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A MODEL OF FORM SIX TEACHERS' READINESS FOR BLOCKCHAIN TECHNOLOGY PRE-ADOPTION IN PROJECT PAPER MANAGEMENT

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Universiti Utara Malaysia

DOCTOR OF PHILOSOPHY
UNIVERSITI UTARA MALAYSIA
2026

A MODEL OF FORM SIX TEACHERS' READINESS FOR BLOCKCHAIN TECHNOLOGY PRE-ADOPTION IN PROJECT PAPER MANAGEMENT

BY
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Universiti Utara Malaysia

Thesis Submitted to
College of Arts and Sciences,
Universiti Utara Malaysia,
in Fulfilment of the Requirement for the Degree of Doctor of Philosophy

Awang Had Salleh
Graduate School
of Arts And Sciences

Universiti Utara Malaysia

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Abstrak

Sistem pentaksiran digital berskala besar yang diperkenalkan sebelum ini di Malaysia telah dilaksanakan tanpa penilaian tahap kesediaan yang mencukupi, sehingga menimbulkan cabaran pelaksanaan serta penolakan dalam kalangan guru. Seiring dengan perancangan pembaharuan sistem pentaksiran STPM dan potensi teknologi blok rantai dalam meningkatkan keupayaan, keselamatan dan ketelusan, kajian ini bertujuan untuk membangunkan dan mengesahkan satu model bagi menilai kesediaan guru Tingkatan Enam untuk mengadaptasi Sistem Pengurusan Kertas Projek Berasaskan Blockchain (BPPM). Berlandaskan Model Penerimaan Teknologi (TAM) dan diperluaskan dengan konstruk utama daripada Teori Difusi Inovasi, kajian ini menggunakan reka bentuk penyelidikan korelasional. Data dikumpulkan daripada 514 orang guru Tingkatan Enam di wilayah utara Malaysia menggunakan soal selidik berstruktur dan dianalisis menggunakan Pemodelan Persamaan Berstruktur Kuasa Dua Terkecil Separa (PLS-SEM). Dapatan kajian menunjukkan kebanyakan hubungan hipotesis memberi pengaruh yang signifikan terhadap kesediaan guru untuk mengadaptasi BPPM, dan model akhir menunjukkan kuasa ramalan yang kukuh. Kajian ini mengesahkan peranan kritikal COM (Keserasian) dan PU (Kebergunaan) dalam mempengaruhi kesediaan, dengan (Kepercayaan Awal) INT bertindak sebagai pengantara yang signifikan dalam beberapa hubungan. Menariknya, WL (Beban Kerja) didapati tidak mempunyai kesan penyederhan terhadap hubungan antara INT dan RD (Kesediaan), sekali gus mencabar andaian terdahulu mengenai kesan negatif WL terhadap penerimaan teknologi. Walau bagaimanapun, keserasian BPPM dengan aliran kerja pentaksiran sedia ada muncul sebagai faktor utama, yang menekankan potensi praktikal sistem tersebut sekiranya ia dapat diselaraskan sepenuhnya dengan amalan semasa guru tanpa meningkatkan beban kerja. Secara keseluruhan, kajian ini mencadangkan satu model kesediaan yang telah disahkan, yang menawarkan implikasi praktikal kepada pembuat dasar dan pembangun sistem bagi menyokong kejayaan pelaksanaan sistem pentaksiran berasaskan blockchain dalam pendidikan pasca-menengah.

Kata kunci: pendidikan, pengurusan pentaksiran, blockchain, kesediaan teknologi, penyelesaian digital.

Abstract

Previous large-scale digital assessment systems in Malaysia were introduced without sufficient readiness evaluation, leading to implementation challenges and resistance among teachers. In light of planned reforms to the STPM assessment system and the potential of blockchain technology to enhance scalability, security, and transparency, this study aims to develop and validate a model to evaluate Form Six teachers' readiness to adopt a Blockchain-Based Project Paper Management (BPPM) system. Grounded in the Technology Acceptance Model (TAM) and extended with key constructs from the Diffusion of Innovation theory, the study employed a correlational research design. Data were collected from 514 Form Six teachers in the northern region of Malaysia using a structured questionnaire and analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings indicate that most hypothesised relationships significantly influence teachers' readiness to adopt BPPM, and the final model demonstrates strong predictive power. The study confirms the critical roles of COM (Compatibility) and PU in influencing readiness, with INT (Initial Trust) acting as a significant mediator in some relationships. Interestingly, WL (Workload) was found to have no moderating effect on the relationship between INT and RD (Readiness), challenging previous assumptions about the negative impact of WL on technology adoption. However, the compatibility of BPPM with existing assessment workflows emerged as a key factor, emphasizing the system's practical potential if it aligns perfectly with teachers' current practices without increasing workload. Overall, the study proposes a validated readiness model that offers practical insights for policymakers and system developers to support the successful adoption of blockchain-based assessment systems in post-secondary education.

Keywords: education, assessment management, blockchain, technology readiness, digital solution

Acknowledgement

In the name of ALLAH, the Most Gracious, the Most Merciful. Praise and peace be upon the beloved Prophet Muhammad (peace be upon him), his family, his companions, and all who follow his guidance. First and foremost, I humbly thank Allah (SWT) for granting me the strength, patience, and perseverance to complete this thesis journey. This accomplishment would not have been possible without His divine will and mercy.

I wish to express my deepest gratitude and heartfelt appreciation to my supervisors, Associate Professor Dr. Mohd Fairuz Jafar and Dr. Mat Jakpar (not his real name), for their unwavering support, guidance, and insightful advice throughout the course of this study. Their mentorship has been instrumental in shaping both the quality of this work and my academic growth. May Allah reward you both abundantly.

I would also like to give a special acknowledgment to Dr. Mat Jakpar, not only as my supervisor but also as a close friend, running partner, and, occasionally, my personal "adventure coordinator." He is a brilliant academician… but, honestly, a little crazy too! Perhaps that is what makes him such a great person to have around. Since we share the same hobby-running-almost every visit for supervision somehow came with a "mandatory" 10 km Keris run. Apparently, discussing research was not enough; we had to suffer together first! Throughout my study, he also managed to drag me into various running events, including Jitra Run, Songkhla Marathon, Perlis Marathon, Terengganu Marathon, and many more. What started as a hobby somehow turned into an unofficial research-and-running tour.

And as if running was not enough, Dr. Mat Jakpar was also responsible for dragging me to numerous seminars, conferences, and academic programmes, including those in Thailand, Türkiye, Indonesia, and elsewhere. Somehow, every academic opportunity came with an additional adventure attached to it. He may be crazy, but he is definitely one of the smartest people I know. More importantly, behind all the jokes, running sessions, and adventures, he has always been someone I could count on; not only as a supervisor, but also as a friend. Thank you, Dr. Mat Jakpar, for making this journey much more memorable, enjoyable, and occasionally painful :p. I truly appreciate everything you have done for me.

To my beloved parents, Shuhaimi Musa (may Allah grant him the highest place in Jannah) and Rosnah Harun, thank you for your endless love, sacrifices, and prayers. You are the foundation of my strength and values. To my beloved wife, Nik Nurhasniza, your patience, understanding, and continuous encouragement have been a source of great comfort. To my precious daughters, Qistina, Adrianna, Aaisyah, Syifa, and Calianna; and my only son, Eusof Edryan, who was born during the course of this study, you are my true inspiration. Every step of this journey was for all of you.

I would also like to express my sincere appreciation to the Ministry of Education Malaysia (KPM) for the financial support and opportunity to pursue this doctoral study. Your contribution has made this academic journey possible. Lastly, I am deeply grateful to all individuals, friends, colleagues, and institutions who have supported me directly or indirectly throughout this research. May Allah (SWT) bless and reward each of you for your kindness and support.

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List of Abbreviations

BPPM	Blockchain-based Project Paper Management
COM	Compatibility
CPX	Technological Complexity
DELIMa	Digital Educational Learning Initiative Malaysia
DOI	Diffusion of Innovation
F6	Form Six
INT	Initial Trust
JPN	State Education Department
KPM	Malaysian Ministry of Education
LMS	Learning Management Systems
MCO	Movement Control Order
PL	Perceived Ease of Learning
PEOU	Perceived Ease of Use
PPD	District Education Office
PU	Perceived Usefulness
RA	Relative Advantage
RD	Teachers' Readiness to Use BPPM
SBA	School-Based Assessment
SEM	Structural Equation Modeling
SPPBS	School-based Assessment Management System
STPM	Malaysian Higher Education Certificate
TAM	Technology Acceptance Model
TOE	Technology-Organization-Environment
TRA	Theory of Reasoned Action
TPB	Theory of Planned Behavior
UTAUT	Unified Theory of Acceptance and Use of Technology
VLE	Virtual Learning Environment
WL	Workload

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Assessment in Malaysian education is now managed online through the School-Based Assessment Management System (SPPBS), which was developed in 2011 to evaluate student performance based on the implementation of the national curriculum standard (Majlis Peperiksaan Malaysia, 2019). All subject teachers are responsible for entering student performance data online into the system after each assessment is completed. SPPBS serves as a centralized platform to facilitate student assessment, updates, and the input of student performance data, which can be accessed online in a more systematic manner. All information regarding examinations and assessments can be directly accessed by examination officers, subject teachers, the State Education Department (JPN), and District Education Offices (PPD), including matters related to subject registration and student performance.

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However, the SPPBS is not applicable to manage the assessment activity for the Form Six (F6) program, even though the program has undergone curriculum transformation in 2013, including the introduction of School-based Assessment (SBA) through project paper implementation. The aim of this assessment reform was to enhance the skills and competencies of F6 students and create a learning environment similar to that experienced by pre-university students. Additionally, it aims to improve the image of the F6 program as well (Suliman et al., 2018). This transformation is expected to be enhanced further as a comprehensive review is anticipated to be conducted in 2026 to enhance the F6 syllabus. As announced by the Malaysian Examinations Council (MPM) in July 2023, the review will prioritize assessing the exam syllabus's relevance

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APPENDICES

Appendix A: Questionnaire for Expert Validation

Date: _____

SCHOOL OF EDUCATION
Pusat Pengajian Pendidikan
UNIVERSITI UTARA MALAYSIA

KESAHAN INSTRUMEN KAJIAN

Yang dihormati Prof/Prof Madya/Dr/Tuan/Puan,
Saya Joharri bin Shuhaimi, pelajar Ijazah Doktor Falsafah di Pusat Pengajian Pendidikan, Universiti Utara Malaysia (UUM). Saya sedang menyiapkan kajian iaitu, "*Form Six Teachers' Readiness Model to Adopt Blockchain Technology in Project Paper Management*". Teknologi blockchain yang dirujuk dalam kajian ini ialah *Blockchain-based Paper Project Management* (BPPM).

Saya memohon jasa baik Yang dihormati Prof/Prof Madya/Dr/Tuan/Puan untuk bertindak sebagai pakar penilai bagi menilai instrumen yang digunakan dalam kajian saya. Aspek-aspek yang diukur dalam instrumen yang akan digunakan adalah seperti berikut:

Bahagian 1 : Kelebihan relative (Relative Advantage)
Bahagian 2 : Kesesuaian (Compatibility)
Bahagian 3 : Kompleksiti teknologi (technological complexity)
Bahagian 4 : Tanggapan kebergunaan (perceived usefulness)
Bahagian 5 : Tanggapan mudah belajar (perceived ease of learning)
Bahagian 6 : Kepercayaan awal (initial trust)
Bahagian 7 : beban kerja (workload)
Bahagian 8 : Kesediaan BPPM (BPPM readiness)

Setiap item dalam instrumen yang dikemukakan diukur menggunakan skala Likert 7 mata dengan sela 1 (sangat tidak setuju) hingga 7 (sangat bersetuju).

