ADOPTION OF 21ST CENTURY SKILLS IN TEACHING AND LEARNING

Siaw Nyuk Hiong, PhD
ftsm2006@yahoo.com

Abstract

21st century skills like problem solving, decision making, team-work and communication skills are needed to survive in today's global economy. Ministry of Education Malaysia has transformed the country's education through the National Education Blueprint 2013-2025 (Ministry of Education Malaysia, 2013) to produce human capitals that can cope with 21st century world challenges. An article written by Kay (2009) and reviews by Siti Ruzila, Roslinda and Effandi (2016) have indicated that students fail to apply critical thinking skills to solve real-life problems. Besides, there is also a lack of 21st century skills adoption in the teaching learning process (Norhaqikah & Kamisah, 2016). Eggen and Kauchak (2002) have also found that interaction and 21st century skills integration is lacking in teaching. This research intends to find out the level of 21st century skills adoption (creativity, collaboration, critical thinking, communication and use of technology) by teachers of Kuching-Samarahan Division. The findings showed that the adoption of the skills are at a moderate level with a mean of 3.16 and standard deviation of 1.08. Implication from this study was that teachers need to carry out more teaching and learning activities that adopt the 21st century skills as suggested in this research. Teachers should also identify the barriers that might hinder them from adopting the skills more often.

Keywords: 21st Century Skills, soft skills, critical thinking, creative, collaboration, technology, communication

INTRODUCTION

There remains a profound gap between the knowledge and skills most students learn in school and the knowledge and skills they need in typical 21st century communities and workplaces. These skills of problem solving, decision making, team-work and communication have been reported to be lacking among the students (Apple, 1998; Hodgkinson, 1998; Hyland & Johnson, 1998; Partnership for 21st Century Skills, 2006). Realizing the importance of these skills in producing knowledge workers to cope with world challenges in the year 2020, the Ministry of Education Malaysia (MOE) has taken a long-term plan by starting to instill soft skills into the teaching and learning approaches. Soft skills acquisition is expected to mold positive changes in students in their character building, control of feelings, self-motivation, ability to think critically and creatively, in interacting with others as well as the ability to work as a team (Management Division of Residential School and School of Excellence, MOE, 2006).

Thus, teachers play a very important role in helping to produce students who are equipped with these soft skills to enable them in facing various challenges in the 21st Century. These students will also be the country's future human capital. Besides, human capital development is an important agenda for Malaysia to become a developed nation in line with the country's Vision 2020. In order to achieve such vision, it is of utmost importance for teachers to integrate 21st century skills into their teaching and learning practices. Furthermore, curriculum needs to be revised to provide proper guides and directions for teachers in their efforts to ensure the success of such human capital development.

In accordance with Vision 2020, MOE has transformed the country's education through the National Education Blueprint (NEB) 2013-2025 (MOE, 2013). The NEB contained plans of various incentives to transform education towards achieving the aspired human capital development. Eleven shifts have been identified by the Ministry that intend to raise the international standard for education as well as to meet the government's aspiration to equip Malaysia students to meet with challenges of 21st century education (Zamri, 2013). North Central Regional Educational Laboratory (NCREL) and Metiri Group (2003) have designed the EnGauge 21st Century Skills model for 21st century education. Based on this model, there are four criteria of 21st century skills need to be mastered by both students and teachers. These are digital literacy, creative thinking, effective communication and high productivity and has been discussed in a research by Nurul Ain, Zamri, Nik Norhazimah, Noor Syazwani and Mohd Shah (2012). The MOE has identified 21st century skills which are relevant to the Malaysia context that intends to produce well balance students with high durable spirit, inquisitive, discipline, informative, innovative, patriotic, cooperative, with high order thinking and good communication skills (MOE, 2014).

The 21st Century Teaching and Learning

Teachers play a very important role in modelling the aspired human capitals as spelt out in NEB (2013). They are the individuals who will be with students most of the time and they are responsible to nuture students' potential in school. Teachers are the mentors, character builders, change as well as creative and critical thinking motivators. Thus, teachers should possess the positive charateristics that will move them towards the efforts in shaping students with the aspired human capital values. Obviously, teaching and learning in the classroom can help students acquire 21st century skills to face challenges of the 21st century. The 21st century skills identified by the MOE as relevant to Malaysia context are (1) Learning and innovation skills; (2) Information, media and technology skills; and (3) Life and career skills.

