TEACHERS' EXPERIENCES IN THE IMPLEMENTATION OF 21ST CENTURY LEARNING IN NATIONAL PRIMARY SCHOOLS

JANE CHEE WAN ZHEN

FACULTY OF EDUCATION
UNIVERSITY OF MALAYA
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JANE CHEE WAN ZHEN

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Matric No: 17201383/1

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TEACHERS' EXPERIENCES IN THE IMPLEMENTATION OF 21ST CENTURY LEARNING IN NATIONAL PRIMARY SCHOOLS

The current implementation of 21st century learning by educators is only moderate, adversely impacting educational quality. This mediocrity stems from various factors, including pedagogical deficiencies, decreased motivation, limited professional development, inadequate support and time constraints. Understanding the perceptions and experiences of teachers is crucial as prior research has identified teachers' beliefs as significant predictive variables of their 21st century teaching abilities and attitudes, which subsequently influence the implementation process and student success. Therefore, this study aims to understand the perceptions and experiences of teachers in the implementation of 21st century learning in public primary schools and how these experiences give meaning to the teachers. Through the three data collection techniques, which included interviews, journal writing entries and document analysis, a phenomenological qualitative study was conducted to investigate the phenomenon and its impact on the 10 teachers selected from Public Primary Schools based on their 21st century teaching experiences. The data collected was then coded using thematic analysis to identify the themes present in the teachers' perceptions and experiences. According to the research findings, the teachers have comprehended the purpose of 21st century learning, which involves the student-centred education of knowledge, competencies and skills to prepare students for the future, its significance in fostering holistic learning in students by enabling effective and meaningful learning, and their roles and responsibilities in mastering 21st century teaching techniques to ensure quality education. Despite poor working conditions, teachers have sought countermeasures and

formed positive beliefs, leading to increased interest, motivation, and competencies. Consequently, this served as a greater incentive for them to overcome their challenges. The meaningful experiences have also promoted positive feelings and enhanced their personal and professional growth. Their self-improvement efforts have resulted in a better quality of life and a renewed sense of purpose, to produce competent students for further education and the workforce, as well as global success. However, Continuous professional development programs on student management and other support measures are necessary, as the implementation of 21st century learning among teachers is still at a moderate level. In conclusion, understanding the perceptions and experiences of teachers has proven crucial for the successful integration of 21st century learning, as these factors act as determiners of their professional competencies and student outcomes.

PENGALAMAN GURU DALAM PELAKSANAAN PEMBELAJARAN ABAD KE21 DI SEKOLAH RENDAH KEBANGSAAN

Pelaksanaan Pembelajaran Abad Ke-21 semasa oleh guru-guru hanya pada kadar sederhana, dan menjejaskan kualiti pendidikan. Ini berpunca daripada pelbagai faktor, termasuk isu-isu pedagogi, kekurangan motivasi, pembangunan profesional, sokongan dan masa. Pemahaman tentang persepsi dan pengalaman guru adalah penting kerana kajian terdahulu telah membuktikan kepercayaan guru sebagai faktor pengaruh signifikan dalam kebolehan dan sikap terhadap Pengajaran Abad Ke-21 mereka, yang juga boleh mempengaruhi proses pelaksanaan dan kejayaan pelajar. Oleh itu, kajian ini bertujuan untuk memahami persepsi dan pengalaman guru dalam pelaksanaan Pembelajaran Abad Ke-21 di sekolah rendah awam dan bagaimana pengalaman ini memberi makna kepada guru. Melalui tiga teknik pengumpulan data yang merangkumi temu bual, catatan penulisan jurnal dan analisis dokumen, satu kajian kualitatif fenomenologi telah dijalankan untuk meneroka fenomena dan kesannya terhadap 10 orang guru yang dipilih dari sekolah rendah awam berdasarkan pengalaman mereka dalam mengajar Pembelajaran Abad Ke-21. Data yang dikumpul kemudiannya dikodkan menggunakan analisis tematik untuk menentukan tema yang terdapat dalam persepsi dan pengalaman guru. Menurut pengumpulan dan analisis data, guru-guru telah memahami tujuan Pembelajaran Abad Ke-21, yang melibatkan pendidikan berpusatkan pelajar, pengetahuan, kompetensi dan kemahiran untuk menyediakan pelajar untuk masa depan, kepentingannya dalam memupuk pembelajaran holistik dalam kalangan pelajar dengan melalui pembelajaran yang berkesan dan bermakna, serta peranan dan tanggungjawab mereka dalam menguasai teknik Pembelajaran Abad Ke-21 untuk

memastikan pendidikan berkualiti. Walaupun keadaan kerja yang kurang baik, guru-guru telah mencari langkah dan membentuk kepercayaan positif, yang membawa kepada peningkatan minat, motivasi dan kecekapan. Akibatnya, ini menjadi insentif yang lebih besar bagi mereka untuk mengatasi cabaran-cabaran mereka. Pengalaman bermakna juga telah menggalakkan perasaan positif dan meningkatkan pembangunan peribadi dan profesional mereka. Usaha peningkatan diri mereka telah menghasilkan kualiti hidup yang lebih baik dan tujuan hidup baharu, untuk melahirkan pelajar yang kompeten demi melanjutkan pelajaran dan tenaga kerja, serta kejayaan global. Namun begitu, program Pembangunan Profesionalisme Berterusan mengenai pengurusan pelajar adalah perlu bagi memberi sokongan kepada guru, memandangkan pelaksanaan Pembelajaran Abad Ke-21 dalam kalangan guru masih di tahap sederhana. Kesimpulannya, pemahaman tentang persepsi dan pengalaman guru telah membukti kepentingannya untuk kejayaan pelaksanaan Pembelajaran Abad Ke-21, kerana faktor-faktor ini bertindak sebagai penentu kecekapan profesional mereka dan pencapaian pelajar.

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LIST OF ABBREVIATIONS

21st Century Learning	PAK21
21st Century Skills	4Cs
Continuous Professional Development	CPD
Education Service Offices	ESO
English as a Second Language	ESL
Game-Based Learning	GBL
Higher-Order Thinking	HOTS
Information and Communications Technology	ICT
National Education Association	NEA
National-Type Schools	SJK
National-Type Chinese Schools	SJKC
National-Type Tamil Schools	SJKT
Problem-Based Learning	PBL
Project-Based Learning	PBL
Professional Learning Communities	PLCs
School Improvement Specialist Coaches	SISC+
Standard Curriculum of Primary Schools	KSSR
Standard Curriculum of Secondary Schools	KSSM
State Department of Education	JPN
Student Affairs Management	HEM
Teaching and Learning Process	T&L / PDP
Teacher Professionalism Development Master Plan	PIPPK
The Partnership for 21st Century Learning	P21
The Ministry of Education Malaysia	MoE
Transformation School Program 2025	TS25
Virtual Learning Environments	VLE

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Before 21st century learning was introduced in Malaysia, 20th century education was centralised on the 4Rs of education: reading, writing, arithmetic and reasoning (The History of Education in Malaysia, 2011). This conventional approach highlights a teacher-centred approach, and an exam-oriented system, both of which do not support students in learning as the method encourages them to practice rote rehearsal as opposed to learning relevant concepts that are essential in practical life (Schleicher, 2010). In addition, this method of education does not address the rising crisis of unemployment, as the rapid progression of technology has opened up possibilities which require students to be prepared for technologies that have not been created and anticipate issues that have yet to exist (Schleicher, 2010).

The ongoing evolution into the fourth industrial revolution (IR4.0) necessitates an educational system that requires perpetual acclimatisation to the needs and aspirations of the modern society. Characterised by enhanced connectivity and intelligent automation, IR4.0 fundamentally transforms the social, political, and economic landscape, particularly influencing industrial capitalism and the way individuals interpret the world around them (Teo, Unwin, Scherer, & Gardiner, 2021). As a result of the rapid advancement of automation, the demand for skilled individuals intensifies to keep up with industrial expectations, highlighting challenges such as deficiencies in

employee qualifications (Ghazali, 2021; Sulaiman and Ismail, 2020; Teo et al., 2021). To qualify as a developed nation of IR4.0, a country must be able to create individuals with the knowledge and skills necessary to navigate the world of the twenty-first century (National Education Association [NEA], 2010). These individuals should possess analytical and critical thinking, interpersonal skills, life and career skills, information skills, media and technology skills, literacy skills, as well as having high levels of creativity and innovation (Alismail & McGuire, 2015; Hiong, 2017; National Education Association [NEA], 2010; Rakwi, Shafie & Syed Ali, 2021; Singh, Ong, Mohtar, Singh & Mostafa, 2020; Sulaiman et al., 2020; Teo et al., 2021). Thus, developing a generation of high-quality human capital through educational excellence is the greatest undertaking of the twenty-first century (Abdullah, Wong, Zaini, Ali, & Hasan, 2020; Muhamad Isa, Abdullah, Majid, Mohamad, & Mohd Saad, 2021; Teo et al., 2021).

The Partnership for 21st Century Learning (P21) was established to reform the educational system by preparing learners for the 21st century workforce (National Education Association [NEA], 2010). Numerous findings demonstrated that 21st century learning positively influences student behaviour, motivation and performance, proving effective even during global crises such as the Covid-19 pandemic, natural disasters and emergencies due to its innovative and creative delivery of knowledge (Alismail et al., 2015; Boyman, Jamal, Razali & Aziz, 2020; Hiong, 2017; Jima'ain, Hehsan & Mohamad, 2019; Mohamad & Mustapha, 2022; Moharam, Mokhtar & Thia, 2021; Singh et al., 2020; Teo et al., 2021).

Therefore, policymakers globally are striving to integrate the P21 Framework into their education systems to align with modern demands, and Malaysia is no exception in this endeavour (Abdullah et al., 2020; Alismail et al., 2015; Ghani & Shafiee, 2022; Hiong, 2017; Kementerian Pendidikan Malaysia [KPM], 2018; Rahman, Mokhtar & Ali, 2021; Rakwi et al., 2021; Singh et al., 2020; Sulaiman et al., 2020; Teo et al., 2021). The Ministry of Education Malaysia (MoE) has initiated several policies to align the country's educational standards with global benchmarks. This includes the Malaysian Education Blueprint (PPPM) 2013–2025, which sets forth a vision for education of the highest calibre through the implementation of 21st century learning across all public schools (Boyman et al., 2020; Kadri, Mansor & Nor, 2021; Kementerian Pendidikan Malaysia [KPM], 2018; Rakwi et al., 2021; Rahman, Ali & Sinau, 2020).

The 21st century learning was implemented in all national schools beginning in 2015 with the reformation of the Standard Curriculum of Primary Schools (KSSR) and Standard Curriculum of Secondary Schools (KSSM) in 2017 (Ali et al., 2021; SinarHarian, 2018). The 21st century learning or *Pembelajaran Abad Ke-21* (PAK21) is characterised by the pedagogical shift away from traditional didactic methods towards collaborative, practical application, real-world problem-based methods, facilitated by teachers who guide students toward independent and lifelong learning (Alismail et al., 2015; Kementerian Pendidikan Malaysia, 2017; Nahar, Safar, Hehsan, Jima’ain, Junaidi, Haron, & Hussin, 2021; Singh et al., 2020). This educational framework also emphasises communication skills, collaboration skills, critical thinking skills, creativity skills, digital and technological literacy, civic responsibility and global awareness within

all disciplines in the curriculum (Alismail et al., 2015; Ali et al., 2021; Hiong, 2017; Kementerian Pendidikan Malaysia, 2017; National Education Association [NEA], 2010; Nahar et al., 2021; Rahman et al., 2021; Rusdin & Ali, 2019; Ali, Rusdin & Masran, 2019b). With the institutionalising of this legislation, MoE hopes to improve education and achieve its vision, as cited in PPPM 2013-2025, by equipping students with the knowledge and skills needed to address the challenges of the future (Hiong, 2017; Kementerian Pendidikan Malaysia [KPM], 2018; Nahar et al., 2021; Rusdin et al., 2019).

The transition towards the new millennium has introduced significant changes and challenges in education, requiring teachers to be proficient in equipping learners with the knowledge and skills required for IR 4.0 technologies for transformation to occur (Ali et al., 2021; Boyman et al., 2020; Ghani et al., 2022; Ghazali, 2020; Hiong, 2017; Rahman et al., 2021; Sulaiman et al., 2020). However, the integration of 21st-century learning is majorly hindered by teachers' beliefs and attitudes, which play a critical role in influencing student learning outcomes and educational effectiveness (Ghani et al., 2022; Rakwi et al., 2021; Teo et al., 2021; Tiew & Abdullah, 2022a; Tiew & Abdullah, 2022b).

Thus, the MoE is committed to enhancing education quality through various initiatives, recognising that teachers are key to achieving this goal (Jima'ain et al., 2019; Rahman, Mokhtar & Ali, 2021; Safri et al., 2022; Sulaiman et al., 2020). Consequently, new organisations and establishments emerged as a result to support teachers, schools, and

educational officials to move toward full compliance with 21st century learning objectives (Ali et al., 2021; Kementerian Pendidikan Malaysia, 2017; Rahman et al., 2021). This includes the Transformation School Program 2025 (TS25), which supports five essential principles to generate superior human capital, such as encouraging active student involvement and generating proficient and highly motivated teachers (Sulaiman et al., 2020).

1.2 Rationale of the Study

The main objective of 21st century learning is to prepare students by equipping them with the knowledge and skills essential to thrive in this digital era. Collaboration, communication, critical thinking, and creativity are the four fundamental skills that each individual needs to acquire to accommodate and participate in this new industry that demands highly skilled human capital (Teo et al., 2021; Singh et al., 2020). With the vast amount of information made available to anyone in this digitalised era, 21st century learning emphasises skills in utilising the information creatively and wisely. This also means the new setting entails the application of knowledge over the knowing of information (Teo et al., 2021; Singh et al., 2020). Hence, this makes the compliant nature of the previous education goals inferior and invalid. Moreover, the reform education cultivates and nurtures students' holistic development (Ali et al., 2021; Abdullah et al., 2020; Boyman et al., 2020; Jima'ain et al., 2019; Nahar et al., 2021; Rahman et al., 2021). This is crucial as it helps students to work effectively with others, thereby contributing to a better future. Therefore, it is of the utmost importance that teachers implement 21st century learning completely, as this curriculum can ensure the

future of students by educating them in the skills necessary so that they may apply those skills in life and succeed in the world to come.

The foremost impediment is the teacher's values, which encompass their attitudes and beliefs. The teachers' attitudes and beliefs are influenced by their perceptions. Perceptions can shape an individual's interpretation of reality and the meaning they assign to their experiences. Different individuals may interpret the same event in diverse ways, leading to varying experiences. Understanding these perceptions helps to explain why certain experiences are perceived differently (Berstein, 2015). This is crucial as the ability of the teachers to apply 21st century learning plays a prominent role in determining student behaviours' motivation, performance and ultimately the success of the education system (Abdullah et al., 2020; Boyman et al., 2020; Jima'ain et al., 2019; Safri et al., 2022; Sulaiman et al., 2020; Teo et al., 2021; Tiew et al., 2022a; Tiew et al., 2022b). Despite receiving extensive training and guidance on the 21st century learning framework, many research studies still report teachers lacking readiness and confidence in embedding the 21st century teaching and learning approach due to uncertainties and misconceptions (Ali et al., 2019a; Jima'ain et al., 2019; Isa et al., 2021; Safri et al., 2022; Sulaiman et al., 2020). Hence, understanding teachers' perceptions may provide substantial insights into the problem and potential solutions. This is also to explore how teachers conceive 21st century learning and discover any factor that contributes to forming their misconception.

Secondly, understanding how teachers make sense of their experiences to form meanings which may impact their lives at a professional or personal level can also help them to develop positive perceptions and attitudes towards the approach. We develop emotions through various experiences. These emotions, combined with past experiences, can influence future perceptions. For instance, we form expectations and biases based on previous encounters (Bernstein, 2015). Therefore, examining both perception and experience allows for a deeper understanding of the human experience and helps the researcher to uncover the subjective meanings the teachers attach to their experiences and how those meanings are affected by their perceptions and past interactions. Additionally, having positive views and attitudes can boost teachers' confidence, assist them in being better prepared, anticipate, cope and persevere in challenging situations, as well as strive to resolve their deficiencies (Bandura, 1997). This will, in turn, lead to teachers' willingness to improve their professionalism, master the new curriculum, strengthen their 21st century skills and ensure that their students are educated with pedagogical approaches in 21st century learning.

A 21st century classroom is a conducive and adaptive learning environment capable of increasing students' concentration and focus, creating more meaningful learning experiences and stimulating higher levels of student motivation and achievement (Ali et al., 2021; Kementerian Pendidikan Malaysia, 2017; Rakwi et al., 2021; Safri et al., 2022; Teo et al., 2021; Tiew et al., 2022a; Tiew et al., 2022b). Similarly, a teacher would flourish if they worked in such ideal conditions. Hence, it is essential to explore the perceptions and experiences of teachers to identify constituents that represent teachers'

resistance and support in the implementation process. Numerous studies have ascertained some factors that limited the teachers' access to teaching tools and amenities, which further inhibits their integration of 21st century learning. Among those limiting factors reported are outdated and insufficient facilities as well as unsupportive administration (Ghani et al., 2022; Jima'ain et al., 2019; Rahman et al., 2021; Tiew et al., 2022a; Tiew et al., 2022b). Teachers require proper access to teaching resources and facilities to manage their responsibilities optimally and foster their professional growth (Ghani et al., 2022; Nahar et al., 2021; Rahman et al., 2021; Tiew et al., 2022a; Tiew et al., 2022b). Likewise, students will also become invested in learning when the learning environment precipitates and appreciates the students' potential (Ali et al., 2021; Rakwi et al., 2021; Safri et al., 2022; Teo et al., 2021). For this reason, it is important to recognise reinforcements that support the teacher in implementing the new curriculum so that the MoE can create a supportive, safe and comfortable environment to ensure the well-being of all school members as well as increase their productivity.

Teachers are the principal leaders in realising the nation's goals by establishing standards and ensuring the education system's quality and excellence. Thus, they must be aware of their obligations to provide effective educational facilities that adhere to the 21st century learning framework for learning to occur successfully. When these aspects are prioritised, students' performance and well-being will increase, schools will improve, and the nation will realise its aspirations.

1.3 Statement of Problem

Since the institution of the reform education system, the application of 21st century learning by teachers is still reported in many studies to be at a moderate level, which hinders the full implementation of 21st century learning and consequently affects the quality of education (Abdullah et al., 2020; Ali et al., 2019a; Ali et al., 2019b; Ghani et al., 2022; Hiong, 2017; Jima'ain et al., 2019; Rakwi et al., 2021; Rusdin & Ali, 2019; Safri & Jamaludin, 2022; Sulaiman et al., 2020). This mediocre level of teaching proficiency has been attributed to many causes, and the reasons became the focal point in many research journals. This is because mastering the 21st century learning pedagogy by teachers is needed to ensure the quality of education and secure students' future by increasing students' motivation and engagement in their academics (Ghani et al., 2022; Safri et al., 2022; Singh et al., 2020; Sulaiman et al., 2020). Such issues examined included teachers' lack of curriculum knowledge, incompetencies, decreased motivation, low professional development, inadequate and insufficient support, limited resources and time constraints (Ghani et al., 2022; Ghazali, 2021; Kadri et al., 2021; Mohamad et al., 2022; Nahar et al., 2021; Safri et al., 2022; Sulaiman et al., 2020; Tiew et al., 2022a; Tiew et al., 2022b). However, little emphasis has been given to how teachers form their perceptions of 21st century learning based on their experiences. Understanding the perceptions and experiences of teachers is crucial as several prior research investigations have identified teachers' beliefs as significant determiners of their 21st century teaching abilities and attitudes, which subsequently influence the implementation process and student success (Ghani et al., 2022; Rakwi et al., 2021; Teo et al., 2021; Tiew et al., 2022a; Tiew et al., 2022b). Therefore, the role of educators' attitudes and perceptions in the effective adoption of 21st century learning is a central concern, as these factors act as significant determiners of student outcomes.

In addition, the teacher's perception and attitude have a substantial impact on the actions and decisions that affect the teaching and learning process (Ghani et al., 2022; Rakwi et al., 2021; Teo et al., 2021; Tiew et al., 2022a; Tiew et al., 2022b). The low teaching morale of the educators makes most teaching staff resistant to change. This resistance manifested due to the lack of confidence in the ability to teach, reluctance to accept and accommodate change as well as inadequate and insufficient support, resources and facilities by the schools (Ghani et al., 2022; Jima'ain et al., 2019; Nahar et al., 2021; Tiew et al., 2022a; Tiew et al., 2022b). As a result, most teachers are retaining the didactic form of instruction as they are more familiar with and comfortable utilising this method (Jima'ain et al., 2019; Rahman et al., 2020; Tiew et al., 2022a; Tiew et al., 2022b). This resistance will provide more friction that will impede the smooth transition in employing the reform education system and may impact productivity and efficiency as well. Therefore, it is crucial to address the teachers' readiness during the 21st century learning adoption process by researching variables that affect their attitudes and perceptions.

Furthermore, research proved pedagogical deficiencies arising from primary teachers' competency in instructional strategies, misperception and lack of comprehension of the new curriculum (Mohamad et al., 2022). For example, educators have expressed their concerns and difficulties about their abilities to master 21st century learning because the

innovative teaching paradigm is still relatively new (Ali et al., 2019a; Muhamad Isa et al., 2021; Jima'ain et al., 2019; Kadri et al., 2021; Mohamad et al., 2022; Rahman et al., 2021; Rakwi et al., 2021; Rusdin et al., 2019; Sulaiman et al., 2020). Moreover, educators have failed to consider the significance of inculcating 21st century learning into the classroom (Rahman et al., 2020). Lack of confidence, resources, training, experience, comprehension, knowledge and skills of the reform education contributed to inadequate professional development (Ghani et al., 2022; Jima'ain et al., 2019; Kadri et al., 2021; Mohamad et al., 2022; Muhamad Isa et al., 2021; Nahar et al., 2021; Rusdin et al., 2019; Safri et al., 2022; Sulaiman et al., 2020; Tiew et al., 2022a; Tiew et al., 2022b). Kim, Raza and Seidman (2019) and Singh et al. (2020) supported this notion by adding that teacher quality is essential as there is a need for an efficient curriculum that optimises teachers' access to 21st century learning techniques. More studies are needed to identify the elements causing difficulties in teachers' professional development, investigate the extent to which teachers understand and are willing to implement the new teaching paradigm. This is to ensure effective application and understanding of the 21st century learning teaching method.

To remedy the issue and elevate the 21st century teaching proficiency among teachers, the MoE has attempted to promote teachers' autonomy in learning and facilitating by conducting more training. However, the issue persists, although more teachers have taken initiatives to implement 21st century learning as optimally as possible (Ghani et al., 2022; Kadri et al., 2021; Muhamad Isa et al., 2021; Rusdin et al., 2019; Sulaiman et al., 2020). Rakwi et al. (2021) also added that there are educators who have not yet

grasped the framework of applying 21st century learning in their teaching and learning despite receiving various training. This implies that there may be some underlying issues that have not been explored, as they are still ongoing and have not been fully rectified. The teachers' perceptions and experiences of 21st century learning should be investigated thoroughly to reveal any dilemmas encountered by the teachers and propose solutions to overcome those challenges. This is so that teachers will comprehend the 21st century pedagogical concept, expedite and maximise the implementation process to the greatest extent feasible.

1.4 Purpose of the Study

The purpose of this phenomenological study is to understand the perceptions and experiences of teachers in the implementation of 21st century learning in public primary schools and how these experiences give meaning to the teachers. Through the exploration of participants' experiences and perceptions, this research will be able to comprehend the 21st century learning implementation process experienced by teachers. The exploration of teachers' perceptions in their application of the new curriculum will also provide a deeper insight into the components that construct teachers' attitudes and beliefs. Also, understanding the phenomena will reveal how teachers make sense of their experiences to form meanings which may impact their lives at a professional or personal level. Meaning in life is a vital component of a person's psychological well-being, as a meaningful existence can provide teachers with a greater sense of purpose and worth and motivate them to make significant developments in their lives and eventually contribute to society (Carr, 2022). A better understanding of the experiences

and perceptions of teachers as they embrace the new and innovative education system will enlighten practitioners and assist them in developing effective and adequate teacher support to help teachers perform their responsibilities and ultimately achieve a quality educational experience for all students.

1.5 Objectives of the Study

The objectives of this study are as follows:

1. To explore the perceptions of teachers in the implementation of 21st century learning in public primary schools.
2. To explore the experiences of teachers in the implementation of 21st century learning in public primary schools.
3. To explore how these experiences give meaning to the teachers.

1.6 Research Questions

The research questions are presented by the following:

1. What are the perceptions of teachers in the implementation of 21st century learning in public primary schools?
2. What are the experiences of teachers in the implementation of 21st century learning in public primary schools?
3. How do these experiences give meaning to the teachers?

1.7 Assumptions of the Study

Based on the research questions, it can be assumed that understanding the experiences and perceptions of teachers in the implementation of 21st century learning in public primary schools will enlighten practitioners and researchers about the issues surrounding the implementation process and devise solutions to resolve the problems. Past research studies have associated teachers' positive beliefs with numerous beneficial outcomes such as enhanced professional development, improved teaching content and skills, optimised integration of 21st century learning and increased facilitation of holistic development among students (Ali et al., 2021; Boyman et al., 2020; Jima'ain et al., 2019; Rahman et al., 2021; Teo et al., 2021). These are crucial as they are needed in reforming and fortifying the education system, advancing and sustaining the nation globally in its economic status and ultimately achieving the nation's aspirations. Therefore, it can be assumed that exploring and understanding how these experiences and perceptions are constructed and how they affect the teachers in their application of 21st century learning will prove to be efficacious and meaningful to the teacher's life.