Bersama ini saya lampirkan sampul untuk Yang dihormati Prof/Prof Madya/Dr/Tuan/Puan mengembalikan instrumen yang telah dinilai.

Jasa baik dan ihsan Yang dihormati Prof/Prof Madya/Dr/Tuan/Puan dalam membantu untuk menilai setiap item dalam instrument ini saya dahului dengan ucapan terima kasih.

Sekian, terima kasih.
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Sila nilai tahap relavan item-item soal selidik berikut berdasarkan skala 4-poin di bawah. Gunakan ruangan yang disediakan untuk memberi komen.

Not Relevant / Tidak Relavan	**Somewhat Relevant / Agak Relavan**	**Quite Relevant / Cukup Relavan**	**Sangat relavan / Highly Relevant**
1	**2**	**3**	**4**

1. Kelebihan Relatif / Relative Advantage

Definition: kelebihan atau keunggulan yang dilihat ada pada PBBM berbanding dengan alternatif atau teknologi lain yang setanding dengannya. Ia menilai sejauh mana BPPM dianggap lebih baik berbanding dengan apa yang sedia ada / *The perceived superiority or advantage of BPPM compared to existing alternatives or competing technologies. It assesses how much better the BPPM is believed to be in comparison to what is currently available.*

Item adaptasi		**Item asal**	**Sumber**	**Penilaian pakar**				**Komen pakar**
1TRP	Saya percaya BPPM boleh menjadikan data pentaksiran kerja kursus lebih mudah diakses berbanding amalan sekarang / *I believe that BPPM can make assessment data more easily accessible compared to the current practice.*	…transaction data can be accessed easily.	(Muharam et al., 2024)	1	2	3	4	

2TRP	Saya percaya BPPM boleh menjadikan data pentaksiran kerja kursus boleh diakses oleh sesiapa sahaja berbanding amalan sekarang / *I believe that BPPM can make assessment data more accessible to anyone compared to the current practice.*	…transaction data can be accessed by anyone.	(Muharam et al., 2024)	1	2	3	4	
3TRP	Saya percaya BPPM boleh menjadikan data pentaksiran kerja kursus boleh diakses bila-bila masa berbanding amalan sekarang / *I believe that BPPM can make assessment data more accessible anytime compared to the current practice.*	…transaction data can be accessed anytime.	(Muharam et al., 2024)	1	2	3	4	
4TRP	Saya percaya BPPM boleh menyimpan data pentaksiran kerja kursus dalam pelbagai pengguna berbanding amalan sekarang / *I believe that BPPM can store assessment data in multiple users compared to the current practice.*	…transaction data is stored in multiple users.	(Muharam et al., 2024)	1	2	3	4	
5TRP	Saya percaya penerapan BPPM dapat menambahkan ketelusan dalam pengurusan kerja kursus pelajar berbanding amalan sekarang / *I believe that adopting BPPM can increase transparency in student coursework management compared to the current practice.*	Adopting BC can increase the transparency of my company's projects.	(C. Li et al., 2022)	1	2	3	4	
6TRC	Saya percaya BPPM membolehkan semua data pentaksiran kerja kursus boleh dijejaki	… all data can be traced back to its source.	(Muharam et al., 2024)	1	2	3	4	

	kembali kepada punca asalnya / *I believe that BPPM allows all coursework assessments data to be traced back to its source.*							
7TRC	Saya percaya BPPM membolehkan semua data pentaksiran kerja kursus boleh dijejaki untuk menentukan sumbernya / *I believe that BPPM allows all coursework assessment data to be traced to determine its source.*	… all data can be traced to determine its source.	(Muharam et al., 2024)	1	2	3	4	
8TRC	Saya percaya BPPM membolehkan semua data pentaksiran kerja kursus dapat dijejaki untuk mengenal pasti sumbernya / *I believe that BPPM allows all coursework assessment data to be traced to pinpoint its source.*	… all data can be traced to pinpoint its source.	(Muharam et al., 2024)	1	2	3	4	
9TRC	Saya percaya BPPM membolehkan semua data pentaksiran kerja kursus dapat dijejaki untuk mengesahkan sumbernya / *I believe that BPPM allows all coursework assessment data to be traced to verify its source.*	… all data can be traced to verify its source.	(Muharam et al., 2024)	1	2	3	4	
10TRC	Saya percaya penerapan BPPM dapat membolehkan saya mengesan kemajuan kerja kursus pelajar dengan segera berbanding dengan amalan sekarang / *I believe that BPPM can provide real-time (instant) tracking progress over student coursework compared to the current practice.*	Providing real-time (instant) services.	(Heidari et al., 2017)	1	2	3	4	

11TRC	Saya percaya penerapan BPPM dapat meningkatkan kebolehkesanan kemajuan kerja kursus pelajar berbanding dengan amalan sekarang / *I believe that adopting BPPM can enhance the traceability of students' coursework progress compared to the current practice.*	Adopting BC can enhance the traceability of my company's projects.	(C. Li et al., 2022)	1	2	3	4	
12IMU	Saya percaya bahawa data kerja kursus yang telah dihantar ke BPPM tidak boleh diubah berbanding dengan amalan sekarang / *I believe that coursework data submitted to BPPM cannot be changed compared to the current practice.*	… the data submitted cannot be changed.	(Muharam et al., 2024)	1	2	3	4	
13IMU	Saya percaya bahawa data kerja kursus yang telah dihantar ke BPPM tidak boleh dipalsukan berbanding dengan amalan sekarang / *I believe that coursework data submitted to BPPM cannot be tempered compared to the current practice.*	… the data submitted cannot be tempered.	Muharam et al., 2024)	1	2	3	4	
14IMU	Saya percaya bahawa data kerja kursus yang telah dihantar ke BPPM tidak boleh dimanipulasi berbanding dengan amalan sekarang / *I believe that coursework data submitted to BPPM cannot be manipulated compared to the current practice.*	… the data submitted cannot be manipulated.	Muharam et al., 2024)	1	2	3	4	
15IMU	Saya percaya bahawa data kerja kursus yang telah dihantar ke BPPM tidak boleh dipadam	… the data submitted cannot be deleted.	Muharam et al., 2024)	1	2	3	4	

	berbanding dengan amalan sekarang / *I believe that coursework data submitted to BPPM cannot be deleted compared to the current practice.*							
16IMU	Saya percaya bahawa BPPM mempunyai keupayaan teknikal yang mencukupi untuk memastikan data kerja kursus tidak mudah dimodifikasi oleh pengguna berbanding dengan amalan sekarang / *I think the BPPM has sufficient technical capacity to ensure that the coursework details cannot be easily modified by the user compared to the current practice.*	I think the app has sufficient technical capacity to ensure that the certificate details cannot be easily modified by the user.	(Wallbach et al., 2020)	1	2	3	4	
17IMU	Saya percaya bahawa BPPM mempunyai keupayaan teknikal yang mencukupi untuk memastikan data kerja kursus tidak mudah dimodifikasi oleh pengguna lain berbanding dengan amalan sekarang / *I think the BPPM has sufficient technical capacity to ensure that the coursework details cannot be easily modified by any other user compared to the current practice.*	I think the app has sufficient technical capacity to ensure that the certificate details cannot be easily modified by any other user.	(Wallbach et al., 2020)					
18IMU	Saya percaya bahawa BPPM mempunyai keupayaan teknikal yang mencukupi untuk memastikan data kerja kursus tidak mudah dimodifikasi oleh pihak ketiga berbanding dengan amalan sekarang / *I think the BPPM has sufficient technical capacity to ensure*	I think the app has sufficient technical capacity to ensure that the certificate details cannot	(Wallbach et al., 2020)	1	2	3	4	

	that the coursework details cannot be easily modified by a third party compared to the current practice.	be easily modified by a third party.						

2. Kesesuaian / Compatibility

Definisi: Kesesuaian merujuk kepada tahap BPPM yang sejajar dengan amalan pentaksiran kerja kursus, nilai, pengetahuan terdahulu dan pengalaman guru. Ia menentukan sejauh mana platform tersebut sesuai dengan keseluruhan aktiviti pentaksiran kerja kursus sedia ada dan sejajar dengan keperluan khusus platform semasa / *Compatibility refers to the level of BPPM that aligns with the current teachers' assessment practice, values, prior knowledge and experiences. It determines how well the platform fits within the overall existing project paper evaluation activity and matches the specific needs of current platform.*

Item adaptasi		**Item asal**	**Sumber**	**Penilaian pakar**				**Komen pakar**
1COM	Saya percaya BPPM amat serasi dengan sistem pentaksiran kerja kursus sedia ada */ I believe that BPPM is compatible for the current coursework assessment system.*	BC is compatible for demonstrative system built at your university.	(Ullah et al., 2021)	1	2	3	4	

2COM	Saya percaya BPPM amat serasi untuk kegunaan pelajar dalam pengurusan kerja kursus mereka di sekolah saya / *I believe that BPPM is compatible for students' coursework management at my school.*	BC is compatible for learner applications at your university.	(Ullah et al., 2021)	1	2	3	4	
3COM	Saya percaya BPPM amat serasi dengan model pentaksiran kerja kursus yang digunakan sekarang / *I believe that BPPM is compatible with the current coursework assessment model.*	BC is compatible with the business operating model in my company.	(C. Li et al., 2022)	1	2	3	4	
4COM	Saya percaya BPPM amat serasi dengan keperluan pengurusan pentaksiran kerja kursus sekarang / *I believe that BPPM is compatible with the current coursework assessment management requirements.*	BC is compatible with the management requirements of the company.	(C. Li et al., 2022)	1	2	3	4	
5COM	Saya percaya BPPM amat sesuai dengan amalan pengurusan pentaksiran kerja kursus semasa di sekolah / *I believe that BPPM fits with the school's existing practice of managing students' coursework.*	BC fits with the existing values of my company.	(C. Li et al., 2022)	1	2	3	4	
6COM	Saya percaya BPPM amat sesuai dengan keperluan tugasan saya dalam menguruskan kerja kursus pelajar / *I believe that using BPPM fits well with my task of coursework management needs.*	I think that using 3D printers fits well with my needs.	(Chatzoglou & Michailidou, 2019)	1	2	3	4	

7COM	Saya percaya BPPM amat sesuai dengan tingkah laku saya dalam menguruskan kerja kursus pelajar / *I believe that the use of BPPM fits into my behavior in managing students' coursework.*	The use of 3D printers fits into my behavior.	(Chatzoglou & Michailidou, 2019)	1	2	3	4	
8COM	Saya percaya BPPM amat serasi dengan proses pengurusan kerja kursus pelajar / *I believe that BPPM is compatible with coursework management processes.*	RFID technologies are compatible with business processes.	(Shi & Yan, 2016)	1	2	3	4	
9COM	Saya percaya BPPM adalah pelengkap kepada ilmu pengetahuan saya dalam pengurusan kerja kursus / *I believe that BPPM complements my knowledge in managing students' coursework.*	RFID technologies complement knowledge held by agricultural product distribution enterprise employees.	(Shi & Yan, 2016)	1	2	3	4	
10COM	Saya percaya jika kita menerap penggunaan BPPM dalam pengurusan kerja kursus, ia akan serasi dengan sistem pengurusan pentaksiran sekarang / *I believe if we adopt BPPM into coursework management, it would be compatible with the current assessment management system.*	If we adopted blockchain technology, it would be compatible with our legacy systems.	(Dehghani et al., 2022)	1	2	3	4	
11COM	Saya percaya jika kita menerap penggunaan BPPM dalam pengurusan kerja kursus, ia akan serasi dengan proses pengurusan pentaksiran sekarang / *I believe if we adopt BPPM into coursework management, it*	If we adopted blockchain technology, it would be compatible with our legacy processes.	(Dehghani et al., 2022)	1	2	3	4	

	would be compatible with the current assessment management processes.							
12COM	Saya percaya jika kita menerap penggunaan BPPM dalam pengurusan kerja kursus, ia akan serasi dengan pengkalan data pengurusan pentaksiran sekarang / *I believe if we adopt BPPM into coursework management, it would be compatible with the current assessment management databases.*	If we adopted blockchain technology, it would be compatible with our legacy databases.	(Dehghani et al., 2022)	1	2	3	4	

