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SCIENCE TEACHER'S TEACHING PRACTISE IN THE IMPLEMENTATION OF 21ST CENTURY EDUCATION IN CLASSROOM

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Abstract: This study was conducted purposely to identify teacher's teaching practise in the implementation of 21st century education from the aspects of communication, collaboration and critical thinking and creativity skills. It applied quantitative approach and focused on descriptive survey method. This study has been conducted in 50 primary schools in Kuala Lumpur and Putrajaya. A number of 210 science' primary school teachers involved in this study as the respondents by answering the given research questionnaires. From the study, the level of teacher's practise in the 21st century education from the aspects of communication, collaboration, creative thinking and creativity showed a high mean score. This clearly indicated that the 21st century education process has given an effective impact on the students. The 21st century education practise is also a teaching method that is easy to understand and easy to be applied by the students.

I. INTRODUCTION

The 21st century education has its own characteristic. The ultimate is, it is student-centered. Students play a major role in the teaching and learning session as the teachers are the mentor and facilitator. There are a few elements applied in the 21st century education and the bases are communication, collaborative, critical thinking and creativity.

The challenge in the 21st century is to produce first class human capital as stated in Education Development Plant (PIPP) 2006-2010 (MoE, 2006), high in quality as the clustered National Education Blueprint (PPPM) 2013-2025 (MoE, 2013). This part will be discussing the past studies on teachers' practice in implementing the 21st century education in classroom either in or outside the country.

A study by Raja Abdullah Raja Ismail and Daud Ismail (2018) [1], was to evaluate the self practice of practical traniee teachers in applying the concept of the 21st century education. A number of 41 training teachers had answered the questionnaires on the 21st century learning. Findings from the descriptive analyses showed an avarege distribution of mean score and standard error for creativity and critical thinking. Meanwhile, collaboration and communication showed a high mean score and

standard error. The findings also showed that the research respondents explained their understanding regarding the 21st century teaching and learning concept covering knowledge, application, and teaching and learning process.

Leng (2018) [2] had conducted a research on the application of 4C skills and culturization of the 21st century education practice in Mathematics learning and facilitating for Form 1 students. As many 35 students involved in this research. The findings showed that communication skill focused on the ability to express the thinking clearly, speak out opinion, deliver direction, and motivate other people. However, the critical thinking skill could help the student to be more focus, able to use analytical analysis dan improve thinking process.

Mohd Nasruddin Basar (2016) [3] had conducted a study regarding the practice of teaching and learning in the 21st century among lecturers in Ipoh. A number of 159 lecturers involved in the study. The questionnaire was built from eight aspects which were critical thinking, communication skill, reflection, collaboration skill, evaluation, problem solving, technology and creativity and innovation skill. The finding showed that critical thinking recorded the lowest mean score compared to communication, reflection, collaboration, evaluation, problem solving, technology and creativity and innovation skills.

Mohd Mahzan Awang, Abdul Razaq Ahmad and Nur Syazwani Abdul Talib (2016) [4] had conducted a research on the usage of multimedia in history education in the 21st century education. A number of 120 Form Four students in Sarawak participated in the research. The findings showed that there was a significant relation between the frequent of resource usage, the variety of resource, the usage of resource in teaching and learning with student's interest on History subject meanwhile teacher's creativity in using the resource had no significant relation with student's interest.

Badrul Hisham dan Mohd Nasruddin (2015) [5] had conducted a research on the teaching and learning practice in the 21st century among lecturers in IPG Ipoh. The findings showed that teaching and learning practice that uses critical thinking skill such as HOTS recorded the lowest mean score compared to communication skill.

A study by Azizah Mat Ali (2015) [6] on mastery level of scientific reasoning skill, science process skill and the 21st century skill among secondary school students in Bachok, Kelantan. The finding showed that learning process involving creativity, collaborative, critical thinking and communication mastered by the students able to improve Science process skill. The teaching and learning process that focused on facts and theory is able to create a better learning process.

Nurzarina Amran and Roslinda Rosli (2015) [7] , had conducted a study on teacher's understanding about the 21st century skill. The study used a quantitative research method where the data is collected through questionnaire. The finding showed that the teachers understand in order to apply the 21st century skill, they must stress on higher order thinking skill and use technology to make the teaching and learning process become more creative.

The next research was accomplished by Nurul Nashrah Salehudin, Noor Hasimah Hassan and Nur Aida Abd Hamid (2015) [8] . The research was a survey that studied on Form Four students' perception on 21st century skill. A number of 60 secondary school students in Putrajaya involved in the research. The finding showed that approach and strategy in the teaching and learning used by the teacher are able to change students's perception on Mathematics.