Teachers' awareness towards these skills are important to enable them to apply in teaching and learning. These skills are based on Malaysia's Vision 2020 as well as education vision that geared towards the preparation of excellent and quality human capitals. Good teachers should possess the following qualities: Rich in information (science and technology); durable mindset; subject matter expert; skillful in teaching and learning pedagogy; and use current information technology.

Teachers' roles in the 21st century learning are to create a constructive conducive learning environment; stimulate critical thinking through hands-on and minds-on practices; encourage cooperative and collaborative active learning; encourage information communication technology aided creativity and innovation among students; infuse information communication technology aided innovation in teaching and learning; and give effective and continuous feedback as well as evaluation.

Research Background

A teacher should have good personal qualities and is able to outline effective planning, approach and activity for successful teaching and learning. Many teachers have failed to integrate various skills especially the 21st century skills in their teaching (Zamri, 2011). Students with little or no 21st century skills will face many challenges in life especially in their career. The qualities of a teacher will determine the outcomes of students. Teachers are key persons in fostering 21st century skills to produce creative and innovative human capitals. The MOE depends on good quality teachers who are prepared to accept 21st century challenges to realize the transformation of education as outlined in NEB 2013-2025 (MOE, 2013). Teachers have great responsibility and trust for teachers with high commitment are very much needed to carry out more challenging tasks that are required for 21st century teaching and learning. The mastery of teachers in different fields like curriculum content, pedagogy expert in teaching-learning process in addition to the ability to apply the state of the art technology and integrate moral values should be the priorities towards achieving the country's aspiration in developing generation with 21st century skills (Zamri).

Problem Statement

Soft skills are also known as 21st century skills by Partnership for 21st Century Learning (2016). Critical and creative thinking as well as collaboration skills are parts of soft skills (Management Division of Residential School and School of Excellence, MOE, 2006). The higher institutions of learning have been blamed for the low performance and lack of 21st century skills among the undergraduates in Malaysia. The process of instilling 21st century skills among students should start from schools through teaching, learning and co-curricular activities. It has been described that students' eleven years of learning in school is enough to instill the skills. In order for the skills to be successfully instilled among students, teachers

are the main agents to carry out the task in a systematic and effective manner. Teachers need to comprehend the skills and the strategy to instill them successfully. An article written by Kay (2009) and reviews by Siti Ruzila, Roslinda and Effandi (2016) have indicated that students fail to apply critical thinking skills to solve real-life problems. Besides, there is also a lack of 21st century skills adoption in the teaching and learning process (Norhaqikah & Kamisah, 2016). Eggen and Kauchak (2002) have also found that interaction and 21st century skills integration are lacking in teaching. Since NEB has planned to transform Malaysia education towards achieving the aspired human capital development that can meet the challenges of 21st century education, this study is carried out to find the level of 21st century skills adoption among teachers for teaching and learning. Researches on 21st century skills in teaching and learning have been carried out both inside (Nurul et al., 2012; Zamri, 2013; Sharifah, Hanipah & Faaizah, 2014; Norhaqikah & Kamisah, 2016) and outside (Kay, 2009; Jason, Nate, Marry & John, 2012; Alan & Andrew, 2015; Mary Elizabeth, 2016) of Malaysia but none of the studies have focused on the adoption of 21st century in teaching by teachers from Kuching Samarahan Division. It is the interest of this study to carry out the research in this division.

The 21st Century Skills Framework

The MOE have identified 21st century skills that are relevant to Malaysia context for the development of first class human capitals to face the challenges of 21st century. Among the 21st century skills that need to be mastered by both teachers and students as spelt out in the ministry's Curriculum Development framework (2014) are (i) learning and innovation skills (critical thinking, communication, collaboration and creativity); (ii) information, media and technology skills (information literacy, media literacy, information technology and communication (ICT) literacy); and (iii) life and career skills (flexible, self-direction, productivity, accountability, responsibility, leadership).

This research has been carried out with reference to the MOE (2014) framework as shown in Figure 1 with the focus on the adoption of critical thinking, communication, collaboration, creativity and technology skills in teaching and learning. These skills are said to offer measurable benefits in multiple areas of life (Ontario, 2016). The framework is developed by Partnership for 21st century skills (P21). It describes the skills that students need to acquire to survive in today's global economy.