3. Kompleksiti teknologi / technological Complexity								
Definisi: Kompleksiti teknologi merujuk kepada tanggapan guru berkaitan tahap kesukaran untuk memahami sistem BPPM / *Technological complexity refers to how hard teachers think it is to understand BPPM system.*								
Item adaptasi		**Item asal**	**Sumber**	**Penilaian pakar**				**Komen pakar**
1CPX	Saya percaya saya tidak berhadapan kesukaran menggunakan menu BPPM semasa menyemak kerja kursus / *I believe I have no difficulty using the BPPM menus to check coursework.*	I have no difficulty using the BEMS menus to check records.	(J. Chin & Lin, 2016)	1	2	3	4	

2CPX	Saya percaya saya tidak ada kesukaran bekerja dengan BPPM / *I believe I have no difficulty working with the BPPM.*	I have no difficulty working with the BEMS.	(J. Chin & Lin, 2016)	1	2	3	4	
3CPX	Saya percaya saya tidak ada kesukaran dalam mengimport dan mengeksport data kerja kursus dari sistem lain semasa menggunakan BPPM / *I believe I have no difficulty importing and exporting coursework data from other system.*	I have no difficulty importing and exporting data from other devices.	(J. Chin & Lin, 2016)	1	2	3	4	
4CPX	Saya percaya aplikasi untuk mengakses BPPM bagi menguruskan kerja kursus dapat difahami dengan baik / *I believe the BPPM access application to manage coursework is well understood.*	The Web access application for a transaction is well understood.	(Mardiputra et al., 2021)	1	2	3	4	
5CPX	Saya percaya sistem operasi (automasi) menggunakan BPPM difahami dengan baik / *I believe Operational System (Automation) in BPPM is well understood.*	Operational System (Automation) in TTL is well understood.	(Mardiputra et al., 2021)	1	2	3	4	
6CPX	Saya percaya aplikasi BPPM mudah digunakan / *I believe I find it easy to use BPPM applications.*	I find it easy to use web access applications.	(Mardiputra et al., 2021)	1	2	3	4	
7CPX	Saya percaya bahawa fasiliti dan perkakasan untuk mengoperasi BPPM mudah digunakan / *I believe I find it easy to use operational facilities and equipment (automation) at BPPM.*	I find it easy to use operational facilities and equipment (automation) at TTL.	(Mardiputra et al., 2021)	1	2	3	4	

8CPX	Saya percaya saya boleh berinteraksi dengan platform BPPM tanpa perlu banyak bebankan fikiran / *I believe that I can interact with the BPPM platform without much mental effort.*	I interact with the e-learning platform without much mental effort.	(Idoga et al., 2022)	1	2	3	4	
9CPX	Saya percaya pelantar BPPM tidak memerlukan masa yang lama untuk mempelajarinya / *I believe that BPPM platform does not require much time to learn.*	E-learning platform does not require much time to learn.	(Idoga et al., 2022)	1	2	3	4	
10CPX	Saya percaya platform BPPM mempunyai ciri-ciri fleksibel / *I believe that BPPM platform have flexible features.*	E-learning platform have flexible features.	(Idoga et al., 2022)	1	2	3	4	

4. Tanggapan Kebergunaan / Perceived Usefulness

Definisi: Kebergunaan merujuk kepada persepsi subjektif guru F6 tentang sejauh mana penggunaan BPPM dapat meningkatkan prestasi pengurusan kerja kursus pelajar, produktiviti, atau kecekapan guru secara keseluruhan / *Usefulness refers to F6 teachers' subjective perception of the degree to which using BPPM would increase their SBA management performance, productivity, or overall effectiveness.*

Item adaptasi		**Item asal**	**Sumber**	**Penilaian pakar**				**Komen pakar**
1PU	Saya percaya penggunaan BPPM dalam kerja pentaksiran saya dapat membantu saya menyiapkan tugasan saya dengan cepat / *I believe that using BPPM in my assessment*	Using CHART-MASTER in my job would enable me to accomplish tasks more quickly.	(F. D. Davis, 1989)	1	2	3	4	

	task would enable me to accomplish tasks more quickly.							
2PU	Saya percaya penggunaan BPPM dapat meningkatkan prestasi kerja pentaksiran saya / *I believe that using BPPM would improve my performance in assessment tasks.*	Using CHART-MASTER would improve my job performance.	(F. D. Davis, 1989)	1	2	3	4	
3PU	Saya percaya penggunaan BPPM dapat meningkatkan produktiviti saya dalam kerja pentaksiran / *I believe that using BPPM would increase my productivity in assessment tasks.*	Using CHART-MASTER in my job would increase my productivity.	(F. D. Davis, 1989)	1	2	3	4	
4PU	Saya percaya penggunaan BPPM dapat meningkatkan kecekapan kerja pentaksiran saya / *I believe that using BPPM would enhance my effectiveness on the assessment tasks.*	Using CHART-MASTER would enhance my effectiveness on the job.	(F. D. Davis, 1989)	1	2	3	4	
5PU	Saya percaya penggunaan BPPM dapat memudahkan kerja pentaksiran saya / *I believe that using BPPM would make it easier to do my assessment tasks.*	Using CHART-MASTER would make it easier to do my job.	(F. D. Davis, 1989)	1	2	3	4	
6PU	Saya percaya BPPM amat berguna dalam kerja pentaksiran saya / *I believe that I would find BPPM useful in my assessment tasks.*	I would find CHART-MASTER useful in my job.	(F. D. Davis, 1989)	1	2	3	4	
7PU	Saya percaya penerapan BPPM dapat menambahkan kawalan saya dalam interaksi bersama pelajar / *I believe that using the*	Using the Web would give me greater control over	(Carter & Belanger, 2004)	1	2	3	4	

	BPPM would give me greater control over my interaction with students.	my interaction with state government agencies.						
8PU	Saya percaya penerapan BPPM dapat memberi saya kawalan segera dalam status kerja kursus pelajar / *I believe that BPPM can provide real-time (instant) status over students' coursework.*	Providing real-time (instant) services.	(Heidari et al., 2017)	1	2	3	4	
9PU	Saya percaya penerapan BPPM membantu menyegerakan penyelesaian pengurusan kerja kursus pelajar / *I believe that BPPM can help quickly complete the coursework management task.*	We believe that E-Blogs can help quickly complete the company's marketing operations.	(Hsing et al., 2013)	1	2	3	4	
10PU	Saya percaya penerapan BPPM dapat meningkatkan kecekapan pengurusan kerja kursus pelajar / *I believe that BPPM can enhance the efficiency coursework management activity.*	We believe that E-Blogs can enhance the efficiency of marketing.	(Hsing et al., 2013)	1	2	3	4	
11PU	Saya percaya penerapan BPPM amat membantu dalam pengurusan kerja kursus pelajar / *I believe that BPPM is helpful in managing students' coursework.*	We believe that E-Blog is helpful.	(Hsing et al., 2013)	1	2	3	4	

5. Tanggapan Mudah Belajar / Perceived Ease of Learning								
Definisi: Persepsi guru mengenai sejauh mana mudahnya untuk mempelajari dan menggunakan BPPM. Ini melibatkan faktor-faktor seperti antara muka pengguna dan usaha yang diperlukan untuk memahami serta menggunakan platform tersebut / *Teachers' perception of how easy it is to learn and use the BPPM. It encompasses factors such as the user interface and effort required to understand and utilize the platform.*								
Item adaptasi		**Item asal**	**Sumber**	**Penilaian pakar**				**Komen pakar**
1EL	Saya percaya saya boleh menjadi mahir dengan cepat dalam mempelajari BPPM / *I believe I can quickly become skillful in learning BPPM.*	It should be skillful quickly.	(Cen et al., 2023)	1	2	3	4	
2EL	Saya percaya saya boleh mempelajari BPPM dengan mudah / *I believe I can easily learn BPPM.*	It should be learned easily.	(Cen et al., 2023)	1	2	3	4	
3EL	saya percaya langkah menggunakan BPPM mudah diingati / *I believe the steps to use BPPM are easy to remember.*	It should be remembered easily	(Cen et al., 2023)	1	2	3	4	
4EL	Saya percaya BPPM dapat dipelajari dengan cepat / *I believe BPPM can be learned quickly.*	It should be learned quickly	(Cen et al., 2023)	1	2	3	4	
5EL	saya percaya saya dapat belajar menggunakan BPPM dengan cepat / *I believe I can learn to use BPPM quickly.*	I learned to use it quickly	(Rini et al., 2024)	1	2	3	4	

6EL	Saya percaya saya dapat mengingat cara menggunakan BPPM dengan mudah / *I believe I can easily remember how to use BPPM.*	I can easily remember how to use it	(Rini et al., 2024)	1	2	3	4	
7EL	saya percaya mempelajari menggunakan BPPM adalah sangat mudah / *I believe learning to use BPPM is very easy*.	It's very easy to learn to use	(Rini et al., 2024)	1	2	3	4	
8EL	Saya percaya saya akan dengan cepat mahir menggunakan BPPM / *I believe I will quickly become skilled with BPPM. .*	I quickly became skilled with it	(Rini et al., 2024)	1	2	3	4	

6. Kepercayaan Awal / Initial Trust

Definisi: Kepercayaan awal (INT) berkaitan dengan tahap kepercayaan yang wujud pada peringkat awal hubungan antara guru dan BPPM. Oleh kerana guru-guru tidak mempunyai pengetahuan awal tentang teknologi blockchain, kepercayaan awal mereka terhadap BPPM dibentuk sebelum interaksi secara langsung dengan platform tersebut. Oleh itu, INT didefinisikan sebagai persepsi guru terhadap keyakinan dan harapan mereka mengenai prestasi BPPM dalam mencapai matlamat dan objektif pengurusan pentaksiran / *Initial trust (INT) pertains to the trust established in the early stages of the relationship between F6 teachers and BPPM. As teachers lack prior knowledge about blockchain, their initial trust towards BPPM is formed before direct engagement with the platform. Therefore, INT is defined as teachers' perception of their confidence and expectations regarding BPPM's performance in achieving teachers' assessment management goals and objectives.*

Item adaptasi	**Item asal**	**Sumber**	**Penilaian pakar**	**Komen pakar**

1INT	Saya percaya BPPM boleh dipercayai / *I believe the BPPM is trustworthy.*	I believe that FRAs are trustworthy.	(Nourallah et al., 2022)	1	2	3	4	
2INT	Saya percaya BPPM dapat menyediakan perkhidmatan yang tepat / *I believe BPPM could provide an accurate service.*	I believe blockchain EHR could provide an accurate service.	(Hira et al., 2022)	1	2	3	4	
3INT	Saya percaya BPPM dapat menyediakan perkhidmatan yang boleh diharap */ I believe BPPM could provide a reliable service.*	I believe blockchain EHR could provide a reliable service.	(Hira et al., 2022)	1	2	3	4	
4INT	Saya percaya BPPM dapat menyediakan perkhidmatan yang selamat / *I believe BPPM could provide a safe service.*	I believe blockchain EHR could provide a safe service.	(Hira et al., 2022)	1	2	3	4	
5INT	Saya percaya BPPM dapat menyediakan perkhidmatan yang selesa / *I believe BPPM could provide a convenient service.*	I believe blockchain EHR could provide a convenient service.	(Hira et al., 2022)	1	2	3	4	
6INT	Saya percaya BPPM adalah perisian yang sangat menyokong dalam mengurus data kerja kursus / *I believe BPPM is a very reliable piece of software to manage coursework data.*	MyLanguageCertification is a very reliable piece of software.	(Wallbach et al., 2020)	1	2	3	4	
7INT	Saya percaya BPPM adalah perisian yang sangat boleh diharap dalam mengurus data kerja kursus / *I believe BPPM is extremely dependable to manage coursework data.*	MyLanguageCertification is extremely dependable.	(Wallbach et al., 2020)	1	2	3	4	

