

Implementation of 21st Century Learning and the Challenges

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Abstract

The purpose of this study is to identify the implementation of 21st century learning among teachers. Teachers play important role in determining the outcomes of 21st century learning. There are many factors influence teaching practice in 21st century classroom. Knowledge, resources, facilities and professional development have contributed big effect on the teaching quality. A qualitative research involved 20 teachers has been carried out to know teachers' opinion regarding to the implementation of 21st century learning in their teaching practice. A semi structured interview session was conducted with all the participants to collect information related to four main points which comprise: i) teachers' opinion; ii) teaching practice; iii) the constraints and challenges and iv) suggestions for improvement related to the implementation of 21st century learning. The responds from all participants were transcribed and analysis according to the themes. The findings show that teachers have positive views regarding to 21st century learning but they still need to make improvement in teaching practice. Teachers faced many challenges related to time constraint, insufficient knowledge and inadequate resources and ICT facilities. Teachers have contributed some suggestions to improve all the challenges which including: i) professional development; ii) provide resource; iii) provide teaching module and iv) upgrade the quantity and quality of ICT facilities and tools.

Keywords: Implementation, 21st century learning, teachers' opinion, challenges, improvement

1. INTRODUCTION

Education plays a very important role in determining the quality and capability of new generation to adapt the drastic changes of global civilization. Individual with certain quality such as able to utilize information and technology, collaborate in wide scale, competent in problem solving, creative in generate and communicate new ideas seems to be more successful in this industrial era.

Kementerian Pendidikan Malaysia (KPM) has introduced Pelan Pembangunan Pendidikan Malaysia (PPPM) 2013-2025 and 21st century learning and facilitating idea. PPPM has withdrawn guidelines and goals to be achieved in Malaysia education. KPM has launched the reformation of curriculum through Kurikulum Standard Sekolah Rendah (KSSR) and Kurikulum Standard Sekolah Menengah (KSSM) since 2011. Both standardized curriculums were improved with the implementation of KSSR (review) and KSSM (review) start from 2017. These new curriculums are focus on aspects of skills and competencies that can fulfil the needs of 21st century education. KPM encourage teachers to take initiatives in self-development, increase knowledge and skills and apply new practices of teaching to deal with the needs of 21st century as cited in PPPM 2013-2025.

There are four skills (4Cs) that should be mastered by pupils in 21st century learning, namely communication, critical thinking, collaboration and creativity as cited in Buletin Anjakan Buletin Transformasi Pendidikan Malaysia 4/2015. The responsibility of fostering the 4Cs learning skills is very important in vision to achieve PPPM 2013-2025 and all of the teachers play the main role in accomplishing the mission to produce the best result. Knowledge should be delivered in integrated ways into learning activities (Azmi & Nurzatulshima, 2017). Teachers must be fluent in a variety of teaching techniques to provide opportunity for pupils with diverse learning needs to meet their greatest potential. At this point, creativity skill becomes an important element that empowers teachers' capability to generate and apply as many as ideas and techniques and communicate new ideas in effective ways.

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Southeast Asian Teachers Competencies for the 21st Century has listed the competencies of teachers in 21st century education: i) Facilitating the development of learners' life and career skills; ii) Creating a conducive learning environment; iii) Facilitating learning; iv) Preparing appropriate lesson plans in line with the school vision and mission; v) Developing higher order thinking skills; vi) Developing and utilizing teaching and learning resources; vii) Enhancing ethical; viii) Assessing and evaluating learner performance and ix) Networking with stakeholders.

According to Buletin Anjakan Buletin Transformasi Pendidikan Malaysia 5/2015, the process of planning and implementing 21st century learning should base on four main principles: i) pupil-centred learning; ii) collaborative learning; iii) contextual learning; and iv) integrating with community. Teachers' views regarding to 21st century pedagogy and teaching practice should be enriched with creative thinking, innovative thinking, critical thinking, emphasise on problem solving and competencies in decision making (Osman & Basar, 2016).