1.8 Significance of the Study

Achieving the research objectives of this study can lead to substantial betterment for the following stakeholders:

Teachers will benefit from having positive beliefs and attitudes and be engaged in continuous self-directed, lifelong learning (Ali et al., 2021; Ghani et al., 2022; Ghazali, 2020; Teo et al., 2021). The combination of these factors can contribute to the growth of

a healthy individual in terms of intellectual abilities, character, and the desire to become enhanced. Such abilities involve formulating ideas, solving problems, applying learned concepts and techniques, as well as self-evaluation, which is obtained through exposure to and understanding of meaningful experiences (Carr, 2022). Meaningful experiences are also constructive for building and organising experiences to help teachers better understand themselves and the world, enabling them to reorient and adapt to meet the requirements of the changing world. Along with abilities, the character part comprises attitudes and behaviours such as self-esteem, resilience, dedication and conscientiousness (Bandura, 1997). This is crucial in fulfilling their duties and realising the curriculum and national goals. These attitudes and abilities will lead to self-actualising tendencies, which are essential in the formation of a fully functioning individual who is motivated, dedicated, competent, and directed at the betterment of the future.

Second, career growth will be experienced by teachers through professional development. Professional development will empower them to maintain high morale, become more autonomous, proficient, prepared, persevering and efficient in managing unpredictable situations, generate innovative and creative learning and ensure teaching quality (Ghani et al., 2022; Hiong, 2017; Jima'ain et al., 2019; Muhamad Isa et al., 2021; Rahman et al., 2021; Singh et al., 2020; Sulaiman et al., 2020). Consequently, teachers will be able to gain more fulfilling professional development careers once they have attained their targeted goals. In addition, when the teachers are equipped with the capabilities needed to facilitate the desired outcomes for the students, they will become more confident and have a high sense of teacher efficacy (Tchannen-Moran, Woolfolk

Hoy & Hoy, 2011). This is because they have the power to inspire students and make a major difference in their lives. Lastly, teachers will be members of a community that fosters creativity, professionalism, and continuous learning. Through the sharing of their passion and expertise with other members, they can better themselves as well as inspire the growth of other educators.

Third, students will be able to flourish and thrive in a creative and stimulating environment that precipitates and nurtures their individuation. Many recent studies have validated that 21st century learning has a beneficial impact on students' attitudes, motivation, and academic achievement (Boyman et al., 2020; Hiong, 2017; Jima'ain et al., 2019; Teo et al., 2021). Therefore, when the students are imbued with 21st century skills such as cooperation, collaboration, empathy, critical thinking and creativity, they will mature into independent, motivated, and cooperative individuals (Nahar et al., 2021; Teo et al., 2021). All of which contribute to the holistic development of the individual. This holistic learning and meaningful experience will simultaneously encourage students to develop to their fullest potential. Holistic learning, as opposed to meaningless accomplishments, demonstrates a propensity for the creation of a meaningful life, which is highly valued in today's generation (Carr, 2022). Hence, by cultivating their holistic learning, 21st century learning prepares students to thrive and sustain in the future and ultimately lead life meaningfully.

Fourth, the MoE will be able to develop effective and specialised training modules and improve existing programmes to strengthen teachers' professionalism, support them in

expanding their expertise, knowledge and skills as well as staying abreast with the best and latest educational standards in the field (Ghani et al., 2022). A well-informed, experienced teacher who assimilates the new teaching mechanism into the syllabus can augment students' outcomes by producing a conducive, interactive and stimulating environment (Hiong, 2017; Jima'ain et al., 2019; Sulaiman et al., 2020). Professionally qualified teachers will be able to assist pupils of varied abilities and levels by identifying their strengths and weaknesses, interests and talents, whilst also ensuring optimal learning by designing personalised lessons to meet students' diversified needs, and levels. This will allow teachers to discover and maximise their students' potential. Highly skilled and experienced teachers are also aware of a range of teaching styles to engage and sustain students' interest and motivation in their learning. Overall, the teachers will have better strategic teaching skills, classroom management skills and a greater student participation rate that will directly affect students' performance.

Ensuring teaching quality will aid schools in creating education of the highest calibre. Schools will transform into favourable learning and working spaces for both education staff and students. A conducive environment can encourage a healthy mindset and growth (Rakwi et al., 2021; Safri et al., 2022; Teo et al., 2021; Tiew et al., 2022a; Tiew et al., 2022b). Students and education staff will be motivated and encouraged to equip themselves with the required knowledge and skills to achieve their fullest potential. The students and education staff will be working in a safe, stable, secure, comfortable, and supportive atmosphere that fosters and facilitates the advancement of personal growth and skills (Ali et al., 2021; Rahman et al., 2021; Rakwi et al., 2021; Safri et al., 2022; Teo et al., 2021; Tiew et al., 2022a; Tiew et al., 2022b). Education staff and students

will be confident and steadfast in their abilities to handle any task efficiently and have a strong collective responsibility in performing their duties. It is through having a healthy, stable and positive mindset that the improvement of the self can occur. Further, easy access to resources and facilities, technical assistance, and guidance can increase education staff and students' competencies and boost productivity (Ali et al., 2021; Ghani et al., 2022; Rahman et al., 2021; Rakwi et al., 2021; Safri et al., 2022; Teo et al., 2021; Tiew et al., 2022a; Tiew et al., 2022b). Overall, schools will be able to produce high achievers who can meet the global market demands and subsequently help the nation to grow economically, thereby improving lives in the process. Education staff and students will also be equipped with world-class knowledge and skills accompanied by strong moral principles capable of being competent to meet all types of expectations. In summary, the school will be on a path of continuous improvement while ensuring the well-being of all members.

Finally, the community will benefit from teachers' evident and consistent improvements in students' educational experiences. An actualising student would also be ready to devote themselves to society and advance the nation in the future. Preparing learners for life through the incorporation of 21st century learning will promote solidarity, cooperation, and social conscience, all of which are key attributes in combating the disparities of disadvantaged groups and working towards a stable and peaceful society. Also, they will be encouraged to lead, influence, prepare, and protect the next generation, thereby flourishing, sustaining and achieving the nation's aspirations. Ultimately, the country will be healthier, harmonious, equalitarian, stable, have better economic growth and lower crime rates.

1.9 Limitations of the Study

The sampling method adopted in this study is purposive sampling and involves a sample of ten primary teachers from three primary government institutions located in Kuala Lumpur and Selangor. The sample is chosen based on the criteria concerning the interest of the research and the willingness of the school and its participants to participate. Although the sample size complies with the minimum regulations, the small sample size may give rise to a lack of generalisability as the findings obtained may only be relevant to the particular setting in which the sample was examined and the respondents' diverse backgrounds. Furthermore, perceptions of people are influenced by culture and constantly changing (Berstein, 2015). Therefore, the information collected may not be valid for certain areas and the results of the study may not be represented elsewhere. To minimise cultural biases, this research will practice cultural relativism to understand the experiences of primary teachers in implementing 21st century learning in the Malaysian context. The researcher will also be aware of any cultural assumptions that might be present throughout the study.

1.10 Operational Definitions

The following terms of the study are defined and explained. The terms are 21st century learning, teachers' experience and public primary schools.

1.10.1 21st Century Learning

21st century learning is a student-centred learning process which cultivates the skills, mindsets, and literacies needed for students to thrive and succeed in the ever-evolving

world. It is also an education that emphasises the 4Cs, which are communication, collaboration, creativity and critical thinking skills (battelleforkids.org, 2009).

In this study, 21st century learning refers to Pembelajaran Abad Ke 21 (PAK21). PAK21 is the application of 21st century learning in Malaysia. The education is similar to 21st century learning, which prioritises student-centred learning and the 4Cs skills but is supplemented with moral values and ethics (Kementerian Pendidikan Malaysia, 2017).

1.10.2 Teacher's experience

In this study, teachers' experiences refer to the phenomenon that is experienced by the teacher from the first-person perspective. Experience can include the perceptions, memories, thoughts and emotions associated with an event. This phenomenon can be subjected to various influencing factors such as culture, language and social background, which will affect how teachers form their interpretations of their experiences (Bernstein, 2015). Studying a teacher's experience can help researchers understand their unique outlook on a specific context and gain valuable insights into how teachers construe events, which in turn formulate their views (Fraenkel, Wallen & Hyun, 2019).

1.10.3 Public Primary Schools

In this study, public primary schools refer to National Schools (Sekolah Kebangsaan, SK) and National-type Schools (Sekolah Jenis Kebangsaan, SJK). The National-type Schools are vernacular schools which are National-type School Chinese (Sekolah Jenis Kebangsaan Cina, SJKC) and National-type School Tamil (Sekolah Jenis Kebangsaan Tamil, SJKT). National Schools are fully owned and operated by the government, whereas some National-type Schools are owned but mostly aided by the government. The syllabus employed by the education system is the Primary School Standard Curriculum or Kurikulum Standard Sekolah Rendah (KSSR). The curriculum's main goal is to prepare students to deal with the challenges in the 21st century and follow the Standard Learning Document (Kementerian Pendidikan Malaysia, 2017).

1.11 Summary

This proposal is organised into three chapters. The first chapter is the introduction, which will give insight into the experiences and perceptions of teachers in implementing 21st century education and will set the context for this study. This will then be followed by chapter two, which is the literature review. Chapter two will review the relevant literature with respect to the studies relevant to this research, which are the importance of 21st century learning and its current implementation process in Malaysia. Last, Chapter Three will discuss the design and methodology utilised and applied in the research process.

This chapter has introduced the background of the study and has discussed the rationale, problem statement, purpose, and objectives of this study. Research questions have been generated to understand the experiences of primary teachers in implementing 21st century learning in primary schools. Finally, hypotheses based on the research questions are formed and the significance, as well as the delimitation of the study, are provided.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The Fourth Industrial Revolution (IR 4.0) has catalysed new ways of human labour and skill due to the exponential growth of technology in the industry. Since then, education sectors across the globe have shifted to incorporate technology as the primary focus (Gardiner, Scherer, Teo & Unwin, 2021). This is because people are being displaced by automation as it becomes increasingly sophisticated in their capabilities of performing hard skills (Gardiner et al., 2021). As a result, young people face higher rates of unemployment and underemployment.

To counter this, the market requires human-centric skills, such as soft skills, which are irreplaceable by technology (battelleforkids.org, 2009). The P21 Framework for 21st Century Learning by the National Education Association (NEA) was created. The framework outlined the skills, knowledge, expertise, and support systems to prepare prospective students to survive in the future market (National Education Association [NEA], 2010). To develop a nation that can compete, thrive and contribute to the current globalisation, Malaysia has also partaken in the expedition to reform the education system through the implementation of Pembelajaran Abad Ke 21 (PAK21) or 21st century learning (Kementerian Pendidikan Malaysia [KPM], 2018).

21st century learning has been proven to inculcate students with skills such as life and career skills, learning and innovation skills, as well as information, media and technological skills needed to survive and succeed in the future workplace (battelleforkids.org, 2009). It also assists students in developing holistically through meaningful, interactive and engaging learning, thus motivating them to actualise their potential and become lifelong learners (battelleforkids.org, 2009).

2.2 Related Theories and Models

2.2.1 Constructivism

Constructivism is the education philosophy that focuses on how people create meaning and knowledge, as well as build internal mental representations to delineate the external world (Brau, 2018; Woolfolk, 2016). The theory states that learners actively build their knowledge through the reflection of their experiences and integration of new information into their pre-existing knowledge as they interact with their environment to form their understanding and knowledge of the world (Brau, 2018; Bada & Olusegun, 2015; Woolfolk, 2016). Knowledge becomes increasingly interconnected as conceptual systems expand to incorporate learners' experiences and form a more accurate representation consistent with reality (Bada et al., 2015; Woolfolk, 2016).

Rather than passively receiving information, learners engage with their environment and actively create personal theories, forming connections that enhance their conceptual frameworks. This approach underscores that understanding is not simply transmitted, it is derived from meaningful interactions between new and prior knowledge, leading to a

more comprehensive representation of reality (Brau, 2018; Bada et al., 2015; Nugroho, Wulandari, 2017; Woolfolk, 2016; Yoders, 2014).

New understandings are constructed based on the foundations of past learning and experiences in which prior knowledge determines how the new experience or modified knowledge will be organised, assimilated or accommodated into their existing mind (Bada et al., 2015; Woolfolk, 2016). These internal processes regarding internal cognitive and external social and environmental variables direct knowledge construction. Assimilation is the process of amalgamating new information within the context of previous knowledge. This procedure assists the learners in synthesising new and current information to develop new insights and evaluation of the new knowledge, which will eventually transform their thoughts (Bada et al., 2015; Woolfolk, 2016). Accommodation is the process of revising and redeveloping inconsistent or contradicting schemata to address and adjust to the new experience (Charuni, Chisanu, Issara & Sumalee, 2012; Woolfolk, 2016). Every individual has a unique way of construing how the world functions due to influences in their social and cultural contexts. When something does not operate within that setting, they must reframe their thoughts with the new experience to resolve the issue.

In sum, learners form meanings by actively engaging with the world around them. They apply knowledge, develop understanding, assess new and existing information, reflect on their learning processes, and modify their thoughts. This ongoing process enables individuals to incorporate new insights into their worldview, ultimately resulting in

more complex and consistent knowledge structures that align with their experiences (Bada et al., 2015; Woolfolk, 2016).

2.2.1.1 Constructivist Learning Environment

There are four primary components which characterise the constructivist learning environment and must be observed when implementing the constructivist instructional strategies. They are (1) knowledge is exchanged between instructor and learners, (2) students are encouraged to share control of their learning environments with their instructor in terms of outlining learning objectives, designing and managing learning activities, and establishing and implementing assessment criteria, (3) instructor to serve as a catalyst or mentor to learners and (4) learning groups to be composed of diverse individuals (Brau, 2018; Bada et al., 2015; Fosnot & Perry, 2005; Koo, Sultan & Woods; 2011; Nugroho et al., 2017; Woolfolk, 2016).

2.2.1.2 Constructivist Pedagogical Objectives

The Constructivist pedagogical objectives focus on the active construction of knowledge. The goals are (1) to impart experience that allows the learner to establish their knowledge construction process, (2) to expose learners to diverse perspectives, evaluate creative alternative solutions and develop appreciation and support, (3) to encapsulate realistic world settings or relevant learning situations in which learners can apply their knowledge, (4) to promote student inquiry by asking meaningful, open-ended question, (5) to elicit students' ideas and aid them in expanding and restructuring their current knowledge, (6) to involve students in complex, meaningful, problem-based

phenomenas that stimulate ideas and beliefs to enhance learning, (7) to cultivate independency, individuality, ownership of their learning through active participation in the learning process, (8) to collaborate in constructing knowledge and establish shared meaning, (9) to utilise multiple modes of teaching practices and resources that are interactive and tailored to the students' requisites, (10) to identify students' strengths and weaknesses in the learning process and implement intervention strategies to address any learning issues and (11) to raise awareness of the knowledge construction process or metacognition through reflection (Abbood and Darb, 2021; Brau, 2018; Bada et al., 2015; Hein, 1991; Koo et al., 2011; Krahenbuhl, 2016; Nugroho et al., 2017; Woolfolk, 2016).

The pedagogical fundamentals for teachers are that they must take on the responsibilities of a facilitator in designing a learning environment based on the personal relevancy of the students while achieving educational goals (Bada et al., 2015; Krahenbuhl, 2016; Nugroho et al., 2017; Woolfolk, 2016). This involves connecting learning designs to students' current states and prior knowledge, thus fostering engagement and enhancing understanding. This radical shift in teaching focus entails the teachers must motivate learners to actively participate in their learning process, develop understanding and increase intellect through making meaningful connections in their knowledge (Bada et al., 2015; Nugroho et al., 2017; Krahenbuhl, 2016). Rather than being the central source of information, they must also guide learners to find information, resources and tools, explore perspectives, develop personal judgements, supervise progress, identify their strengths and weaknesses and implement intervention strategies to address learning challenges. Additionally, teachers must expose learners to

authentic social contexts so that learners can apply their knowledge and understand the subject matter. Through this collaboration of shared information, ideas, reflection, support and positive reinforcements, teachers can promote constructive knowledge-building among students and create meaningful learning (Bada et al., 2015; Nugroho et al., 2017; Woolfolk, 2016).

Constructivists also perceive social interaction as an integral aspect of learning, as individual growth and learning are mediated by social participation in culturally significant activities (Brau, 2018; Krahenbuhl, 2016; Woolfolk, 2016). By exposing learners to diverse social and cultural settings, meaningful learning takes place through the exchange of information and ideas, profound comprehension, appreciation for variegated viewpoints, collaborative problem-solving and decision-making to reach a desired outcome (Brau, 2018; Krahenbuhl, 2016; Woolfolk, 2016). Ultimately, cultural differences enrich the learning experience by offering varied insights from distinct life experiences.

2.2.1.3 Instructional Scaffolding

Scaffolding is essential for effective teaching, in which the educator calibrates and provides the amount of assistance, support and guidance needed in response to the learner's level of functioning to foster deep understanding and meaningful engagement (Brau, 2018; Woolfolk, 2016). This process involves demonstrating skills, offering prompts, and adapting content materials to suit learners' needs. This support gradually reduces as students' comprehension, skills and learning independence improve. In

addition, an interactive learning environment can enhance this process by encouraging dialogues, addressing students' interests, and promoting decision-making (Brau, 2018; Woolfolk, 2016).

Constructivism takes into account the learning environment, student engagement, and learning responsibility. This method can contribute to positive implications in learners' knowledge quality development and skills through meaningful practices, active learning, and critical reflection to achieve deeper learning and metacognition. The constructivist learning environment creates a conducive and stimulating environment to promote student involvement and foster ownership of learning, which is essential in establishing a positive learning culture. Learning becomes more impactful when learners interact with information within their socio-cultural context and partake in specialised learning activities.

2.3 Theoretical Framework of the Study

The purpose of 21st century learning is to prepare young people for the uncertainties surrounding the impact that technology will have in the future. These uncertainties pertain to the high risk of unemployment due to the displacement of manual jobs as they become increasingly automated in this digital era. Hence, job skills that are human-centric, such as soft skills and are not replaceable by technology are needed. This causes a shift where the importance of hard skills is shifted to soft skills as important job requirements. Soft skills are crucial for career success as they help students acquire non-technical skills and develop positive relationships that are essential for increasing

productivity. They include skills such as thinking, emotional, social and attitudinal skills. The P21 Framework for 21st century learning was developed by the National Education Association (NEA), and it delineates the skills, knowledge, expertise, and support systems to prepare prospective students to survive in the future market (National Education Association [NEA], 2010). These constitute the 21st century skills, which are critical thinking, creativity, collaboration, communication and technology. Thus, education systems around the globe are tasked with the crucial responsibility of equipping their learners with 21st century skills to thrive in the future workforce.

Although 21st century learning has been emphasised in Malaysia, the reformed system has not been optimally implemented in Malaysia. This issue has been attributed to many factors, such as teachers' attitudes and beliefs, students, management, educational resources and facilities (Ali et al., 2019a; Ali et al., 2019b; Ali, Mokhtar & Rahman, 2021; Bakar et al., 2019; Busthami et al., 2015; Goh et al., 2022; Mohamad & Mustapa, 2022; Ng and Tiew, 2022; Rusdin, 2018). Hence, this research will seek to explore the perceptions and experiences of teachers in the implementation of 21st century learning to understand and unearth inhibiting factors that impede the implementation process. By understanding the perceptions of teachers, this research can identify components to help teachers be more prepared to deal with challenges and uncertainties. In addition, they will be motivated to implement 21st century learning optimally and develop positive attitudes and beliefs in their professional development so that transformation in the education system can occur.

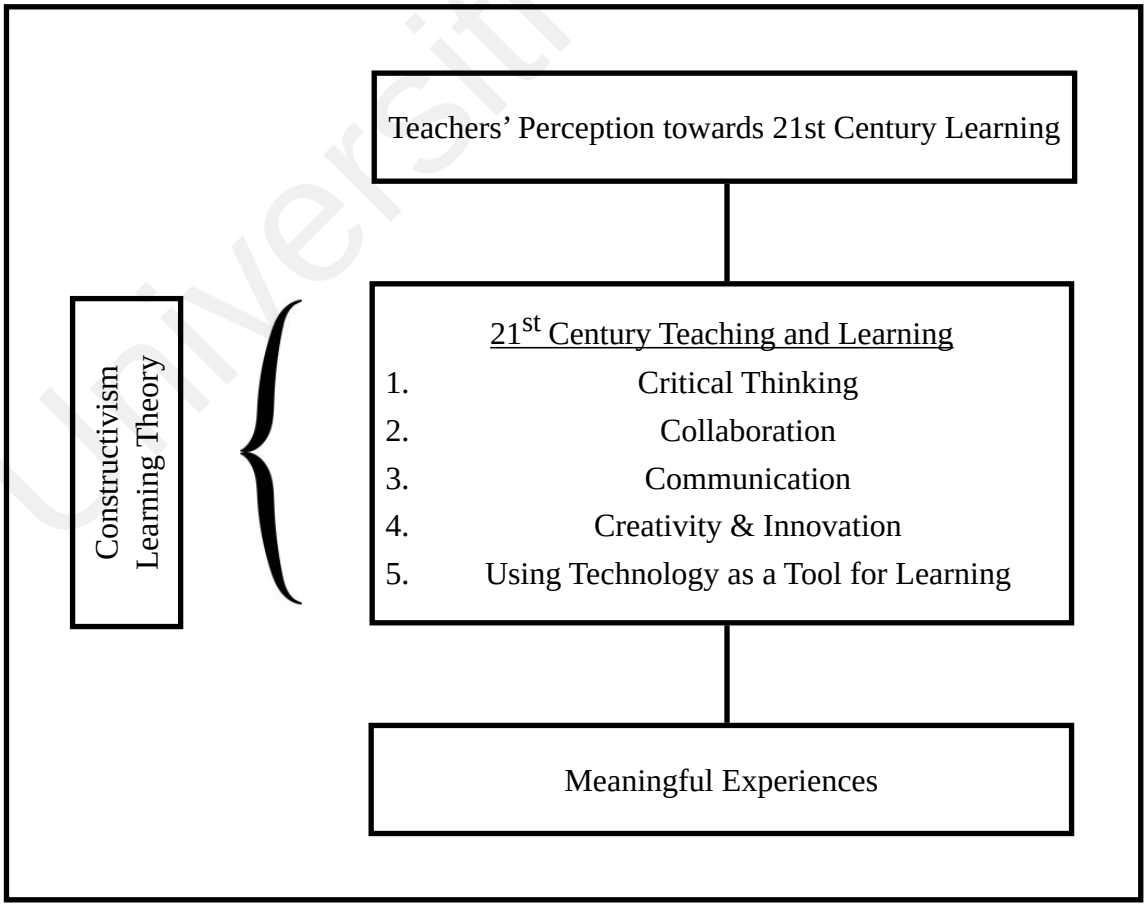
This research will focus on the constructivist learning theory. The 21st century learning was developed based on the constructivist pedagogical approach, which includes works by Dewey (1929), Piaget (1980) and Vygotsky (1962). Constructivism is the theory that focuses on learning as an active process whereby the instructors facilitate learning by engaging their learners in authentic contexts to help them construct new understandings and knowledge through experience and develop creative solutions or personal viewpoints towards a topic (Brau, 2018; Bada et al., 2015; Woolfolk, 2016). Learners will also have to collaborate by interacting with the teacher and their peers to arrive at a shared understanding or solve a problem (Brau, 2018; Bada et al., 2015; Woolfolk, 2016). Examples of constructivist classroom practices are project-based learning and cooperative learning, which are two of the approaches used by teachers in Malaysia in integrating 21st century teaching practices (Kementerian Pendidikan Malaysia, 2017).

Hence, the constructivist theory will be applied to understand teachers' perception of 21st century learning by exploring how they have implemented the pedagogical approach and their thoughts regarding the process. This is because the 21st century learning framework is based on the constructivist theory and practice. Therefore, by understanding how teachers have applied the constructivist pedagogical approach through 21st century teaching and learning, this research can explore teachers' perceptions and experiences of their 21st century teaching and learning as well as how such perceptions and experiences bring meaning to the teachers' lives. This is also to understand any underlying issues that impede the process and provide suggestions to overcome any existing or potential problems. Moreover, teachers will be empowered

through meaningful learning experiences in their professional development and become motivated to excel in their responsibilities in implementing 21st century learning optimally in class. Hence, when 21st century learning has been fully integrated, teachers will be able to effectively facilitate holistic learning among students, reform and fortify the education system, which will consequently result in the advancement and sustenance of the nation in its economic status. The theoretical framework of the study is illustrated in Figure 2.1.

Figure 2.1.

The Theoretical Framework of the Study



2.4 Primary School Education in Malaysia

Primary education is the beginning stage of formal education after preschool and before secondary education in Malaysia. It is classified into government and vernacular schools. The vernacular schools cater to the major ethnic groups in Malaysia, which are the Chinese and the Indians. For instance, the Chinese Schools and Tamil Schools for the Chinese and Indians respectively in Malaysia. Primary school consists of six stages from Standard 1 to 6, whereby a pupil typically enrols at age seven and graduates at age 12. The syllabus employed by the education system is the Primary School Standard Curriculum or Kurikulum Standard Sekolah Rendah (KSSR). The curriculum's main goal is to prepare students to deal with the challenges in the 21st century and follow the Standard Learning Document (Kementerian Pendidikan Malaysia, 2017) The core subjects enlisted are Malay and English Language, Science, and Mathematics, with Chinese as a compulsory subject in Chinese schools and Tamil in Tamil schools. To summarise, all school utilises the same syllabus for non-language subjects regardless of the medium of instruction (Kementerian Pendidikan Malaysia [KPM], 2018).

The public primary schools can be divided further based on the medium of instruction to include (1) Malay-medium National Schools (Sekolah Kebangsaan, SK) and (2) vernacular schools. The vernacular schools are further divided into (2a) National-type School Chinese (Sekolah Jenis Kebangsaan Cina), SJKC) and National-type School Tamil (Sekolah Jenis Kebangsaan Tamil, SJKT). All schools admit students irrespective of their multiracial and multilingual backgrounds. To avoid racial polarisation, the government established the “Sekolah Wawasan” or Vision Schools, where school

facilities are similar across schools but with different systems of administration (Kementerian Pendidikan Malaysia [KPM], 2018).