8INT	Saya percaya BPPM tidak mengalami kegagalan fungsi bagi saya / *I believe BPPM does not malfunction for me.*	MyLanguageCertification does not malfunction for me.	(Wallbach et al., 2020)	1	2	3	4	
9INT	Saya percaya BPPM adalah kompeten dan berkesan dalam pengurusan kerja kursus / *I believe BPPM is competent and effective in managing coursework.*	MyLanguageCertification is competent and effective in managing language certificates.	(Wallbach et al., 2020)	1	2	3	4	
10INT	Saya percaya BPPM dapat menjalankan peranan pengurusan kerja kursusnya dengan sangat baik / *I believe BPPM performs its role of managing coursework very well.*	MyLanguageCertification performs its role of managing language certificates very well.	(Wallbach et al., 2020)	1	2	3	4	
11INT	Secara keseluruhan, saya percaya BPPM adalah perkhidmatan yang berkebolehan dan cekap dalam pengurusan kerja kursus / *Overall, I believe BPPM is a capable and proficient service for managing coursework.*	Overall, MyLanguageCertification is a capable and proficient service for managing language certificates.	(Wallbach et al., 2020)	1	2	3	4	
12INT	Saya percaya penerapan BPPM dapat menambahkan kepercayaan pihak berkepentingan dalam pentaksiran pendidikan / *I believe that BPPM can increase trust among stakeholders in educational assessment.*	BC can increase trust among stakeholders in construction.	(C. Li et al., 2022)	1	2	3	4	

7. Beban Kerja / Workload

Definisi: Tahap tugasan kerja yang diberikan kepada guru berkaitan dengan tugas pengurusan pentaksiran kerja kursus seperti penyelidikan, kolokium, dokumentasi dan penyediaan / *the level of teachers' assigned work related to coursework management tasks such as research, colloquium, documentation and preparation.*

Item adaptasi		**Item asal**	**Sumber**	**Penilaian pakar**				**Komen pakar**
1WL	Kadar kelajuan dalam tugas pengurusan kerja kursus saya adalah terlalu pantas / *The pace in my coursework management job is too fast.*	The pace in my job is too fast.	(Awang et al., 2018)	1	2	3	4	
2WL	Tugas pengurusan kerja kursus saya adalah terlalu mendesak / *My coursework management task is too demanding.*	My job is too demanding.	(Awang et al., 2018)	1	2	3	4	
3WL	Tugas pengurusan kerja kursus saya adalah sangat sibuk / *My coursework management task is very hectic.*	My job is very hectic.	(Awang et al., 2018)	1	2	3	4	
4WL	Saya mempunyai terlalu banyak kerja dalam tugas pengurusan kerja kursus / *I have too much work to do on the coursework management task.*	I have too much work to do on the job.	(Awang et al., 2018)	1	2	3	4	
5WL	Saya perlu mempelajari strategi pengurusan kerja kursus yang baru untuk menggunakan BPPM / *I will have to learn new coursework*	I will have to learn new teaching strategies in order to use Frog VLE.	(Awang et al., 2018)	1	2	3	4	

	management strategies in order to use BPPM.							
6WL	Penggunaan BPPM akan meningkatkan beban kerja saya / *The use of BPPM will increase my workload.*	The use of Frog VLE will increase my workload.	(Awang et al., 2018)	1	2	3	4	
7WL	Saya perlu banyak mengawal emosi dalam menjalankan tugas mengurus kerja kursus / *In my coursework management task, I have to control my emotions extensively.*	How much did you have to control your emotions?	(Sellers et al., 2014)	1	2	3	4	
8WL	Saya perlu banyak memantau hal berkaitan prestasi dalam tugas pengurusan kerja kursus saya / *The coursework management task required me to monitor performance excessively.*	How much did the task require you to monitor your performance?	(Sellers et al., 2014)	1	2	3	4	
9WL	Saya memerlukan banyak aktiviti komunikasi dalam tugas pengurusan kerja kursus / *I require a high amount of communication activity in the coursework management task.*	How much communication activity was required?	(Sellers et al., 2014)	1	2	3	4	
10WL	Saya memerlukan banyak aktiviti kordinasi dalam tugas pengurusan kerja kursus / *I require a high amount of coordination activity in the coursework management task.*	How much coordination activity was required?	(Sellers et al., 2014)	1	2	3	4	

11WL	Tugas pengurusan kerja kursus saya kadang-kadang menyakitkan hati / *My coursework management task is sometimes annoying.*	How irritated and annoyed were you with your team?	(Sellers et al., 2014)	1	2	3	4	
12WL	Tugas pengurusan kerja kursus saya terlalu mendesak emosi / *My coursework management task is emotionally demanding.*	How emotionally demanding was working in the team?	(Sellers et al., 2014)	1	2	3	4	

8. Kesediaan BPPM / BPPM Readiness

Definisi: Kesediaan BPPM merujuk kepada kesanggupan guru untuk menggunakan BPPM khususnya berdasarkan ciri-ciri platform itu sendiri / *BPPM readiness refers to the willingness of teachers to adopt BPPM specifically based on the nature of the platform itself.*

Item adaptasi		**Item asal**	**Sumber**	**Penilaian pakar**				**Komen pakar**
1RD	Saya bersedia menggunakan BPPM dalam pengurusan kerja kursus tingkatan 6 / *I am ready to use BPPM in form 6 coursework management.*	Assuming I have access to the system, I intend to use it.	(Venkatesh & Davis, 2000)	1	2	3	4	
2RD	Saya akan menggunakan BPPM dalam pengurusan kerja kursus tingkatan 6 bila ia dilancarkan secara formal / *I would use*	I predict I would use autonomous vehicles in the future.	(Zhang et al., 2020)	1	2	3	4	

	BPPM in form 6 coursework management when it is officially launched.							
3RD	Saya akan memasang aplikasi BPPM dalam telefon saya bila ia dilancarkan secara formal / *I will install the BPPM apps in my phone once it is officially lunched.*	I will purchase autonomous vehicles together with my next car.	(Zhang et al., 2020)	1	2	3	4	
4RD	Saya akan mengesyorkan penggunaan BPPM kepada yang lain bila ia dilancarkan secara formal / *I will recommend others to use BPPM once it is officially launched.*	I will recommend others to use the digital learning environments after the health emergency is over.	(Reyes-Mercado et al., 2023)	1	2	3	4	
5RD	Saya menjangkakan bahawa Kementerian Pendidikan akan menggunakan BPPM pada masa akan datang / *I expect that the Ministry of Education will use BPPM in the future.*	You expect your firm will use innovative technology in the future.	(Ullah et al., 2022)	1	2	3	4	
6RD	Saya andaikan bahawa Kementerian Pendidikan akan menggunakan BPPM untuk memastikan pengurusan kerja kursus yang lebih baik / *I assume that the Ministry of Education will use BPPM to enhance coursework management practices.*	You assume that your firm will use blockchain to provide better services.	(Ullah et al., 2022)	1	2	3	4	
7RD	Saya merasakan bahawa Kementerian Pendidikan akan mendapat kebaikan daripada penggunaan BPPM / *I think that the Ministry of Education will benefit from the use of BPPM.*	You think that your firm will take benefits from potential applications of blockchain technology.	(Ullah et al., 2022)	1	2	3	4	

Cadangan dan pandangan berkaitan soal selidik:

_____

_____

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_____

Universiti Utara Malaysia

Expert Information:

Nama pakar: _____

Bidang kepakaran: _____

Pengalaman dalam bidang kepakaran: _____tahun

Cop rasmi:

Masa dan Kerjasama anda amat dihargai.
Terima kasih.

Yang benar,
Joharri Shuhaimi
PhD candidate,
School of Education (SoE), College of Arts and Sciences (CAS),
University Utara Malaysia (UUM), 06010 Sintok, Kedah, Malaysia.
013-9223139, hlpjoe22@gmail.com

Universiti Utara Malaysia

SCHOOL OF EDUCATION
Pusat Pengajian Pendidikan
UNIVERSITI UTARA MALAYSIA

AKUAN MENYEMAK KESAHAN KANDUNGAN INSTRUMEN SOAL SELIDIK

Adalah saya _____ dengan ini mengaku telah menyemak dan membuat kesahan kandungan instrumen soal selidik yang akan dilaksanakan oleh Joharri bin Shuhaimi (907140) pelajar kedoktoran Pusat Pengajian Pendidikan, Universiti Utara Malaysia.

Hasil semakan yang telah saya laksanakan mendapati

_____
_____
_____
_____
_____
_____
_____
_____

Sekian, terima kasih.

Yang benar,

……

Cop rasmi: Tarikh:

Universiti Utara Malaysia

Appendix B: Final Questionnaire

No. soal selidik:…….....
Tarikh:…….
Nama Sekolah:……

Pusat Pengajian Pendidikan
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Tajuk kajian: Model Kesediaan Guru Mengadaptasi Teknologi Blockchain dalam Pengurusan Pentaksiran

Assalamualaikum dan Salam Sejahtera,

Terima kasih kerana menyertai tinjauan kami berkaitan penerapan teknologi blockchain dalam pentaksiran pendidikan. Anda akan menerima **sijil penghargaan** daripada ***Institute for Advanced and Smart Digital Opportunities*** **(IASDO) Universiti Utara Malaysia** atas penyertaan ini.

Borang soal selidik ini bertujuan untuk mengumpul maklum balas berhubung kesediaan guru dalam menerima dan mengaplikasikan sistem **Pengurusan Kertas Projek Berasaskan Teknologi Blockchain (BPPM)** dalam pengurusan pentaksiran pendidikan. Penilaian anda akan membantu kami memahami pandangan dan keperluan komuniti pendidikan terhadap penggunaan teknologi ini untuk meningkatkan kecekapan, kebolehpercayaan, dan integriti dalam sistem pentaksiran pendidikan.

Anda hanya perlu melakukan **tiga langkah** berikut untuk menyempurnakan tinjauan ini:

1. **Menonton Video BPPM** berdurasi 5 minit pada pautan di bawah (kod QR kiri) atau layari laman https://youtu.be/KHFXgnfFrtg
2. **Melengkapkan** borang soal selidik. Sebagai alternatif, anda juga boleh menjawab secara atas talian dengan mengimbas Kod QR di bawah (kanan) untuk pautan soal selidik online (google form), atau layari laman https://forms.gle/GFknjjWZiHnd7bgi8
3. **Sertakan alamat email** anda pada akhir soal selidik bagi tujuan edaran sijil penghargaan.

Pautan Video **Pautan Soal Selidik Online (google form)**

Sila ambil masa untuk berkongsi pandangan dan cadangan anda.

Terima kasih atas kerjasama anda.

