MALAYSIAN SECONDARY SCHOOL TEACHERS' READINESS IN IMPLEMENTING 21ST CENTURY LEARNING (PAK21)

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ABSTRACT

21st Century Learning or *Pembelajaran Abad ke-21* (PAK21), refers to the MOE's initiative which champions a student-centred learning process that is steered by five main elements, which are communication, collaboration, critical thinking, creativity, and values and ethics (4C1V). PAK21 defines the pertinent knowledge, competency, and characteristics that students should embody to be competitively relevant and empowered to take on the challenges of 21st Century volatilities. PAK21, which was formulated in the second wave of Malaysia Education Blueprint 2013-2025, would generate more creative thinking processes and instil better human values, while preparing the students for the Industrial Revolution 4.0 (IR 4.0). Malaysian teachers should embrace the PAK21 to ensure the students are equipped with the right skills and values for the future. This paper shares some findings on Malaysia secondary school teachers' readiness in implementing PAK21. In specific, the characteristics as 21st century teachers were assessed as well as the level of teachers' readiness in implementing 21st century learning (PAK21). The analysis shows the mean of respondents' self-assessment as 21st century teacher (M=3.6170, SD=.56341) was slightly higher than the mean of respondents' self-assessment on teachers' readiness in implementing PAK21 (M=2.9813, SD=.31161). Analysis also indicates a significant positive strong relationship between the two assessments (r=.715, p<.01), and hence implies higher scores of respondents' assessment as 21st century teacher are associated with higher scores of respondents' assessment on teachers' readiness in implementing PAK21. Further survey on the professional development was also conducted to see the influences of these programs on teachers' readiness in implementing PAK21. The findings of this study serve to inform educational policy makers and stakeholders on secondary school teachers' readiness to PAK21 and how the current professional development influences their level of readiness.

Keywords: 21st Century Learning; PAK21; Teacher Readiness; Teacher Professional Development

INTRODUCTION

In the era of 21st century, the world has become more challenging and demanding. More intellectual, innovative and productive people are desired to face this changing world and global economy. The Ministry of Education of Malaysia has introduced a 21st Century Learning, or *Pembelajaran Abad ke-21* (PAK21) to prepare youth in this 21st century. It has initially transformed the Malaysia's education system for teachers and students to experience more creative thinking processes and encourage better human values. Therefore, PAK21 has offered three major skills, which are life and career skills, learning and innovation skills, and information, media and technology skills [1].

The achievement of PAK21 requires teachers' commitments in preparing students to master subject content, communication, collaboration, critical thinking, creativity, and technology literates. As stated by Batjo, and Ambotang [2], the student's receptions in classroom depend on the teacher's content deliveries. In classroom, teachers need to be exemplary which practice several roles to adapt students' differences [1]. Thus, teacher readiness and knowledge towards this PAK21 play important roles to ensure the three major skills stated in PAK21 are successfully delivered to students.

This paper shares some findings on 21st century teacher's characteristics and Malaysian secondary school teachers' readiness in implementing PAK21. This paper also discusses the impact and the need of teacher professional development towards the implementation of PAK21.

LITERATURE REVIEW

21st Century Learning (PAK21)

Teaching and learning in 21st century require a lot of adaptations between teachers and students. Over the years, several studies have been conducted to determine the appropriate changes that could be made to the education system as preparing both teachers and students for these 21st century learning skills. According to Ahmad et al. [3], education in 21st century learning focus on learning the skills rather than the ICT facilities content. Thus, it requires teacher's moderation in developing an easy learning environment that fosters high-quality learning.

Furthermore, the varieties of teaching and learning deliveries could reflect on the four elements of PAK21; communication, collaboration, critical thinking and creativity. Teacher's potential in creating effective learning skills such as brainstorming, role-play, games and other student-centered learning will develop creativity amongst students [4]. In addition, informative classroom environment

such as materials presentation, table and chair layouts, and other needs could also facilitate the implementations of PAK21 [5].