Badrul Hisham Alang Osman and Mohd Nasruddin Basar (2015) [5] had conducted a study on the 21st century teaching and learning practice. As many 159 respondents of multioptions IPG Ipoh Campus lecturers participated in this study. The result showed that the pedagogy practice that applied project based learning technique had recorded the highest mean score.

II. RESEARCH OBJECTIVE

To identify science teacher's teaching practice in the application of the 21st century education from the aspects of communication, collaboration, critical and creativity skills.

No	Item	Mean	S.E	%	Level
1	Students were asked to create data that will be used in the written assignment (eg: create chart, table	3.83	.457	95.7	High

IV. RESEARCH METHODOLOGY

This study applied a quantitative approach and focused on descriptive survey method. The instruments used in this research was the questionnaire adapted from Norazilawati (2016) [9]. It was conducted at 50 primary schools in Kuala Lumpur and Putrajaya. A number of 210 science teachers from national primary schools slected as the sample to answer the questionnaire. The pilot test involved 60 respondents in Selangor. According to the reliability of the instrument, the value of reliability of teaching practice in the 21st century for construct creativity is 0.852, construct critical thinking is 0.861, construct collaboration is 0.892 and 0.855 for construct communication.

V. RESULT

The result for descriptive analyses that involved mean value, standard error and percentage for science teacher' teaching practice in the 21st century education from the aspect of communication, collaboration, creative thinking and creativity.

A. *i) The Level of Mean, Standard Error and Percentage of Science Teacher's Teaching Practice in the 21st Century Education From The Aspect Of Communication.*

Table 1 shows the distribution for mean score, standard error and percentage of science teacher's teaching practice in the 21st centurt education from the aspect of communication. According to the table, all items from the aspect of communication showed a high mean value and percentage.

Table 1 *Distribution of Mean, Standard Error and Percentage of Science Teacher's Teaching Practice in the 21st Century from The Aspect of Communication.*

	or graph).				
2	Students were asked to transfer idea using media except written paper (eg: poster. Video, blog, etc).	3.41	.606	85.2	High
3	Students were asked to prepare and deliver oral presentation to teacher or other people.	3.73	.514	93.2	High
4	Students were asked to answer questions in front of audience/ other student.	3.53	.518	88.2	High
5	Students were asked to decide how they will present their work or demonstrate their learning.	3.71	.454	92.7	High
6	I put an effort to develop students' communication skill.	3.44	.549	86.0	High
7	Most of my students learnt the communication skill in my class.	3.60	.602	90.0	High
8	I can effectively evaluate my students' communication skill.	3.58	5.45	89.5	High
Total		3.60	1.14	90.0	High

n=8

No	**Item**	**Mean**	**S.E**	**%**	**Level**
1	Students were asked to work in pair or small group to complete the assignment together.	3.68	.502	90.7	High

B. *ii The Level of Mean, Standard Error and Percentage of Science Teacher's Teaching Practice in the 21st Century Education From The Aspect Of Collaboration.*

Table 2 shows the distribution of mean, standard error and percentage of teacher's teaching practice in the 21st century education from the aspect of collaboration. According to the table, all items in the aspect collaboration showed high mean value and percentage.

Table 2 *Distribution of Mean, Standard Error and Percentage of Science Teacher's Teaching Practice in the 21st Century from The Aspect of Collaboration.*

2	Students were asked to coorporate with other student to decide the aim and plan for their group.	3.49	.567	87.2	High
3	Students were asked to produce a product using contribution from each student.	3.72	.487	93.0	High
4	Present group work to class, teacher and others.	3.65	.530	91.2	High
5	Students were asked to work as a team to respond on group work or product.	3.74	.436	93.5	High
6	Students were asked to respond on their peer or evaluate other students' work.	3.66	.472	91.5	High
7	I try to develop students' collaboration skill.	3.70	.458	92.5	High
8	Most of the students learnt the collaboration skill in my class.	3.60	.490	90.0	High
9	I can effectively	3.81	.388	95.2	High

	evaluate students' collaboration skill.				
Total		3.67	0.48	91.6	High

n=9

C. *iii. The Level of Mean, Standard Error and Percentage of Science Teacher's Teaching Practice in the 21st Century Education From The Aspect Of Creative Thinking.*

Table 3 shows the distribution of mean, standard error and percentage of science teacher's teaching practice in the 21st century education from the aspect of creative thinking. According to the table, all items in the aspect creative thinking showed high mean value and percentage.