Yang benar,
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Bahagian A

1. Adakah anda mempunyai pengalaman menggunakan teknologi blockchain?
   - ☐ Ya
   - ☐ Tidak

2. Adakah anda mempunyai pengalaman menggunakan perbankan internet?
   - ☐ Yes
   - ☐ No

3. Sejauhmanakah anda tahu tentang teknologi blockchain?
   - ☐ Sangat baik
   - ☐ Pengetahuan yang sederhana
   - ☐ Pengetahuan yang sedikit
   - ☐ Tidak pernah dengar mengenainya

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Bahagian B

Sila bulatkan nombor yang sesuai berdasarkan skala di bawah:

1 ----------7
Sangat tidak setuju **Sangat setuju**

1.0	**Kelebihan Relatif / *Relative Advantage***	**Tahap Persetujuan**
Berbanding dengan amalan pengurusan pentaksiran sekarang, saya percaya BPPM / *In comparison with the current practice of managing assessments, I believe that BPPM*		
1	boleh menjadikan data pentaksiran boleh diakses oleh sesiapa sahaja / *can make assessment data more accessible to anyone.*	1 2 3 4 5 6 7
2	boleh menjadikan data pentaksiran boleh diakses bila-bila masa / *can make assessment data more accessible anytime.*	1 2 3 4 5 6 7
3	boleh menyimpan data pentaksiran dalam pelbagai pengguna / *can store assessment data in multiple users.*	1 2 3 4 5 6 7

4	membolehkan semua data pentaksiran dapat dijejaki untuk **mengenal pasti** sumbernya / *allows all assessment data to be traced to **pinpoint** its source.*	1 2 3 4 5 6 7
5	membolehkan semua data pentaksiran dapat dijejaki untuk **mengesahkan** sumbernya / *allows all assessment data to be traced to **verify** its source.*	1 2 3 4 5 6 7
6	dapat membolehkan saya **mengesan kemajuan** tugasan pelajar dalam masa nyata / *can provide real-time (instant) **tracking progress** over student's assignment.*	1 2 3 4 5 6 7
7	dapat memastikan data pentaksiran yang telah dihantar ke BPPM tidak boleh **diubah** / *can ensure assessment data submitted to BPPM cannot be **changed**.*	1 2 3 4 5 6 7
8	dapat memastikan data pentaksiran yang telah dihantar ke BPPM tidak boleh **dipalsukan** / *can ensure assessment data submitted to BPPM cannot be **tempered**.*	1 2 3 4 5 6 7
9	dapat memastikan data pentaksiran yang telah dihantar ke BPPM tidak boleh **dipadam** / *can ensure assessment data submitted to BPPM cannot be **deleted**.*	1 2 3 4 5 6 7

2.0 Keseragaman / Compatibility		**Tahap Persetujuan**
Saya percaya BPPM / *I believe that BPPM*		
1	sesuai dengan **keperluan** pengurusan pentaksiran sekarang / *is compatible with the current assessment management requirements.*	1 2 3 4 5 6 7
2	sesuai dengan **amalan** pengurusan pentaksiran sedia ada / *fits with the school's existing **practice** of managing students' assessment.*	1 2 3 4 5 6 7
3	sesuai dengan **keperluan tugasan** saya dalam menguruskan pentaksiran pelajar / *fits well with my task of assessment **management needs**.*	1 2 3 4 5 6 7
4	sesuai dengan **tingkah laku** saya dalam menguruskan pentaksiran pelajar / *fits into my **behavior** in managing students' assessment.*	1 2 3 4 5 6 7
5	sesuai dengan **proses** pengurusan pentaksiran pelajar / *compatible with assessment management **processes**.*	1 2 3 4 5 6 7
6	adalah **pelengkap** kepada ilmu pengetahuan saya dalam pengurusan pentaksiran kerja kursus / ***complements** my knowledge in managing students' assessment.*	1 2 3 4 5 6 7

3.0 Kerumitan Teknologi / Technological Complexity		**Tahap Persetujuan**
Saya percaya / *I believe*		
1	saya tidak berhadapan kesukaran **menggunakan** menu BPPM semasa melakukan kerja-kerja pentaksiran / *I have no difficulty using the BPPM menus to perform assessment tasks.*	1 2 3 4 5 6 7
2	saya tidak ada kesukaran **bekerja** dengan BPPM / *I have no difficulty **working** with the BPPM.*	1 2 3 4 5 6 7
3	sistem automasi dalam BPPM **difahami** dengan baik / *I believe automation system in BPPM is well **understood**.*	1 2 3 4 5 6 7

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4	Platform BPPM **mudah digunakan** / *I find it **easy to use** BPPM platform.*	1	2	3	4	5	6	7
5	saya boleh berinteraksi dengan platform BPPM tanpa perlu banyak **bebankan fikiran** / *I can interact with the BPPM platform without much mental effort.*	1	2	3	4	5	6	7
6	platform BPPM mempunyai ciri-ciri fleksibel / *I believe that BPPM platform have flexible feature.*	1	2	3	4	5	6	7

4.0 Tanggapan Kebergunaan / Perceived Usefulness		**Tahap Persetujuan**						
Saya percaya BPPM / *I believe BPPM*								
1	dapat membantu saya menyiapkan tugas pengurusan pentaksiran saya dengan **cepat** / *would enable me to accomplish my assessment management tasks more **quickly**.*	1	2	3	4	5	6	7
2	dapat meningkatkan **prestasi** kerja pengurusan pentaksiran saya / *would improve my **performance** in assessment management tasks.*	1	2	3	4	5	6	7
3	dapat meningkatkan **produktiviti** saya dalam kerja pengurusan pentaksiran / *would increase my **productivity** in assessment management tasks.*	1	2	3	4	5	6	7
4	dapat meningkatkan **kecekapan** kerja pengurusan pentaksiran saya / *would enhance my **effectiveness** on the assessment management tasks.*	1	2	3	4	5	6	7
5	dapat **memudahkan** kerja pengurusan pentaksiran saya / *make it **easier** to do my assessment management tasks.*	1	2	3	4	5	6	7
6	**berguna** dalam kerja pengurusan pentaksiran saya / ***useful** in my assessment management tasks.*	1	2	3	4	5	6	7

5.0 Tanggapan Mudah Belajar / Perceived Ease of Learning		**Tahap Persetujuan**						
Saya percaya bahawa / *I believe that*								
1	saya boleh menjadi mahir dengan cepat dalam mempelajari BPPM / *I can quickly become skillful in learning BPPM.*	1	2	3	4	5	6	7
2	saya boleh mempelajari BPPM dengan mudah / *I can easily learn BPPM.*	1	2	3	4	5	6	7
3	saya dapat belajar menggunakan BPPM dengan cepat / *I can learn to use BPPM quickly.*	1	2	3	4	5	6	7
4	saya dapat mengingat cara menggunakan BPPM dengan mudah / *I can easily remember how to use BPPM.*	1	2	3	4	5	6	7
5	mempelajari menggunakan BPPM adalah sangat mudah / *learning to use BPPM is very easy.*	1	2	3	4	5	6	7
6	saya akan dengan cepat mahir menggunakan BPPM / *I will quickly become skilled with BPPM.*	1	2	3	4	5	6	7

6.0 Kepercayaan Awal / Initial Trust		**Tahap Persetujuan**						
Saya percaya BPPM / *I believe BPPM*								
1	boleh dipercayai / *is trustworthy.*	1	2	3	4	5	6	7

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2	dapat menyediakan perkhidmatan yang tepat / *could provide an accurate service*.	1	2	3	4	5	6	7
3	dapat menyediakan perkhidmatan yang selamat / *could provide a safe service.*	1	2	3	4	5	6	7
4	dapat menyediakan perkhidmatan yang selesa / *could provide a convenient service*.	1	2	3	4	5	6	7
5	dapat menjalankan peranan pengurusan pentaksiran dengan baik / *performs well in its role of managing assessment.*	1	2	3	4	5	6	7
6	dapat menambahkan kepercayaan pemegang taruh dalam pentaksiran pendidikan / *can increase trust among stakeholders in educational assessment.*	1	2	3	4	5	6	7

7.0 Beban Kerja / Workload		**Tahap Persetujuan**						
1	Rentak tugas dalam pekerjaan saya adalah terlalu pantas / *The pace in my job is too fast.*	1	2	3	4	5	6	7
2	Pekerjaan saya adalah terlalu mendesak / *My job is too demanding.*	1	2	3	4	5	6	7
3	Pekerjaan saya adalah sangat sibuk / *My job is very hectic.*	1	2	3	4	5	6	7
4	Saya mempunyai terlalu banyak tugas yang perlu dibuat dalam pekerjaan / *I have too much work to do on the job.*	1	2	3	4	5	6	7
5	Saya perlu banyak mengawal emosi dalam pekerjaan saya / *My job requires me to control my emotions extensively.*	1	2	3	4	5	6	7
6	Saya perlu banyak memantau prestasi dalam pekerjaan saya / *My job requires me to monitor performance excessively.*	1	2	3	4	5	6	7
7	Saya memerlukan banyak aktiviti koordinasi dalam melaksanakan pekerjaan saya / *My job requires me to do a high amount of coordination activity.*	1	2	3	4	5	6	7
8	Pekerjaan saya kadang-kadang menyakitkan hati / *My job is sometimes annoying.*	1	2	3	4	5	6	7

8.0 Kesediaan BPPM / BPPM Readiness		**Tahap Persetujuan**						
1	Saya bersedia menggunakan BPPM dalam pengurusan pentaksiran / *I am ready to use BPPM in assessment management.*	1	2	3	4	5	6	7
2	Saya akan menggunakan BPPM dalam pengurusan pentaksiran bila ia dilancarkan secara formal / *I would use BPPM in assessment management when it is officially launched.*	1	2	3	4	5	6	7
3	Saya akan memasang platform BPPM dalam telefon saya bila ia dilancarkan secara formal / *I will install the BPPM platform in my phone once it is officially lunched.*	1	2	3	4	5	6	7
4	Saya akan mengesyorkan penggunaan BPPM kepada rakan-rakan lain bila ia dilancarkan secara formal / *I will recommend others to use BPPM once it is officially launched.*	1	2	3	4	5	6	7
5	Saya menjangkakan bahawa Kementerian Pendidikan akan menggunakan BPPM pada masa akan datang / *I expect that the Ministry of Education will use BPPM in the future.*	1	2	3	4	5	6	7
6	Saya merasakan bahawa Kementerian Pendidikan akan mendapat kebaikan daripada penggunaan BPPM / *I think that the Ministry of Education will benefit from the use of BPPM*.	1	2	3	4	5	6	7

Bahagian C

Sila tandakan (/) pada ruangan yang disediakan bagi mewakili diri anda.

1 Jantina:

☐ Lelaki
☐ Perempuan

2 Umur: ……. tahun

3 Latar belakang pendidikan tertinggi:

☐ Diploma
☐ Ijazah sarjana muda
☐ Ijazah sarjana
☐ PhD/EdD

4 Pengalaman mengajar: …….. tahun

5 Subjek mengajar: ……

6 Lokasi sekolah:

☐ Bandar
☐ Luar Bandar

7 Pejabat Pendidikan Daerah:……...

7 Negeri: ……

8 Alamat e-mail: …… (untuk tujuan edaran sijil penghargaan)

- Soalan Soal Selidik Tamat –

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Appendix C: The Analysis of Instrument's Content Validity using Content Validity Index (CVI)

1. **Relative Advantage**

Items:

1TRP	-	I believe that BPPM can make assessment data more easily accessible compared to the current practice.
2TRP	-	I believe that BPPM can make assessment data more accessible to anyone compared to the current practice.
3TRP	-	I believe that BPPM can make assessment data more accessible anytime compared to the current practice.
4TRP	-	I believe that BPPM can store assessment data in multiple users compared to the current practice.
5TRP	-	I believe that adopting BPPM can increase transparency in student coursework management compared to the current practice.
6TRC	-	I believe that BPPM allows all coursework assessments data to be traced back to its source.
7TRC	-	I believe that BPPM allows all coursework assessment data to be traced to determine its source.
8TRC	-	I believe that BPPM allows all coursework assessment data to be traced to pinpoint its source.
9TRC	-	I believe that BPPM allows all coursework assessment data to be traced to verify its source.
10TRC	-	I believe that BPPM can provide real-time (instant) tracking progress over student coursework compared to the current practice.
11TRC	-	I believe that adopting BPPM can enhance the traceability of students' coursework progress compared to the current practice.
12IMU	-	I believe that coursework data submitted to BPPM cannot be changed compared to the current practice.
13IMU	-	I believe that coursework data submitted to BPPM cannot be tempered compared to the current practice.
14IMU	-	I believe that coursework data submitted to BPPM cannot be manipulated compared to the current practice.
15IMU	-	I believe that coursework data submitted to BPPM cannot be deleted compared to the current practice.
16IMU	-	I think the BPPM has sufficient technical capacity to ensure that the coursework details cannot be easily modified by the user compared to the current practice.

