultural milieu and educational system in the twenty-first century. Borders disappear, and variations in linguistics, culture, and society also become apparent in our day-to-day interactions. Schools are affected by this phenomenon to the extent that the educational system had to change to accommodate these new expectations and beliefs.



cultural awareness and inclusion for students with different backgrounds and needs. This will encourage acceptance among students and help them to thrive in an exponentially diverse world. Teachers with heightened sensitivity will help in creating a positive classroom environment. Diversity can be broadly defined as individual distinctions caused by racial, ethnic, religious, linguistic, gender, and social status within and between groups of people. In order to prevent differences from becoming inequalities, schools that value diversity will adapt to the needs of their pupils and develop curricula that is accessible to all.

Teachers must be ready to effectively instruct every student in their classes in this new environment. In order to achieve this, they must not only acquire the knowledge and abilities required to instruct pupils from various cultural, linguistic,





religious, and gender backgrounds, but also a belief system that embraces diversity and encourages all students (Pohan, Ward, Kouzekanani, & Boatright, 2009). Beliefs are representational informational items that a person has about a thing, someone, or a group of people that are based on specific facts or particular opinions (Ajzen & Fishbein, 1980). Teachers face a problem when dealing with diversity since their attitudes, beliefs, and perceptions will influence how they respond educationally.

1.11.12 Professional Commitment (PRO)

Academically speaking, exceptional pupils are produced through superior education teaching (Hénard & Roseveare, 2012). Teachers serve as "role models" of good deeds and attitudes that encourage pupils to develop effective human capital. Teachers that uphold and exhibit strong work ethics will provide students a clear picture of what real professionalism and integrity look like in action. Schools that have highly committed teachers have a great impact on student academic achievement. According to the commitment theory, a person's commitment will have an effect on increasing the effectiveness of the organization because teachers who have a high level of commitment will work harder and comply with the organization's goals (Allen & Meyer, 1990; Mowday et al., 1982).

The classroom, student characteristics like learning opportunities and academic work, teaching factors like lesson structure and communication, learning aspects like engagement and achievement, and teacher characteristics like basic knowledge, responsibility, and curiosity all play a significant role in how well a teacher performs



(Chamundeswari, 2013) A good teacher's commitment to the organization will indirectly produce a positive relationship in the practice of fostering a positive learning climate, especially in the evaluation of school teachers' teaching (Wan Roslina Wan Ismail, 2011). Teachers who are highly committed to their work will carry out teaching well, and will have an impact on the academic achievement of students (Nurjannah F.A Kariming & Abdul Said Ambotang, 2018).

The quality of education is greatly influenced by teacher dedication. This is due to the fact that committed instructors in the classroom are accountable teachers (Relly, 2015; Shafiq & Rana, 2016). This is because it can enhance students' academic success and school performance, teacher dedication has to get careful consideration (Mohamad, Zakaria & Nasir, 2017; Stan, 2013; Siti Fairuz, Norshidah, Afni & Norsiah, 2013; Hanaysha, 2016; Karim & Rehman, 2012 ; Cheasakul & Varma, 2016; Hayden, 2011; Ambotang & Bayong, 2018).

A teacher's professional commitment is important in becoming an excellent teacher. Teachers who are committed are not only committed to their students but also the teaching profession. Ibrahim and Iqbal (2015) had stated that whenever a teacher has priorities his or her Professional Commitment it would be an added value for teaching to be successful. The commitment discussed in this context is the pedagogic approach, which includes the use of knowledge-based skills, a code of professional conduct, and working within a professional organisation. Thus, this variable is suitable to be the mediator variable among the knowledge, skill and attitude towards teacher competency conducting Authentic Learning in the classroom.



1.11.13 Moderator Variables (Gender and Teaching Experiences)

Moderator variables are variables that alter the degree or direction of an effect between two variables: independent and dependent variables. Therefore, the hypotheses regarding the moderator variables reported in this study are

1. Gender
2. Teaching Experiences

which will moderate the relationship between Content Knowledge, Assessment Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity and Sensitivity Towards Diversity, with Teacher Competency conducting Authentic Learning in classroom.



1.12 Summary

Authentic learning is a method of instruction that involves students in producing a significant, useful, and valued outcome. According to Herrington and Oliver (2000), are responsible for creating a physical or virtual environment that closely resembles the real world, complete with real challenges and opportunities.

The characteristics of an authentic learning paradigm are unique. Students must first face hard real-life tasks for learning to be realistic. Students should be inspired to discover, investigate, question, and synthesise during the authentic learning process. Students who learn from a variety of sources should put the information together in





their heads. As a result, they should be able to develop numerous points of view and gather the most objective data.

Students are always encouraged to develop relevant skills by being exposed to learning experiences that are like their real-life or future working environment, according to Herrington and Oliver (2000). Teachers must be able to provide students with authentic learning experiences, such as real assignments and real learning surroundings. In order to give students with relevant learning experiences, also known as realistic learning, it must reflect how knowledge will be used in real-world circumstances.

Students must be capable of critical thinking, effective communication, successful collaboration, and effective information analysis. Our educational system is about to undergo a paradigm shift in terms of providing students with relevant learning opportunities that engage them while also fostering independence and workplace readiness.

As a result, this study is being carried out to determine the fundamental competences that a teacher must possess to help students fulfil the expectations of a global economy. The element of competencies needed by to execute Authentic Learning in their respective classroom has been investigated. The competency constructs that teacher are required to have to execute Authentic Learning has been identified as Assessment Knowledge, Content Knowledge, Curricular Knowledge, Communication Skill, Classroom Management Skill, Teacher Sensitivity and Sensitivity Towards Diversity