Table 3 *Distribution of Mean, Standard Error and Percentage of Science Teacher's Teaching Practice in the 21st Century from The Aspect of Creative Thinking.*

No	Item	Mean	S.E	%	Level
1	Students were asked to compare information from different resources before completing task.	3.57	.496	89.2	High
2	Students were asked to make conclusion based on number analyses, fact and any relevant information.	3.71	.454	92.7	High
3	Students were asked to summarize or interpret based on what they had learnt or read.	3.66	.475	91.5	High
4	Students were asked to analyses argument, perspective or solution of problem.	3.75	.431	93.7	High
5	Students were asked to come out with a convincing argument based on support evidence or thinking.	3.75	.431	93.7	High
6	Students were asked to try solving problem or answering	3.80	.401	95.0	High

	question that has no solution or answer.m				
7	I put an effort to develop students' creative thinking skill.	3.66	.541	91.5	High
8	Most of the students learnt to think creatively in my class.	3.74	.474	93.5	High
9	I can effectively assess my students' creative thinking skill.	3.61	.522	90.2	High
Total				3.69 0.47	92.3

n=9

D. ***iv. The Level of Mean, Standard Error and Percentage of Science Teacher's Teaching Practice in the 21st Century Education From The Aspect Of Creativity.***
E.

Table 4 shows the distribution of mean, standard error and percentage of science teacher's teaching practice in the 21st century education from the aspect of creativity. According to the table, all items in the aspect creativity showed high mean value and percentage.

Table 4 *Distribution of Mean, Standard Error and Percentage of Science Teacher's Teaching Practice in the 21st Century from The Aspect of Creativity*.

No	Item	Mean	S.E	%	Level
1	Students were asked to apply idea generating technique such as mind map.	3.81	.388	95.2	High
2	Students were asked to generate their own idea on how to confront with problem or question.	3.76	.425	94.0	High
3	Students were asked to test the different idea and fix them.	3.71	.473	92.7	High
4	Students were asked to create solution to a complex question, open or problem.	3.74	.436	93.5	High
5	Students were asked to create product or authentic presentation to	3.74	.436	93.5	High

	express their idea.				
6	I try to develop students' creative skill.	3.73	.441	93.2	High
7	Most of the students learnt creativity skill in my class.	3.78	.414	94.5	High
8	I manage to assess my students' creativity skill successfully.	3.70	.458	92.5	High
Total		3.74	0.43	93.6	High

n=8

This study was conducted to identify science teacher's teaching practice in the 21st century education at school. The data was analysed using IBM SPSS Statistic 23.0 software showed a high mean score and percentage for teacher's teaching practice in the 21st century education from the aspects of communication, collaboration, creative thinking and creativity. The result also showed that the teachers had applied the 21st century teaching strategy excellently.

VI. DISCUSSION

This research findings are in line with the findings from a research conducted by Raja Abdullah Raja Ismail and Daud Ismail (2018) [1] and Leng (2018) [2]. They found that the level of communication skill among respondents was high. This showed that the communication process in the 21st century teaching occurred very well when teacher play his/ her role during the teaching and learning in the classroom.

This research findings also accepted the findings from a research conducted by Mohd Nasruddin Basar (2016) [3]. High mean score for collaboration skill showed that group work could generate other skills better. Even work in a group is more effective and could motivate one self. Moreover, the high communication skill for teaching process in the 21st century teaching showed that students are able to focus on groupwork skill either big or small group. The teachers always get the students involve and give them better chances to share their idea in the group.

The research findings also agreed to the findings of the study by Azizah (2015) [6], Ifran Naufal and Mohamad Tarmizi (2013) [10] who found that creative thinking skill showed a high mean score. Student who thinks creatively is able to generate more interesting idea. This probably because teaching creativity that uses technology during the teaching and learning is able to make the teaching process become more creative and critical. Teacher's creativity in terms of resource usage during teaching and learning is related to the 21st century education. The variety of teaching materials used during teaching and learning is one of the aspects in the 21st century education that had proven to be effective in this study.

VII. CONCLUSION

This study showed that science teacher's teaching practice in the 21st century education for the aspects of communication, collaboration, creative thinking, and creativity had a high mean score. This clearly indicated that the process of the 21st century education in the classroom give an effective effect to the students. The practice of the 21st century education in this research is an easy to understand teaching method and easy to be applied by the students.

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