17IMU - I think the BPPM has sufficient technical capacity to ensure that the coursework details cannot be easily modified by any other user compared to the current practice.

18IMU - I think the BPPM has sufficient technical capacity to ensure that the coursework details cannot be easily modified by a third party compared to the current practice.

No	Item	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Total agreement	i-CVI	Action
1	1TRP	4	2	1	3	4	3	3	5	0.71	Delete
2	2TRP	4	4	4	3	4	4	3	7	1.00	Retain
3	3TRP	4	4	4	3	4	3	3	7	1.00	Retain
4	4TRP	4	4	1	3	4	4	3	6	0.86	Retain
5	5TRP	2	4	4	3	2	4	2	4	0.57	Delete
6	6TRC	3	2	2	3	4	4	3	5	0.71	Delete
7	7TRC	4	4	4	2	3	2	3	5	0.71	Delete
8	8TRC	3	4	2	3	4	4	3	6	0.86	Retain
9	9TRC	2	4	4	3	4	4	3	6	0.86	Retain
10	10TRC	4	4	4	3	4	4	3	7	1.00	Retain
11	11TRC	2	2	4	3	4	3	3	5	0.71	Delete
12	12IMU	4	4	4	3	4	4	3	7	1.00	Retain
13	13IMU	4	4	4	3	4	3	3	7	1.00	Retain
14	14IMU	4	4	3	3	4	4	3	7	1.00	Retain
15	15IMU	2	2	4	3	4	4	3	5	0.71	Delete
16	16IMU	1	2	4	3	4	4	2	4	0.57	Delete
17	17IMU	4	3	1	3	3	2	3	5	0.71	Delete
18	18IMU	3	2	2	3	4	4	3	5	0.71	Delete
									s-CVI/Ave	0.82	**PASS**

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2. Compatibility

Items:

1COM	-	I believe that BPPM is compatible with the current coursework assessment system.
2COM	-	I believe that BPPM is compatible for students' coursework management at my school.
3COM	-	I believe that BPPM is compatible with the current coursework assessment model.
4COM	-	I believe that BPPM is compatible with the current coursework assessment management requirements.
5COM	-	I believe that BPPM fits with the school's existing practice of managing students' coursework.
6COM	-	I believe that using BPPM fits well with my task of coursework management needs.
7COM	-	I believe that the use of BPPM fits into my behavior in managing students' coursework.
8COM	-	I believe that BPPM is compatible with coursework management processes.
9COM	-	I believe that BPPM complements my knowledge in managing students' coursework.
10COM	-	I believe if we adopt BPPM into coursework management, it would be compatible with the current assessment management system.
11COM	-	I believe if we adopt BPPM into coursework management, it would be compatible with the current assessment management processes.
12COM	-	I believe if we adopt BPPM into coursework management, it would be compatible with the current assessment management databases.

No	Item	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Total agreement	i-CVI	Action
1	1COM	4	4	2	4	2	4	4	5	0.71	Delete
2	2COM	4	4	2	4	2	4	4	5	0.71	Delete
3	3COM	4	4	4	2	2	4	4	5	0.71	Delete
4	4COM	4	4	4	3	2	4	4	6	0.86	Retain
5	5COM	4	4	4	3	3	4	4	7	1.00	Retain
6	6COM	4	4	4	3	3	4	4	7	1.00	Retain

7	7COM	4	4	4	4	3	4	4	7	1.00	Retain
8	8COM	4	4	4	3	3	4	4	7	1.00	Retain
9	9COM	4	4	4	4	2	4	4	6	0.86	Retain
10	10COM	4	4	1	4	2	2	4	4	0.57	Delete
11	11COM	4	4	1	4	2	2	4	4	0.57	Delete
12	12COM	4	4	4	4	2	2	4	5	0.71	Delete
									s-CVI/Ave	0.81	**PASS**

3. Technological complexity

Items:

1CPX - I believe I have no difficulty using the BPPM menus to check coursework.
2CPX - I believe I have no difficulty working with the BPPM.
3CPX - I believe I have no difficulty importing and exporting coursework data from other systems.
4CPX - I believe the BPPM access application to manage coursework is well understood.
5CPX - I believe Operational System (Automation) in BPPM is well understood.
6CPX - I believe I find it easy to use BPPM applications.
7CPX - I believe I find it easy to use operational facilities and equipment (automation) at BPPM.
8CPX - I believe that I can interact with the BPPM platform without much mental effort.
9CPX - I believe that BPPM platform does not require much time to learn.
10CPX - I believe that BPPM platform have flexible features.

No	Item	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Total agreement	i-CVI	Action
1	1CPX	4	4	4	4	3	4	4	7	1.00	Retain
2	2CPX	4	4	4	4	3	4	4	7	1.00	Retain
3	3CPX	1	3	4	4	2	4	4	5	0.71	Delete

4	4CPX	2	3	2	4	3	4	4	5	0.71	Delete
5	5CPX	4	4	4	4	1	4	4	6	0.86	Retain
6	6CPX	4	4	4	4	1	4	4	6	0.86	Retain
7	7CPX	1	4	4	3	1	3	4	5	0.71	Delete
8	8CPX	4	4	4	4	1	4	4	6	0.86	Retain
9	9CPX	4	4	4	3	1	3	4	6	0.86	Retain
10	10CPX	3	2	4	3	1	3	3	5	0.71	Delete
									s-CVI/Ave	0.83	**PASS**

4. Perceived Usefulness

Items:

1PU - I believe that using BPPM in my assessment task would enable me to accomplish tasks more quickly.
2PU - I believe that using BPPM would improve my performance in assessment tasks.
3PU - I believe that using BPPM would increase my productivity in assessment tasks.
4PU - I believe that using BPPM would enhance my effectiveness on the assessment tasks.
5PU - I believe that using BPPM would make it easier to do my assessment tasks.
6PU - I believe that I would find BPPM useful in my assessment tasks.
7PU - I believe that using the BPPM would give me greater control over my interaction with students.
8PU - I believe that BPPM can provide real-time (instant) status over students' coursework.
9PU - I believe that BPPM can help quickly complete the coursework management task.
10PU - I believe that BPPM can enhance the efficiency of coursework management activity.
11PU - I believe that BPPM is helpful in managing students' coursework.

No	Item	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Total agreement	i-CVI	Action
1	1PU	4	4	4	4	3	4	4	7	1.00	Retain
2	2PU	4	4	4	4	3	4	4	7	1.00	Retain
3	3PU	4	4	4	4	3	4	4	7	1.00	Retain
4	4PU	4	4	4	4	3	4	4	7	1.00	Retain
5	5PU	4	4	4	4	3	4	4	7	1.00	Retain
6	6PU	4	4	4	4	3	4	4	7	1.00	Retain
7	7PU	3	3	3	2	3	2	4	5	0.71	Delete
8	8PU	3	3	2	3	3	3	2	5	0.71	Delete
9	9PU	3	3	2	3	3	3	2	5	0.71	Delete
10	10PU	3	2	4	4	2	4	4	5	0.71	Delete
11	11PU	2	4	4	4	2	4	4	5	0.71	Delete
									s-CVI/Ave	0.81	**PASS**

5. Perceived Ease of Learning

Items:

1EL - I believe that learning to use BPPM platform is easy.
2EL - I believe that learning to access BPPM platform is easy.
3EL - I believe that learning to use BPPM is convenient.
4EL - I believe the BPPM is easy to understand.
5EL - I believe that learning to operate the BPPM is easy for form six teachers.
6EL - I believe that my interaction with BPPM is clear.
7EL - I believe that my interaction with BPPM is understandable.
8EL - I believe that interacting with BPPM does not require a lot of mental effort.
9EL I believe that it is easy to get BPPM to do what I want it to do.

No	Item	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Total agreement	i-CVI	Action
1	1EL	4	3	4	4	2	4	4	6	0.86	Retain
2	2EL	4	3	4	4	3	4	4	7	1.00	Retain
3	3EL	2	3	4	4	2	4	4	5	0.71	Delete
4	4EL	4	4	4	2	2	4	4	5	0.71	Delete
5	5EL	4	4	4	4	2	4	4	6	0.86	Retain
6	6EL	3	4	3	2	3	3	3	6	0.86	Retain
7	7EL	4	4	4	4	3	4	4	7	1.00	Retain
8	8EL	4	4	3	4	4	4	4	7	1.00	Retain
9	9EL	2	4	4	3	2	3	4	5	0.71	Delete
									s-CVI/Ave	0.86	**PASS**

6. Initial trust

Items:

1INT - I believe the BPPM is trustworthy.
2INT - I believe BPPM could provide an accurate service.
3INT - I believe BPPM could provide a reliable service.
4INT - I believe BPPM could provide a safe service.
5INT - I believe BPPM could provide a convenient service.
6INT - I believe BPPM is a very reliable piece of software to manage coursework data.
7INT - I believe BPPM is extremely dependable to manage coursework data.
8INT - I believe BPPM does not malfunction for me.
9INT - I believe BPPM is competent and effective in managing coursework.
10INT - I believe BPPM performs its role of managing coursework very well.
11INT - Overall, I believe BPPM is a capable and proficient service for managing coursework.
12INT - I believe that BPPM can increase trust among stakeholders in educational assessment.

No	Item	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Total agreement	i-CVI	Action
1	1INT	4	4	4	4	3	4	4	7	1.00	Retain
2	2INT	4	4	4	4	3	4	4	7	1.00	Retain
3	3INT	3	2	2	3	3	3	3	5	0.71	Delete
4	4INT	4	4	4	4	3	4	4	7	1.00	Retain
5	5INT	2	4	4	4	3	4	4	6	0.86	Retain
6	6INT	2	4	4	3	2	3	4	5	0.71	Delete
7	7INT	3	3	2	3	3	3	2	5	0.71	Delete
8	8INT	2	4	4	3	1	4	4	5	0.71	Delete
9	9INT	2	4	4	4	2	4	4	5	0.71	Delete
10	10INT	3	4	4	4	3	4	4	7	1.00	Retain
11	11INT	2	4	4	4	2	4	4	5	0.71	Delete
12	12INT	4	4	4	3	3	3	4	7	1.00	Retain
									s-CVI/Ave	0.85	**PASS**

7. Workload

Items:

1WL - The pace in my job is too fast.
2WL - My job is too demanding.
3WL - My job is very hectic.
4WL - I have too much work to do on the job.
5WL - I will have to learn new coursework management strategies in order to use BPPM.
6WL - The use of BPPM will increase my workload.
7WL - My job requires me to control my emotions extensively.
8WL - My job requires me to monitor performance excessively.
9WL - My job requires me to have a high amount of communication activity.

10WL - My job requires me to do a high amount of coordination activity.
11WL - My job is sometimes annoying.
12WL - My job is emotionally demanding.

No	Item	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Total agreement	i-CVI	Action
1	1WL	4	4	4	4	2	4	4	6	0.86	Retain
2	2WL	4	4	4	3	3	2	4	6	0.86	Retain
3	3WL	4	4	4	4	3	4	4	7	1.00	Retain
4	4WL	4	4	4	4	3	4	4	7	1.00	Retain
5	5WL	2	4	4	4	2	3	4	5	0.71	Delete
6	6WL	2	3	3	2	3	4	4	5	0.71	Delete
7	7WL	3	4	4	3	3	3	4	7	1.00	Retain
8	8WL	3	2	4	4	3	4	3	6	0.86	Retain
9	9WL	3	4	4	2	3	4	2	5	0.71	Delete
10	10WL	2	4	4	4	3	4	4	6	0.86	Retain
11	11WL	4	4	4	4	3	4	4	7	1.00	Retain
12	12WL	3	4	3	4	2	3	2	5	0.71	Delete
									s-CVI/Ave	0.86	**PASS**

8. BPPM readiness

Items:

1RD - I am ready to use BPPM in form 6 coursework management.
2RD - I would use BPPM in form 6 coursework management when it is officially launched.
3RD - I will install the BPPM apps in my phone once it is officially launched.
4RD - I will recommend others to use BPPM once it is officially launched.