2.5 21st Century Learning

As the world becomes increasingly interconnected due to cultural and economic factors, 21st century learning is aimed at producing global citizens who have the skills, knowledge, motivation, responsibility, commitment to building a sustainable humanitarian environment and respect for the world's cultural diversity to ultimately contribute to the world economy and self-enhancement (National Education Association [NEA], 2010). The Partnership for 21st Century Skills (P21) organisation was established in 2002 as a coalition of business communities, education leaders and policymakers to equip students in American schools with the skills needed in the 21st century (battelleforkids.org, 2009; National Education Association [NEA], 2010). The framework was later endorsed by education systems in many parts of the world, including Malaysia. The P21 and other organisation members provide tools and resources to help facilitate and drive this necessary change (battelleforkids.org, 2009).

The P21 developed a framework for education systems by stipulating the requirements of a 21st century education. This framework describes the skills, knowledge and competencies students must master to succeed in work and life. When a school builds on this foundation by combining the entire framework with the necessary support systems, students become more engaged in the learning process, are equipped with

skills and are better prepared to thrive in today's global economy (battelleforkids.org, 2009).

The P21 framework is represented by a rainbow with the central arch designated as the core subject knowledge. Above the convex are the three major skills that should be integrated into the curriculum. They are life and career skills, learning and innovation skills, as well as information, media and technology skills. They are also the 21st century skills that students need to master to prepare them for the complex life and work environment in the future. At the base of the rainbow are four rings that signify the support systems for 21st century learning to be implemented effectively. The four pillars are standard assessment, curriculum and instruction, professional development and learning environment (battelleforkids.org, 2009). The framework is illustrated in Figure 2.2.

Four elements embody the P21 framework. The first element is the 21st century Core Academic Subjects, which comprise languages and language arts, arts, mathematics, science, economics, geography, history, government and civic. There are five 21st century interdisciplinary themes to be applied across these subjects to promote understanding and knowledge development. The themes are global awareness, financial,

economic, business and entrepreneurial literacy, civic literacy, health literacy and environmental literacy (battelleforkids.org, 2009).

The second element is Learning and Innovation Skills, which include creativity and innovation skills, critical thinking and problem-solving skills, along with communication and collaboration skills (battelleforkids.org, 2009).

The third element is Information, Media and Technology skills, which list three literacies to be proficient at accessing, analysing, evaluating and utilising information and technological tools to research, organise, communicate and create. They are information, media and ICT (Information and Communications Technology) literacy (battelleforkids.org, 2009).

The fourth element is Life and Career Skills. The increasing complexity of life and competitive work today requires individuals to develop adequate life and career skills so that they can navigate and succeed in the world. Therefore, individuals in the future need to have skills in the form of flexibility, adaptability, initiative, self-direction,

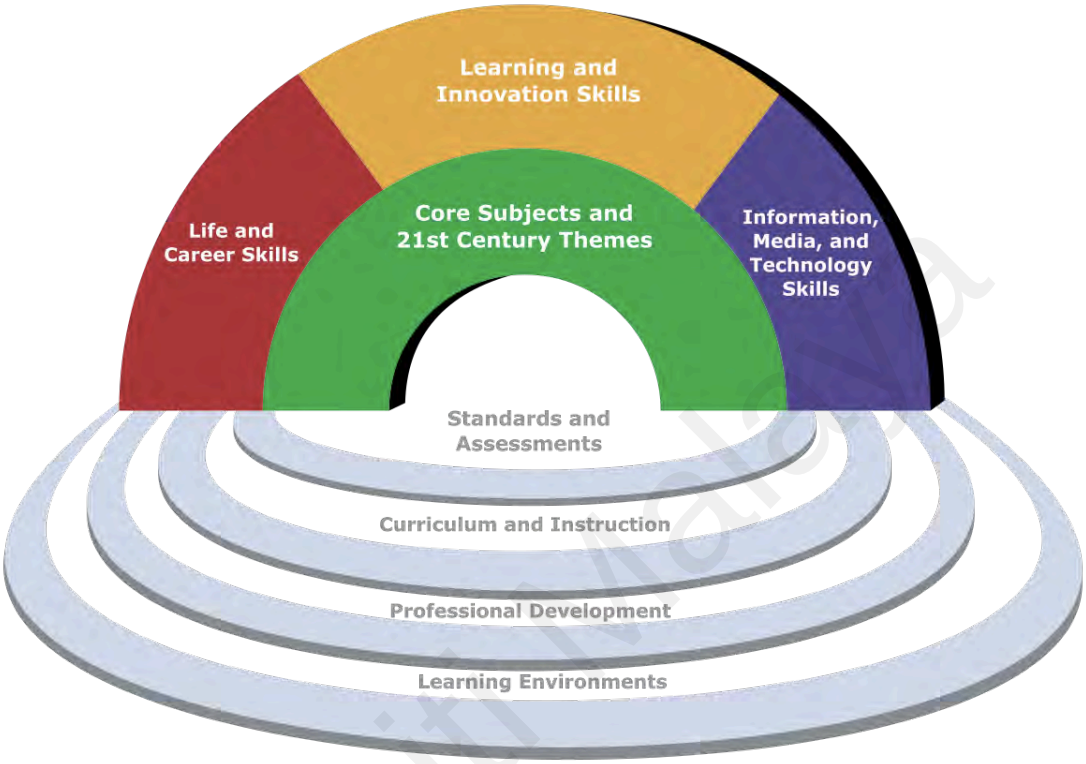
social, cross-cultural skills, productivity, accountability, leadership and responsibility (battelleforkids.org, 2009).

The objectives of the elements combined are to produce globally minded individuals who understand their role and responsibility as citizens. They must also contribute to society socially, politically, environmentally and economically on a worldwide scale to solve humanity's challenges and needs (battelleforkids.org, 2009).

The elements are the critical systems necessary to ensure student mastery of 21st century skills. In addition to the elements are the support systems. They are (1) 21st century standards for cultivating deep and life-long learning in students, 21st century assessment to measure students' mastery of the 21st century skills, (2) student-centred curriculum and instruction to develop knowledge and skills, (3) 21st century professional development for teachers to integrate 21st century skills, tools and teaching strategies in their teaching and (4) 21st century learning environment for producing a conducive and dynamic space to support the teaching and learning of 21st century skill outcomes (battelleforkids.org, 2009). These must be aligned to produce a support system that produces 21st century outcomes for today’s students.

Figure 2.2.

P21 Framework for 21st Century Learning



2.5.1 Creativity

Creativity is the competency to utilise various techniques to create innovative ideas. Individuals can generate, execute, and communicate new ideas to others; be open and receptive to different viewpoints, incorporate collective input and feedback; demonstrate uniqueness and inventiveness in work and make their plans feasible (battelleforkids.org, 2009; National Education Association, 2010). In an age of worldwide rivalry and increased automation, creativity and innovation skills are indispensable for both life and work. Creativity and innovation are the keys to success in the ever-changing global economic system, as individuals need to possess such skills

to generate visions and create a better world for others (Gardiner et al., 2021). To cultivate a creative mind, the education system must promote inquiry, challenge, and perseverance for failure (National Education Association, 2010).

2.5.2 Critical Thinking

Critical Thinking is defined as the ability to make an in-depth analysis of information and offer innovative solutions to problems. The acumen consists of using various forms of reasoning, understanding the big picture and how components interact with each other in a system, evaluating various information, drawing conclusions, synthesising, reflecting and making rational decisions (battelleforkids.org, 2009; National Education Association, 2010). This is of paramount importance because everyday living necessitates the understanding, examination, and evaluation of various information regarding life before making decisions and taking action. Economists anticipate that the future workforce will rely on critical thinking to be capable of complicated communication networks (Gardiner et al., 2021). Therefore, this skill plays a substantial role in job development, personal productivity and advancement.

2.5.3 Communication

Communication is the propensity to listen attentively, select proper forms of communication to articulate thoughts and ideas clearly, effectively and purposefully. The world economic system is becoming increasingly interwoven. Hence, it requires a workforce that can mediate to manage conflicts and create successful relationships in

nations of diverse origins and customs (battelleforkids.org, 2009; National Education Association, 2010). This makes communication the most valuable soft skill, as 21st century workers need communication skills that allow them to listen effectively, argue, negotiate, employ various media and technology and perform a variety of other complex interactions across languages and cultures.

2.5.4 Collaboration

Collaboration is the capacity to work together to accomplish shared objectives by compromising, cooperating, and respecting others. Collaboration also promotes shared accountability, trust, feedback, and appreciation for each group member's contributions (battelleforkids.org, 2009; National Education Association, 2010). In today's industrial market, groups are able to make better projections and have better productivity as compared to a solitary decision maker (Gardiner et al., 2021). Collaboration is a vital skill as it can elicit various ideas and perspectives from group members, resulting in more comprehensive and complete outcomes in addition to fostering the increase of knowledge for those involved.

2.6 21st Century Learning Teaching Approaches in the Malaysian Classroom

The application of the 21st century learning pedagogy is endorsed by the Malaysian Ministry of Education (MoE) in the teaching and learning process (Kementerian

Pendidikan Malaysia, 2017). The learning methodology enables students to learn 21st century skills and utilise the skills to address their needs and problems. These skills help them to acquire the ability to employ higher-order thinking skills in knowledge construction and application, communicate effectively, cooperate to solve issues, and devise something new. The teaching delivery process through the learning and facilitation process in the 21st century in Malaysia emphasises student-centred learning and includes practices such as collaborative learning and project-based learning (PBL). All of these are integrated via technology and the media in a context relevant to the student's life (Kementerian Pendidikan Malaysia, 2017).

The 21st century pedagogy is a student-centred teaching approach which encourages deep learning in students by enabling them to construct knowledge as opposed to passively obtaining information through lectures, textbooks and rote memorisation of information (Brau, 2018; Bada et al., 2015; Kementerian Pendidikan Malaysia, 2017; Rice, 2017; Rosefsky & Opfer, 2012; Woolfolk, 2016). This framework requires students to be active and responsible towards their learning, with the teacher facilitating the learning process aimed at developing learners' independent thinking and lifelong learning (Brau, 2018; Bada et al., 2015; Rosefsky et al., 2012; Woolfolk, 2016). This indicates that students can make decisions in determining their content and technique in constructing their knowledge, monitor and evaluate their learning process. Further, the teaching prioritises students' interests, abilities, and learning styles.

In the Malaysian context, teachers are encouraged to consider students' interests, aptitudes, and learning styles in planning an effective learning environment. The curriculum is planned according to students' personal relevancy and learning objectives, which are then taught through the disciplines (Kementerian Pendidikan Malaysia, 2017). The skills associated with the production of knowledge within the discipline must be pertinent to learners' lives in which they apply their knowledge or transfer it to other disciplines and implement the knowledge learned in various aspects of their lives (Rosefsky et al., 2012; Woolfolk, 2016). When the learning experience is relevant to the student's life, learning becomes more meaningful, and this leads students to become intrinsically motivated in their learning process. Furthermore, for students to learn skills and knowledge effectively, teachers must facilitate the awareness of the knowledge acquisition process or metacognition through reflection (Duchesne & McMaugh, 2016; Rosefsky et al., 2012). This can be carried out by asking students to analyse their thought process or modelling the process by talking through their thinking as they address an exemplary problem (Duchesne et al., 2016). As a result, meaningful learning occurs when students can develop a deeper understanding of a concept by comprehending the overall view and how elements within interact or interconnect to form the big picture.

The 21st pedagogy should be executed with the integration of technology across the curriculum to support the learning and facilitation process completely and develop students' competency in the 21st century skills (Busthami, Garba & Yusuf, 2015; Rice, 2017; Rosefsky et al., 2012). The teaching aids can be visual or interactive tools and

electronic devices that teachers use to cater to the diverse students' needs and assist students in understanding the subject content better. With the combination of technology, electronic devices and the curriculum, teachers can improve their subject content, utilise various teaching modes, representations and activities, learn new teaching methods and tactics, as well as update their pedagogical and technological knowledge. For instance, the use of interactive whiteboards (Smart Board), the internet, online software and applications can augment the learning content such as making learning more student-centred, easier, fun, interesting (Bakar et al., 2019; Busthami et al., 2015; Kementerian Pendidikan Malaysia, 2017). Other teaching sources can extend to include soft copy materials such as videos, audio, and images, electronic equipment and virtual learning environments (VLE) (Bakar et al., 2019; Busthami et al., 2015; Kementerian Pendidikan Malaysia, 2017). This is to engage students better, increase involvement in the learning process and increase the culture of technology in students through integrating technology into their learning and daily life. This optimises learning as combining subject content with technology and the media to create something novel can increase engagement with students, thereby boosting their motivation (Busthami et al., 2015; Rosefsky et al., 2012). Thus, the effective and innovative use of these technologies will produce a learning experience that is meaningful to students. Overall, the utilisation of technology and digital tools can improve teaching quality, subsequently elevating student performance and achievements.

In addition, the teacher facilitates learning by developing appropriate resources and exercises that encourage student inquiry and extended thinking (Duchesne et al., 2016;

Rice, 2017). The teacher must guide students to be resourceful and critical in searching for information and be knowledgeable in operating digital tools so that students can access information without depending on the teacher (Rosefsky et al., 2012). Technology presents student with the opportunity to broaden their learning beyond their class to encompass the world through access to unlimited information from multiple sources available at all times and places. This evolution redefines the function of the teacher from one of the knowledge providers to one that guides students towards knowledge acquisition and understanding.

Project-based learning (PBL) is a type of student-centred learning in which a student is actively involved in the learning process to build deeper knowledge through collaboration with peers during the exploration of new concepts to manage real-world challenges (Duchesne et al., 2016; Rice, 2017; Kementerian Pendidikan Malaysia, 2017; Woolfolk, 2016). This real-life application in the classroom stipulates students to investigate, inquire, reason, predict, plan, analyse, evaluate, solve, make decisions, discuss ideas, share findings, create and transfer and apply knowledge to respond to complex problems and situations (Duchesne et al., 2016). To facilitate the learning process, students are given tasks in groups and have to work towards achieving a common goal and producing a final result. Teachers must also act as supervisors by being skilled in probing difficult questions (Duchesne et al., 2016). This is to help students explore, think deeply, discuss, make connections and solve a problem. The questions are to be prepared and aligned with the higher-order thinking (HOTS) criteria (Kementerian Pendidikan Malaysia, 2017). ‘Peta I Think’, where students have to create

mind maps based on a topic and present their work and ‘Traveling File’, where each team is provided with a file that contains cases, questions, or problems to be discussed and elaborated upon are some instances of PBL (Kementerian Pendidikan Malaysia, 2017). The 21st century skills mandated by the world can be activated through PBL. This pedagogy practice has supported students in gaining greater conceptual understanding, deeper knowledge, higher-order thinking (HOTS), problem-solving skills, enhanced interpersonal and social skills, and superior creativity skills (Rosefsky et al., 2012).

Collaborative and cooperative learning are another two student-centred approaches to cater to academic and social learning experiences for students. This practice involves joint intellectual effort by students through active participation in interdependent learning activities to construct knowledge, negotiate meaning and develop a consensus (Duchesne et al., 2016; Rice, 2017; Rosefsky et al., 2012; Woolfolk, 2016). Students learn together (collaborate) or work collectively (cooperate) in groups towards achieving academic goals. Students are responsible for each other and have to be reliant on their group members by leveraging each other resources and abilities through the exchange of information, overseeing progress, and evaluating ideas and work to search for understanding, meaning, develop solutions, reinvent, and construct a product (Duchesne et al., 2016; Rosefsky et al., 2012). To motivate student involvement in the learning and facilitation process, the teacher has to provide thorough guidance and support, careful scaffolding of instructional tasks throughout the interaction process, train interpersonal skills, monitor student abilities, interactions, and outcomes via

assessments and create a safe and comfortable classroom to foster group interaction (Duchesne et al., 2016; Rosefsky et al., 2012). Such learning activities practiced in Malaysia include ‘Think Pair Share’ and ‘Rally Robin’, in which students collaborate and solve problems (Kementerian Pendidikan Malaysia, 2017). Many benefits are identified as a corollary of successful implementation of collaborative and cooperative learning, such as more effective and efficient learning as compared to individualistic learning, higher responsibility, positive mental attitude, increased acumen and creativity along with increased level of student satisfaction (Rosefsky et al., 2012). Furthermore, students can achieve better performance and gain higher self-esteem because they receive social support from their group members.

2.7 Implementation Process of 21st Century Learning in Malaysia

Since the rise of digital automation denotes a rapid replacement of human labour, the Malaysian Ministry of Education (MoE) has been made aware of the exiguousness present in the current education system. To overcome this dilemma, MoE has introduced the Pelan Pembangunan Pendidikan Malaysia (PPPM) 2013-2025, which listed the nation’s aspiration and top agenda to revamp the education system via the application of 21st century learning (Kementerian Pendidikan Malaysia [KPM], 2018). Among the many transformations that occur, the curriculum, the role of the teacher and their professional development, as well as the school environment, will be discussed in this section.

21st Century learning was developed based on the P21 framework established by the National Education Association (NEA), which emphasises four skills (4Cs) that learners should master, namely communication, critical thinking, collaboration and creativity (National Education Association [NEA], 2010). The education focuses on acquiring basic competency in core subjects at a higher level by merging 21st century interdisciplinary themes such as global awareness, financial, economic, entrepreneurial, civic, health and environmental literacy with academic content. Pertaining to the subjects and themes are the application of learning and innovation skills, life and career skills and information, media and technological skills (battelleforkids.org, 2009).

In this regard, the Pembelajaran Abad ke-21(PAK-21) or 21st century learning, was launched by the MoE as a trial in 2014 and was fully implemented in schools nationwide beginning in 2015 (Arif and Amin, 2021). The Standard Curriculum of Primary Schools (KSSR) and Standard Curriculum of Secondary Schools (KSSM) were reformed in 2017 to encompass the 21st century skills and competencies (Arif et al., 2021; Hamzah, Majid and Wahab, 2022; Rusdin, 2018). The MoE has listed skills in the National Education Blueprint related to the Partnership for 21st Century Education for students to attain, which are knowledge, thinking skills, leadership skills, bilingual proficiency, ethics, spirituality and national identity (Goh, Kiely and Muhamad, 2020; Rusdin, 2018). This ambition is reinforced by the execution of the Transformation School Program 2025 (TS25), which aims to create holistic student development through student-centred learning and competent teachers (Ismail et al., 2020).

Teachers are tasked with the crucial responsibility of cultivating 21st century learning skills in students. They must comprehend the 21st century learning mechanism in order to instil the 21st century competencies in students. The Buletin Anjakan Buletin Transformasi Pendidikan Malaysia 5/2015 specified six expertise that a teacher should possess. They must be knowledgeable in the subject content, competent in 21st century pedagogy and skills, having psychology and counselling skills as well as digital and technology skills (Goh et al., 2020; Rusdin, 2018). Therefore, in an effort to improve quality teaching, imbue teachers with the 21st century skills and elevate teachers' professionalism, the MoE established the Teacher Professionalism Development Master Plan (PIPPK) to assist education service offices (ESOs) in planning for the development of teachers by their fields of duty and career paths (Kementerian Pendidikan Malaysia, 2017). Continuous professional development (CPD) programmes are also held to provide guidance, support and foster excellence among educators (Kementerian Pendidikan Malaysia, 2017; Rusdin, 2018).

Quality teaching is essential for the holistic development of a student. The planning and teaching in the learning and facilitation process are characterised by four principles, which are student-centred, collaborative, communicative and authentic learning and must be presented in tandem with the 21st century skills (Arif et al., 2021; Rusdin, 2018). The content of the subjects is personalised to fulfil the learners' needs infused with elements relevant to their lives so that they may apply the meaningful knowledge

gained in real contexts. The teacher also employs various teaching modes and strategies according to learners' aptitude to reinforce the learning process through effective, interesting and interactive pedagogy practice. Project-based learning and collaborative learning are some of the approaches that teachers often employ in stimulating students to understand and construct meaningful knowledge while inculcating a sense of cooperation (Bakar et al., 2019; Kementerian Pendidikan Malaysia, 2017). Strengthening and enrichment of skills are practised through co-curricular activities such as Music class, where students learn how to play the ukulele, and robotics class, where students learn about robotics and coding. Both programmes are held in meaningful and realistic contexts.

There are three main forms of assessment in schools to accompany the teaching and learning process (T&L). They are (1) 'Assessment for Learning', a type of formative assessment that evaluates students' results to make modifications in pedagogical strategies and plan appropriate reinforcement and interventions; (2) 'Assessment of Learning', a type of summative assessment which is designed to report and evaluate a student's level of achievement and (3) 'Assessment as Learning' in which the student self regulate their learning process through examining their academic performance (Kementerian Pendidikan Malaysia, 2017). Metacognitive skills are developed through this form of assessment, which is essential in cultivating lifelong learning in students (Rosefsky et al., 2012). The assessment can be carried out in various interesting and competitive ways and be combined with technology, such as incorporating online quizzes like "Quizizz" and "Kahoot!" (Kementerian Pendidikan Malaysia, 2017).

The Education Ministry aims to create a 21st century learning environment in Malaysian schools by emphasising the use of technology in education to produce competent and computer-literate workers capable of contributing to the global workforce of the 21st century. As a result, the government has undergone significant enhancement in pursuit of the goals by allocating funds and resources to build the infrastructure and facilities required for ICT integration in the education sector to promote effective learning and facilitation (Bakar et al., 2019; Busthami et al., 2015). With this, the government installed technology infrastructure at all levels of learning to advocate for teachers to assimilate technology and the media in their pedagogy and instructional tactics (Bakar et al., 2019; Busthami et al., 2015). This is to support students in acquiring 21st century skills such as digital literacy, collaboration and communication skills, as well as autonomous learning. Among the initiatives is the 1BestariNet project, which was launched in 2011 (Bakar et al., 2019; Busthami et al., 2015). The project involves the installation of high-speed internet connectivity in all national education institutions nationwide by June 2014 (Bakar et al., 2019; Busthami et al., 2015). 1BestariNet Identities were also distributed to all students, parents, and education administrators across the country, allowing them to access the online learning system, Frog Virtual Learning Environment (VLE), Google Apps for Education, and the FrogStore (Bakar et al., 2019; Busthami et al., 2015). The MoE also has a joint partnership with Google and YTL Communications to coordinate the use of Chromebooks in schools (Bakar et al., 2019; Busthami et al., 2015). In addition, computers, projectors and interactive whiteboards (Smartboard) were set up to encourage more active student involvement in the learning and facilitation process

(Bakar et al., 2019; Busthami et al., 2015). Learning becomes easier and more fun because students can write and draw on the interactive whiteboard while making presentations. Teachers also employ software applications and online games in tasks to increase student engagement. For instance, teachers use videos to teach, while students can access online videos to help them complete their assignments.

Another feature of a 21st century classroom is that it must be conducive and dynamic (Bada et al., 2015; Rosefsky et al., 2012). The MoE recognised the importance of a learning environment as a conduit for teachers and students to be motivated, practice and develop skills necessary for the twenty-first century (Kementerian Pendidikan Malaysia, 2017). Hence, a supportive, safe and comfortable environment is necessary to ensure the well-being of school members as well as increase their productivity. The school must also be equipped with infrastructure facilities that are designed to assist teachers in executing their duties efficiently and accommodate the individualised learning needs of students in terms of abilities and interests to achieve effective learning while promoting healthy relationships. Adaptive learning is a dynamic classroom method assigned by MoE that provides space, opportunities and accommodates learners' unique learning styles, pace, interests, abilities (Kementerian Pendidikan Malaysia, 2017). There are three classroom layouts, which are individual learning (cave concept), partnered (think-pair-share) and group (campfire concept) (Kementerian Pendidikan Malaysia, 2017). The accommodating classroom layout also encourages autonomy and active learning. Furthermore, Student Affairs Management (HEM) are positioned in schools to provide support services, facilities, and ensure access to quality

education through the management of students' safety, assistance and welfare (Kementerian Pendidikan Malaysia, 2017).

The MoE evaluates academic programmes regularly and enacts policies to fulfil expanding educational demands in light of global technical, scientific, social, and political developments (Kementerian Pendidikan Malaysia, 2017). This reformation of the curriculum will encompass all skills and competencies that can fulfil the needs of 21st century education. This is implemented with the prospect and hopes of achieving the nation's aspiration of generating competent citizens capable of contributing to Malaysia's sustainable growth and becoming a member of the global community in the information age.

2.8 Challenges in the Application of 21st Century Learning

Introducing radical changes adds levels of complexity to a system, and this is often ensued by many forms of challenges. With the paradigm shift in the education system, teachers are especially obligated to adopt innovative pedagogical approaches to meet the mandates of the 21st century and fulfil the nation's aspirations as outlined in the Malaysia Education Blueprint 2013-2025. Competencies of the 21st century require teachers to undertake the responsibility of facilitating students' learning development, planning and delivering student-centred learning, cultivating higher-order thinking

skills, incorporating various teaching strategies and resources to accommodate learners' diversity, assessing and evaluating learners' performance, exercising the 21st century skills as well as creating a stimulating and conducive environment.

Although many studies have shown that teachers acknowledged the potential advantages of 21st century learning (Goh & Muhamad, 2022; Rusdin & Ali, 2018). However, their teaching degree of quality is still regarded as moderate (Goh et al., 2022; Rusdin et al., 2018). Teachers face many great challenges in instilling 21st century learning, and this is caused by some debilitating factors such as their perception, knowledge, skills, facilities, resources, time constraints and diversity of students, as well as student number.

Teachers are required to leverage their competencies to generate quality education. Teachers' competencies here pertain to their knowledge of their subject matter, expertise in teaching strategies, teaching principles and student learning management, which is influenced by their beliefs, attitudes, perceptions, motivation, knowledge and skills (Ismail et al., 2020; Ismail et al., 2020). The MoE has decreed a professional standard to instil responsibility for quality leaders at all stages of an academic institution in conformity with universal leadership principles and practices. In this respect, the MoE has organised instructional leadership programmes to assist teachers in developing

instructional excellence, enhance teachers' functional competency and promote teachers' professionalism (Ismail et al., 2020; Ismail et al., 2020). The instructional leadership programmes involve a series of courses, workshops, seminars, benchmarking visits, training and the establishment of professional learning communities (PLCs) in each school organisation (Kementerian Pendidikan Malaysia, 2017). This is carried out in hopes of elevating teachers' competencies to achieve effective implementation of 21st century learning and systematic management of academic affairs. Professional learning communities (PLCs) are a forum for teachers to express, share their perceptions and concerns regarding any new policies in order to ensure the proper implementation of 21st century learning.