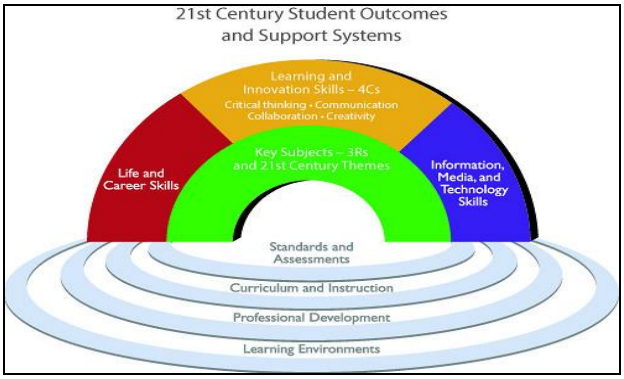

Figure 1. 21st Century Skills Framework adopted by MOE (2014)

Definitions of 21st Century Skills

The definitions of 21st century skills as proposed by Fullan (2013) are as following.

Critical Thinking. Critical thinking in the 21st century is described as the "ability to design and manage projects, solve problems, and make effective decisions using a variety of tools and resources".

Communication. Communication in a 21st century context refers not only to the ability to "communicate effectively, orally, in writing, and with a variety of digital tools" but also to "listening skills".

Collaboration. Collaboration in a 21st century context requires the ability to "work in teams, learn from and contribute to the learning of others, [use] social networking skills, [and demonstrate] empathy in working with diverse others".

Creativity. Many studies demonstrate the importance of creativity for social development, the ability to compete in business, and the ability to generate economic growth. PISA 2012 results (OECD, 2014) note the connection between high academic achievement, problem solving and creativity.

Adoption of 21st Century Skills in the Classroom

Senechal (2010) reported that countries with good performance in Programme for International Student Assessment (PISA) like Australia, Finland, Hong Kong, Japan, Canada, Netherlands, New Zealand, South Korea and Switzerland have emphasized on both content and 21st century skills in their school curriculum. Realizing the needs of Malaysia education to move towards such direction in order to compete at international level, the MOE has started to infuse entrepreneurship, creativity, design and technology elements through the Primary School Standard Curriculum (*Kurikulum Standard Sekolah Rendah,* KSSR) in 2011. These skills are instilled through formal and non-formal teaching and learning activities. As described earlier, these skills acquisition is expected to mold positive changes in students in their character building, control of feelings, self-motivation, ability to think critically and creatively, in interacting with others

as well as the ability to work as a team (Management Division of Residential School and School of Excellence, MOE, 2006). The adoption of 21st century skills in learning can be carried out through the teaching process, subject content, engagement and involvement in the various formal and informal activities in the school. Teaching and learning should emphasize on what the workforce needs (Omar, 2005). Thus, teachers' teaching and learning strategies should be in line with these needs to enable students in acquiring the related 21st century skills.

Research Objectives

The research objectives of this study are to:

- identify the level of 21st century skills adoption in teaching and learning among teachers of Kuching Samarahan Division; and
- discuss the implications of the 21st century skills adoption level in teaching and learning among teachers of Kuching Samarahan Division.

Research Questions

The research questions for this study are:

- What is the level of 21st century skills adoption in teaching and learning among teachers of Kuching Samarahan Division?
- What are the implications of the level of 21st century skills adoption in teaching and learning among teachers of Kuching Samarahan Division?

METHODOLOGY

This study utilized a questionnaire adapted from Jason, Nate, Mary and John (2012) to carry out the survey. The questionnaire was used by Jason et al. in their study on the level of 21st century skills adoption in teaching and learning. The research sample in this study consisted of 52 teachers from schools around the Kuching Samarahan division. The survey instrument has two sections (A and B) with a total of 37 items. Section A has seven items to collect the respondents' demographic information (gender, academic qualification, teaching experience, students' level taught and courses attended on 21st century skills). Section B has 30 items to collect information about the five 21st century skills. These skills are critical thinking, collaboration skills, communication skills, creativity and technology skills. Each item has a 5-point Likert scale, namely 1 = Never, 2 = A few times in a semester/term, 3 = 1-3 times every month, 4 = 1-3 times every week, 5 = Almost every day. The Cronbach's Alpha (Cronbach, 1951) reliability coefficient for the present sample (*N* = 52) is .88, indicating that the instrument has high reliability (Nunnally, 1978).