Integrating technology in classroom routine has become a compulsory to be practiced by teachers (Langworthy, 2013; Amran & Rosli, 2017). Integration of information technology and media and make it relevant with pedagogy and teaching techniques may ease and support pupils to gain progress in 21st century learning (Rahim & Abdullah, 2017). Integration of technologies offers opportunities for pupils to master 21st century learning skills such as collaboration skill, information skill, and self-access learning (Walser, 2008; Amran & Rosli, 2017).

The way teachers implement teaching process affecting the outcomes of 21st century learning (Langworthy, 2013; Amran & Rosli, 2017). Acknowledge the content and learning standard, pupils' previous knowledge, prepare resources and select appropriate combination of strategy and skills should be emphasized by teacher (Ariffin & Yunus, 2017; Rajendran, 2001). Teachers are supposed to obtain high competencies in planning and implementing teaching and learning that fulfil the needs of 21st century education through effective, interesting and interactive pedagogy practice (Nur Athirah & Faridah, 2017). Furthermore, learning should be carried out in meaningful ways through 'learning by doing' approach where pupils are stimulated to think and build their understanding (Ariffin & Yunus, 2017).

Pedagogy is the fundamental of quality teaching and learning carried out by teacher and encompassing principles, techniques and processes of teaching (Ariffin & Yunus, 2017). Systematic, interesting and appropriate teaching and learning process can stimulate pupils to get involve actively and maintain pupils' motivation along the learning activities (Salehudin, Hassan & Hamid, 2015).

2. PROBLEM STATEMENT

21st century skills can prepare new generations to deal with any possibility that may occur in industrial citizen, global economy, technology with rapid change, excessive information and application of computer as a needs in daily life as cited by NCREL: enGauge 21st century skills (2003).

In attempts to accomplish each pupil with 21st century skills, teachers face a great challenge since there are many 21st century skills to be instilled in limited teaching times (Yunos, 2015). The attempts to instil 21st century among pupils are quite difficult as the pupils have different previous knowledge, passionate, motivation and learning style. It is teachers' responsibility to take initiatives in maintaining pupils passionate and motivation by applying various meaningful techniques and approaches in teaching and learning (Iberahin, Mahamod & Mohamad, 2017). Effective teaching approaches play important part in increasing pupils' ability to master knowledge and skills they required. However, Teachers are reported to face the compact curriculum and central exam issues (Rajendran, 2001) where teachers must cover the syllabus and prepare pupils for examination (Rajendran, 2001; Saad, Saad & Dollah, 2012).

New direction of teaching with creative planning might improve pupils' comprehension (Salehudin, Hassan & Hamid, 2015). Teaching should change their teaching practice from traditional method to pupil-centred and creative teaching that focus on thinking skills and ICT-based self-learning (Salehudin, Hassan & Hamid, 2015). However, a research carried out by Puteh, Ghazali, Tamyis and Ali (2012) has recognized the weaknesses of teaching was caused by insufficient teachers' expertise in teaching strategy and understanding the visions of new curriculum reformed.

The finding of a research carried out by Salehudin, Hassan and Hamid (2015) proved that teaching strategy and approach play important part in drawing pupils' interest towards a subject and change their perception about the subject regarding to the subject difficulties. Yunos (2015) has reported the limited strategy, technique, method and approach used by the teacher has led to lack of pupils' interest in learning process. The failure of teacher in instilling 21st century skills caused pupils to be unable to integrate 21st century skills in their learning process (Mahamod, 2011). Teachers are still under the paradigm of implementing traditional teaching with teacher-

oriented strategy (Rajendran, 2001). Most of the teachers apply conventional teaching method till now (Azmi & Nuzatulshima, 2017). The process of delivering content has implemented by teacher in passive ways. As the consequence, pupils' involvement in learning activity has been retarded and learning process become quite limited.

The best teaching and pedagogy practice should apply various methods, strategies, techniques, approaches and resources and well blended to make sure teacher-centred, pupil-centred and resource-centred are combined in harmony and help pupils stay focus during teaching and learning session (Yunos, 2015). The findings in a study indicate that teachers must be knowledgeable about the field of pedagogy, the subject matter and the learning needs of the students. Furthermore, teachers must not only be knowledgeable about the content of the lesson but also the content of previous lessons (Velloo, Krishnasamy & Ali, 2015), practice, challenges and suggestion for improvement related to 21st century learning.