Albeit various professional development courses and workshops were provided by the MoE, the coaching was not enough to improve the teachers' teaching standards (Goh et al., 2022; Rusdin et al., 2018). Moreover, teachers were reticent about the new pedagogical concept and complained that the resources given were inapt and they had to create new resources (Goh et al., 2022; Rusdin et al., 2018). However, they were unable to generate appropriate teaching aids due to time constraints, extra creativity and expertise needed, as well as compact curriculum preparation, which encumbers their efforts and causes them anxiety and tension (Bakar et al., 2019; Rusdin et al., 2018). Hence, refusal to invest extra time, skills and expertise and feelings of unease constitute their reason for remaining in the conventional form of teaching. As a result, teachers are unable to plan creative, meaningful and effective teaching to fulfil the demands of 21st century learning. Suggestions were given by teachers, such as providing well-prepared

courses tailored to the teachers' needs, a support system consisting of references and resources to be used in implementing teaching and learning, such as teaching modules as they offer a variety of acceptable practices for teachers to deploy and foster the 21st century learning in their classrooms and a platform to discuss any issues related to their teaching (Bakar et al., 2019; Rusdin et al., 2018). However, these suggestions are yet to be put into operation by the MoE.

The most pressing concern is the teachers' comprehension of 21st century learning. Research has demonstrated the insufficient knowledge and understanding of the new curriculum reformation in teachers (Bakar et al., 2019; Goh et al., 2022; Rusdin et al., 2018). Inadequate information causes teachers to restrict their teaching practices, methods, strategies and resources to a narrow scope since they possess limited ideas for embedding 21st century learning across multiple disciplines and assessments (Goh et al., 2022; Rusdin et al., 2018). As a consequence, a low level of student engagement in the learning process will occur and further hampers student motivation. Professional development programmes can help educators attain a deeper understanding as it is one of the primary variables influencing the effectiveness of its implementation (Rusdin et al., 2018). Such intervention programmes, such as seminar workshops, must be provided regularly to address the educators' varied needs and concerns.

There is some resistance amidst misguided beliefs from teachers pertaining to the characteristics of 21st century learning. The findings indicate teachers' uncertainties, misconceptions, and concerns in implementing 21st century learning (Goh et al., 2022). This is demonstrated in teachers' resistance to instituting the 21st century elements in class. According to Goh et al. (2022), teachers were reluctant to incorporate the reformed pedagogy when they failed to realise the importance of 21st century learning as a fundamental shift to ensure students' success. Older teachers, especially, do not comprehend that their pedagogy practices are outdated and, therefore, the 21st century no longer complements their current practices (Goh et al., 2022). For example, teachers used to focus on the result of the learning. However, 21st century learning introduces a new concept whereby the teacher accentuates learning as a meaningful process for infusing 21st century skills that are practical not only in exams but for real-life purposes. Another form of resistance is that teachers are pressured to incorporate 21st century skills in the classroom and only display 21st century components when they are observed (Goh et al., 2022). Goh et al. (2022) asserted teachers are apprehensive over the constant modifications and updates they were expected to make in their teaching and learning process due to the dynamic trait of the current education system. This process makes them feel unassured and therefore hesitant in applying the 21st century learning methods. Some teachers even considered this as an ephemeral process that interfered with their "long-established" practice. Therefore, this could hinder the successful implementation of 21st century learning.

Despite the MoE having issued well-defined guidelines for 21st century learning, teachers are predisposed towards constructing their varied perspectives of the 21st century learning concept (Goh et al., 2022). For instance, they assumed that the 21st century is only applicable in certain subjects and, for this reason, are unable to create learning relevant to the students' lives as well as assess them effectively. Also, teachers believe the involvement of technology is a compulsory feature in the 21st teaching and learning process (Goh et al., 2022). Hence, they are inclined to restrict the application of 21st century learning to certain contexts because they assume that the required facilities must be available before 21st century teaching and learning can take place. This is a misconception because it is not stipulated that the teaching and learning process must incorporate the use of technological tools or facilities to conform to the 21st century learning concept. Indeed, the employment of technological tools, facilities and the media is encouraged, but the absence of it should not have any bearing on the teaching and learning process.

Teachers were concerned about the impact of 21st century learning on their students' performance in exams. Many findings asserted teachers' concerns about the ineffective implications of 21st century learning on their students' examination outcomes (Goh et al., 2022). Teachers opposed the change and remained with the conventional teaching as a result of the pressure from standardised testing (Goh et al., 2022). They have not yet realised that the purpose of 21st century learning is to effectuate transformation in the current education system that is exam-oriented. Teachers should impart and imbue

knowledge in learners to help them see the relevance of what they are learning in real-life situations.

One of the MoE aspirations is to establish an international standard of quality education through harnessing the use of technology to build up quality learning. The government launched many initiatives to assist teachers in comprehending the mechanism of Information and Communication Technologies (ICT) and the utilisation of such digital tools (Bakar et al., 2019). This is to ensure that teachers and students will be empowered to realise their potential and contribute to the community through technological means. After many trainings to increase teachers' proficiency in using technology tools, teachers have become literate in the area and have been able to use technology tools to access the internet for only work-related reasons, such as obtaining a variety of online information and resources for their lesson planning as well as recording student's assessment (Bakar et al., 2019). It was discovered that although there were improvements in teachers' digital proficiency, they did not incorporate technology into their pedagogy (Bakar et al., 2019; Busthami et al., 2015; Widya and Rahmi, 2019). ICT was not being interwoven into instruction as intended because teachers still have a minimal understanding of how to relate technology and pedagogy in the teaching process (Bakar et al., 2019; Busthami et al., 2015). As a consequence of not utilising technology at a higher level, students have little or no exposure to learning using technology.

The teachers were also dissatisfied with the quantity and quality of infrastructure and resources available in their schools. Teachers have shown enthusiasm in using ICT tools for teaching, but unavailability and restricted access to equipment and the internet have discouraged them from using the tools and facilities (Bakar et al., 2019). Furthermore, although the 1BestariNet project was launched in 2011 in hopes of providing educational institutions across the country with high-speed internet connectivity by June 2014, the project has been reported to be partially complete (Bakar et al., 2019; Busthami et al., 2015). An overwhelming number of education administrators have expressed their frustration over this persistent poor internet access, insufficient and outdated infrastructure. Bakar et al. (2019) even stated that this aspect constitutes the biggest deterrent in integrating technology into the learning process. In addition, technical issues like unstable internet connectivity, computer viruses, malfunctioning software and computers have disrupted the flow of the teaching and learning process as well as prevented teachers from planning and preparing teaching aids and materials. These are further exacerbated by unreliable technical support, lack of technical assistance and maintenance during technical problems and failures (Bakar et al., 2019). Hence, restricted access to stable internet connection and digital facilities has evoked discouraging effects on teachers' interest and motivation, which hindered them from implementing 21st century learning effectively. Besides that, the 1BestariNet, which features an online learning system such as Frog Virtual Learning Environment (VLE), is not widely used among educators due to its multiple software problems and troublesome features (Bakar et al., 2019; Busthami et al., 2015). Frog VLE is a platform which provides real-world learning simulation online. The medium was underused in

some aspects as a direct consequence of the inadequate ICT facilities, thus wasting the valuable assets and precious funds allotted by the government.

The digital divide between rural and urban schools persists and is evident in many studies (Bakar et al., 2019; Busthami et al., 2015; Goh et al., 2022). This situation is causing a disparity in the teaching and learning process as students in urban institutions are better exposed to the latest ICT facilities and applications compared to students in rural areas. Consequently, rural students experience numerous issues and difficulties when it comes to using ICT for educational purposes. Another perspective held by many teachers regarding 21st century learning was that it could only be implemented with high English language proficiency students (Goh et al., 2022). This is because most of the internet content is in English. This poses an additional problem for rural students as they are not fluent in the language.

The next determent is difficulties administering good classroom management in large class size. A typical class size in Malaysian public schools consists of around thirty to forty students in a class (Rusdin et al., 2018). The design of a 21st century classroom is a constructivist classroom which emphasises student-centred learning and interactive learning to motivate students to build new knowledge and meaning through personal experiences and socialisation (Bada et al., 2015; Brau, 2018; Woolfolk, 2016). This denotes that teachers must cater to the diversified students' needs and levels as well as incorporate 21st century skills in the teaching and learning process. However, it is a

tremendous challenge for teachers to accommodate every student's diverse requirements and abilities in a large class. The teacher must also monitor the students carefully as they cannot work independently in groups and are not always on task (Bakar et al., 2019; Goh et al., 2022; Rusdin et al., 2018). For instance, students are prone to distractions, which keeps them from completing their assigned tasks (Bakar et al., 2019; Busthami et al., 2015). It is also all the more difficult to engage students with the Internet during class sessions. Aside from that, the lack of technology equipment has also limited opportunities for students to access the internet. Some teachers, for example, perceived that 21st century learning is only appropriate for small classes since the large number of students in the class may result in insufficient devices for everyone (Bakar et al., 2019; Rusdin et al., 2018). These reasons lead to a lack of control in managing the class and prevent the usage of ICT during class.

Thus, it is imperative that the government comprehend that creating and implementing new policies to expedite 21st century learning in the education system must also take into account the consideration of the teachers before instituting a policy. This includes considering the structure of schools and classrooms, allocation of time and teachers' training. For example, the government should conduct pilot testing to measure the effectiveness of a policy or programme before implementing it in the system. The essential investment is helping teachers to embrace 21st century learning integration in the class as a means to attain a developed nation status comprising of human resources capable of meeting the challenges of the 21st century.

To conclude, teachers play a pivotal role in improving the quality and excellence of education. Teachers are urged to be competent in imparting 21st century skills to students in order to cope with the increasing constraints of a highly dynamic environment. As a corollary, teachers and schools are under pressure to reconfigure the education system and bring about a profound change in student outcomes by instilling 21st century skills and lifelong learning.

2.9 Review of Past Studies

2.9.1 21st Century Learning in Malaysia

The critical necessity to transform the education system in order to achieve sustained growth in this digitalised era has driven many researchers at a national and international level to study this global phenomenon from different dimensions. Extensive research was completed in many areas concerning 21st century learning, such as its theories and practices (Alismail & McGuire, 2015; Kim, Raza & Seidman, 2019; Mohtar, Mostafa, Ong, Singh & Singh, 2020). However, there is only a handful of research completed in the context of teachers' perceptions in the implementation of the 21st century learning.

In the Malaysian context, there is only a little research conducted to explore the perceptions of teachers in relation to 21st century learning. Most investigations discussed the prevailing problems experienced by teachers (Bakar et al., 2019) and teachers' comprehension and mastery of 21st century pedagogy (Mohamad et al., 2022).

There is also the exploratory study of the level of 21st century learning adoption in schools at various education levels (Arif et al., 2021; Siaw, 2017) and across multiple disciplines, such as in Islamic education (Abdullah et al., 2021; Ali et al., 2021; Haron et al., 2021; Hehsan et al., 2019), Tamil Education (Kumar, Ponniah, Nadarajan and Sivanadhan, 2018), English (Ghazali, 2020; Goh et al., 2020), Science (Abdullah, Ali, Hasan, Wong and Zaini, 2020), Mathematics (Ali et al., 2021), and History (Ahmad, Awang, Dahalan and Rifin, 2019). All of the aforementioned studies produced consistent findings regarding the moderate implementation of 21st century learning by teachers. The findings also highlighted uniform results of teachers in their aptitude to lead the students in the acquisition of the 4Cs competencies. The level of application from the aspects of the 4Cs achieved an overall high mean score wherein collaboration and communication skills were integrated at a high level, but creativity, critical thinking and problem-solving skills were integrated at a low level (Ali et al., 2019b). Albeit the positive results, the outcomes of the application of 21st century learning by teachers were still mediocre. The issues and challenges analysed were also prevalent in all studies. This implies that the obstacles faced by teachers can be generalised across different subjects and contexts. Such obstacles comprise teachers' perspectives, time constraints, limited time, complications in ICT infrastructure and resources, inadequate professional development training and administration support, as well as large class sizes.

For instance, Busthami et al. (2015) centralised their research on identifying challenges in the application of 21st century learning in relation to the use of ICT facilities and internet resources. The in-depth analysis ascertained issues pertaining to ICT facilities

and infrastructure, teachers' digital literacy and competencies, as well as new trends emerging as a result of ICT usage. The finding also concluded an improvement in teachers' technology literacy and competencies as well as an increase in the ICT facilities and infrastructure provided. Despite increments in the provision of ICT facilities and teachers' technological competency, technology was still not incorporated into the teaching practice adequately. Thus, although this study has disclosed important findings, there is still a need to identify factors relating to teachers' inability to embed ICT features into their teaching practice.

A series of research was conducted by Rusdin and colleagues (2018) to explore the implementation of 21st century learning in Malaysia. The studies conducted include teachers' readiness, the teachers' knowledge and skills in applying the 21st century pedagogy and fostering the 4Cs skills among students, as well as the challenges involved in the implementation process. The outcome of the study revealed teachers have a high level of readiness. However, the report also withdrew similar results of teachers' inability to embed 21st century learning effectively and low integration of innovation and critical thinking skills. Hence, in 2018, Rusdin and colleagues sought to uncover the constraints faced by teachers in their outlook, understanding and practice of 21st century learning. This is to devise a solution from teachers' recommendations to overcome the hurdles. The researchers discovered corresponding struggles such as lack of expertise, limited resources, time and ICT facilities. The findings also discussed in detail the compact curriculum and interference of instructional time by non-related tasks during teaching periods, such as duties and school programmes. In response, teachers have proposed the provision of professional development courses, sufficient resources

and teaching modules in addition to the upgradation of quality and quantity of ICT facilities and infrastructure. The teaching module was the most sought-after as it was assumed to be a promising technique because it provides a variety of relevant tasks and ideas for teachers to implement in their classrooms. In 2019, a teaching module was designed to assist teachers in motivating and elevating their understanding and application of 21st century pedagogy. The module presented various student-centred activities that cultivate the 4Cs skills, such as project-based learning, problem-based learning, play-based learning and ICT-based learning (Ali et al., 2019a). The workshop succeeded in its objective of reinforcing teachers' knowledge and skills in 21st century learning. Another study was carried out to identify teachers' opinions of the workshop and its effectiveness (Ali et al., 2019b). The workshop was met with positive views as a majority of teachers agreed on the programme's practicability in instilling the 4Cs skills among students. Regardless of the positive views, teachers only managed to achieve a reasonable level of developing the 4Cs skills, with difficulties ascribed mostly to integrating the critical thinking skill (Ali et al., 2019b). Many studies (Abdullah et al., 2020; Ali et al., 2019b; Goh et al., 2020) also withdrew similar findings, suggesting that the current curriculum does not support teachers in optimising their T&L process.

Furthermore, all previous studies suggested professional development courses with the purpose of optimising teachers' 21st century learning abilities. Teachers even advocated this recommendation on the basis that these trainings are personalised to the teachers' diverse needs, supportive, active and blended to encourage lifelong learning among teachers (Ali et al., 2021). However, despite exposure to various 21st century learning programs organised by the MoE to enhance teachers' 21st century pedagogy and

knowledge, teachers still achieved a moderate level of implementing the 21st century learning and instilling the 4Cs skills in students (Goh et al., 2022; Rusdin et al., 2018). This denotes that there are existing deficiencies within the professional learning courses, in the teachers' perception and attitude, or other external issues. This is evident in a study conducted by Goh et al. (2023), in which they seek to inspect the perceptions of teachers by understanding their concept of 21st century learning as well as issues related to the implementation of English as a Second Language (ESL) classrooms. The outcome revealed critical issues such as teachers' resistance and fallacies relating to the construct of 21st century theories and practices. Among them are 21st century learning is just an experimental trial initiated by the MoE, large class size, exam-oriented and ICT as a compulsory feature. In their interview with SISC+ (School Improvement Specialist Coaches), the coaches expressed their concerns after realising that teachers misconstrued 21st century learning concepts as a means of achieving an end product rather than as a process to teach meaningful learning. The teachers were also apprehensive about the frequent alterations of the current education system and viewed the syllabus as one of the many temporary policies executed by MoE. Thus, they only conducted the 21st century teaching practice during the observation process. The study also proposed several measures, such as psychological support, to develop positive perceptions and attitudes towards implementing the new curriculum.

This study was corroborated by Ng et al. (2022), who aimed to inspect teachers' attitudes towards 21st century pedagogical practice. There were five pedagogical approaches for teaching 21st century skills. They are the inquiry-based instructional method, communication language teaching method, constructivist learning method,

problem-centred instructional method and ICT-based instructional method. Among these, it was found that problem-centred instructional methods and ICT-based instructional methods were the least strategies embodied by the teachers. This result also demonstrated that teachers' attitude serves as a main mediator between environmental variables and teaching practices in that their attitudes are primary determinants of the effective application of 21st century learning. Hence, supporting environmental factors is needed to enforce positive attitudes among teachers to motivate them to incorporate 21st century pedagogy in their practice. Although the findings provide a comprehensive outlook on the teachers' epistemological beliefs of 21st century learning and affirm the importance of supporting environmental factors in determining their competencies and attitudes, the research did not provide much detail on the teachers' perception and its impact on their competencies and attitudes.

These investigations, while very valuable and informative, did not concentrate wholly on the perceptions of 21st century learning. Instead, the analyses were mainly focused on a few specific elements, such as problems pertaining to ICT and 21st century pedagogy or general issues which lack depth. 21st century learning should be thoroughly explored because implementation success cannot be assured if teachers depend only on a few components. Therefore, this research will aim to address the gap by conceptualising 21st century learning from teachers' perspectives.

2.9.2 21st Century Learning Worldwide

On a multinational level, two studies were conducted in Turkey. Anagün (2018) investigated the relationship between primary school teachers' views of their 21st century competencies and their perceptions of managing a 21st century learning classroom. The findings indicated that teachers have a moderate level of regulating a 21st century class as they encountered difficulties in assimilating 21st century skills into their practices. The research also reported that teachers with a strong perception of their 21st skills can create a more conducive learning environment, which leads to better student outcomes. The problems faced were attributed to limited technology and 21st century skills. Another research based in Turkey by Bucuk, Eral and Gocen (2020) also explored the perceptions of teachers of a 21st century classroom from different levels of schooling to establish what is anticipated of the emerging educational environments in terms of teachers, schools, pupils, and classrooms. The results reported similar findings and a need for technology and 21st century pedagogy proficient teachers. In Rice's (2017) exploration of teachers' perceptions and practices of 21st century teaching and learning in four high schools in America, she found that three out of four schools were confident in their 21st century skills to guide students in 21st century skill acquisition. Despite the good confidence levels, teachers still expressed their need for additional support and access to technology, resources, time and professional development training to guide students in the development of 21st century skills. The study also mentioned that teachers have mixed views concerning the implementation of 21st century learning. They accounted for the input of technological elements as a form of distraction that has caused a decrease in focus in learning. In addition, Brooks' (2018) examination of teachers' views on how well they have supported student acquisition of 21st century skills in a one-to-one laptop programme also concluded that most classes did not

incorporate the 21st century learning approach and that the technology integration part was merely used to replace pencil and paper.

All of these studies demonstrated correspondences with studies from Malaysia in their findings regarding the lack of 21st century pedagogical approach and technology integration among teachers. However, there is a gap as these studies did not examine other variables, such as teachers' epistemological beliefs and attitudinal variables that may contribute to the issue. Furthermore, these studies revealed striking similarities in teachers' perceptions and concerns in their implementation of 21st century learning. This may suggest that teachers undergo parallel experiences of instituting 21st century learning in different parts of the world. This also indicates that our country may learn from other countries that have more success in implementing 21st century learning.

2.10 Conceptual Framework of the Study

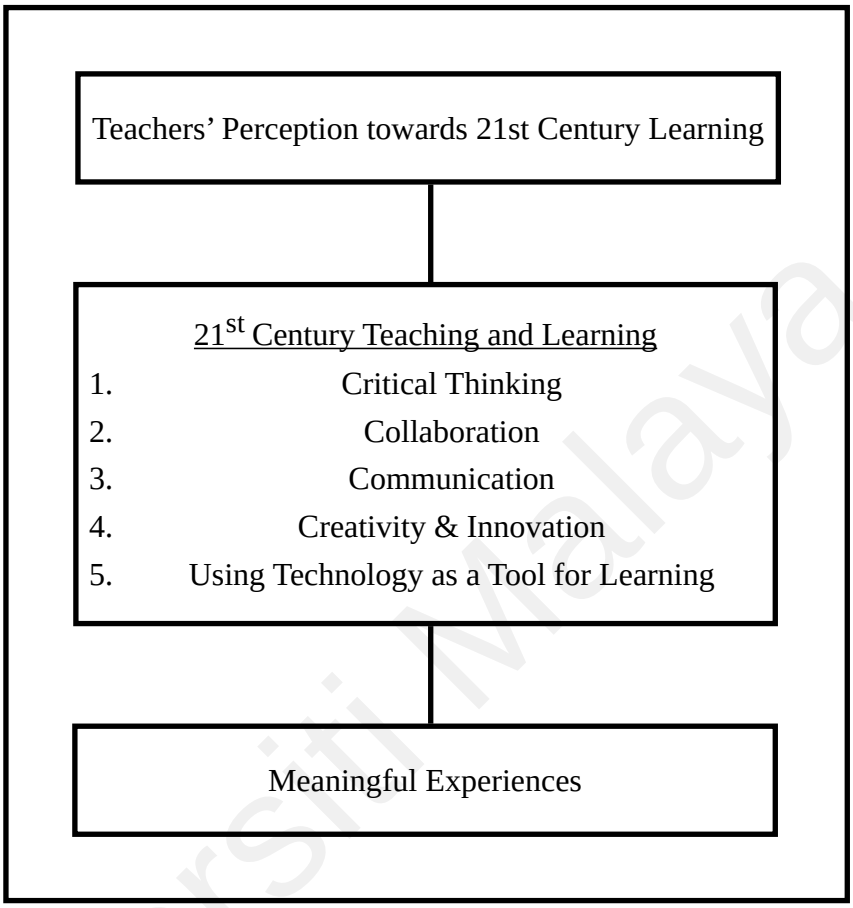
As previously discussed, there were numerous challenges and issues appertain to the implementation of 21st century learning in Malaysia. Teachers encounter difficulties that encompass their curriculum knowledge and competencies, motivation, professional development, perception, attitude, inadequate support, insufficient and defective ICT infrastructure and facilities, limited resources, student management, time constraints and the burden of unrelated tasks (Ali et al., 2019a; Ali et al., 2019b; Ali et al., 2021; Bakar et al., 2019; Busthami et al., 2015; Goh et al., 2022; Mohamad et al., 2022; Ng et al., 2022; Rusdin, 2018). Despite having undergone programmes, workshops and seminars organised by the Education Ministry to optimise teachers' mastery of the 21st century

pedagogy, the level of assimilating the 21st century learning pedagogy and fostering of the 4Cs skills in students is still at a moderate level (Goh et al., 2022; Rusdin et al., 2018). This indicates that there is an incongruent or missing element present in the previous studies. The 21st Century Learning aims to improve the lives of students by making learning more meaningful for them and advocating their holistic development. However, without the teachers to fully implement the reform curriculum, hopes of nurturing students' holistic development will be deterred and the nation's aspiration will not come to fruition.

Since the perception of teachers are significant determiners of their competencies and attitudes (Ghani et al., 2022; Goh et al., 2023; Ng et al., 2022), the research will seek to explore the perceptions and experiences of teachers in the implementation of 21st century learning in schools. Through this investigation, the study will understand teachers' perceptions from their experiences in the implementation of 21st century learning in schools through the application of the 21st century teaching and learning, as well as how such experiences subsequently bring meaning and impact their lives at a professional or personal level. The ability of the teacher to effectively apply 21st century pedagogy and cultivate the 4Cs skills among students is essential in elevating student motivation, performance and, ultimately, their holistic development. Understanding teachers' experiences can, therefore, help to shed light on any underlying issues and determine possible remedies. This is critical as teachers hold a pivotal role in reforming and strengthening the education system by producing a generation of the highest calibre for them to compete and thrive in the new digitalised era. Figure 2.3 illustrates the study's conceptual framework.

Figure 2.3.

Conceptual Framework of the Study



2.11 Summary

The breadth of the literature review has elucidated the learning theory and model of the 21st century learning theory, which is constructivism, explained the theoretical framework, defined 21st century learning and the 4Cs competencies, which are creativity, critical thinking, communication and collaboration skills, examined the 21st century learning student-centred pedagogies practised in Malaysia, chronicled the implementation process, discussed the longstanding challenges and issues faced by

Malaysian teachers in the application of the 21st century learning, reviewed past studies and provided the conceptual framework for the study.

The objective of this research is to explore the perceptions and experiences of teachers in the implementation of 21st century learning in primary schools. Identifying significant motivation and inhibition elements presented in the teachers' perception and experience can provide valuable findings and enable the education ministry to investigate and implement a plan to close any gaps in the implementation process of 21st century learning. The next chapter will present the research design, sampling method and instrument, procedure of the study, the data collection and analysis plan.

CHAPTER 3

METHODOLOGY

3.1 Introduction

In this chapter, the methodology applied to this research project will be discussed. The segment will begin with an explanation of the research design, followed by the sampling, research instrument, data collection, and analysis. This chapter will also expound on the methods and procedures utilised throughout the process of this study. Lastly, this chapter will end with a summary. The methodology will be conducted to investigate and answer the research questions.