However, Yusof [5] were argued that PAK21 classroom environment is not necessarily to be an Information Technology equipped. PAK21 is a learning environment that enable to produce a disciplined student which promotes a communication, thinking skills and teamwork. On the other hands, Amran and Rosli [6] has listed teachers' requirement in knowledge and understanding of using technology in classroom: 1) availability of using internet in professional ways, 2) the understanding towards using technology in effective classroom, 3) knowledgeable in using classroom technology, 4) able to identify and develops technology skills amongst students and 5) responsibility in keeping the students' data confidential.

Thus, the 21st learning century or PAK21 is a learning environment, which contains a change of teaching, and learning skills that whichever suits the student needs. This learning environment should be supported by teacher's capability in delivering the subject content not merely by one-way communications but requires a diversity skill with or without technology equipment. Liew [1] believed that the continuous learning and professional development will prepare teachers as an agent of change in 21st century learning.

Teachers' preparations for PAK21

In an effort to prepare PAK21, teachers are the main sources of changes. The pedagogical knowledge in PAK21 skills and the delivery of subject content interactively plays important role in implementing PAK21. Rusdin [4] has identified several aspects on teachers' preparations in implementing PAK21 and found that teachers are ready to implement PAK21, but they have little understanding towards PAK21 skill that leads to difficulties in practising PAK21 in teaching deliveries. Thus, professional development is critically needed for teachers that enable to promote knowledge, teaching and assessment of 21st century learning.

In another way, Goh and Blake [7] previously agreed that to prepare teachers for this 21st century learning skills, several changes should be made to the education system such as 1) Curriculum that is grounded in the Malaysian context, 2) Improved practicum practice and 3) Developing and situating practices. In order to have this modification in our education system, the improvement must be made on these three contexts. Teachers should be contented with a standard development that allow them to provide a meaningful 21st learning experiences to students. In addition, Rusdin [4] also suggested that there should be a teaching module for teachers to foster the 4C 21st century learning skills.

METHODOLOGY

In this study, the survey research method was chosen as it was the most systematic and comprehensive way to obtain the personal opinions and perceptions of people. Quantitative data were collected to elicit responses to the research questions of this study.

Instrument

The questionnaire was divided into three sections. Section 1 required the demographic profiles of the respondents. The demographic profiles enlisted the respondents' gender, age, highest education, years of teaching and type of current school. Section 2 asked the respondents to do self-assessment on: (1) 21st Century Teacher's Characteristics, which consisted of six items and the respondents were asked to rate each item using 5-Likert scale: 1 for 'Very Low', 2 for 'Low', 3 for 'Medium', 4 for 'High' and 5 for 'Very High'; (2) 21st Century Learning Readiness, which consisted of 15 items and the respondents were asked to rate each item using 4-Likert scale: 1 for 'Strongly Disagree', 2 for 'Disagree', 3 for 'Agree' and 4 for 'Strongly Agree'. Section 3 sought to obtain the respondent feedback regarding 21st century professional development for teachers. This section consisted of three parts: (A) Participation in professional development; (B) Impact of the attended professional development activities; (C) Proposed professional development program. Items in Section 2 were adapted from the questionnaire developed by Ministry of Education Malaysia with reliability >.0.6 whereas item in Section 3 were adapted from Teaching and Learning International Survey (TALIS) Teacher questionnaire [8] developed by Organisation for Economic Co-operation and Development (OECD).

Sample of Study and Data Collection Method

The data were collected via google form, which were published to public in May 2019. The questionnaire took approximately 10-15 minutes to complete. A total of 57 teachers from different states in Malaysia participated in this survey.

Data Analysis Method

The data analysis included the calculation of both descriptive statistics and inferential statistics, using Statistical Program for the Social Sciences (SPSS). Descriptive statistics were used to explore the data to obtain information on the variables. Further, inferential statistics were employed to determine the possible correlation between variables, and investigate any meaningful issues perceived from the respondents' feedback.