3. RESEARCH OBJECTIVE

The objectives of this research are

1. To understand teachers' opinion related to 21st century learning
2. To understand the implementation of 21st century learning among the teachers in their teaching practice
3. To understand the constraints or challenges faced by teachers in implementing 21st century learning
4. To understand the suggestions from the teachers to overcome the challenges they faced in practising 21st century learning

4. METHODOLOGY

This research has implemented qualitative research methodology. This research involved 20 school teachers. The participants were given pseudonym codes P1 to P20 to represent each of them. Semi structured interview method is used as instrument. There were four questions in the interview as listed below.

- What is your opinion about the implementation of 21st century learning in classroom?
- How far you have implemented 21st century learning in your teaching practice?
- What are the constraints or challenges you have faced in planning and implementing 21st century learning?
- Suggestion of improvement that you hope from Pejabat Pendidikan Daerah (PPD)/Jabatan Pendidikan Negeri (JPN)/KPM to support teachers in implementing 21st century learning?

5. FINDINGS

The findings have derived answers for all of the questions in the interview.

5.1 The opinion related to the implementation of 21st century learning in classroom

The participants have contributed their opinion regarding to the implementation of 21st century learning base on their practice in the classroom. Table 1 shows the statements of a few participants for question (i).

Table 1. Statement of participants related to the implementation of 21st century learning in classroom

Participant	Statement
P1	"Pupils show interest and confidence in presentation..."
P2	"...very good to attract pupils' interest and improve class control."
P4	"21 st century learning is very interesting... can increase pupils' interest in learning"
P5	"The implementation of 21 st century learning in classroom is very important especially the 4Cs."
P10	"In my opinion, 21 st century learning is very interesting and pupils' involvement in group work is very good"
P11	"There are pro and contrast..."
P20	"Pupils have fun but teacher get exhausted."

According to participants' statements in Table 1, most of the participants have positive opinions toward the implementation of 21st century learning and they like the idea. Participants were agreed that 21st century learning is interesting and can attract pupils' interest as mentioned by P4. P10 has related the interesting of the learning with pupils' involvement. By referring to the statement of P1 and P2, participants have recognized the benefits of

21st century learning to the pupils. Participants also relate the importance of 21st century learning with 4Cs skills as mentioned by P5.

In the other hand, a few of the participants not totally agree concerned to 21st century learning as mentioned by P11 and P20.

5.2. The implementation of 21st century learning in teaching practice

By referring to the interview question (ii), some of responses from participants have been collected in Table 2.

Table 2. Statement of participants related to the implementation of 21st century learning in teaching practice.

Participant	Statement
P3	“Still at starting level and not widely implemented.”
P5	“I have and still implement this learning.”
P7	“I try to practice this learning but capable to implement only small part of the learning.”
P8	“Still in first year of implementation.”
P9	“Implemented only for suitable topic.”
P10	“I implement this learning twice in a week.”
P13	“50% of implementation.”
P16	“Seldom. Only 60% can be implemented.”
P18	“Depend on the needs.”

According to participants’ statement in Table 2, although most of the participants realized the benefits and importance of 21st century learning, they admitted that the implementation of the learning still at low or moderate level as mentioned by P7, P9, P13 and P16.

The pilot study of 21st century learning implementation at school was started in 2014 and spread widely to all school in 2015. Even three or four years have passed, a few participants think that 21st century learning is still new as mentioned by P3 and P8. This thought has made them stay with traditional pedagogy.

By referring to the statements of P5 and P10, a few numbers of participants show good practice in implementing 21st century learning. In the other hand, some of the participants mentioned the limitation of 21st century learning as the point can be found in the statements of P9 and P18.

5.3. Constraints or challenges in planning and implementing 21st century learning

The responds for these questions are categorized according to the themes: i) resources and facilities; ii) time and iii) knowledge and skills.

5.3.1 Resources and facilities

One of the features of effective 21st century learning is resource-centered strategy. Variety of resources has to been used but lack of resources available to support this needs. Table 3 shows the statement of participants regarding to resources and facilities in 21st century learning process.