3.2 Research Design

The methodology applied in this research is a qualitative method of content analysis for investigating the perceptions and experiences of primary school teachers in implementing 21st century learning in schools and how these experiences give meaning to the teachers. The purpose of selecting this approach is to allow the researcher to gather in-depth information on the experiences and perceptions of the phenomenon as a means to identify the social reality in a setting that would otherwise be hard to obtain in a quantitative study (Fraenkel, Wallen & Hyun, 2023). When the teachers can describe their experiences and explain their perceptions, an in-depth understanding of the specific context can be attained to answer the research questions. This, in turn, establishes the understanding, experiences, and meaning related to the phenomena by analysing participants' perspectives (Hammarberg, Kirkman & Lacey, 2016; Fraenkel et

al., 2023). Understanding the phenomenon from different perspectives can also provide insight into discoveries and reflections that illustrate detailed meanings underlying the construction of the 21st century teaching and learning process.

For the type of qualitative research, this study employed a phenomenological study. The phenomenological study advocates the discovery of meaning and enhances the understanding of life experiences as it describes and reveals the essence of a phenomenon through the exploration of the participant's experiences and perspectives (Fraenkel et al., 2023; Kagimu, 2019; Neubauer, Witkop & Varpio, 2019). The procedure involves the systematic collection, organisation, description and interpretation of data that captures the reality distinctively and uniquely perceived by the experiencer (Fraenkel et al., 2023; Hammarberg et al., 2016; Kagimu, 2019; Neubauer et al., 2019). Everyone possesses a diverse perceptual and experiential structure of psychological processes, which further aids their consciousness in assigning meaning to the world and guiding their actions (Bernstein, 2015). For this reason, how each of us perceives our world is as unique as the composition of our personalities. This is because we can interpret the same experience in numerous ways as our perception is subjected to influences such as our emotions, interests, motivation, background, needs and expectations (Bernstein, 2015). This information may support, add or challenge the structure of the norms' assumptions, subsequently forming new meanings and insights into life experiences (Bernstein, 2015). In consideration of that fact, the meaning construed by the subjects will vary during the course in which they engaged at different levels of deciphering meaning in their environment. Therefore, this can be considered a phenomenon. The distinctive experiences, perceptions, and interpretations can offer

valuable insights into the diversity of the phenomena. This process also makes it possible to explore the problem of the experience. In short, phenomenological research is designed to understand the reality of a phenomenon as perceived by the individual and develop meanings by examining their lived experiences. Through this, the final result produced is the description of meanings and essences constructed, representing the true nature of the phenomenon. Moreover, the phenomenological study emphasises the importance of personal perspectives and understanding of experiences (Fraenkel et al., 2023).

Through exposure to 21st century learning pedagogy, teachers will develop and construct their understanding and meaning of their experiences. The phenomenological study was utilised to investigate the phenomenon and its effects on the teachers from the aspect of the 21st century teaching experiences via three data collection techniques. They are Interviews, Journal Writing entries and Document Analysis. This was followed by thematic analysis coding of the data collected in which the themes present in the teachers' perceptions and experiences were determined.

3.3 Sample of the Study

The focus of the study is on the implementation of 21st century learning experiences and perceptions among primary school teachers. Hence, a total of ten teachers from three public primary schools located in Kuala Lumpur and Selangor participated in the study. Three teachers were from a Malay medium national school (Sekolah Kebangsaan - SK), four teachers were from a Chinese vernacular school (Sekolah Jenis Kebangsaan

Cina - SJKC), and three teachers were from an Indian vernacular school (Sekolah Jenis Kebangsaan Tamil - SJKT). All respondents have at least one year of teaching experience integrating 21st century learning into their pedagogical practices. The teachers taught various subjects such as Bahasa Melayu, English, Mandarin, Tamil, Mathematics, Science and Life Management. Table 3.1 shows the subjects taught by the respondents. Also, each of the teachers was given pseudonyms to protect their confidentiality.

Table 3.1

Respondent's School Type and Subjects Taught

Teacher's ID	School	Subject Taught
TA	Sekolah Kebangsaan - SK	Life Management
TB	Sekolah Kebangsaan - SK	Bahasa Melayu
TC	Sekolah Kebangsaan - SK	Mathematics
TD	Sekolah Jenis Kebangsaan Cina - SJKC	Mandarin
TE	Sekolah Jenis Kebangsaan Cina - SJKC	English
TF	Sekolah Jenis Kebangsaan Cina - SJKC	Science
TG	Sekolah Jenis Kebangsaan Cina - SJKC	English
TH	Sekolah Jenis Kebangsaan Tamil - SJKT	Tamil
TI	Sekolah Jenis Kebangsaan Tamil - SJKT	Mathematics
TJ	Sekolah Jenis Kebangsaan Tamil - SJKT	Mathematics

3.4 Sampling Method

The sampling method adopted in this data is purposive sampling77. Purposive sampling is a type of non-probability sampling technique whereby the sample is selected based on criteria concerning the interest of the study to represent the population (Fraenkel et al., 2023).

The criteria for the samples are the (1) participant's working institution area, which are public primary schools located in Kuala Lumpur and Selangor, (2) the participant's workplace type, which is primary public schools that employs the KSSR curriculum wherein 21st century learning is implemented (3) participant's application of 21st century teaching practices (4) various subjects taught by the participants and (5) participant's voluntary response.

Teachers' ethnicity, gender, socioeconomic status, education level taught and work qualifications were not given any regard in the selection of the sample. The characteristics outlined in the criteria take precedence over demographic factors because they are likely to yield more relevant insights to address the research question. This indicates that the researcher intends to focus on understanding the diversity of perspectives instead of analysing the participants based on their demographics. Furthermore, this approach helps safeguard participant privacy, as some of the respondents might choose to limit the disclosure of specific information due to the sensitive nature of the subject matter.

Last, the characteristic criterion is to ensure equality and obtain a neutral preference of opinions in the respondents' interpretation of the 21st century learning implementation experienced. The criteria of the sample are determined to possibly reflect the primary education in Malaysia and provide insights into the similarities and differences among school types, education levels and subject expertise in implementing 21st century learning.

3.5 Research Setting

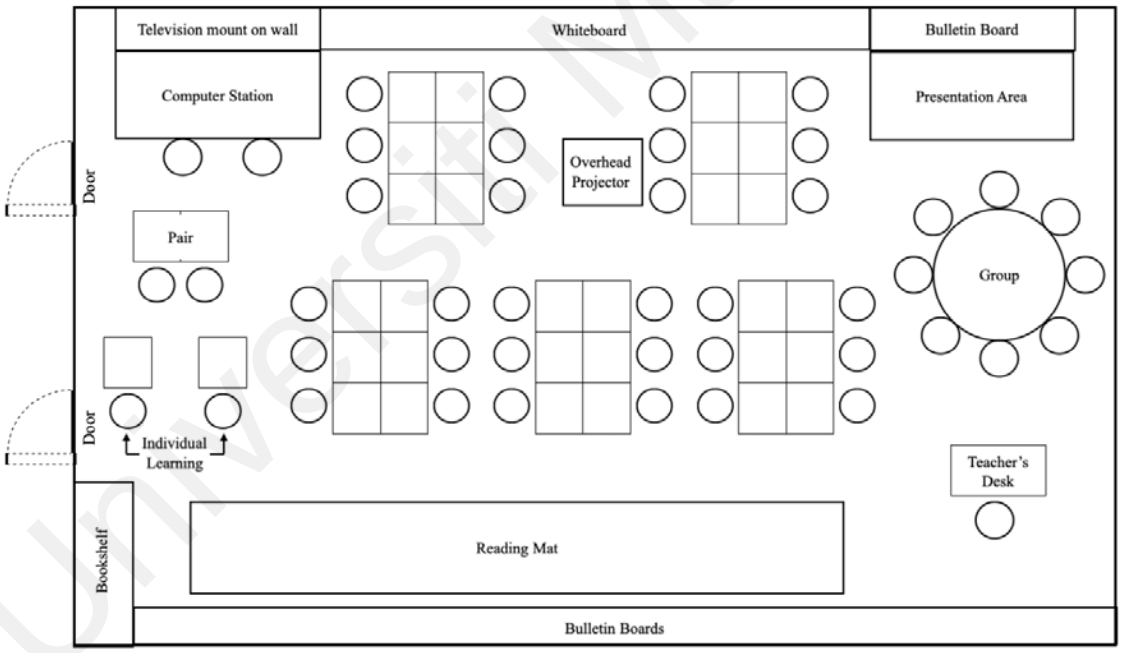
The geographical location of the study was held online through the internet, where participants were interviewed about their perceptions, experiences and how these experiences bring meaning to their lives.

The respondents of the study are teachers from three public primary schools located in Kuala Lumpur and Selangor, Malaysia. Kuala Lumpur and Selangor are urban regions where the socioeconomic status of the population is equally distributed into lower, middle, and upper-middle-class. The population also has access to the resources and services that they need. Hence, this is a suitable area to conduct the study. The public primary schools are Malay medium national school (Sekolah Kebangsaa - SK), Chinese vernacular school (Sekolah Jenis Kebangsaan Cina - SJKC) and Indian vernacular school (Sekolah Jenis Kebangsaan Tamil - SJKT). The public primary schools were selected based on the school’s willingness to participate.

In addition, these schools have been remodelled by the MoE in an effort to implement 21st century learning. The 21st century learning classroom is a conducive environment in which its classroom layout is designed to support student-centred learning, active learning, adaptive learning and computer-based learning (Kementerian Pendidikan Malaysia, 2017). The floor plan of a 21st century learning classroom is shown in Figure 3.1.

Figure 3.1

Floor Plan of a 21st Century Learning Classroom



3.6 Instruments of the Study

Research instruments are tools or processes that are used for data collection to measure and analyse data pertinent to the research's objectives (Creswell & Creswell, 2023). The

instrumentation used in this study is Interview protocol, Journal Writing protocol and Document Analysis protocol.

3.6.1 Interview Protocol

The process conducted during the Interview protocol was a semi-structured interview involving 10 public primary school teachers. The interview questions comprising 11 open-ended questions were developed based on the research questions and information provided by MoE in "Panduan Pelaksanaan Pembelajaran Abad Ke-21" (Kementerian Pendidikan Malaysia, 2017). The interview questions generated were also aligned with the research question. Questions 1 to 4 were designed to answer research question 1, questions 5 to 7 were for research question 2 and questions 8 to 11 were constructed to answer research question 3. The interview questions are then verified by a panel of experts and pilot-tested. The Interview protocol is presented in Appendix A.

3.6.2 Journal Writing Protocol

The Journal Writing protocol involves the recording of participants' descriptions and explanations of their experiences in conducting their lessons in accordance with 21st century learning practices. The Journal Writing protocol comprises 5 questions which focus on the lesson conducted of the week. The questions formulated were based on the research questions and information provided by MoE in "Panduan Pelaksanaan Pembelajaran Abad Ke-21" (Kementerian Pendidikan Malaysia, 2017) to guide the participants in journaling their lesson procedure as well as reflecting on the events experienced. The questions were verified by a panel of experts and pilot-tested. The

journals were provided by the researcher in Microsoft Word form to the participants. After the participants had given their accounts, they sent their journal entries back to the researcher for analysis. The Journal Writing protocol is presented in Appendix B.

3.6.3 Document Analysis Protocol

The Document Analysis protocol is the collection of several documents from the participants: lesson plans and the accompanying teaching aids. The lesson plan is a report provided by the school which generally details the lesson objectives to be achieved, lesson development, lesson feedback, materials or activities conducted during the lesson and the teacher's reflection. This is to observe how the teacher has planned to conduct their lessons in accordance with the 21st century learning practices. The teaching aids are any form of materials which the teacher uses to carry out their lessons. Teaching aids in the form of a document were given as a soft copy file, while physical teaching materials were photographed. The documents were gathered by the researcher through the provision of digital copies by the participants for analysis. Thirteen teaching domains were analysed to examine teachers' application of 21st century learning in their lessons using the Document Analysis protocol as presented in Appendix C.

3.7 Validity and Reliability of the Instrument

To establish the reliability and validity of the instruments, the Interview protocol, Journal Writing protocol and Document Analysis protocol were examined and verified by a panel of three experts. The three experts to assess the instruments were senior lecturers and professors in the field of Educational Psychology who have reviewed all

proposed instruments. Following this, the instruments have undergone initial testing to assess their viability and detect any flaws.

3.8 Data Collection Techniques

This research employs three data collection methods, which are (1) Interview, (2) Journal Writing and (3) Document Analysis to achieve the objectives of the study.

3.8.1 Interview

The semi-structured Interview, which consists of 11 open-ended questions, was developed to gain in-depth access to teachers' perceptions and experiences of the phenomenon and how they derive meaning from these experiences. After the data collection of Document Analysis and Journal Writing, one interview session was held with each of the 10 participating teachers individually through an online meeting platform (Zoom Meetings). The interviews were conducted based on the time availability allotted by the participants. The researcher contacted the participants to schedule the time for the interviews. The interview questions were also emailed to the participants for their reference before the interview session.

Each teacher's responses were explored comprehensively to elicit their perceptions and experiences as well as the challenges encountered in their application of 21st century learning. Further explanation or guidance to help participants understand or clarify questions was provided if requested by the participants. In addition, follow-up probes to

gain in-depth answers or clarification on participants' responses were conducted if required. The details of the interview were recorded and transcribed. Intelligent verbatim transcription was the technique used for transcribing the interview to make the content clearer while maintaining the respondents' intended meaning. The interview sessions did not have any time limit and ended after all questions from the Interview protocols were completed. All information was reported anonymously.

3.8.2 Journal Writing

The 10 public primary teacher participants reported their descriptions of the events experienced through Journal Writing. The Journal Writing comprised a total of 5 questions, which focused on the lesson conducted of the week. The narrations regarding the teacher's lesson procedure were to observe their teaching strategies, practices and application of 21st century skills, as well as to explore their reflection about the lessons. In addition, teachers were required to record their journals once a week for a month before the interview session. This was to observe whether the teacher has made any significant development or changes regarding their perceptions and experiences. At the end of the month, all teachers were requested to compile their four journal entries and submit them in digital copies to the researcher for analysis.

3.8.3 Document Analysis

The first method of data collection was the Document Analysis based on the lesson plans and teaching aids provided by each of the participants during the time which coincided with their Journal Writing period. They were required to provide their lesson

plans from their respective schools and teaching aids in soft copies attached along with the corresponding journal entry for the one month. A total of four lesson plans and the accompanying teaching aids by each of the participants were accumulated for analysis. By analysing the documents, the researcher was able to gather detailed descriptions of the participants' utilisation of the 21st century teaching practices in their lesson procedure to better understand their concept of 21st century learning.

3.9 Procedure of the Study

First, permission to conduct the research was obtained from the Kementerian Pendidikan Malaysia (MoE) and the Jabatan Pendidikan Negeri (JPN).

Next, invitation letters were sent out to principals from public primary schools to obtain their approval to participate in the research. Principals who gave their consent were contacted and briefed about the research. During the briefing, the researcher explained the objectives and rationale of the research as well as the procedure of the study. The researcher also requested the principal to recruit four teachers and provide their contact numbers.

Then, the researcher contacted the participants to discuss the objectives and rationale of the research as well as the procedure of the study. Teachers were also informed about the confidentiality regarding their involvement, the information they provide and their

rights to withdraw from the research at any point should they wish to discontinue. After, the consent letters were given to the teachers to sign.

The research commenced with the Journal Writing and Document Analysis protocol. Teachers were tasked to write a journal entry once a week for the duration of one month. Teachers were also instructed to provide their lesson plans and teaching resources in conjunction with their journal entries. In addition, the researcher also followed up with the respondents on their progress to check whether they were having any difficulties with their reporting. The Journal Writing entries, as well as the associated documentation, were gathered for analysis.

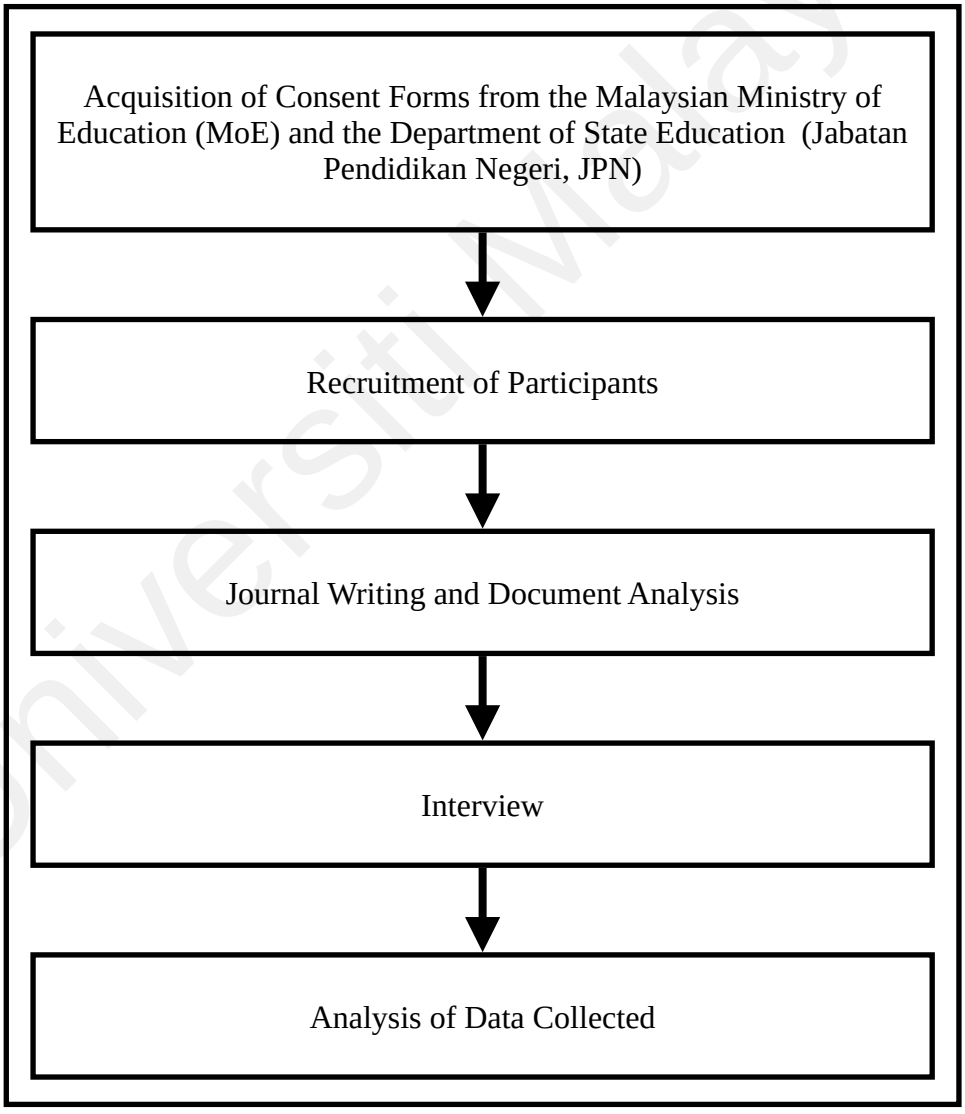
The interview sessions were conducted following the data collection of Document Analysis and Journal Writing. The researcher contacted the participants to arrange interview appointments based on the participants' availability. The interview questions were also emailed to the participants for their reference before the interview sessions.

The interview was held with each of the informants individually via an online meeting platform (Zoom Meetings). The interview began with a reminder of the research's objectives and reassurance that the identities of the respondents and information would be kept private and confidential. Further explanation or guidance to help participants understand or clarify questions was provided as requested by the participants. In addition, follow-up probes to gain in-depth answers or clarification on participants'

responses were conducted if required. After the interview sessions had ended, the participants were debriefed and thanked for their participation in the study. All interview sessions were recorded, transcribed and analysed, as all information was reported anonymously. The procedure of the study is illustrated in 3.2.

Figure 3.2

Procedure of the Study



3.10 Trustworthiness of the Data

To ensure the trustworthiness of the data, three strategies were employed: (1) triangulation, (2) member check and (3) objectivity in reporting.

3.10.1 Triangulation

The first strategy is the triangulation of data. Three data collection strategies were utilised to achieve validity and reduce research biases. The strategies were (1) Interview, (2) Journal Writing and (3) Document Analysis. The usage of a variety of instruments in the data collection process was to gain a comprehensive and consistent view of the phenomenon, which is crucial in aiding the researcher to understand the perceptions and experiences of teachers in their implementation of 21st century learning.

3.10.2 Member Check

The second technique was respondent validation. The journal entries and interview transcriptions were reviewed by the respondents involved in the study to ascertain the authenticity of the content and information given. The participants commented and affirmed the accuracy, adequacy and completion of the journal entries and interview transcriptions reported. This method of approach was used to enhance the validity and credibility of the study as well as prevent any misinterpretations of the data collected.

3.10.3 Objectivity in Reporting

The last method is objectivity in reporting. Primary data gathered from journal entries was utilised during the reporting of this research. Intelligent verbatim transcription was applied in the transcription of the interview session to obtain clarity. The transcriptions were also reviewed by the respondents to confirm their accuracy, adequacy and completion. Both of these procedures allowed the researcher to maintain impartiality and the true meaning of the information provided. This is so that the authenticity and essence of the phenomenon explored remain intact.

3.11 Ethical Concerns

Precautionary measures exercised during the research period to protect the rights and confidentiality of the participants are (1) seeking informed consent, (2) confidentiality and (3) anonymity.

3.11.1 Informed Consent

Informed consent forms were acquired from teachers and principals to approve their permission to participate in this research study. The form contained details such as the nature and purpose of the study, procedures, benefits, confidentiality and withdrawal rights, researcher's contact information, a column of acknowledgement statement of consent for the school principal and participating teachers to sign and a column for teachers to fill in their contact details. The form was distributed through email to the school's principal. The content of the form was also discussed through phone conversations. The informed consent letters are attached as Appendix C.

3.11.2 Confidentiality

Participants were informed of their confidentiality in the consent forms prior to the study and were reminded during the introduction of the interview sessions. Their confidentiality was protected by ensuring that the researcher was the sole person having access to the data collected. The data collected were stored in an external hard disk and protected with a password. Furthermore, pseudonyms were used to replace the participants' names, and the names of the participants will not be published. This is to avoid any association of data to the particular respondent as well as to assure the participants that the data collected will be held in confidence.

3.11.3 Anonymity

The identities of the participants were protected by substituting their names with pseudonyms in the written reports after the collection of data. This action was taken to safeguard the participants against any discomfort, harm or embarrassment that the information presented may cause.

3.12 Preliminary Study

Two instruments were pilot-tested. They are (1) Interview protocol and (2) Journal Writing protocol.

3.12.1 Pilot Test for Interview Protocol

After corrections had been made to the Interview protocol according to the panel experts' suggestions, a pilot test was conducted to further validate the Interview protocol. Two teachers who fulfilled the sampling criteria and submitted their Journal Writing protocols were invited to participate in the study. Interview sessions were scheduled based on the informant's availability. Interview sessions were conducted through an online meeting platform (Zoom Meetings). During the pilot test, detailed field notes were taken to list down the limitations of the questions. After the interview had ended, the participants were debriefed and thanked. Further review and amendments were made after the interview sessions to ensure the clarity of each question. The edited Interview protocol was presented to the researcher's supervisor to be finalised.

3.12.2 Pilot Test for Journal Writing Protocol

The pilot test for the Journal Writing protocol was carried out before the pilot test for the Interview protocol. Two teachers who fulfilled the sampling criteria were invited to participate in the study. They were briefed about the objectives and procedure of the study as well as the confidentiality of their identities. They were required to complete one entry of the Journal Writing. A soft copy file was emailed to each of them. After both teachers have completed and submitted their journal entries. An evaluation was made, and detailed field notes were taken to list down any limitations for each question. Corrections were made to make the questions clearer. The edited Journal Writing protocol was presented to my supervisor to be finalised.

3.13 Data Analysis

The data collected were from the Interview protocol, Journal Writing and Document Analysis to explore the perceptions and experiences of teachers in the implementation of 21st century learning in public primary schools and how they derive meaning from such experiences. To analyse the data, the contents of the interview sessions were recorded and transcribed. Next, the journal entries and interview transcriptions undergo member checking to ensure that all information was recorded accurately, adequately and thoroughly.

The data collected was proceeded by a thematic analysis coding. The documents, journal entries and interview transcriptions were analysed by identifying common elements of the teacher's experiences. Through repeated examination and comparison of the patterns and meanings, the main concepts emerged. This, in turn, formed the codes. The codes were then applied to the data collected. The accumulated extracts were also collated by grouping matching extracts under a particular code. Later, the codes were sorted and categorised into themes. The themes were reviewed to ensure that there was sufficient supporting data. These themes are a part of the fundamental features of the phenomenon encountered by the participants in the study. Finally, these themes, which are based on the commonalities of experiences, were presented in a narrative form that represents the central features of the phenomenon (Fraenkel et al., 2023).

3.14 Summary

This chapter has described the research design, sampling method, and setting of the study. Instruments of the study were presented, and the validity and reliability of the instrument were approved. In addition, the procedure of the study and trustworthiness were specified. Data analysis was collected using a semi-structured interview, Journal Writing and Document Analysis. Data collected was coded using thematic analysis to describe the fundamental themes experienced in the 21st century education context. The next chapter will reveal the results.

CHAPTER 4

RESULTS

4.1 Introduction

The purpose of this study is to analyse the perceptions and experiences of teachers in the implementation of 21st century learning in public primary schools and how they derive meaning from such experiences. This chapter presents the results of the Journal Writing, Document Analysis and Interview utilised to attain the objective of this research. Both Journal Writing and Document Analysis were to engage teachers in reporting their application of 21st century learning and reflections on their practices, whilst the Interview was to gain in-depth access to their perceptions and experiences of the phenomenon and how they derive meaning from these experiences.

Thus, this chapter constitutes the results of the phenomenological research that was analysed using the three data collection methods to triangulate data. The data collected underwent a thematic analysis coding while the research questions served as a guide to procure prevalent themes from the data. These emerging themes represent central features of the phenomenon encountered by the participants in the study. Explanations of the theme and evidence are also reported in a narrative form to support the data.