5RD - I expect that the Ministry of Education will use BPPM in the future.
6RD - I assume that the Ministry of Education will use BPPM to enhance coursework management practices.
7RD - I think that the Ministry of Education will benefit from the use of BPPM.

No	Item	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6	Expert 7	Total agreement	i-CVI	Action
1	1RD	4	4	4	4	3	4	4	7	1.00	Retain
2	2RD	4	4	4	4	3	4	4	7	1.00	Retain
3	3RD	4	4	4	4	3	4	4	7	1.00	Retain
4	4RD	4	4	4	4	3	4	4	7	1.00	Retain
5	5RD	3	4	4	4	3	4	4	7	1.00	Retain
6	6RD	3	4	4	2	3	4	2	5	0.71	Delete
7	7RD	4	4	4	4	3	4	4	7	1.00	Retain
									s-CVI/Ave	0.96	**PASS**

Note:
Cut Off Point for i-CVI = 0.78 (Lynn, 1986), Cut Off Point for s-CVI/Ave = 0.80 (Davis, 1992)

Universiti Utara Malaysia

Appendix D: Analysis of Content Validity Index

Construct	Initial Items	Removed Items	Retained Items	s-CVI/Ave
Relative advantage	18	9 [1TRP, 5TRP, 6TRC, 7TRP, 11TRC, 15IMU, 16IMU, 17IMU, 18IMU]	9	0.82
Compatibility	12	6 [1COM, 2COM, 3COM, 10COM, 11COM, 12COM]	6	0.81
Technological complexity	10	4 [3CPX, 4CPX, 7CPX, 10CPX]	6	0.83
Perceived usefulness	11	5 [7PU, 8PU, 9PU, 10PU, 11PU]	6	0.81
Perceived Ease of Learning	8	2 [3EL, 4EL]	6	0.86
Initial trust	12	6 [3INT, 6INT, 7INT, 8INT, 9INT, 11INT]	6	0.85
Workload	12	4 [5WL, 6WL, 9WL, 12WL]	8	0.86
Readiness	7	1 [6RD]	6	0.96

Universiti Utara Malaysia

Appendix E: Approval from the Educational Planning and Research Division

KEMENTERIAN PENDIDIKAN MALAYSIA
BAHAGIAN PERANCANGAN DAN PENYELIDIKAN DASAR PENDIDIKAN
ARAS 1-4, BLOK E8
KOMPLEKS KERAJAAN PARCEL E
PUSAT PENTADBIRAN KERAJAAN PERSEKUTUAN
62604 PUTRAJAYA

TEL : 0388846591
FAKS : 0388846579

Ruj. Kami : KPM.600-3/2/3-eras(19109)
Tarikh : 29 Januari 2024

JOHARRI BIN SHUHAIMI
NO. KP : 831222035389

A1-3-3 THE QUINTET
TANAH RATA 39000 C HIGHLANDS
PAHANG

Tuan,

KELULUSAN BERSYARAT UNTUK MENJALANKAN KAJIAN :
FORM SIX TEACHERS' READINESS MODEL TO ADOPT BLOCKCHAIN TECHNOLOGY IN PROJECT PAPER MANAGEMENT

Perkara di atas adalah dirujuk.

2. Sukacita dimaklumkan bahawa permohonan tuan untuk menjalankan kajian seperti di bawah telah diluluskan dengan syarat :

" PENGUTIPAN DATA TERMASUK SECARA DALAM TALIAN (CONTOH: GOOGLE FORM) PERLU MENDAPATKAN KEBENARAN PENGARAH BAHAGIAN PENGURURSAN SEKOLAH HARIAN, PENGARAH JPN DAN PERTIMBANGAN PENTADBIR SEKOLAH. "

3. Kelulusan adalah berdasarkan kepada kertas cadangan penyelidikan dan instrumen kajian yang dikemukakan oleh tuan kepada bahagian ini. Walau bagaimanapun kelulusan ini bergantung kepada kebenaran Jabatan Pendidikan Negeri dan Pengetua / Guru Besar yang berkenaan.

4. Surat kelulusan ini sah digunakan bermula dari **1 Mac 2024** hingga **31 Julai 2024**

5. Tuan dikehendaki menyerahkan senaskhah laporan akhir kajian dalam bentuk *hardcopy* bersama salinan *softcopy* berformat pdf dalam CD kepada Bahagian ini.Tuan juga diingatkan supaya mendapat kebenaran terlebih dahulu daripada Bahagian ini sekiranya sebahagian atau sepenuhnya dapatan kajian tersebut hendak diterbitkan di mana-mana forum, seminar atau diumumkan kepada media massa.

Sekian untuk makluman dan tindakan tuan selanjutnya. Terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

Ketua Penolong Pengarah Kanan
Sektor Penyelidikan dan Penilaian Dasar
b.p. Pengarah
Bahagian Perancangan dan Penyelidikan Dasar Pendidikan
Kementerian Pendidikan Malaysia

salinan kepada:-

BAHAGIAN PENGURUSAN SEKOLAH HARIAN
JABATAN PENDIDIKAN JOHOR
JABATAN PENDIDIKAN KEDAH
JABATAN PENDIDIKAN KELANTAN
JABATAN PENDIDIKAN MELAKA
JABATAN PENDIDIKAN NEGERI SEMBILAN
JABATAN PENDIDIKAN PAHANG

Universiti Utara Malaysia

JABATAN PENDIDIKAN PULAU PINANG
JABATAN PENDIDIKAN PERAK
JABATAN PENDIDIKAN PERLIS
JABATAN PENDIDIKAN SELANGOR
JABATAN PENDIDIKAN TERENGGANU
JABATAN PENDIDIKAN WILAYAH PERSEKUTUAN KUALA LUMPUR
JABATAN PENDIDIKAN WILAYAH PERSEKUTUAN PUTRAJAYA

* SURAT INI DIJANA OLEH KOMPUTER DAN TIADA TANDATANGAN DIPERLUKAN *

Universiti Utara Malaysia

Appendix F: Approval from the State Education Department

KEMENTERIAN PENDIDIKAN MALAYSIA
Jabatan Pendidikan Negeri Pahang
Bandar Indera Mahkota
25604 Kuantan
Pahang Darul Makmur

Tel : 09-5715700
Faks : 09-5734857
Laman Web : jpnpahang.moe.gov.my

Rujukan Kami :JPNP.SPS.600.1Jld.7 (31)
Tarikh : 22 Mac 2024
Ramadan 1445H

JOHARRI BIN SHUHAIMI
No. KP : 831222035389
A1-3-3, The Quintet,
Tanah Rata,
39000 CAMERON HIGHLANDS
PAHANG

Tuan,

KELULUSAN BERSYARAT UNTUK MENJALANKAN KAJIAN :
FORM SIX TEACHERS' READINESS MODEL TO ADOPT BLOCKCHAIN TECHNOLOGY IN PROJECT PAPER MANAGEMENT

Dengan segala hormatnya, perkara di atas dirujuk.

2. Sehubungan dengan itu, pihak Jabatan Pendidikan Negeri Pahang tiada halangan untuk memberikan kelulusan menjalankan kajian dengan syarat:

" PENGUTIPAN DATA TERMASUK SECARA DALAM TALIAN (CONTOH: GOOGLE FORM) PERLU MENDAPATKAN KEBENARAN PENGARAH BAHAGIAN PENGURUSAN SEKOLAH HARIAN DAN PERTIMBANGAN PENTADBIR SEKOLAH"

3. Kelulusan ini hanya untuk tujuan dan tempat kajian yang dipohon sahaja dan sah digunakan bermula dari **1 Mac 2024 hingga 31 Julai 2024.** Tuan boleh terus membuat perbincangan dengan pihak sekolah yang terlibat dalam pelaksanaan kajian ini.

4. ' Pihak tuan juga dimohon supaya memastikan SOP yang dikeluarkan oleh Majlis Keselamatan Negara, Kementerian Kesihatan Malaysia dan Kementerian Pendidikan Malaysia yang berkuat kuasa dari semasa ke semasa dipatuhi sepanjang masa kajian dijalankan. Pihak jabatan menyarankan agar aspek keselamatan dan kesihatan diberi keutamaan pada setiap masa.

Segala kerjasama dan perhatian pihak tuan berhubung perkara ini amatlah dihargai.

Sekian, terima kasih.

"MALAYSIA MADANI"
"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

(AMZAN BIN ABD MALEK)
Pengarah Pendidikan
merangkap Pendaftar Institusi Pendidikan dan Guru
Jabatan Pendidikan Negeri Pahang

KEMENTERIAN PENDIDIKAN MALAYSIA
Jabatan Pendidikan Negeri Pulau Pinang
Jalan Bukit Gambir
11700 Pulau Pinang

Tel. : 04- 657 5500
Faks : 04- 658 2500
Laman Web : http://www.jpnpenang.edu.my

Ruj. Kami: JPNPP.100-12/2/1 Jld.9 (92)
Tarikh: 05 April 2024

Joharri bin Shuhaimi
A1-3-3 The Quintet,
39000 Tanah Rata,
Cameron Highlands, Pahang.

Tuan,

KEBENARAN MENJALANKAN KAJIAN DI SEKOLAH-SEKOLAH DAN KOLEJ-KOLEJ TINGKATAN ENAM NEGERI PULAU PINANG

Dengan segala hormatnya saya merujuk surat tuan mengenai perkara di atas.

2. Surat **Kelulusan Bersyarat Untuk Menjalankan Kajian: *Form Six Teachers' Readiness Model to Adopt Blockchain Technology in Project Paper Management*** daripada Bahagian Perancangan Dan Penyelidikan Dasar Pendidikan, Kementerian Pendidikan Malaysia, No. Ruj.: KPM.600-3/2/3-eras(19109) bertarikh 29 Januari 2024 adalah **dirujuk.**

3. Sukacita dimaklumkan bahawa Pihak Jabatan Pendidikan Negeri Pulau Pinang (JPNPP) **tiada halangan** untuk pihak tuan menghubungi sekolah-sekolah berkenaan mengenai kajian seperti di atas. Surat kebenaran ini **harus dibaca bersama** surat daripada Bahagian Perancangan Dan Penyelidikan Dasar Pendidikan, Kementerian Pendidikan Malaysia. Pihak tuan dibenarkan berurusan dengan **Pengetua / Guru Besar** sekolah berkenaan untuk mengadakan perbincangan bagi tujuan perkara di atas.

4. Walau bagaimanapun pihak tuan juga adalah tertakluk kepada syarat-syarat seperti berikut:

Universiti Utara Malaysia

4.1 **Mendapat kebenaran daripada Pengetua / Guru Besar sekolah berkenaan;**

4.2 Tidak mengganggu perjalanan pengajaran dan pembelajaran, peraturan dan disiplin sekolah;

4.3 Pengutipan data / maklumat secara dalam talian dan segala data / maklumat yang dikumpul adalah untuk tujuan akademik sahaja;

4.4 Sekiranya laporan diterbitkan atau disiarkan dalam mana-mana platform media, bahan tersebut perlu mendapat persetujuan terlebih dahulu daripada pihak kementerian;

4.5 Penyertaan murid / guru adalah secara sukarela, tanpa sebarang unsur paksaan;

JPNPP.100-12/2/1 Jld. 9 (92)

4.6 Tiada implikasi kewangan kepada Jabatan Pendidikan Negeri, Pejabat Pendidikan Daerah dan sekolah-sekolah yang terlibat;

4.7 Menghantar satu salinan laporan kajian ke jabatan ini setelah selesai kajian;

4.8 Surat ini sah digunakan bermula dari **01 Mac 2024 hingga 31 Julai 2024; dan**

4.9 Kelulusan ini tertakluk kepada pematuhan peraturan semasa seperti dalam **Kenyataan Media Kementerian Pendidikan Malaysia pada 10 September 2022**

5. Pihak tuan diminta untuk **menghubungi Pengetua / Guru Besar sekolah** untuk membincangkan sebarang aktiviti berkaitan dengan kajian tersebut.