Table 3. Statement of participants related to resources and facilities in the implementation of 21st century learning

Participant	Statement
P1	“Need to prepare many resources.”
P6	“Teachers get tired when they need to prepare resources for many classes.”
P15	“Inadequate tools and accommodation.”
P20	“The preparation of interesting and appropriate resources.” and “Facilities provided is not enough to support the learning.”

According to Table 3, statement of P1 said teachers have to prepare their own resources and P20 mentioned that this issue has become a burden to most of the teacher. Talking about preparing the resource, teachers’ creativity and ideas also play important role as P6 said that preparing resources for many classes as a challenge in

implementing 21st century learning since a teacher teach more than a subject with different level of classes. Besides resources, 21st century learning also demands on tools and accommodation especially regarding to ICT while the tools, facilities and accommodation supplied to the school are inadequate and not efficient enough to support the implementation of 21st century learning.

5.3.2 Time

When talking about 21st century learning, teachers always think of the time constraint. They talk about time constraint from two aspects: i) time related to learning process and ii) their teaching time is disturbed by other activities which are not related to their teaching. Table 4 shows the responses of participants regarding to time constraint in the implementation of 21st century learning.

Table 4. Statement of participants related to time constraint in the implementation of 21st century learning.

Participant	Statement
P4	“Group activities need extra time.”
P10	“Limited time of teaching and learning session.”
P11	“Time constraint and attending a course have affected teaching and learning process.”
P16	“Not enough time to implement the activity.”
P17	“Side tasks and school program have taken the time of teaching and learning session.”

The findings in Table 4 show that participants have faced time constraint which makes them unable to implement 21st century learning effectively. By referring to the statements of P4, P10 and P16, teachers were complaint that 21st century learning activities and process take a long time. Without a well prepared lesson and continuous practice, the process could not be smooth and effective. In the other aspect, teaching period has been replaced by other tasks which are not related to teaching and learning process when teachers were asked to carried out side tasks and school program during the teaching period as mentioned by P11 and P17.

5.3.3 Knowledge and skills

Knowledge and skills of teaching 21st century skills are very important and should be mastered by all the teachers. The knowledge and skills will influence teachers’ perception and practice towards 21st century learning. Without enough knowledge, teacher will assume 21st century learning as something difficult to be done. Table 5 shows participants’ opinion on knowledge and skills regarding to 21st century learning.

Table 5. Statement of participants on knowledge and skills regarding to the implementation of 21st century learning.

Participant	Statement
P4	“Focus on evaluating pupils’ comprehension in a topic is limited. Some of the skills are difficult to be applied in 21 st century learning items.”
P5	“Lack of knowledge in understanding 21 st century learning. Lack of ideas how to integrate 21 st century learning with the skills in the subjects.”
P7	“Some of the teachers still not clear about 21 st century learning and refuse to change their pedagogy. Teachers, themselves are rigid to creative and critical thinking and comfortable with the old teaching methods.”
P12	“Teaching should be well prepared to make sure the activities can be completed in time.”

P4 said that the implementation of 21st century learning will reduce the process of evaluating pupils’ comprehension in a topic and this statement show that P4 did not know how to evaluate pupils’ performance in 21st century learning. Statements of P5 and P7 shows that lack of knowledge, ideas and teaching skills influence the effectiveness of 21st century learning process. P7 said teachers are in comfort zone with the old teaching method and refuse to apply new teaching pedagogy. P12 said that knowledge and skills will enable teachers to prepare and implement their lesson effectively in the time allocated.

5.4. Suggestion of improvement in implementing 21st century learning

The responds for these questions are categorized according to the themes: i) teaching module, resources and facilities; ii) professional development and iii) unrelated task.

5.4.1 Provide teaching modules, kits and facilities

Many of the participants suggest that they should be provided with resources and facilities to support their 21st century teaching practice. Table 6 shows participants statement related to the requirement on teaching modules, kits and facilities.

Table 6. Statement of participants related to the requirement on teaching modules, kits and facilities.