4.2 Presentation of Results Based on Each Research Question

The themes generated from three data collection techniques have been identified and are presented below:

4.2.1 The Perceptions of Teachers in the Implementation of 21st Century Learning in Public Primary Schools

The findings for the first research question contain four questions aimed at exploring teachers' perceptions of 21st century learning. Understanding the teachers' perceptions helps to explain how they interpret and assign meaning to their experiences in implementing 21st century learning. Four recurring themes were identified. They are: (1) Student-Centred Education, (2) Prepares Students for the Future, (3) Enables Effective and Meaningful Learning, and (4) Mastery of 21st Century Teaching Techniques among Teachers.

1. What are the perceptions of teachers in the implementation of 21st century learning in public primary schools?

4.2.1.1 Student-Centred Education

The first theme from the results obtained is 21st century learning is a **Student-Centred Education**. All teachers hold uniform ideas about the notion of 21st century learning, which involves the education of knowledge, competencies and skills combined with the necessary support systems to assist students in preparing and thriving in the future and ultimately contributing to society on a worldwide scale. This belief is consistent with the definition provided by the National Education Association as stated in the P21

Framework, which is that 21st century learning entails the student's development and mastery of knowledge, competencies and skill sets as requirements to succeed in the 21st century society (National Education Association [NEA], 2010).

TA: …*PAK21 adalah pendidikan yang bagus kerana ia memenuhi keperluan masa kini, mementingkan aras perkembangan murid dan juga dapat mendidik kemahiran yang penting.*

…PAK21 is a good education because it meets the needs of today, places importance on the student's development and can also educate important skills.

TB: *Pendapat saya ialah PAK21 sangat penting untuk PDPC murid sebab ia melibat penglibatan murid secara aktif. PAK21 ini melibatkan 'Lifelong learning'…*

My opinion is that PAK21 is very important for students' PDPC because it involves active learning. This PAK21 also involves 'Lifelong Learning'…

TC: *Apa yang saya memahami tentang PAK21 ialah saya rasa PAK21 lebih berpusatkan kepada murid dan guru sebagai pembimbing atau facilitator.*

What I understand about PAK21 is that I think PAK21 is more student-centred, with the teachers acting as guides or facilitators.

TE: I think PAK21 is a modern teaching and learning technique that involves learning life skills and literacy as part of the classroom experience compared to traditional learning, which involves rote memorisation.

TG: 21st century learning puts the student first when PDPC is conducted. This approach involves the use of methods that focus on the needs, interests, and learning styles of the students. Teachers act as facilitators and mentors to help students develop… skills.

The comments from the Interview excerpts indicated that teachers share similar perspectives on 21st century learning and its role in equipping students with literacy, learning, and life skills so that they may adapt and thrive in a perpetually shifting world. Terms reiterated consistently, namely “student-centred learning” and “skills”, further solidify that teachers are aware of the paradigm shift of the education setting from teacher-centred to student-centred classrooms, emphasising the need for 21st century teaching practices to teach 21st century skills which are Critical Thinking, Creativity and Innovation, Communication, Collaboration and ICT skills. Only two teachers have contrasting views on the matter.

TE: I think the students will lose the opportunity to master the fundamentals of any subject. This means we are trying to keep up with the skills, not focusing more on content that is supposed to be mastered. Due to this reason, some older teachers prefer maintaining the conventional teaching method because of past learning experiences. They think this way is more effective…

TJ: …PAK21 does not help students to master the fundamentals of the subject as it only focuses on 21st century skills.

Although both teachers' initial perception of 21st century learning is akin to the other teachers, they have different opinions about the idea. They believe that the modern curriculum does not focus on the mastery of academic content. The teachers have misconstrued 21st century learning as the 21st century skills are to be taught within the context of the core academic knowledge. In sum, 21st century learning describes the education of knowledge, skills, expertise and literacies to be mastered by students (National Education Association [NEA], 2010).

In light of the conclusions drawn from the Journal Writing entries, all teachers understand that 21st century learning is a student-centred education that is established on the Constructivist theory. All teachers have applied various 21st century pedagogical approaches during their lessons. The 21st century instructional approaches adopted by teachers are listed in order of popularity: Collaborative Approach, Constructivist Approach, Inquiry-based Approach, Integrative Approach and Reflective Approach.

Eight teachers have applied the Constructivist Approach by helping the students to make connections through examples for them to model and practice so that they can correctly apply the learned knowledge. Examples of the Constructivist Approach demonstrated are shown below:

> TA: *Saya menyediakan persekitaran di mana mereka boleh membuat perkaitan dengan membantu mereka berlatih supaya mereka boleh menggunakan pengetahuan yang dipelajari dengan betul.*

I provided an environment where they can make connections by helping them practice so they can properly apply the knowledge learned.

TD: I exposed students to various situations where they may communicate better through the use of polite language to express sympathy, rejection, reception and praise to others and then guided them to use polite language.

TF: I guided and assisted students in learning about the changes in the lungs when breathing through making lung models.

TG: I provide examples through videos and pictures for students to model and practice so they can correctly apply the learned knowledge.

Nine teachers have incorporated the Collaborative Approach by helping their students to work together to complete activities in groups. Cases which exhibit the Collaborative Approach are in the following examples.

TB: *Dalam kumpulan, murid mewarna Jalur Gemilang dan membincangkan jawapan kepada soalan pemahaman yang diberikan.*

In groups, students colour the Jalur Gemilang and discuss the answers to the comprehension questions given.

TD: Students discussed in groups and used polite language to express sympathy, rejection, reception and praise to others…

TF: Students worked together in groups to carry out the experiment and discuss their observations and results.

TG: I divided students into groups. Pupils share ideas and work together to answer the questions given to them.

Five teachers have implemented the Integrative Approach since they have provided specific situations for students to make connections between the current topic they're learning and correctly apply the learned knowledge in real settings. Below are some instances of the Integrative Approach:

TA: *Saya menerangkan kepada pelajar situasi di mana mereka boleh membuat perkaitan antara topik semasa yang mereka pelajari. Kemudian, saya kaitkan dengan pengalaman pelajar melihat dan memakai baju-T berkolar dan tanpa berkolar di rumah oleh ibu bapa serta membimbing mereka memakai baju-T tanpa kolar dan berkolar dengan betul.*

I explained to students situations where they can make connections between the current topic they are learning. Then, I related it to the students' experience of seeing and wearing collared and collarless T-shirts at home by parents and guided them to wear collarless and collared T-shirts correctly.

TF: I helped my students make connections between the current topic they're learning about through videos of the metamorphosis process and role-playing performances to help them understand the growth stages of the animal life cycle.

Eight teachers utilised the Inquiry-based Approach by presenting situations and requesting students to evaluate and analyse those situations to better understand the lesson. The Inquiry-based Approach applied is illustrated in the following instances:

> TC: *Pelajar dibentangkan soalan semasa latihan dengan menggunakan kemahiran berfikir kritis untuk menulis ayat matematik yang melibatkan penambahan nombor berturut-turut (dua-dua, lima-lima, sepuluh dan empat-empat).*
>
> Students are presented with questions during the exercise using critical thinking skills to write mathematical sentences involving the addition of consecutive numbers (two-two, five-five, ten and four-four).

> TE: I presented a situation and requested the students to think about the importance of 3R and not wasting useful things and later create a Mind Map so that the pupils can better understand the lesson.

> TF: Students discussed how to plan this experiment and solve any related problems…

> TG: I gave many examples of situations on when and how to use the future tense ‘will’ and ‘going to’ and requested the students to evaluate and analyse those situations to better understand the lesson.

The teachers have employed the Reflective Approach by allowing their students to evaluate and reflect on the other group's performances and presentations to provide

feedback. The teachers have also discussed and concluded the main points at the end of each lesson. The following are some examples of the Reflective Approach:

> TD: Students evaluated and reflected on the group performances to provide feedback. Then, I discussed and concluded the main points at the end of each lesson.

> TE: Students exchanged their work with peers to do the checking and give feedback.

> TG: I asked each group to make a Mind Map presentation. After each group presentation, their friends have to reflect on each group's presentations and give constructive comments.

> TH: Students were made to reflect, evaluate and comment on the health and wellness articles.

For the findings from the Document Analysis, the lesson plans and teaching aids provided by the teachers during this study detail the teachers conducting student-centred education by incorporating various 21st century pedagogical approaches. Examples documented in the Document Analysis are Project-Based Learning, Problem-Based Learning, Game-Based Learning, PAK21 activities such as group discussions, presentations, performances, Role Play and Gallery Walk. These instructional techniques and activities are types of student-centred learning that prioritise students' needs, interests, abilities, and learning styles. The teachers have also created situations to help students make connections by providing demonstrations and guidance, as well as helping them to practise the knowledge they had learned. As a result, the students were

actively involved in meaningful, problem-based phenomena to develop ideas and beliefs and stimulate discussions.

TA: The teacher incorporated Project-Based Learning by providing demonstrations and guidance on ways to use the bathroom correctly and safely so that students could model and practice. Then, the students discussed and explained the learning content of the day.

TB: The teacher incorporated Game-Based Learning where groups of students were actively involved in meaningful discussions to develop ideas of when to use different types of kata ganda according to the context and then play the game.

TC: The teacher incorporated PAK21 activities such as conducting group discussions to create I-Think Maps about fractions.

TD: The teacher incorporated PAK21 activities such as Role Play to understand the main concept of the story. Students worked together to discuss the storyline, role assignment in groups and perform.

TE: The teacher incorporated Game-Based Learning where students are engaged in competitive, interactive, and entertaining online quizzes to practice applying their learned knowledge about the prepositions ‘in’ and ‘on’.

TF: The teacher incorporated Project-Based Learning and assisted students in making connections between the current topic they’re learning about through experimenting to see how seeds transform into plants based on different conditions.

TG: The teacher incorporated Problem-Based Learning where students were actively involved in meaningful, problem-based phenomena to develop ideas and beliefs during discussions to create Mind Maps about the importance of 3R. Then, the pupils presented their ideas and were asked to reflect on each group's presentations and give constructive comments.

.

TH: The teacher incorporated PAK21 activities such as group discussions. The students were involved in meaningful discussions to interpret the words from the story according to context.

TI: The teacher incorporated Problem-Based Learning where students work together in groups to discuss how to solve subtraction problems.

TJ: The teacher incorporated Problem-Based Learning by assisting students in making connections and helping them practise the knowledge they had learned, such as providing many examples of how to solve multiplication problems.

To add, the teaching aids displayed in photos by the teachers also attested that they had utilised multiple modes of teaching aids that are interactive and tailored to the students’ needs. According to the Document Analysis, specific examples of teaching aids include

Smartboard, presentations, pictures, videos, audios, flashcards, craft materials, interactive models, maps, charts, number cards and interactive games.

4.2.1.2 Prepares Students for the Future

The second theme drawn from the results is that 21st century learning **Prepares Students for the Future**. The teachers hold a consensus that 21st century learning is essential in equipping students to navigate successfully in an ever-evolving world, generate human capital and become responsible members of society. They are aware of the prevalent changes in our contemporary society that emphasise the need for soft skills over hard skills. This means having the knowledge and skills to utilise information from sources to make judgements and develop new ideas. Hence, they strive to instil 21st century skills, knowledge, and attitudes to prepare their students for life and work in the future. Recurring terms such as "important skills", "adapt", "survive", and "future" show that the teachers have understood the importance of the new curriculum and have implemented 21st century learning into their teaching practices to prepare their pupils for the future. This statement is generally agreed upon by all teachers in the comments below:

> TD: Yes, it is important. …PAK21 promotes the students' ICT, cooperation and communication skills. All these skills are to prepare the students to face future challenges. This is because the advances in technology have already displaced some types of work…

TE: I think it is quite important as I believe it will help students… Students need to acquire these skills so they can adapt and survive in this and the generation to come.

TF: Yes. PAK21 is important as it helps students learn to collaborate, cooperate and work together in a team in the future workforce.

TG: The most important is to help students develop their character, skills and knowledge so that they may thrive in the future.

TI: …As technology is developing fast, we need to make sure that the students are on the same level, making sure they learn what is necessary to catch up with the current world…

TJ: …Every student is actively, interactively and effectively involved in the form of human capital… Giving birth to a generation that is brave, responsible and individualistic.

As documented in the Journal Writing entries, all teachers have employed 21st century teaching practices to assist students in acquiring soft skills to prepare their students for life and work in the future. Nine teachers have assisted their students in learning Critical Thinking Skills, five teachers have assisted their students in learning Creativity and Innovation Skills, seven teachers have assisted their students in learning Communication Skills, nine teachers have assisted their students in learning Collaboration Skills, and two teachers have assisted their students in learning Information and Communications Technology (ICT) Skills. The most common skills the

teacher has helped students to acquire are Critical Thinking Skills, Collaboration Skills and Communication Skills. Exemplary instances of Critical Thinking Skills taught are listed below:

TA: *Murid boleh menilai tindakan yang ditunjukkan dalam kuiz video dan menentukan sama ada tindakan itu salah atau betul.*

Students can evaluate the actions shown in the video quiz and determine whether the actions are wrong or right.

TC: *Pelajar dibentangkan dengan soalan semasa latihan matematik (peta i-think) yang memerlukan pemikiran kritis mereka untuk mengenal pasti satu, dua, satu suku, dua suku dan tiga suku dalam pecahan.*

Students are presented with questions during maths training (I-Think Map) that require their critical thinking to identify one, two, one quarter, two quarters and three quarters in fractions.

TF: Students can discuss how to plan this experiment and solve any related problems.

TH: Students read a story and work together in groups to evaluate and analyse the importance of telling the truth. Then, they have to write an essay about the theme of the story.

TJ: Students can use critical thinking skills and work together to solve addition story problems.

Here are some illustrations of Creativity and Innovation Skills:

TB: *Murid membuat Semutar dengan menggunakan kain batik/ kain pelekat yang dibawa dengan bimbingan guru.*

Pupils make a *Semutar* using the batik cloth/ sticky cloth they brought with the teacher's guidance.

TD: Students can create their own version of the story through Role Play by performing.

TE: Students can create new gadgets that will exist in the future.

TF: Students can create good lung models. They can complete their task creatively and innovatively.

Representative instances of Communication Skills are included in the following:

TA: *Murid boleh berbincang dengan saya dan menerangkan tentang kandungan pembelajaran pada hari tersebut.*

Pupils can discuss with me and explain about the learning content of the day.

TB: *Murid dibimbing untuk memberikan respons dalam situasi formal dan tidak formal.*

Pupils are guided to give a response in formal and informal situations.

TD: Students can share their performances with the class.

TG: Students can share information about their presentation with the class.

Specific examples of Collaboration Skills are identified as follows:

TA: *Murid yang merupakan tahap keupayaan yang tinggi boleh bekerjasama dan bertolak ansur dengan murid tahap keupayaan yang lebih rendah dalam membimbing mereka cara memakai baju-T tanpa kolar dan berkolar dengan betul.*
The high-ability students can cooperate and tolerate the low-ability students in guiding them on how to wear collarless and collared T-shirts correctly.

TB: *Murid boleh bekerjasama secara berpasangan dalam simulasi lakonan antara "Atuk dan Hadif".*
Pupils can work in pairs to act out an acting simulation between "Grandpa and Hadif".

TE: The students can work in groups to create a PowerPoint presentation on the topic "Getting Around". They discussed with each other and worked together to come up with this presentation.

TI: Students can work together in groups to discuss how to solve addition problems.

Examples that demonstrate the ICT Skills are listed below:

TE: Students can create a PowerPoint presentation or any digital platform such as Canva or Microsoft Word.

TG: Students can create a PowerPoint presentation using digital platforms.

Data collection from the Document Analysis revealed the teachers employed instructional strategies and activities such as Project-Based Learning, Problem-Based Learning, Game-Based Learning and PAK21 activities to assist students in acquiring 21st century skills. The activities involved were aimed at fostering Critical Thinking, Collaboration, Communication, Creativity and Innovation, and ICT skills. For instance, the lessons have cultivated students' Collaboration and Communication skills by encouraging them to collaborate in constructing knowledge to establish shared meaning, exposing them to diverse perspectives, and appreciating and supporting creative alternative solutions. The teachers also helped students to acquire Critical Thinking and Creativity and Innovation skills by requesting students to evaluate and analyse different contexts regarding the topic, as well as discuss, share ideas and opinions to aid in expanding and restructuring their current knowledge. As a result, the students can collaborate in groups to analyse, evaluate, calculate, discuss, share ideas and opinions, generate content, compete in games, give performances and presentations, provide constructive feedback and apply their life skills and knowledge learned in their daily lives. Here is the evidence:

TA: The teacher incorporated Project-Based Learning and Problem-Based Learning, and has helped students learn Critical Thinking, Communication and Collaboration skills.

TB: The teacher incorporated Problem-Based Learning, Game-Based Learning, discussions and Role Play, and helped students learn Collaboration, Communication and Creativity and Innovation skills.

TC: The teacher conducted PAK21 activities like Gallery Walk and Role Play, and helped students learn Critical Thinking, Communication and Collaboration skills.

TD: The teacher incorporated demonstrations, group discussions, presentations and performances, and helped students learn Critical Thinking, Collaboration, Communication, and Creativity and Innovation skills.

TE: The teacher incorporated Project-Based Learning, Game-Based Learning, demonstrations, group discussions, presentations and Gallery Walk, and helped students learn Critical Thinking, Collaboration, Communication, Creativity and Innovation and ICT skills.

TF: The teacher incorporated Project-Based Learning, Game-Based Learning, demonstrations, group discussions, presentations and performances, and has helped students learn Critical Thinking, Collaboration, Communication, Creativity and Innovation skills.

TG: The teacher incorporated Problem-Based Learning, PAK21 activities, demonstrations, group discussions and presentations, and has helped students learn Critical Thinking, Collaboration, Communication, Creativity and Innovation and ICT skills.

TH: The teacher incorporated PAK21 activities, group discussions and presentations, and has helped students learn Critical Thinking, Collaboration and Communication skills.

TI: The teacher incorporated Problem-Based Learning, Game-Based Learning, demonstrations and group discussions, and helped students learn Critical Thinking and Collaboration skills.

TJ: The teacher incorporated Problem-Based Learning, demonstrations and group discussions, and has helped students learn Critical Thinking and Collaboration skills.

4.2.1.3 Enables Effective and Meaningful Learning

The third theme extracted is 21st century learning **Enables Effective and Meaningful Learning**. Most teachers view 21st century learning as an all-encompassing, effective, efficient and encouraging learning that enhances personal and professional or educational development. Specific terms such as “active learning”, “increased interest and motivation”, “increased understanding”, and “thinking creatively and critically” highlighted by the teachers are associated with the theory of effective and meaningful learning, which is defined as students enthusiastically engaging in their personal growth

and education. As a result, learners are more likely to have successful learning outcomes. To elucidate further, effective and meaningful learning does not involve learners acquiring abstract knowledge and information passively. Instead, they actively participate in their development and learning. The teachers' opinions can be observed in the following comments:

TB:…*Paling penting ialah PAK21 melibatkan murid secara aktif. Apabila semua murid dilibatkan, PDPC akan menjadi lebih efektif dan menyeluruh.*

…The most important thing is that PAK21 involves students actively. When all students are involved, PDPC will be more effective and comprehensive.

TC: …*Oleh itu, sebab PAK21 ini, murid menjadi lebih termuka dan berdikari dalam pembelajaran mereka.*

… Hence, because of PAK21, students become more proactive and independent in their learning.

TE: …the increase of students' understanding, appreciation of different opinions and thinking from different perspectives…

TF: This method enables effective learning… Hence, students become more interested and motivated in learning.

TG: The strength is helping students to develop an interest in learning.

TI: It is definitely important because it is efficient and effective… Students are more involved during lessons… critical thinking skill helps students as well as teachers to expand their minds. We, as teachers, are also exposed to different types of creativity in the PDPC process.

Only two teachers have opposing views regarding the student's learning outcomes. They opined that 21st century learning is less effective for students in achieving the learning objectives due to their different levels of competency, readiness, and ability. Their remarks are in the following comments:

TE: The lack of effective learning outcomes is one of the huge tenets. This is because some of the students feel bored, some weaker ones remain passive, and some better ones dominate the session.

TJ: …21st century learning is not important because our students are not ready to fulfil MoE's aspirations… This is because PAK21 does not help students master the fundamentals of the subject, as it only focuses on 21st century skills.

The theory that the 21st century enables effective and meaningful learning was documented in the teachers' Journal Writing entries. All teachers have promoted meaningful learning as students were exposed to authentic social contexts. As a result, students can understand the content and educational significance, accurately apply the learned knowledge appropriately and achieve the learning objectives, as well as learn 21st century skills. Evidence of the outcome of the lesson activities is presented in the following:

TA: *Murid boleh menjaga kebersihan pakaian, membina ayat yang gramatis, meningkatkan keyakinan serta kemahiran bertutur untuk membantu mereka dalam kehidupan seharian.*

Students know how to care for the cleanliness of clothes, can build grammatical sentences, improve confidence, as well as speaking skills to help them in their daily lives.

TB: …*Murid dapat memahami dan menggunakan pelbagai jenis kata ganda dalam pertuturan dan penulisan mengikut konteks.*

…Pupils can understand and use different types of 'kata ganda' in speech and writing according to the context.

TD: Students can conduct oral communication at least through the situations presented, accurately speak at least four sentences of polite language, learn to communicate with others, and be able to speak appropriately and have a polite attitude to establish a positive relationship with others.

TE: …As for relating or applying the lesson in their life, ICT skills and communication skills are much needed when they enter university or the working environment.

TF: …This can cultivate good critical thinking skills, communication and collaboration skills. They can apply the skills in their life indirectly.

TG: Students learned public speaking and ICT skills. Both of these skills are important as they are necessary when completing school assignments or future work tasks.

TH: Students can interpret the literary words from the story according to context and read stories using the correct pace and tone in their lives.

TI: Students know how to solve addition problems (adding 100). They can apply this concept when they want to add anything to their lives.

Based on the data obtained from Document Analysis, the teachers have promoted meaningful learning as students were exposed to authentic social contexts through Project-Based Learning, Problem-Based Learning and Game-Based Learning, such as demonstrations of real-life experiences, discussions and scenario activities. The teachers have also encouraged metacognition through conducting planning, reflection and peer-assessment activities. They have assisted their students in comprehending the overall view and how elements within interact or interconnect to form the big picture. Their students can share their reflections and provide constructive feedback. Last, the teachers have facilitated the learning process aimed at developing their students' independence and ownership of their learning. Students can research information, work with peers to create content, accomplish set goals during assignments, make decisions and be responsible when they fulfil their roles in groups to complete assigned tasks. As a result, the students can understand the subject content and educational significance, accurately apply the learned knowledge appropriately and achieve the learning objectives.

TA: …students were exposed to authentic social contexts. ...Through Project-Based Learning, students can understand the subject content about life management and apply the skills learned correctly in real situations.

TB: The teacher encouraged metacognition through conducting planning activities. …Through Project-Based Learning, students can read the text with appropriate pronunciation and intonation, and present the production process of plant boosters correctly and accurately.

TC: The teacher assisted students in understanding how elements interconnect to form the big picture. ...Through the PAK21 activity, students create I-Think Maps to understand the subject content about fractions and can identify types of quarters in fractions.

TD: The teacher encouraged metacognition through conducting Role Play. … Students can imagine, experience the emotions expressed, experience the joy of reading, feel the beauty of language, and understand the basic rules of expression in articles.

TE: The teacher encouraged metacognition through conducting reflecting and peer-assessment activities. …Students can understand the content and apply the learned knowledge appropriately, such as in daily conversations and writing.

TF: The teacher encouraged metacognition. …Through Problem-Based Learning, students can work in groups to conduct the experiment and discuss their observations and results.

TG: The teacher encouraged students' ownership of their learning. ...Through Project-Based Learning, students researched information and worked with peers to create and present content on future inventions.

TH: The teacher has facilitated students' ownership of their learning. ...Through Rally Robin, students researched information and worked with peers to create and present content on information technology used by scientists.

TI: The teacher facilitated students' independent learning. …Through Problem-Based Learning, students are responsible when they fulfil their roles in groups by working with peers to solve Math problems.

TJ: Students were exposed to authentic social contexts through Problem-Based Learning. …Students can understand the subject content about Math and apply the skills learned correctly in real situations.

4.2.1.4 Mastery of 21st Century Teaching Techniques among Teachers

The fourth theme identified is **Mastery of 21st Century Teaching Techniques among Teachers**. Teaching techniques of expertise in this Interview denote the characteristics, competencies, skill sets or teaching qualities a teacher must possess to produce quality

teaching. Quality teaching is important to ensure the successful implementation of 21st century learning. Predominant qualities listed by all the teachers are that teachers must be knowledgeable and master the subject content, 21st century pedagogy and skills and have good student management skills. These traits are consistent with the list cited in The Buletin Anjakan Buletin Transformasi Pendidikan Malaysia 5/2015, which specified six expertise a teacher should possess to instil 21st century competencies in students. They are: (1) must be knowledgeable in the subject content, (2) competent in the 21st century pedagogy and (3) skills, (4) have psychology and (5) counselling skills as well as (6) digital and technology skills (Goh et al., 2020; Rusdin, 2018).

TA: … *seorang guru perlu menguasai teknik-teknik pembelajaran PAK21 dan ada pengetahuan serta kemahiran PAK21 untuk mendalami diri dalam melaksanakan PAK21.*

… a teacher needs to master the Teaching and Learning techniques of PAK21 and have the knowledge and skills of PAK21 to deepen themselves in implementing PAK21.

TB: *Pertama, Kemahiran pengurusan kelas. …Kedua, Guru perlu mempunyai pengetahuan dan kemahiran yang berkaitan merentas kurikulum.*

First, Classroom management skills. …Second, the teacher needs to have the related knowledge and skills across the curriculum.

TD: First, all teachers must be knowledgeable in 21st century learning. Secondly, classroom management is also another element in helping the teacher to effectively implement PAK21.

TE: I think teachers need to be passionate, flexible, stay up-to-date and have a more student-centred learning classroom. …We also have good management skills and patience to handle the students well and prevent chaos in class.

TG: Teachers need to master the subject and the curriculum content. … be sensitive to the potential, interests and ability of each student…

TH: I think patience, critical and creative thinking skills are necessary because teachers need to cater to students' abilities accordingly.