RESULTS AND DISCUSSIONS

The results of descriptive and inferential statistics are presented in this section, in relation to answering the research questions.

Demographic Profiles of the Respondents

Table I illustrates the demographic profiles of the teachers who were the respondents of this study. The 57 teachers volunteered to answer the questionnaire completely included 45 females (78.9%) and 12 males (21.1%). Majority of the respondents were in the age range of 30 – 39 years olds (n = 47, 82.5%). With regards to highest education, 45 teachers (78.5%) have earned Degree, 11 teachers (19.3%) earned Master and 1 teacher (1.8%) earned Diploma. A total of 30 teachers (52.6%) came from urban schools, followed by 20 teachers (35.1%) from sub-urban schools and 7 teachers (12.3%) came from rural schools. Most of the respondents had teaching experiences between the range of 6 – 10 years (n = 40, 70.2%).

TABLE I. DEMOGRAPHIC PROFILES OF THE RESPONDENTS

Demographic profiles	Total
Gender (n=57)	
Male	12 (21.1%)
Female	45 (78.9%)
Age (n=57)	
25 - 29	1 (1.8%)
30 - 39	47 (82.5%)
40 – 49	7 (12.3%)
50 – 59	2 (3.5%)
Highest Education (n=57)	
Master	11 (19.3%)
Degree	45 (78.9%)
Diploma	1 (1.8%)
Type of Current School (n=57)	
Urban	30 (52.6%)
Sub-Urban	20 (35.1%)
Rural	7 (12.3%)
Years of Teaching (n=57)	
3 – 5 years	4 (7.0%)
6 – 10 years	40 (70.2%)
11 – 15 years	4 (7.0%)
16 – 20 years	4 (7.0%)
Above 20 years	5 (8.8%)

21st Century Teacher's Characteristics

Table II shows the mean and standard deviation for the 6-items of 21st Century Teacher Characteristics, as mentioned in Buletin Anjakan Buletin Transformasi Pendidikan Malaysia in year 2015 as cited in [5]. The entire 6-items mean value was 3.62 (SD =.563) using 5-Likert scale rating (1-Very Low

to 5-Very High). The mean values of the individual item ranged from 3.25 to 4.05. The highest mean value is for the item: "I am mastering the skills in tracing pupil's development and achievement" with mean value of 4.05 (SD=.692), followed by the items: "I am mastering the subject that I teach" with mean value of 3.89 (SD=.646); "I am mastering the 21st century teaching pedagogy" with mean value of 3.68 (SD=.736) and "I am competent in using information technology and media" with mean value of 3.56 (SD=.780) and "I am mastering the counselling skills" with mean value of 3.26 (SD=.695). The item "I am mastering the learning psychology skill" scored the lowest mean of 3.25 (SD=.763).

TABLE II. DESCRIPTIVE STATISTICS ON RESPONDENTS' SELF-ASSESSMENT ON 21ST CENTURY TEACHER'S CHARACTERISTIC

	n	Min.	Max.	Mean	S.D.
	57	3.00	5.00	3.62	.563
I am mastering the subject that I teach				3.89	.646
I am mastering the 21st century teaching pedagogy				3.68	.736
I am mastering the skills in tracing pupil's development and achievement				4.05	.692
I am mastering the learning psychology skill				3.25	.763
I am mastering the counselling skills				3.26	.695
I am competent in using information technology and media				3.56	.780

The moderate mean values obtained shows that teachers were still lacking in the 21st century knowledge, understanding and skills. This requires critical relevant professional development programs for teachers in order to equip them better with 21st century teaching and learning skills and knowledge. As reported by Rusdin [4], the failure of teacher in instilling 21st century skills caused pupils to be unable to integrate 21st century skills in their learning process.