Participant	Statement
P3	“Provides module for teaching and learning mathematics in 21 st century context to help teachers improve their teaching.”
P2	“Hope KPM will provide support to all schools concern to 21 st century classroom preparation whether in finance or new technology and not just focus on certain schools.”
P6	“Provide facilities for interesting learning such as smart board.”
P9	“Help teachers by providing complete teaching module related to 21 st century learning for each subject.”
P12	“Provide suitable tools and accommodation.”
P13	“Need flexible teaching aid.”
P15	“Provide teaching kit.”
P17	“Supply technology facilities.”
P18	“Increase the quality and quantity of facilities.”

Table 6 shows that participants asked for teaching modules, kits and facilities to support them in implementing 21st century learning. P3 and P9 have suggested teachers should be provided complete teaching modules specific to their subject matter to assist them in practicing 21st century learning. Besides teaching module, the participants required flexible and suitable teaching kits and tools as mentioned by P12, P13 and P15. By referring to the statements of P2, P6, P17 and P18, participants are asking for adequate and high quality support in facilities and accommodation.

5.4.2 Professional development courses

Some of the participants suggest that course should be organized continuously and involve all the teachers. The policy maker has to make sure that all the teachers receive the information related to 21st century learning. Table 7 shows participants’ views on professional development courses in related to the implementation of 21st century learning.

Table 7. Statement of participants related to professional development courses.

Participant	Statement
P4 and P5	“Organize courses related to 21 st century learning implementation.”
P9	“Organize in-house training continuously to guide teachers who are in need.”
P16	“Provide teachers more information about 21 st century learning.”

According to P16, teachers need more information about 21st century learning. P4 and P5 have suggested more courses that involved more teachers should be organized to increase teachers’ knowledge and skills regarding to 21st century learning. Courses can be carried out at school as mentioned by P9.

5.4.3 Reduce unrelated tasks

Some of the participants suggest that teachers should not involve in activities or programs that not related to their co-business, teaching. Involving teachers in other activities or programs may disturb their teaching session. Table 8 shows the statements where the participants asked the policy makers to reduce unrelated tasks.

Table 8. Statement of participants related to professional development courses.

Participant	Statement
P8	“Decrease teachers’ burden that not related to their co-business.”
P11	“Decrease the number of activities that not relate to education in school.”

According to the statements of P8 and P11, teachers are asking the policy makers to decrease the number of activities and teachers' burdens which are not related to their co-business and education in order to optimize their role in implementation of 21st century learning.

6.0 DISCUSSION

Teachers show positive views regarding to the implementation 21st century learning. They found the benefits of 21st century learning when the pupils show interest in learning activities with active involvement and pupils appear more confident.

Although teachers realize the benefits of 21st century learning, their practice are still on moderate level. They seldom implement 21st century learning in their class due to some challenges and obstacles they faced. Knowledge, facilities, resources and burden of unrelated task influence their teaching practice. Abdullah (2017) in his research found that teachers unable to optimize the implementation of 21st century learning due to burden by other tasks beside teaching and learning and time constraint is the major factor that influence their teaching practice. A research carried out by Motshidisi and Mmankoko (2013) has reported that teachers faced challenges in planning classes due to limited resources, infrastructure and overcrowding.

Teachers' understanding regarding the implementation of 21st century learning unable to reach high level since the teachers admit they require professional development and courses to increase their understanding. This findings is contrast compare to a study carried out by Sukri (2013) where she found her sample have good understanding. In the other hand, a study implemented by Abdullah (2017) reported the teachers' understanding still in moderate level. Teachers suggest to be given more professional development course in order to help them improve their understanding towards 21st century learning. Insufficient knowledge lead teachers to rigid their teaching practice to a small scope since they do not have ideas to implement 21st century learning in each topic and even in assessment. Teachers feel that 21st century learning suitable for very limited topics and they are unable to relate these activities to assess pupils' performance in learning. Namsone, Cakene, France and Butkevica (2016) in their research have found that teachers have come to a better understanding after they were provided a model of professional development as guidance. Intervention programs like seminar-workshop have to be implemented consistently to cater to the teachers' varied needs and concerns (Tan, Teresa & Rodriguez, 2016).