TJ: Teachers need to plan the PDP by prioritising the students' interests, abilities, and learning styles. This is so that the PDP is effective.

4.2.2 The Experiences of Teachers in the Implementation of 21st Century Learning in Public Primary Schools

The second research question comprised three questions concerning the teachers' overall experiences and emotions about their 21st century learning implementation. Three themes were elicited from the data to answer the second research question. They are (1) Poor Working Conditions, (2) Teachers' Countermeasures in Managing Challenges, and (3) Promotes Positive Feelings.

2. What are the experiences of teachers in the implementation of 21st century learning in public primary schools?

4.2.2.1 Poor Working Conditions

The first emerging theme is **Poor Working Conditions**. The poor working conditions faced by teachers consist of insufficient ICT infrastructure and support, limited resources, time constraints due to a compact curriculum, syllabus, and student management, interference from unrelated tasks, heavy workload, lack of parental support and cooperation, and lack of expertise and knowledge of the new curriculum. Among these, the most prominent issue for all teachers is student management. The second issue is time constraints caused by a condensed curriculum and syllabus, heavy workload and interference of unrelated tasks, insufficient ICT infrastructure, support and limited resources. This reporting of equivalent challenges in previous research faced by the respondents illustrates the problem's persistence and urgency as the poor working conditions have negatively impacted the teachers' productivity and health, as well as the 21st century learning implementation process. The evidences are presented as follows:

> TB: *1. Guru tidak didedahkan secara terperinci mengenai strategi dan langkah-langkah yang sesuai untuk pengapplikasian PAK21 di dalam kelas… Terlalu banyak strategi sampai kami tidak tahu pilih mana yang sesuai untuk digunakan….*
>
> 1. The teachers are not given detailed information about the appropriate strategies and steps for the application of PAK21 in the classroom… PAK21's activities are so broad that we don't know which one is the right one to use. …

> TC: *…kekurangan rezeki dari segi teknologi seperti gajet-gajet, jadi murid-murid yang tidak mampu akan tertinggal. Selain dari gajet, kita juga memerlukan banyak bahan.*

… the lack of provisions in terms of technology, such as gadgets, so students who can't afford it will be left behind. Apart from gadgets, we also need a lot of materials.

TE: …Another challenge is the lack of time, whereby the overloaded curriculum and school activities cause the teachers to rush through the lessons.

TG: … not everyone has the same access to computer equipment, fast internet, or other digital resources needed for effective learning… Some of the challenges include side tasks and school programs that take up the time of the learning and teaching sessions.

TI: First and foremost is the lack of IT support, internet connection, insufficient devices and facilities …

All teachers reported student management as the most difficult challenge due to students' diversity. Student diversity refers to the students' different levels of competency, readiness, ability, needs, interests, and learning styles. The teachers feel challenged because 21st century learning is less effective and appropriate for students due to their different levels of competency, readiness and ability. Some teachers also explained further that weaker students require more guidance.

TA: …*tahap keupayaan and kebolehan murid sangat rendah. …ini akan menjadikan penyerapan kemahiran PAK21 antara murid kurang berkesan dan pembelajaran*

PAK21 kurang sesuai sebab apa yang kita tahu ialah murid keperluan khas perlu bimbingan secara 'one-to-one'.

… the level of students' abilities and capabilities is very low. …this will make the absorption of PAK21 skills among the students less effective and the learning of PAK21 less appropriate because what we know is that students with special needs need 'one-to-one' guidance.

TB: …*Cabaran pengurusan kelas. Guru sukar untuk mengawal tingkah laku murid semasa aktiviti berkumpulan.*

…Classroom management challenges. Teachers find it difficult to control students' behaviour during group activities.

TC: …*Sebab berlainan pengetahuan, ini menjadikan PAK21 sukar untuk dijalankan sebab murid yang lemah perlu lebih bimbingan. Cabaran lain juga termasuk minat, tingkah laku dan gaya belajar yang berlainan.*

…The differences in knowledge make PAK21 difficult to carry out because the weaker students require more guidance. Other challenges include different students' interests, behaviours and learning styles.

TD: Conducting the PAK21 takes up a lot of time… Student readiness and attitude are also other factors, as students tend to spend a lot of time discussing or getting ready to learn.

TI: …too many students. Each of the students is at a different learning level and language differences, so conducting PAK21 consumes a lot of time. It is also difficult for teachers to monitor each of the student's progress.

TJ: It was difficult to monitor each student and control the class. …Another point is that each student's potential is too different, causing teachers to feel pressured by PDP.

As a result, this problem has led many teachers to have negative feelings about integrating 21st century learning into their teachings. The teachers expressed their feelings about this topic in the following statements:

TA: *Pelaksaan PAK21 dalam PDP untuk murid keperluan khas sangat sukar dan mencabar. Ada kemahiran PAK21 yang tidak sesuai sebab murid-murid keperluan khas ini belum berada di tahap mana mereka bersedia untuk menerapkan pembelajaran PAK21*.

The implementation of PAK21 in the PDP for special needs students is very difficult and challenging. Some PAK21 skills are not appropriate because these special needs students are not yet at the level where they are ready to apply PAK21 learning.

TC: *Pada mulanya agak sukar untuk kita bimbingkan murid untuk membiasakan diri dengan PAK21 kerana ada murid yang dapat menerima cara pengajaran ini dan ada yang tidak…*

At first, it was quite difficult for us to guide the students to familiarise themselves with the PAK21 teaching and learning method because some students can accept this form of teaching while others cannot…

TE: … I am not confident about the learning outcome when I want to apply the PAK21 activities. This is because the difference in student competencies makes it difficult for all of them to learn the syllabus of the day at the same level.

TG: I feel stressed. This is because the teachers' work is overloaded, and we do not have enough teaching and learning resources.

TJ: I feel disappointed, students are not disciplined. Weak students tend to lag behind.

4.2.2.2 Teachers' Countermeasures in Managing Challenges

The second theme derived from the results connected to the second research question is **Teachers' Countermeasures in Managing Challenges**. As previously mentioned, the teachers encountered many challenges, such as insufficient ICT infrastructure and support, limited resources, time constraints due to compact curriculum, syllabus and student management, interference of unrelated tasks, heavy workload, lack of parental support and cooperation, as well as lack of expertise and knowledge of the new curriculum in the implementation of 21st century learning. The teachers undertook many measures to address the problems. These approaches can be categorised into three methods. They are: (1) the teacher applied various 21st century pedagogy approaches to

ensure student-centred lessons, (2) the teacher grouped students based on their level of knowledge and behaviour, and (3) the teacher conducted quick and simple 21st century learning activities or reduced frequency of 21st century learning activities in class.

Two teachers said they applied various 21st century pedagogical approaches to ensure student-centred lessons. This includes assessing students, utilising multiple modes of teaching aids and planning lessons that prioritise students' needs, interests, abilities, and learning styles that promote effective and meaningful learning.

> TE: I try to use different kinds of activities like visual activities, games, songs, and group or pair work to cater to the student's individual needs.

> TI: Instead of using the computer to conduct games during lessons, we need to print the games on paper. I also have to purchase my microphone to help me speak and play songs during class.

Four teachers reported that they grouped students based on their level of knowledge and behaviour. The teachers have identified students' strengths and weaknesses and implement intervention strategies to address any learning issues by grouping students based on their similar or different levels of knowledge and behaviour. The purpose of this method is for the students to assist each other and collaborate in constructing knowledge to establish shared meaning or be exposed to diverse perspectives, evaluate, appreciate and support creative alternative solutions. Also, this method allows the teachers more time to focus on and provide guidance to weaker students.

TA: *…saya akan berkumpul murid-murid berdasarkan tahap kebolehan mereka. Jadi, murid yang ada sama tahap keupayaan, mereka boleh melaksanakan aktiviti bersama-sama. Manakala murid yang merupakan tahap keupayaan yang lebih rendah, mereka akan dikumpul dalam satu kumpulan dan saya akan memberi bimbangan sepenuhnya serta tidak melaksanakan aktiviti PAK21.*

… I will group the students based on their level of ability. So, students who have the same ability level will be grouped together so that they can perform the activities together. As for students who are of a lower ability level, they will be gathered in a group and I will provide full guidance and not perform the PAK21 activities.

TC: *Saya akan mengumpulkan murid yang berbeza dari segi tahap pengetahuan dan tingkah laku bersama supaya mereka boleh bekerjasama dalam kumpulan untuk mencari jawapan.*

I will group together the students of different levels of knowledge and behaviour so that they can work together in groups to find answers.

Teachers provided evidence of countermeasures taken based on Journal Writing entries that demonstrated teachers ensuring student-centred lessons despite time constraints and grouping students based on their level of ability. Such evidence is documented in the following situations.

TA: …Pelajar berkebolehan tinggi ditugaskan untuk membantu dan membimbing ahli kumpulan.

…Higher-ability students were tasked with helping and guiding lower-ability group members.

TB: Tidak semua pelajar dinilai untuk kemahiran mendengar dan bertutur. Murid berjaya dalam mendengar dan memberi respons yang sesuai semasa berkomunikasi dalam situasi formal dan tidak formal.

Not all students were assessed for listening and speaking skills. Pupils successfully listen and respond appropriately when communicating in formal and informal situations.

TG: The PdPc session went well, but due to lack of time, not all groups can present their project results in front of the class.

Three teachers disclosed that they conducted 21st century learning activities during selected lessons due to time constraints. Time constraints due to compact curriculum, syllabus and student management had the teachers resorting to reducing the frequency or making the 21st century learning activities simpler and less time-consuming.

TD: I responded to this challenge by only conducting the PAK21 activities during certain topics.

TE: I need to figure out some simple and easier PAK21 activities due to lack of time and overloaded teacher duties.

TF: We even need to be selective on which lesson to carry out the PAK21 activity as we cannot conduct it during every lesson.

The countermeasures undertaken by teachers demonstrated the teachers' resilience in overcoming the challenges. In addition, despite the negative experiences, the teachers have displayed their unwavering motivation in providing quality teaching to ensure their students' holistic development.

4.2.2.3 Promotes Positive Feelings

The last theme retrieved is that 21st century learning **Promotes Positive Feelings**. Despite the difficulties, the teachers described their experiences as positive when they expressed their satisfaction with their endeavours to equip their students with 21st century skills, as well as their ability to integrate 21st century curriculum, instruction and learning environment. Nine teachers are contented and have positive feelings when the 21st century curriculum, instruction and learning environment they have delivered are effective, efficient, encouraging and engaging. Positive feelings are also induced when they have assisted students in attaining the learning objectives and 21st century skills, as well as promoting meaningful learning. These positive feelings recounted by teachers' successful classroom experiences in promoting 21st century skills were depicted as happy, fun, enjoyable, engaging and satisfactory, are conveyed in the following statements:

TA: *Apabila murid-murid walaupun segelintir daripada mereka dapat menguasai kemahiran PAK21, saya rasa gembira.*

When the students, even if it is a few of them, can master the PAK21 skills, I feel happy.

TB: *Perasaan saya sangat teruja dan gembira melihat perkembangan kemahiran murid-murid.*
I feel very excited and happy to see the development of the student's skills.

TD: I feel very satisfied and happy when my students are able to demonstrate the PAK21 skills, achieve the learning objectives and become independent learners.

TE: …The students were happy and active in answering the questions… It was a fun learning experience for the kids…

TF: I feel a sense of accomplishment and become more motivated to implement PAK21 in my PDPC when I see my students enjoy learning.

TG: Pupils are very active and like it when I encourage 21st century learning. …I am happy when my students demonstrate the 4Cs skills.

TH: …Students enjoyed the lesson, and they are able to work well with their peers…I feel amazing as I am able to cater to the student's needs and help them to learn the PAK21 skills.

TI: I feel more satisfied. I am able to achieve the objectives of the lesson and am encouraged to make learning fun every day.

4.2.3 The Impact of 21st Century Learning on Teachers

The third research question contains four questions to explore teachers' feelings concerning the 21st century learning implementation process and their efforts to lead students in the acquisition of 21st century skills. The questions also seek to investigate their observable changes from the experiences gained and how it has brought meaning to the teachers' lives. Two themes were discovered from the analysis to answer the third research question. They are (1) Enhanced Personal and Professional Development and (2) Improved Quality of Life.

3. How do these experiences give meaning to the teachers?

4.2.3.1 Enhanced Personal and Professional Development

Within the context of meaningful experiences, the first theme procured is **Enhanced Personal and Professional Development**. All teachers have learned the importance of 21st century learning and its role in preparing students for future success and societal impact. Hence, they are motivated to improve their personal and professional development by mastering 21st century skills and implementing 21st century learning because it can enable effective and meaningful learning. Effective and meaningful learning has been proven essential in developing their students' potential. Amidst the implementation phase, the teachers also remarked on the commendable changes in their personal and professional growth, attributing both developments to an improved quality of life. This is displayed in the comments below:

TA: …*Sebelum ini, saya belum menguasai semua kemahiran PAK21. Tetapi,selepas melaksanakan PAK21 dalam pengajaran saya, saya telah menguasai semua kemahiran-kemahiran PAK21 ini.*

… Before this, I had not mastered all the skills of PAK21. But, after implementing PAK21 in my teaching, I have mastered all these PAK21 skills.

TD: I have become a more professional teacher, not only just an information provider.

TE: PAK21 has helped me to be more creative and innovative by creating learning strategies that best suit the student's needs. … I need to incorporate all the PAK21 skills to help me in my at work and in my personal life.

TF: I have developed a growth mindset for self-enhancement purposes. …I have mastered the 21st century skills. I learned and acquired 21st century skills through implementing PAK21 in my PDPC.

TG: I have become better at managing time and implementing PAK21 in my lessons.

TI: I am able to adapt to changes on a personal and professional level. This has also helped to expand my mind, thinking broadly and developing a persevering mindset. I have gained more talents and competencies. …I feel more responsible, outgoing and organised. I am able to contribute to the community.

TJ: I become a better teacher when I know I can make a big impact in helping my students. I also feel proud when I have helped them to reach their potential.

4.2.3.2 Improved Quality of Life

The second theme of **Improved Quality of Life** was exemplified in the teachers' personal and professional enhancement after undergoing the 21st century learning implementation process and consequently developing a new sense of purpose in life. All teachers are empowered by a common goal to improve their personal and professional development by mastering 21st century skills and implementing 21st century learning because it is essential in nurturing their students' holistic development. The teachers likewise acquired a new sense of purpose parallel with the P21 Framework and the MoE pursuit to produce qualified educators under the 21st century learning framework, subsequently generating students of the highest calibre for further education and the workforce. They shared that this implementation process has brought meaning to their lives when they have succeeded at attaining their goals and contributing to society. Therefore, the teachers' quality of life has improved since they felt their lives had become more meaningful and fulfilling when they developed the holistic growth of their students and helped them reach their full potential. These rewarding and meaningful experiences are represented in the statements as follows:

TA: *Peningkatkan kemahiran - kemahiran tersebut dapat menambah qualiti kehidupan saya sebagai seorang guru.*

Improving those skills can increase the quality of my life as a teacher.

TD: My main teaching pedagogy now is to encourage student autonomy. …When they can achieve this goal, I will feel more satisfied as this brings meaning to my life.

TE: All of these experiences have helped to improve my quality of life and added more meaning to my life.

TF: This method of teaching and learning has brought me more meaningful experiences, more sense of accomplishment and satisfaction, all of which lead me to become more motivated in my life.

TG: I like my job better, and I know that teachers make a big impact in helping students to master certain subjects. … I feel my life has a purpose when I help to cultivate the holistic growth of my students by developing their potential comprehensively.

TH: … Since then, my students have been progressing tremendously. I feel this experience has brought meaning to my life. It's a special feeling to see your students progressing in front of you.

TI: Overall, I have become happier as my life becomes more meaningful when I am able to help my students.

4.3 Summary

This chapter has presented the findings for the perceptions and experiences of teachers in the implementation of 21st century learning in public primary schools, as well as the meaningful experiences that have been acquired. Nine prevailing themes were identified as a result. They are: (1) Student-Centred Education, (2) Prepares Students for the Future, (3) Enables Effective and Meaningful Learning, (4) Mastery of 21st Century Teaching Techniques among Teachers, (5) Poor Working Conditions, (6) Teachers' Countermeasures in Managing Challenges, (7) Promotes Positive Feelings, (8) Enhanced Personal and Professional Development and (9) Improved Quality of Life. Each theme was expounded on and supported by evidence.

The next chapter will provide a summary of the findings, discuss the findings in response to the research questions, give the implications of the findings, make suggestions from the study, as well as suggestions for future research and end with the conclusion of this study.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

This study sought to comprehend the 21st century learning implementation process by teachers through the exploration of their experiences and perceptions. Data collection was facilitated by triangulation of semi-structured Interviews, Journal Writing and Document Analysis and subjected to a thematic analysis coding. In this chapter, the conclusions drawn from the findings related to the research questions are presented and discussed in detail. Next, implications of the study, recommendations from findings and further research are provided.

5.2 Summary of Findings

The study featured ten teachers from three public primary schools in Kuala Lumpur and Selangor. Three teachers were from a Malay-medium national school, four from a Chinese vernacular school, and three from an Indian vernacular school. Each of the participants has at least one year of teaching experience in incorporating 21st century learning into their instructional practices. The teachers taught a variety of disciplines, including Bahasa Melayu, English, Mandarin, Tamil, Mathematics, Science, and Life Management.

In response to the first research question, which seeks to gain insight into the beliefs of educators regarding the implementation of 21st century learning. The teachers hold a consensus that 21st century learning is a “Student-Centred Education” which encourages learners to become active, independent and take ownership of their learning through building the knowledge, competencies and skills needed. In addition, to keep pace with the ever-evolving world, this educational approach focuses on equipping learners with the knowledge, competencies and skills, as well as lifelong learning to "Prepare Students for the Future”. This is so that the students can thrive, succeed in the future workforce and eventually contribute to society on a global scale. Hence, this perception has also led teachers to construe that 21st century learning “Enables Effective and Meaningful Learning” as the pedagogy has been proven to be an essential prerequisite in cultivating and nurturing the holistic development of students. This reform education has proven its effectiveness in enhancing both teacher and student personal and professional or educational growth as evidenced by an increase in competencies, motivation and favourable learning outcomes. In addition, all teachers are aware that the new learning environment also entails the responsibility of “Mastery of 21st Century Teaching Techniques among Teachers" as listed in The Buletin Anjakan Buletin Transformasi Pendidikan Malaysia 5/2015 to establish quality teaching and uphold an excellent standard in the education system. Such traits include proficiency in the subject content, 21st century pedagogy and skills and good student management skills.

Three themes arose pertaining to the second research question, which sought to examine teachers' experiences in their 21st century learning implementation process. The first

theme determined was “Poor Working Conditions”. The teachers reported struggles such as insufficient ICT infrastructure and support, limited resources, time constraints due to a compact curriculum, syllabus, and student management, interference from unrelated tasks, heavy workload, lack of parental support and cooperation, and lack of expertise and knowledge of the new curriculum. The most prevalent issue raised by all teachers is student management. The second issue is time limits imposed by a condensed curriculum and syllabus, heavy workload and interference of unrelated tasks, inadequate ICT infrastructure and assistance and limited resources. This revelation of comparable obstacles in past research encountered by respondents demonstrates the problem's persistence and urgency. The most difficult challenge is student management due to students’ diversity, as reported by all teachers. Student diversity refers to the students’ varying degrees of competency, readiness, ability, needs, interests, and learning styles. Some teachers also suggested that weaker students require extra supervision. As a result, many teachers have developed negative feelings about integrating 21st century learning into their teachings, as the poor working conditions have negatively impacted the teachers’ productivity and health. Therefore, this gives rise to the emergence of the sixth theme, which is “Teachers’ Countermeasures in Managing Challenges”. Three measures were undertaken to cope with the issues. They are: (1) applying various 21st century pedagogy approaches to ensure student-centred lessons, (2) grouping students based on their level of knowledge and behaviour, and (3) conducting quick and simple 21st century learning activities or reducing the frequency of 21st century learning activities in class. Despite the difficulties encountered, most teachers expressed contentment with their efforts to assist their students in acquiring the learning objectives and 21st century skills, as well as their ability to comply with the 21st century curriculum, instruction and learning environment. The teachers concurred

that 21st century learning “Promotes Positive Feelings” when they have ensured that the 21st century curriculum, instruction and learning environment they have delivered are effective and meaningful.

Two corresponding themes were identified for the last research question to comprehend how the teachers’ 21st century learning experiences impacted and created meaning in their lives. All teachers understood the importance of 21st century learning and its role in preparing students for future success and societal impact. Since then, teachers have been motivated to advance their personal and professional development by mastering 21st century skills and implementing 21st century learning. This has resulted in their “Enhanced Personal and Professional Development”, as well as an improvement in all aspects of their life. The second theme of “Improved Quality of Life” was illustrated when the teachers’ quality of life improved since they felt their lives had become more meaningful and fulfilling when they developed the holistic growth of their students and helped them reach their full potential. Their self-improvement efforts have resulted in a better quality of life and a renewed sense of purpose, intending to generate competent students for further education and the workforce, as well as global success.

5.3 Discussion

The results collected for the three research questions are discussed in detail in the following segments.

5.3.1 The Perceptions of Teachers in the Implementation of 21st Century Learning in Public Primary Schools

The four themes generated from the first research question are discussed in the following:

5.3.1.1 Student-Centred Education

The teachers' attitudes and beliefs are influenced by their perceptions (Berstein, 2015). Analysing teachers' viewpoints and experiences is crucial because their perceptions and attitudes have a substantial effect on their actions and decisions that can affect the course of learning and instruction, which subsequently impacts the implementation process and student success.

The results revealed that the participating teachers have a profound comprehension of the 21st century learning concept, which is that 21st century learning is a **Student-Centred Education**. They conveyed unified beliefs about 21st century learning ideas that are accordant with the National Education Association P21 Framework, which defined 21st century learning involves the education of knowledge, competencies and skills combined with the necessary support systems to prepare students by equipping them with the knowledge and skills essential to thrive in this digital era. The analysis from the Journal Writing entries reinforces that teachers possess a strong understanding of 21st century learning and have implemented student-centred lessons. These lessons have encouraged students to be active participants in their education, fostering skill

development and knowledge acquisition. The most prevalent teaching methodologies employed by the teachers include Collaborative, Constructivist, Inquiry-Based, Integrative, and Reflective approaches. Furthermore, Document Analysis indicates the use of various 21st century instructional strategies, such as Project-based learning, Problem-based learning, and Game-based learning, alongside PAK21 activities like role-playing, gallery walks, presentations, and group discussions. Teachers also leverage interactive teaching aids tailored to meet diverse student needs, interests, skills, and preferences. As a result, the students have engaged in meaningful problem-solving scenarios that promote the growth of their intellectual abilities and skills.

In addition, data analysis from this study denotes that while teachers have sufficient knowledge of the curriculum, they possess limited knowledge for embedding 21st century learning across multiple disciplines. For example, the teachers have stated that the 21st century learning activities were so broad that they did not know which activity to choose. This implies that while instructors are inclined to embrace 21st century learning, their comprehension of 21st century pedagogy is insufficient to support optimal teaching practice. Previous research has yielded parallel findings, proving that teachers are ready to implement 21st century learning, but their understanding related to 21st teaching methodology is only moderate (Bakar et al., 2019; Goh et al., 2022; Rusdin et al., 2018).

Despite having consistent beliefs about 21st century learning that align with the P21 Framework, a few teachers have developed opposing impressions due to misinterpretation of the concept. They believe that 21st century learning does not focus on the mastery of academic content and regard education as having an ineffective implication on student achievements. This belief has contributed to their reluctance to completely incorporate 21st century learning into their teaching since they believe the pedagogy only assists students partially in mastering life skills and not academic content. The teachers have misconstrued 21st century learning, which asserts that 21st century skills should be taught within the context of the core academic subjects. To clarify, 21st century learning encompasses the education of knowledge, skills, expertise and literacies to be mastered by students (National Education Association [NEA], 2010). Moreover, 21st century learning introduces a new concept whereby the teacher accentuates learning as a meaningful process for infusing 21st century skills that are practical not only in exams but for real-life purposes (Goh et al., 2022; Rusdin et al., 2018) Therefore, it is an education system that prioritises meaningful learning over the achievement of a specific goal. This result is advocated by prior research that reported teachers' lack of preparation and confidence in embedding the 21st century teaching and learning approach due to uncertainties and misconceptions (Ali et al., 2019a; Jima'ain et al., 2019; Isa et al., 2021; Safri et al., 2022; Sulaiman et al., 2020). Considering this misperception, the participating teachers' belief concerning the importance of 21st century learning supplied a stronger incentive for them to implement the reformed education. This finding also displayed that teachers have acknowledged the importance of the new curriculum and have begun to integrate 21st century learning into their teaching practices to better prepare their pupils for the future.

5.3.1.2 Prepares Students for the Future

21st century learning is a fundamental instrument in **Preparing Students for the Future**. The results revealed that the participating teachers have a solid grasp of the primary goal of 21st century learning. They communicated coherent stances about 21st century learning principles that agree with the National Education Association P21 Framework, which aims to prepare students by providing them with the knowledge and skills required to excel in this digital era. Teachers are becoming increasingly aware of the concerning situation of technological job displacement and its concomitants in the industry, which is giving rise to a demand for highly skilled human capital. Hence, they have gained clarity on the importance of 21st century learning relevancy to the modern setting and its capability to instil efficient application and understanding of knowledge, competencies and skills in students so that they may meet the demands of the future industry. This finding coincides with that of Rusdin and colleagues (2018), who discovered that teachers have a high level of readiness to implement 21st century learning due to their desire to help students acquire 21st century skills and prepare them for future challenges.