Teachers' Readiness in Implementing 21st Century Learning

Table III shows the mean and standard deviation for the 15-items of teachers' readiness in implementing 21st century learning. The entire 15-items mean value was 2.98 (SD=.312) using 4-Likert scale rating (1-Strong Disagree to 4-Strongly Agree). The mean values of the individual item ranged from 2.82 to 3.14. The highest mean value was for the item "Technology plays important part in 21st century learning" (M=3.14, SD=.549). However, two related items on teachers' confident and understanding on 21st century learning scored moderate agreement among respondents, i.e. "I have excellent understanding about 21st century learning skills" (M=2.95, SD=.397) and "I am confident in using technology as a tool in 21st century learning" (M=2.86, SD=.611). Three items on professional development such as "I need professional development in assessing 21st century pupils", "I need professional development to increase my knowledge

about 21st century skills" and "I need professional development to build teaching for 21st century pupils" scored high mean values between 3.05 to 3.07 (.515≤SD≤.580).

TABLE III. DESCRIPTIVE STATISTICS ON RESPONDENTS' SELF-ASSESSMENT ON TEACHERS' READINESS IN IMPLEMENTING 21ST CENTURY LEARNING

	Mean	S.D.
	2.98	.312
1. Technology plays important part in 21st century learning.	3.14	.549
2. I have excellent understanding about 21st century learning skills.	2.95	.397
3. I am confident in using technology as a tool in 21st century learning.	2.86	.611
4. I need professional development in assessing 21st century pupils.	3.07	.530
5. I need professional development to increase my knowledge about 21st century skills.	3.05	.580
6. I need professional development to build teaching for 21st century pupils.	3.05	.515
7. I involve my pupils in activities that promote communication and collaboration.	3.07	.371
8. I involve my pupils in activities that promote problem solving.	3.04	.421
9. I involve my pupils in activities that promote creativity.	3.00	.327
10. I involve my pupils in activities that promote critical thinking.	2.95	.440
11. I involve my pupils in activities that promote innovation.	2.82	.468
12. The ministry has clarified the features of 21st century learning.	2.98	.551
13. 21st century skills are important in determine pupils' success at workplace in the future.	2.93	.623
14. I am able to evaluate 21st century skills among the pupils.	2.91	.474
15. The curriculum promotes 21st century learning.	2.89	.524

The findings indicate that teachers are aware of the importance of technology in 21st century learning, but they have less confidence in using the technology in daily teaching. This may be due to less training and exposure to the technology. The findings also indicate that teachers need the professional development to enhance their teaching. Ongoing professional development is critical for teachers who wish to be great at their jobs and offer the best to their students. Professional development not only allows teachers to learn new teaching styles, techniques and skills, but also interact with educators from other areas in order to improve their own teaching.

With regard to the activities that foster five skills in 21st century learning, respondents showed high agreement towards pupils' involvement in learning activities that promote communication and collaboration (M=3.07, SD=.371), problem solving (M=3.04, SD=.421) and creativity (M=3.00, SD=.327). However, respondents show moderate agreement towards pupils' involvement in learning activities that promote critical thinking (M=2.95, SD=.440) and innovation (M=2.82, SD=.468). Research carried by Rusdin [4] and Osman and Basar, [9] have drawn the same result that teachers face the most challenges in fostering critical thinking and innovation compared to other skills. As critical thinking skills are important to enable the pupils to solve problems effectively, actively engaging pupils in project-based or collaboration activities can encourage pupils' critical thinking development [10].

Table III also indicates moderate agreement among respondents on 21st century learning in term of explanation by the ministry, importance of skills, assessment and curriculum, i.e. "The ministry has clarified the features of 21st century learning" (M=2.98, SD=.551), "21st century skills are important in determine pupils' success at workplace in the future" (M=2.93, SD= .623), "I am able to evaluate 21st century skills among the pupils" (M=2.91, SD=.474) and "The curriculum promotes 21st century learning" (M=2.89, SD=.524). The study of Rajendran [11] suggested that teachers should be provided with well-prepared courses, support system consists of teaching and learning references, and a platform to discuss any related issue related to teaching and learning.