Teachers have interest and the willingness to use ICT tools in their teaching but they complain about the quantity and quality of the facilities they have in their schools. Garba, Byabazaire and Bushthami (2015) have reported the similar findings as they found in their research that teachers show interest in applying ICT tools for teaching but the difficulties in having access to the limited tools has frustrated the teachers to apply traditional mode of teaching in practice.

Since ICT plays important part in 21st century learning, teachers have suggested that school should be equipped with updated facilities. Some urban schools are well equipped but there are a lot of rural schools face poor ICT facilities. Sometime, they take a very long duration to repair, upgrade or replace ICT tools such as computer. Computers are only available in laboratory and limited to one or two laboratories in each school. In most school, computers provided are limited in number, the conventional classrooms remain the same without a computer and LCD overhead projector and most of the existing computers require update and maintenance (Garba, Byabazaire & Bushthami, 2015).

Sometimes, attending professional development courses not really assist teachers in improving their teaching. Vail (2010) has reported in her research, after attended professional development two to three times a month, teachers confessed they still need help and guidance in understanding, organizing, and implementing this reform. Teachers request for ready-made resources which they can use instantly. Teachers suggest that they should be provided teaching modules. Teaching module is an effective solution since it offer a lot of appropriate activities suggestion to be carried out by teachers in their teaching. The professional development alone not offer effective

solution since some teachers have demonstrated initial restraint and request ready-made samples (Namsone, Cakene, France & Butkevica, 2016).

Teachers reported to have inadequate resources and they have to take efforts on creating their own resources. With time, creativity, skills and knowledge, teachers are unable to create the resource they need. Teachers who are teaching many subjects have to multiple their efforts and this situation derive exhausted and anxiety among teachers. Furthermore, most of the teachers with traditional paradigm in teaching practice refuse to spend extra time in developing resources. They feel comfortable with traditional pedagogy and teaching practice.

7. CONCLUSION

Many factors are influencing the successful of 21st century learning. The factors comprise teachers' knowledge, resources, facilities, time constraint and burden of doing other tasks which apparently not related to teaching and learning. Attempts have to be taken to overcome all of these factors wisely to make sure teachers will reach the best level of teaching practice in 21st century classroom. The needs of implementing new, fun and relevant teaching strategies with appropriate resources and sufficient facilities and ICT devices have to be fulfilled.

Professional development courses attended by teachers should be carried out frequently and involve all the teachers. The content of the course must able to encourage teachers to improve their teaching practice. The courses must provide as many as teaching methods that useful in implementing 21st century learning. After the course, teachers should be able to apply new teaching methods which have all these features consist of fun, not-stressful, pupil-centered, hands-on activities and ICT integrated. PPD, JPN or KPM as policy makers have to take actions in supplying high quality facilities, providing resources and organizing the professional development courses.

However, for many teachers, attend professional development course not adequate enough to help them improve their teaching quality. Provide teaching module may overcome other issue related to time constraint, lack of knowledge and burden of doing extra task which is not related to teaching and learning. All these issues have retarded teachers in planning creative, meaningful and effective teaching that meet the needs of 21st century learning.

The module should be practical and user friendly that teachers can use the activities suggested instantly, anytime they need. In addition, teachers can adopt or adapt the suggested activities into new activities to make it meaningful in their teaching and enable them to cover most of the topics available in syllabus with 21st century learning.

The teaching module should enable teachers to foster 21st century learning skills among their pupils. The suggested activities are hands-on where pupils involve in the activities actively and every pupils get chance to contribute to the activities outcomes. Pupils cooperate in group activities and this will help teachers promote communication and collaboration skills. Besides hands-on activities, the module should offer ICT-based activities since ICT skills is one of the 21st century learning skills. The hands-on and ICT-based activities in the module can promote pupils' creativity, innovation and problem solving skills.

The activities offered are appropriate to been used as tools for assessing how far the pupils have mastered 4Cs 21st century learning skills. This will overcome the teachers' problem in evaluating the 21st century learning skills among their pupils. The module may ensure the best teaching practice among the teachers in 21st century classrooms.

In conclusion, the module offers the best solution in increasing teachers' ability as an effective 21st century educator. The module enables teachers to implement learning activities that promote 4Cs learning skills and evaluate pupils' performance.

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