In the Journal Writing entries, it has been documented that all teachers have employed 21st century teaching practices to help students acquire soft skills, with a focus on Critical Thinking, Collaboration, Communication, Creativity and Innovation, Information and Communications Technology (ICT) skills. Data collected through Document Analysis signify these skills are primarily taught through Project-Based

Learning, Problem-Based Learning, Game-Based Learning, and PAK21 activities. These activities encourage students to collaborate, explore diverse perspectives, and appreciate creative solutions. They also encourage critical thinking, creativity, and innovation by evaluating and analysing contexts, discussing ideas, and providing constructive feedback to aid in enhancing their intellect. This approach helps students apply their knowledge in their daily lives, preparing them for future life and work. The outcome of this result is substantiated by recent findings that show that the most dominant skills promoted by teachers are collaboration skills, communication skills, followed by critical thinking skills and creativity skills (Arif and Amin, 2021; Abdullah et al., 2020; Goh et al., 2020; Rusdin, 2018).

5.3.1.3 Enables Effective and Meaningful Learning

21st century learning has been proven to have a beneficial impact on students' attitudes, motivation, and academic achievement as the pedagogy focuses on cultivating the holistic development of an individual through effective, deep and meaningful learning (Alismail et al., 2015; Boyman et al., 2020; Hiong, 2017; Jima'ain et al., 2019; Mohamad & Mustapha, 2022; Singh et al., 2020; Teo et al., 2021). The theme that 21st century learning **Enables Effective and Meaningful Learning** is strongly commended among the respondents, as exhibited by their responses from the Interviews, which essentially claimed that 21st century learning is more effective, engaging, enjoyable, interesting, motivating, and helps students better understand the subject content while simultaneously mastering 21st century skills. On top of that, the teachers were more inclined to conduct 21st century pedagogical practices after they observed the positive

implications on their students' knowledge quality and skills development. Furthermore, the findings obtained from the Journal Writing entries and Document Analysis underscore the theory advocating for effective and meaningful learning in the 21st century. Through exposure to authentic social contexts, the teachers have promoted meaningful learning via Project-Based Learning, Problem-Based Learning, and Game-Based Learning, which include real-life experiences, discussions, and scenario activities. They have emphasised metacognition through planning, reflection, and peer assessment, enabling students to see the interconnectedness of concepts. They also facilitated the learning process to develop students' independence and ownership of their learning. Hence, students learned to research, collaborate, achieve goals, make decisions, and take responsibility within group tasks. Consequently, this approach allows students to grasp subject content, apply knowledge appropriately, and meet learning objectives.

Although much current research reinforces teachers' recognition of the effectiveness of reformed education, their perspectives on achieving desirable student outcomes through applying the principles of 21st century learning were paradoxical from this study. Their findings showed that the teachers have remarked on the curriculum's deficiencies, such as its inadequacy to aid students in mastering the subject's content, which subsequently led to their discouragement in implementing 21st century learning. This is verified in existing research investigations, which present that while teachers acknowledged the potential advantages of 21st century learning, their teaching quality remains moderate as they believe the 21st century learning is ineffective in assisting students in mastering academic content (Goh et al., 2022; Rusdin et al., 2018). However, the finding from this

study contradicts this notion, as respondents mentioned that they were more inspired to assimilate 21st century learning when they witnessed an increase in their students' learning outcomes and holistic development.

5.3.1.4 Mastery of 21st Century Teaching Techniques among Teachers

Mastery of 21st Century Teaching Techniques among Teachers is crucial to produce quality teaching, which is imperative for the holistic development of a student. Teaching Expertise relates to the characteristics, competencies, skill sets or teaching qualities a teacher ought to have to execute quality teaching through instilling 21st century competencies in students and achieving desired student outcomes. Prominent attributes listed by all the teachers are congruent with the list specified in The Buletin Anjakan Buletin Transformasi Pendidikan Malaysia 5/2015. The six areas of expertise are: (1) must be informed in the subject content, (2) competent in the 21st century pedagogy and (3) skills, (4) have psychology and (5) counselling skills as well as (6) digital and technological skills (Goh et al., 2020; Rusdin, 2018).

The current education setting shifts the role of teachers from knowledge providers to guides for students' knowledge acquisition and understanding. Thus, the participating teachers are aware of the pedagogical shift away from traditional didactic methods towards a student-centred approach, as well as the obligations required to adopt the new pedagogy to meet the mandates of the 21st century and fulfil the nation's aspirations as outlined in the Malaysia Education Blueprint 2013-2025. The teachers have also begun to grasp the new framework. This is reflected in the Journal Writing Entries and

Document Analysis that displayed their endeavours to become primary facilitators of the learning process aimed at developing their students' independent, lifelong learning and 21st century skills so that students may utilise these competencies to address their needs and problems. Such teaching domains portrayed by the respondents in their conformity to the 21st century teaching methodology involve applying various 21st century pedagogy approaches, facilitating learning through student-centred lessons, promoting meaningful learning through authentic context and implementing intervention strategies to address learning issues. Thus, this can be conceived as the teachers have improved in their mastery of 21st century teaching expertise since they have applied the 21st century principles in their teaching practices. This result is consistent with the most recent research, which withdrew similar findings that teachers nowadays have displayed an increase in their degree of knowledge and readiness in employing 21st century teaching and learning (Mansor & Jamaludin, 2024; Mustapa & Mikson, 2023). In sum, the participating teachers are committed to becoming facilitators who foster independent, lifelong learning and essential 21st century skills in students, along with achieving the educational and national goals through diligent execution of their roles.

5.3.2 The Experiences of Teachers in the Implementation of 21st Century Learning in Public Primary Schools

The three themes extracted from the second research question are discussed in the following segment:

5.3.2.1 Poor Working Conditions

The respondents encountered many challenges in instilling 21st century learning. The difficulties reported in this study were identical to all the challenges listed in previous studies (Ali et al., 2019a; Ali et al., 2019b; Ali et al., 2021; Bakar et al., 2019; Busthami et al., 2015; Goh et al., 2022; Mohamad et al., 2022; Ng et al., 2022; Rusdin, 2018). The **Poor Working Conditions** enumerated by the participants in this study are insufficient ICT infrastructure and support, limited resources, time constraints due to a compact curriculum, syllabus, and student management, interference from unrelated tasks, heavy workload, lack of parental support and cooperation, and lack of expertise and knowledge of the new curriculum. The foremost issue highlighted by all teachers is student management. The second disadvantage is time constraints derived from a dense curriculum and syllabus, heavy workload and interference of unrelated tasks, as well as insufficient ICT infrastructure and support and limited resources. This revelation of comparable issues in earlier investigations encountered by respondents exhibits the problem's persistence and urgency. Also, these components serve as inhibitors to teachers in adopting 21st century learning as the poor working conditions have negatively impacted the teachers' productivity and health.

According to all teachers, the most stressful and challenging moments can be ascribed to their prominent impediment to administering good student management due to the diversity of the students. Student diversity signifies the students' varying levels of competency, readiness, ability, needs, interests, and learning styles. During the Interviews, the teachers asserted that the majority of the students are unprepared for 21st century learning because of their incapabilities, behaviour and readiness to accept. They

also feel that 21st century learning is less practical and appropriate for weaker students who require additional guidance. For instance, a teacher reported that introverted students are less likely to participate in group activities since they find them uncomfortable. Most of the teachers have remarked that the students are more prone to creating conflict during group tasks due to their unwillingness to respect and accept differing opinions and ideas. The students are also unable to work independently in groups and are often distracted, preventing them from working on their given tasks. As a result, these students require special encouragement, reinforcement and supervision. The teachers feel inadequately equipped to manage student diversity despite efforts to meet diverse needs. This tremendous struggle has prompted the teachers in this study to request the Ministry of Education to provide more workshops and courses on student management. These issues reflecting teachers' struggles in class management have been emphasised in existing studies (Bakar et al., 2019; Busthami et al., 2015; Goh et al., 2022; Rusdin et al., 2018).

The teachers have attributed their poor working conditions as the main obstacle that restricted them from effectively implementing 21st century learning. This result is substantiated by many previous findings, which stipulated that the current curriculum and work environment have prevented teachers from optimising their implementation process. As ensued, the application of 21st century learning by teachers is still reported in many studies to be at a mediocre level which impedes the full implementation of 21st century learning and consequently affects the quality of education (Abdullah et al., 2020; Ali et al., 2019; Ghani et al., 2022; Hiong, 2017; Jima'ain et al., 2019; Rakwi et al., 2021; Rusdin & Ali, 2019; Safri & Jamaludin, 2022; Sulaiman et al., 2020).

Likewise, all teachers in this study outlined student management as the primary justification for their reluctance to fully integrate 21st century learning into their lessons.

Amidst these prevailing problems, there is a new issue, which is the lack of parental support and cooperation. Teachers reported a lack of parental support and cooperation when parents do not provide the necessary resources, such as a computer, or do not contribute adequately to the completion of assigned projects, such as refusing to participate in the school's assigned project or completing the entire project on their child's behalf. For these reasons, this issue has exacerbated the pressure on teachers, such as having to work unpaid overtime to assist students and complicating the assessment of projects that lack authenticity. This finding has yet to be validated because it is still relatively new. This problem is also concerning and must be addressed with urgency, as overworking can have severe detrimental effects on the teacher’s health and work performance.

To conclude, teachers require proper access to sufficient support, teaching resources and facilities to manage their responsibilities optimally and foster their professional growth. Hence, resolving these identified challenges can ameliorate their work environment and help expedite and maximise the implementation process to the greatest extent feasible.

5.3.2.2 Teachers' Countermeasures in Managing Challenges

To remedy the situation, three main **Teachers' Countermeasures in Managing Challenges** have been employed. They are: (1) applying various 21st century pedagogy approaches to ensure student-centred lessons, (2) grouping students based on their level of knowledge and behaviour, and (3) conducting quick and simple 21st century learning activities or reducing the frequency of 21st century learning activities in class.

The first two methods, which are (1) applying various 21st century pedagogy approaches to ensure student-centred lessons and (2) grouping students based on their level of knowledge and behaviour, depict the teachers' integration of 21st century learning. Despite emphasising student management as their biggest issue, the teachers have made progress in their application of 21st century teaching and learning. This was exhibited in their efforts, such as utilising multiple modes of teaching aids and planning lessons that prioritised students' needs, interests, abilities, and learning styles to promote effective and meaningful learning. Also, they have assessed and provided the appropriate amount of aid, support and guidance based on the learner's level of functioning. Furthermore, they have identified students' strengths and weaknesses and implemented intervention strategies to address any learning issues by grouping students based on comparable or dissimilar levels of knowledge and behaviour. The purpose of this method is for the students to assist each other and collaborate in constructing knowledge to establish shared meaning or be exposed to diverse perspectives, evaluate, appreciate and support creative alternative solutions. Finally, this method allows the teachers more time to focus on and provide support to weaker students.

These pieces of evidence show that teachers' instructional techniques, comprehension, and competencies of the new curriculum have increased as a result of professional development training designed to help teachers become motivated and elevate their comprehension and execution of 21st century pedagogy. The latest studies yielded similar results in that professional development training has strengthened teachers' knowledge and proficiencies in 21st century learning (Mansor & Jamaludin, 2024; Othman, Makrakis, Kostoulas-Makrakis, Hamidon, Keat, Abdullah, Shafie, Mat, 2024; Rusdin et al., 2019). Mustapa and Mikson (2023) also validated that teachers have a reasonably high level of 21st century implementation, implying that they are making advancements professionally.

Conversely, the teachers did not adhere to the 21st century teaching strategies for the third approach, which is conducting quick and simple 21st century learning activities or reducing the frequency of 21st century learning activities in class. This was revealed when they disclosed that they conducted 21st century learning activities during selective lessons due to restricted time. Time constraints attributable to a compact curriculum, syllabus and student management issues had the teachers resorting to reducing the frequency and simplifying the 21st century learning activities. This was made evident in Bakar et al. (2019) and Rusdin et al. (2018) research in which they stated teachers were unable to construct appropriate teaching preparations due to time constraints, additional innovation and expertise required, as well as compact curriculum preparation. Consequently, the teachers felt pressurised because they lacked the necessary

preparation to plan meaningful and effective instruction to meet the expectations of 21st century learning.

To conclude, the exemplars retrieved from the data presented teachers operating partially in concordance with 21st century pedagogical approach, indicating a moderate deployment of 21st century learning. Overall, this confirms the reformed system has not been optimally implemented in Malaysia (Ali et al., 2019; Ali et al., 2021; Bakar et al., 2019; Busthami et al., 2015; Goh et al., 2022; Mohamad & Mustapa, 2022; Ng and Tiew, 2022; Rusdin, 2018). Thus, these issues must be resolved to reinforce teachers' willingness to implement the new teaching paradigm and assure quality education.

5.3.2.3 Promotes Positive Feelings

Positive feelings are reactions to circumstances that express feelings that are advantageous, such as happiness, alleviation or fulfilment. Participating teachers feel empowered through **Positive Feelings** acquired when they have utilised a 21st century curriculum, instruction and learning environment to foster meaningful learning. As a consequence, they have delivered effective, efficient, encouraging and engaging lessons that support students in attaining the learning objectives and 21st century skills. The teachers are satisfied with their efforts in making a positive impact on their students' lives. Moreover, the teachers have stronger motivation to overcome inhibitions and reduce negativity in the learning contexts due to the meaningful and positive experience gained. Overall, this inspired them to elevate their teaching quality, enhance their

functional competency, persevere and manage adversities efficiently and promote professionalism.

The teachers are also encouraged to further their personal and professional growth by mastering 21st century skills and implementing 21st century learning. This motivation, derived from positive and meaningful experiences, is constructive for creating and structuring experiences to aid teachers in comprehending themselves and the world more thoroughly, allowing them to adapt to meet any expectations. Motivated teachers are also considerably more likely to achieve their potential and persevere in confronting issues (Bandura, 1997). This finding is substantiated by a current investigation whereby the teachers have shown increasing interest and motivation in raising students' consciousness, knowledge, and skills (Othman et al., 2024). After witnessing the beneficial effects of the new curriculum in facilitating the growth and development of the students' self-actualisation, the teachers became empowered to excel in executing their duties efficiently. This shows that the teachers have formed positive views and attitudes, which have subsequently prompted them to be resilient in resolving their deficiencies. Earlier studies have linked teachers' positive beliefs with numerous beneficial outcomes, such as enhanced professional growth, better teaching content and skills, optimal integration of 21st century learning and increased facilitation of holistic development among students (Ali et al., 2021; Boyman et al., 2020; Jima'ain et al., 2019; Rahman et al., 2021; Teo et al., 2021).

Lastly, the respondents have engaged in self-directed, lifelong learning, which is explicit in their determination and dedication to providing the necessary support systems and employing 21st century pedagogical approaches to achieve desired student outcomes and ensure holistic development. Hence, when 21st century learning is fully integrated, teachers can effectively facilitate holistic learning among students, reform and fortify the education system and therefore advance and sustain the nation's economic status.

5.3.3 The Impact of 21st Century Learning on Teachers

The two themes that emerged from the third research question are discussed in the following segment:

5.3.3.1 Enhanced Personal and Professional Development

Every educator is apprised of the value of 21st century learning and its role in preparing students for future success and societal impact. Hence, they are driven to further their personal and professional growth by acquiring 21st century skills and adopting 21st century learning because it can enable effective and meaningful learning. Effective and meaningful learning has been proven essential in leveraging the potential of their students. During the implementation phase, teachers acknowledged the positive improvements in their personal and professional development, attributing both to a better quality of life. Most teachers have reported an expansion in their 21st century competencies and skills, which have supported them to become more resilient, adaptive, efficient, and productive in their professional and personal lives. They have also expressed job fulfilment when they have delivered effective, efficient, encouraging and

engaging lessons that support students in attaining the learning objectives and 21st century skills. As previously explained, 21st century skills can help to prepare students for future challenges. Likewise, 21st century skills can reinforce teachers' 21st century competencies. This finding is consistent with Ahmed, Alharbi and Elfeky, 2022 and Mawas and Muntean, 2018 research, who stated that mastering 21st century skills is imperative to foster lifelong learning and improve teachers' professionalism. Recent research also produced consistent findings, implying that teachers have elevated their level of expertise, knowledge and skills (Mansor & Jamaludin, 2024; Mustapa & Mikson, 2023; Othman et al., 2024). Moreover, past research has linked teachers' positive beliefs with numerous beneficial outcomes on teachers' attitudes, motivation, and performances (Ali et al., 2021; Boyman et al., 2020; Jima'ain et al., 2019; Rahman et al., 2021; Teo et al., 2021).

5.3.3.2 Improved Quality of Life

The teachers experienced an **Improved Quality of Life** and said they felt their lives were more meaningful and gratifying when they facilitated their students' holistic growth and helped them realise their full potential. Meaning in life is a fundamental aspect of a person's psychological well-being because meaningful existence imbues an individual with feelings of purpose and worth, inspires them to make substantial changes in their lives, and eventually contribute to society (Carr, 2022). Meaningful experiences are also constructive for fostering self-actualising tendencies, which are crucial for the development of positive character and abilities such as competence, dedication, motivation, adaptability, resilience, self-esteem and conscientiousness

(Bandura, 1997; Carr, 2022). The teachers' commitment to ensuring their students' holistic development has encouraged them to improve their personal and professional development by mastering 21st century skills and implementing 21st century learning. This is because 21st century learning is associated with effective and meaningful learning and has been proven essential in nurturing the students' potential as well as preparing them for future success and societal impact (Alismail et al., 2015; Boyman et al., 2020; Hiong, 2017; Jima'ain et al., 2019; Mohamad & Mustapha, 2022; Singh et al., 2020; Teo et al., 2021). As an outcome, the respondents gained renewed purpose in becoming proficient educators for the 21st century, demonstrating self-actualisation tendencies through increased dedication and competence in attaining their goals.

Also, all teachers reported that they had gained a renewed sense of purpose, which is to become qualified and skilled educators for the 21st century learning framework, as well as generate students of the highest calibre for further education and the workforce. In addition, the teachers have integrated independent lifelong learning to facilitate the process of self-actualisation and attain their goals. Thus, this further consolidates that the teacher's positive beliefs and attitudes are determinants of their motivation to become proficient (Berstein, 2015). The combination of these factors can contribute to the growth of a healthy individual in terms of intellectual abilities, character, and the desire to become enhanced (Ali et al., 2021; Bandura, 1997; Ghani et al., 2022; Ghazali, 2020; Teo et al., 2021). This is portrayed by the participants' resilience, dedication and conscientiousness in conquering their challenges. In the past, research has linked teachers' positive beliefs to a variety of positive outcomes, including increased career

advancement, upgraded instructional content and skills, effective integration of 21st century learning, and greater promotion of holistic development among students (Ali et al., 2021; Boyman et al., 2020; Jima'ain et al., 2019; Rahman et al., 2021; Teo et al., 2021). This finding is supported by a recent study which found that teachers have increased their motivation to lead their students in the acquisition of 21st century knowledge and skills (Othman et al., 2024).

In conclusion, during this study, the teachers had the opportunity to reflect on their progress and noted the valuable changes in their personal and professional growth, attributing both developments to an enhanced quality of life. In this regard, the teachers have embarked on a path of continuous improvement to ensure excellent education by effectively executing their responsibilities and realising the MoE aspiration of producing superior human capital to meet the expectations of the 21st century.

5.4 Implication of the Study

This study is based on the Constructivist Learning theory, which states that learners construct their knowledge through experiences and interactions when they engage actively in their learning and development through meaningful learning (Brau, 2018; Woolfolk, 2016). The respondents have comprehended the purpose of 21st century learning, which involves the student-centred education of knowledge, competencies and skills to prepare students for the future, its significance in fostering students' holistic

learning by enabling effective and meaningful learning, and their roles and responsibilities in mastering 21st century teaching techniques to ensure quality education. Despite poor working conditions, the teachers have sought countermeasures and formed positive beliefs, leading to increased interest, motivation, and competencies. These positive beliefs stem from the teachers' inspiration to integrate 21st century learning after observing enhancements in their students' outcomes and overall development. Consequently, this served as a greater incentive for them to overcome their challenges. The meaningful experiences have also promoted positive feelings and enhanced their personal and professional growth. Overall, their self-improvement efforts have resulted in a better quality of life and a renewed sense of purpose, which is to produce competent students for further education and the workforce, as well as global success.

Secondly, this research is a phenomenological qualitative research that seeks to comprehend the phenomenon as experienced by educators and to construct meanings from their 21st century learning experiences. This research framework highlights the significance of understanding the reality of a phenomenon as interpreted by the individual and developing meanings by exploring their lived experiences. As a result, the final output produced is a description of the meanings and essences developed, representing the true nature of the phenomenon. Furthermore, this framework involves the systematic collection and interpretation of diverse perspectives to highlight the uniqueness of personal experiences as influenced by various factors such as emotions and backgrounds (Fraenkel et al., 2023). These distinctive experiences, perceptions, and interpretations can offer valuable insights into the diversity of the phenomena. Thus,

examining the phenomenon from multiple perspectives has yielded insights into discoveries and reflections that illustrate detailed meanings underlying the implementation process of 21st century learning. Moreover, understanding the phenomenon has revealed how teachers interpreted their experiences to create meanings that have impacted their lives both personally and professionally.

According to the results, the teachers have formed positive beliefs and feelings that have served as a source of incentive for them to further their professional and personal growth. Their commitment to enhancement has inspired them to establish a new objective, which is to become proficient educators aimed at fostering students' holistic development and assisting them in gaining lifelong learning and 21st-century skills, enabling learners to apply these abilities to address their needs and problems. Collectively, all these elements have enhanced teachers' lifelong learning competencies, social attitudes, skills, character development, and resilience. Prior investigations have also related teachers' positive beliefs with notable results such as enhanced professional growth, improved teaching content and abilities, optimum integration of 21st century learning, and higher facilitation of holistic development among students (Ali et al., 2021; Boyman et al., 2020; Jima'ain et al., 2019; Rahman et al., 2021; Teo et al., 2021). Therefore, this study has enlightened practitioners and scholars by gaining insights into the issues in the implementation process. This is crucial to develop effective and adequate teacher support to help the teachers perform their responsibilities and, ultimately, achieve a quality educational experience for all students. Prioritising teachers' support and development is also essential for helping teachers establish

positive beliefs, as these beliefs have been correlated to professional advancement, which can contribute to holistic student development and quality education.

Finally, teachers are the principal leaders in accomplishing the nation's goals by establishing standards and ensuring the education system’s quality and excellence. Giving precedence to these components improves students' performance and well-being, aids schools in providing a conducive, interactive and stimulating environment, maintains an educational standard of excellence, and helps the nation achieve its aspirations.

5.5 Suggestions from the Study

The study suggests that MoE should design efficient and specialised training modules and enhance existing programs in light of the teachers' responses. The teachers reported student management as their biggest barrier in implementing 21st century learning. Therefore, targeted interventions, such as specialised professional development courses with a focus on student management, can help them expand their knowledge, expertise, and skills while simultaneously staying abreast of the most recent and best practices in education. Furthermore, this will enhance their professional qualifications as teachers because they will be better equipped to support students of varied abilities and levels by determining their strengths and weaknesses, interests and talents. They will also be able to foster optimal learning by creating personalised lessons that cater to the distinctive requirements and skill levels of their students. Highly skilled and experienced teachers will employ strategic teaching styles to engage and sustain students' interest and

motivation in learning, as well as maximise their potential. On the whole, teachers will have superior strategic teaching abilities, classroom management skills, and a higher student participation rate, all of which will have a direct impact on students' achievement.

Secondly, the MoE should identify all issues that contribute to lack of parental support and cooperation. Implementing solutions to enhance parents' engagement and collaboration, such as offering specific or extra assistance and resources for those in need, is essential. Additionally, schools should maintain open communication and establish clear expectations and boundaries to ensure that parents understand their responsibilities. Addressing this matter is expected to alleviate teachers' workload and stress.

The third recommendation is that schools should ensure equitable access to adequate ICT infrastructure, support and resources. This is to ensure that teachers have appropriate support services and facilities to enable quality education through the management of students' safety, assistance, and welfare. Finally, educational institutions should also determine the components that constitute interference of extraneous tasks. Recognising these forms of interference can assist educators and school leaders in devising methods to reduce distractions, optimise time management, and prioritise tasks, leading to improved teaching performances and well-being.

When all of these requirements are fulfilled, the teacher can maximise their motivation and competencies to implement 21st century learning successfully. In a nutshell, a knowledgeable, skilled teacher who assimilates the new teaching mechanism into the curriculum and creates a conducive, interactive and stimulating environment can help students develop holistically through meaningful, engaging and effective learning, and inspire them to achieve their full potential and become lifelong learners.

5.6 Suggestions for Future Research

Based on the research findings, the researcher recommends that further investigations be conducted on student readiness for 21st century learning to gain a more accurate and comprehensive view of 21st century learning and understand the extent to which students' developmental aspects were affected. All teachers have sought extra CPD courses on student management, citing it as their most pressing impediment to implementing 21st century learning. More research is needed to inform practitioners about the issue and to devise focused interventions, such as specialised professional development programs and other teacher support measures, to promote teacher professionalism, particularly in the context of student management. Furthermore, this research solely examines the contextual elements influencing teachers' positive beliefs. Therefore, additional research could adopt a mixed-method approach to explore intrinsic predictive factors of teachers' positive beliefs. This would enable the findings to be extended to a broader population, provide an extensive comprehension of the components that influence teachers' positive beliefs, and enhance their personal and professional growth. To conclude, there is a need to study student readiness for 21st century learning and explore intrinsic predictive factors of teachers' positive beliefs.

This is to ensure effective application and understanding of the 21st century learning teaching method.

5.7 Conclusion

According to the research findings, the teachers have comprehended the purpose of 21st century learning, its significance in nurturing holistic learning in students, and their role as facilitators in the entire process. They have developed positive beliefs during their reflection, which led to the formation of positive feelings. These experiences have helped them to increase their interest, motivation, and competence as well as meaningfulness in their lives. As a result, this became an incentive for them to conquer their persistent obstacles. However, CPD programs on student management and other support measures are necessary to teachers, as the implementation of 21st century learning among teachers is still at a moderate level. The meaningful experiences have also induced positive feelings and improved the teachers' quality of life, as evident in their personal and professional growth. Overall, the teachers have begun their lifelong journey to actualise their potential by fulfilling their newfound purpose, which is to assist students to develop holistically through meaningful, interactive and effective learning, resulting in competent students for further education and the workforce, as well as global success.

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