Relationship of Respondents' Self-Assessment as 21st Century Teacher and on Teachers' Readiness in Implementing 21st Century Learning

Relationship analysis between respondents' self-assessment as 21st century teacher and respondents' self-assessment on teachers' readiness in implementing 21st century learning has been determined using paired-sample t-test. Result in Table IV shows the mean of respondents' self-assessment as 21st century teacher (M=3.6170, SD=.56341) is slightly higher than the mean of respondents' self-assessment on teachers 'readiness in implementing 21st century learning (M=2.9813, SD=.31161).

TABLE IV. PAIRED SAMPLES STATISTICS

	Mean	N	Std. Deviation	Std. Error Mean
Respondents' Assessment as 21st century teacher	3.6170	57	.56341	.07462
Respondents' Assessment on teachers' readiness in implementing 21st century learning	2.9813	57	.31161	.04127

Correlation analysis saw a significant positive strong relationship between the two assessments with r=.715, p < .01, and hence implies higher scores of respondents' assessment as 21st century teacher is associated with higher scores of respondents' assessment on teachers 'readiness in implementing 21st century learning.

The Influences of the Current Professional Development Programs on the Level of Teachers' Readiness in Implementing 21st Century Learning

Further survey on teachers' professional development was also conducted using the same questionnaire, in order to see the influences of these programs on teachers' readiness in implementing 21st Century Learning. Table V shows the types of professional development activities attended by the respondents during the previous 18 months from the date survey being conducted.

TABLE V. TYPES OF PROFESSIONAL DEVELOPMENT ATTENDED

Types of Professional Development	Yes		No	
	Frequency	**Percent**	**Frequency**	**Percent**
Courses/workshops	45	78.9	12	21.1
Education conferences/seminars	22	38.6	35	61.4
Qualification programme	14	24.6	43	75.4
Observation visit to other schools	13	22.8	44	77.2
Participation in a network of teachers	39	68.4	18	31.6
Individual/collaborative research	21	36.8	36	63.2
Mentoring/peer observation/coaching	46	80.7	11	19.3
Overall percentage		50.13		49.87

The result shows that mentoring/peer observation/coaching (80.7%), attending courses/ workshops (78.9%) and networking (68.4%) were the activities that most teachers participated in. In overall, the percentage of respondents attended the professional development was average i.e. only 50.13%, which indicated that only half were engaged with the professional development activities.

Figure 1 shows the respondents' reasons for not taking more professional development. The most commonly cited reasons were "Family responsibility" (49.12%) and "Conflict with work schedule" (47.37%). This would tend to indicate that the time for the professional development was either insufficient or not well aligned to teacher's school and family commitment.
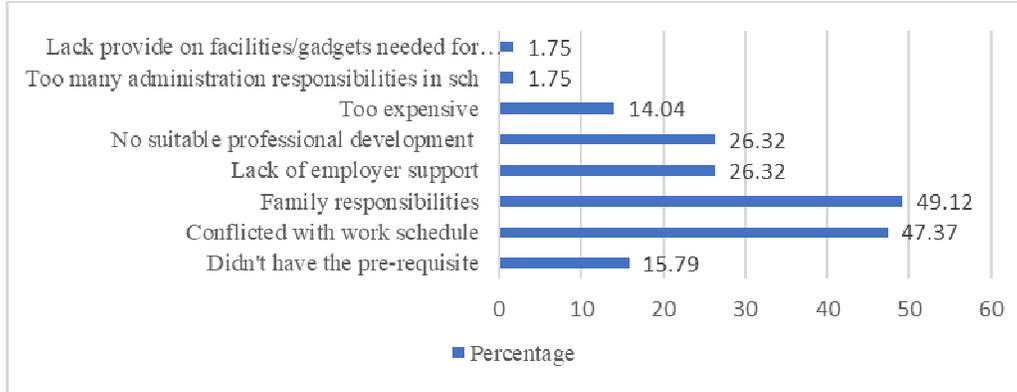