Sekian, terima kasih.

"MALAYSIA MADANI"

"BERKHIDMAT UNTUK NEGARA"

"PULAU PINANG PENERAJU TRANSFORMASI PENDIDIKAN NEGARA"

Universiti Utara Malaysia

Saya yang menjalankan amanah,

(HAJAH ZAINI BINTI SAHID)
Ketua Penolong Pengarah Kanan
Sektor Pengurusan Sekolah
b.p. Pengarah Pendidikan
Jabatan Pendidikan Negeri Pulau Pinang
Telefon: 04-652 1139
Emel: men@jpnpp.edu.my

s.k. 1. Fail berkenaan

KEMENTERIAN PENDIDIKAN MALAYSIA
Jabatan Pendidikan Negeri Perak
Jalan Tun Abdul Razak
30640 Ipoh, Perak Darul Ridzuan

Tel : 605 301 5000
Faks : 605 522 7273
Laman Web : http://jpnperak.moe.gov.my

"PENDIDIKAN BERKUALITI, SEKOLAH UNGGUL, MURID HOLISTIK"

Ruj. Kami : JPNPk.SPS.USJK.600-1/Jld.12(60)
Tarikh : 30 April 2024

Joharri bin Shuhaimi
A1-3-3 The Quintet
39000 Cameron Highlands, Pahang

Tuan,

KELULUSAN UNTUK MENJALANKAN KAJIAN DI SEKOLAH-SEKOLAH NEGERI PERAK DI BAWAH JABATAN PENDIDIKAN NEGERI PERAK

Dengan segala hormatnya, perkara di atas adalah dirujuk dan surat tuan yang diterima pada 29 April 2024 adalah berkaitan.

2. Sehubungan dengan itu, dimaklumkan bahawa Jabatan Pendidikan Negeri Perak tiada halangan untuk membenarkan pihak tuan menjalankan kajian yang bertajuk ***"FORM SIX TEACHERS READINESS MODEL TO ADOPT BLOCKCHAIN TECHNOLOGY IN PROJECT PAPER MANAGEMENT"*** seperti dinyatakan dalam surat tuan dengan syarat-syarat berikut:

2.1 pihak tuan perlu mendapatkan kebenaran terlebih dahulu daripada Pegawai Pendidikan Daerah dan Pengetua / Guru Besar sekolah sebelum melaksanakan kajian;

2.2 tidak digalakkan untuk melibatkan guru dan murid di kelas peperiksaan sebagai responden;

2.3 tidak mengganggu proses pengajaran dan pembelajaran murid kelas Peperiksaan semasa menjalankan pengutipan data;

2.4 objektif atau bidang kajian tidak bercanggah dengan dasar pendidikan;

2.5 kaedah penyelidikan mengikut peraturan dan pekeliling yang sedang berkuatkuasa; dan

2.6 penyelidikan mempunyai kepentingan kepada KPM.

KELULUSAN UNTUK MENJALANKAN KAJIAN DI SEKOLAH-SEKOLAH NEGERI PERAK DI BAWAH JABATAN PENDIDIKAN NEGERI PERAK

Ruj. Kami : JPNPk.SPS.USJK.600-1 Jld.12(60) Tarikh: 30 April 2024

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3. Sukacita juga diingatkan, sekiranya sebahagian atau sepenuhnya dapatan kajian tersebut hendak dibentangkan di mana-mana forum atau seminar atau diumumkan kepada media massa, pihak tuan perlu mendapatkan kebenaran terlebih dahulu daripada Bahagian Perancangan dan Penyelidikan Dasar Pendidikan, Kementerian Pendidikan Malaysia dan satu (1) salinan kepada Jabatan Pendidikan Negeri Perak.

4. Kebenaran ini adalah untuk tujuan yang dipohon dan melibatkan sekolah dalam daerah yang dinyatakan sahaja dan luput **selepas tarikh 31 JULAI 2024.**

Universiti Utara Malaysia

Sekian, terima kasih.

"MALAYSIA MADANI"

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

(SABARINA BINTI JAMALUDDIN)
Timbalan Pengarah
Sektor Pengurusan Sekolah
b.p Pengarah Pendidikan Negeri Perak

s.k : 1. Pegawai Pendidikan Daerah Negeri Perak

"PERAK SEJAHTERA 2030"

KEMENTERIAN PENDIDIKAN MALAYSIA
Jabatan Pendidikan Negeri Perlis
Jalan Tun Abdul Razak, 01990 Kangar
PERLIS

NO. TEL. PEJABAT : 04-9737777
PENGARAH : 04-9737644
NO. FAKS : 04-9767080
IPN CAWANGAN : 04-9767410
EMAIL : jpnperlis@moe.gov.my
LAMAN WEB : jpnperlis.moe.gov.my

Rujukan Tuan :
Rujukan Kami : JPNPs.100-12/1/1 JLD7(64)
Tarikh : **19** Mac 2024

Joharri bin Shuhaimi
A1-3-3 The Quintet, 39000 Tanah Rata,
Cameron Highlands,
PAHANG.

Tuan,

KELULUSAN BERSYARAT PERMOHONAN KEBENARAN UNTUK MENJALANKAN KAJIAN

Dengan segala hormatnya saya merujuk surat tuan bertarikh 26 March 2024 berkaitan perkara di atas.

2. Sukacita dimaklumkan bahawa, Jabatan Pendidikan Perlis tiada halangan untuk tuan menjalankan kajian bertajuk "**Form Six Teachers' Readiness Model to Adopt Blockchain Technology in Project Paper Management**" di negeri Perlis.

3. Kelulusan ini adalah berdasarkan kepada apa yang terkandung di dalam kertas cadangan yang tuan kemukakan ke Kementerian Pendidikan Malaysia dan kebenaran ini adalah tertakluk kepada persetujuan Pengarah JPN Perlis. Sila Patuhi kelulusan bersyarat seperti surat KPM.600-3/2/3-eras (19109) bertarikh 29 Januari 2024.

4. Sehubungan itu, tuan dikehendaki menyerahkan senaskah laporan akhir kajian dalam bentuk *softcopy* berformat pdf dalam CD kepada Jabatan Pendidikan Negeri Perlis. Selain itu, tuan diminta supaya mematuhi 'Standard Operating Procedure' (SOP) yang dikeluarkan oleh pihak MKN dan KKM berkaitan penularan penyakit Coronavirus 2019(Covid-19). Sebarang pertanyaan berkaitan perkara ini, sila hubungi **Puan Dhiya Liyana binti Yuzaidee Penolong Pengarah (Perancangan)** di talian **04-9737755.**

Sekian, terima kasih.

"PERLIS LeADS"

"MALAYSIA MADANI"

"BERKHIDMAT UNTUK NEGARA"

Saya yang menjalankan amanah,

(AHMAD SABRI BIN MOHAMAD)
b.p Pengarah Pendidikan Perlis
Jabatan Pendidikan Negeri Perlis

Universiti Utara Malaysia

KEMENTERIAN PENDIDIKAN
JABATAN PENDIDIKAN NEGERI KEDAH
KOMPLEKS PENDIDIKAN, JALAN STADIUM
05604 ALOR SETAR
KEDAH DARUL AMAN

Telefon 04-740 4000
Faks 04-740 4342
Laman Web https://jpnkedah.moe.gov.my

Ruj.Kami : JPNK.600-11/1/1 Jld.34( )
Tarikh : 31 Mac 2024

JOHARRI BIN SHUHAIMI
NO. KP: 831222035389

Tuan / Puan,

KEBENARAN UNTUK MENJALANKAN KAJIAN / PENYELIDIKAN DI SEKOLAH-SEKOLAH DI NEGERI KEDAH

Saya dengan hormatnya diarah merujuk kepada perkara tersebut di atas.

2. Dimaklumkan bahawa permohonan tuan / puan untuk menjalankan penyelidikan yang bertajuk **"FORM SIX TEACHERS' READINESS MODEL TO ADOPT BLOCKCHAIN TECHNOLOGY IN PROJECT PAPER MANAGEMENT" telah diluluskan.**

3. Sehubungan itu, pihak Jabatan Pendidikan Negeri Kedah **tiada halangan** pihak tuan untuk mengadakan kajian/penyelidikan di sekolah-sekolah di negeri Kedah. Pihak tuan adalah diminta berhubung dengan Pegawai Pendidikan Daerah dan Pengetua/Guru Besar sekolah-sekolah yang berkenaan. Pihak tuan juga dinasihatkan agar dapat mematuhi syarat-syarat seperti berikut:

Universiti Utara Malaysia

3.1 Mendapat persetujuan daripada Pegawai Pendidikan Daerah dan Pengetua sekolah berkenaan;

3.2 Surat kebenaran / kelulusan ini tidak boleh digunapakai bagi maksud untuk mendapat sumbangan dan tajaan daripada mana-mana pihak berkenaan;

3.3 Pihak tuan bertanggungjawab menjaga keselamatan dan kebajikan murid dan guru yang terlibat dengan program ini;

3.4 murid-murid, warga sekolah mahupun pihak sekolah sendiri tidak boleh dipaksa atau diwajibkan terlibat dengan kajian/penyelidikan ini;

3.5 Penyertaan murid-murid hendaklah mendapat kebenaran bertulis daripada ibu bapa atau penjaga;

3.6 Pihak tuan hendaklah menanggung semua kos kajian/penyelidikan pengangkutan, makan dan minum;

3.7 Tidak akan memberi **implikasi kewangan** kepada Pejabat Pendidikan Daerah, Jabatan Pendidikan Negeri Kedah dan Kementerian Pendidikan Malaysia;

JPNK.600-11/1/1 Jld.34( )

3.8 Jabatan ini berhak menarik balik surat kelulusan/kebenaran sekiranya pihak penganjur gagal mematuhi syarat dan peraturan yang ditetapkan atau bercanggah dengan dasar KPM yang sedang berkuatkuasa serta berkuatkuasa serta tidak mematuhi garis panduan KPM; dan

3.9 Digalakkan memakai pelitup muka pada setiap masa.

4. Kelulusan ini adalah berdasarkan kepada apa yang terkandung di dalam cadangan penyelidikan yang tuan / puan kemukakan ke Kementerian Pendidikan Malaysia. Tuan / puan dikehendaki **mengemukakan senaskah laporan akhir** setelah selesai kelak dan diingatkan supaya mendapat kebenaran terlebih dahulu daripada Jabatan ini sekiranya sebahagian atau sepenuhnya dapatan kajian tersebut hendak dibentangkan di mana-mana forum, seminar atau diumumkan kepada media.

5. Kebenaran ini adalah tertakluk kepada persetujuan Pengetua / Guru Besar sekolah berkenaan dan adalah **sah dari 1 Mac 2024 hingga 31 Julai 2024** sahaja.

Sekian, terima kasih.

"MALAYSIA MADANI"
"BERKHIDMAT UNTUK NEGARA"
"PENDIDIKAN CEMERLANG KEDAH TERBILANG"

Saya yang menjalankan amanah,

(SHAHRUL AMRI BIN SALLEH)
Penolong Pendaftar
Institusi Pendidikan dan Guru
Jabatan Pendidikan Negeri Kedah
b.p. Ketua Pendaftar Institusi Pendidikan dan Guru
Kementerian Pendidikan Malaysia

Universiti Utara Malaysia