Figure 1. Reasons for Taking More Professional Development

Table VI shows respondents' feedback on the impact of the professional activities to teachers' career development. In overall, the respondents gave positive feedback on the impact of all types of development activities, by consistently reporting moderate or high impact. The most effective forms of development were "Professional development network", "Courses and workshops" and "Mentoring and peer observation", all with close to 85% of respondents reporting a moderate or large impact on their development as a

teacher. The development activities that were reported to be relatively less effective were "Education conferences and seminars" and "Qualification programmes", though even for these activities around 75% of teachers reported a moderate or large impact.

TABLE VI. IMPACT OF PROFESSIONAL DEVELOPMENT

Types of Professional Development	Percent			
	No Impact	Small Impact	Moderate Impact	Large Impact
Courses/workshops	3.5	10.5	57.9	28.1
Education conferences/seminars	5.3	17.5	63.2	14.0
Qualification programmes	10.5	14.0	57.9	17.5
Observation visit to other schools	10.5	8.8	54.4	26.3
Professional development network	3.5	10.5	54.4	31.6
Individual/collaborative research	7.0	10.5	63.2	19.3
Mentoring and peer observation	5.3	5.3	63.2	26.3

Table VII shows the respondents' feedback on the area of greatest professional development need. The result shows that the highest development need was "Teaching special learning needs students". This is consistent with [7], which reported that across the 23 participating countries, the aspect of teachers' works most frequently rated by teachers as an area of high development need was "Teaching special learning needs". It indicates that classroom teachers in general recognise the importance of developing their competence in this area, and this may be a reflection of two trends: first, the growing calls in some school systems for greater integration of special learning needs students in mainstream schools and classrooms and second, the growing emphasis in education policy on equity as well as quality to ensure that the learning needs of all students are provided for equally. An important message from the TALIS data is that teachers do not feel fully prepared to cope with these challenges.

TABLE VII. THE AREA OF GREATEST PROFESSIONAL DEVELOPMENT NEED

Professional Development Area	Percent			
	No Need	Low Need	Moderate Need	High Need
Content and performance standards	1.8	7.0	68.4	22.8
Student assessment practices	0	10.5	61.4	28.1
Classroom management	1.8	5.3	66.7	26.3
Subject field	1.8	7.0	70.2	21.1
Instructional practices	1.8	8.8	59.6	29.8
ICT teaching skills	0	10.5	63.2	26.3
Teaching special learning needs students	1.8	8.8	54.4	35.1
Students discipline and behaviour problems	1.8	15.8	57.9	24.6
Student counselling	1.8	10.5	64.9	22.8
School management and administration	1.8	8.8	71.9	17.5

CONCLUSIONS

In this paper, three main aspects of the study were discussed: 1) 21st century Teacher's characteristics, 2) Teacher's readiness level in implementing PAK21 and 3) The impact and the need of teacher professional development towards the implementation of PAK21. On average, teachers are having knowledge on teaching and learning deliveries but still lack of 21st century knowledge, understanding and skills. The lack of this 21st century knowledge, understanding and skills would restrain teachers to diverge their modesty in teaching deliveries. As a conclusion, relevant professional development programs for teachers are critically required in order to equip them better with knowledge and skills in 21st century teaching. Ongoing professional development is crucial for teachers who wish to be great at their jobs and offer the best to their students. There are still a lot of works and research that could be done to study in infusing the 21st century learning skills to students. But still, teachers need to be refined first as they are the agent of change in the 21st century learning. The proper module on implementing and assessing the PAK21 should be provided to teachers and an appropriate schedule and practicum should be conducted in order to improve teacher's skills and fulfil 21st century students' needs.

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