Descriptive Analysis

The research items in the questionnaire are analyzed using SPSS. Descriptive statistics with mean score and standard deviation (S.D.) for each

skill category are obtained for the items as shown in Table 1. The interpretation of the mean scores is based on resource from Education Research and Planning Department (2006) as shown in Table 2.

FINDINGS AND DISCUSSION

- What is the level of 21st century skills adoption in teaching and learning among teachers of Kuching Samarahan Division?

The overall mean score for the adoption of 21st century skill in teaching and learning is 3.16 which is at the average level. Analysis for each 21st century category is also at the average level. Creativity has a mean score of 3.39 which is ranked the highest among all the skill categories. This is follow by critical thinking with a mean score of 3.31, collaboration skill with a mean of 3.17, technology skill with a mean score of 3.0 and communication skill with a mean score of 2.95. The following section will describe the analysis in details for each skill category.

Table 1

Overall Mean and Standard Deviation Distribution of 21st Century Skills Adoption in Teaching and Learning

21st Century Skills	**Mean**	**S.D.**	**Indicator**
Creativity	3.38	1.04	Average
Critical thinking	3.31	1.08	Average
Collaboration	3.16	1.10	Average
Using technology	3.00	1.13	Average
Communication	2.95	1.05	Average
Overall	**3.16**	**1.08**	**Average**

Note: S.D.= standard deviation

Table 2

Mean Score Interpretation

Mean Score	**Indicator**
1.00 – 1.89	Very Low
1.90 – 2.69	Low
2.70 – 3.49	Average
3.50 – 4.29	High
4.30 – 5.00	Very High

Source: Education Research and Planning Department (2006)

Creativity Skills

The distribution of mean and standard deviation for each item under the adoption of creativity in teaching and learning is shown in Table 3. The analysis for each item under this category shows that item 3 *Test out different ideas and work to improve them* has the highest mean score of 3.59 among the five items for this category. Item 5 *Create an original product or performance to express their ideas* has the lowest mean score of 2.96. The overall mean score and standard deviation for the adoption of creativity in teaching and learning is 3.39 and 1.04 respectively.

Table 3

Mean and Standard Deviation Distribution for Adoption of Creativity in Teaching and Learning

Item	Scale					Mean	S.D.
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)		
1. Use idea creation techniques such as brainstorming or concept mapping	0.00	17.31	26.92	42.31	13.46	3.52	0.94
2. Generate their own ideas about how to confront a problem or question	1.96	15.69	33.33	27.45	21.57	3.51	1.07
3. Test out different ideas and work to improve them	0.00	17.65	29.41	29.41	23.53	3.59	1.04
4. Invent a solution to a complex, open-ended question or problem	1.92	19.23	36.54	26.92	15.38	3.35	1.03
5. Create an original product or performance to express their ideas	5.77	28.85	38.46	17.31	9.62	2.96	1.05
					Average	**3.39**	**1.04**

Note: S.D.= standard deviation

Critical Thinking Skills

The distribution of mean and standard deviation for each item under the adoption of critical thinking skills in teaching and learning is shown in Table 4. The analysis shows that item 3 *Summarize or create their own interpretation of what they have read or been taught* has the highest mean score of 3.54 among the six items for this category. Item 6 *Try to solve complex problems or answer questions that have no single correct solution or answer* has the lowest mean score of 3.12. The overall mean score and standard deviation for the adoption of critical thinking skills in teaching and learning is 3.31 and 1.08 respectively.

Table 4

Mean and Standard Deviation Distribution for Adoption of Critical Thinking Skills in Teaching and Learning

Item	Scale					Mean	S.D.
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)		
1. Compare information from different sources before completing a task or assignment	1.92	25.00	26.92	30.77	15.38	3.33	1.08
2. Draw their own conclusions based on analysis of numbers, facts, information	1.96	25.49	21.57	41.18	9.80	3.31	1.03
3. Summarize or create their own interpretation of what they have read or been taught	1.92	21.15	21.15	32.69	23.08	3.54	1.13
4. Analyze competing arguments, perspectives or solutions to a problem	1.96	23.53	39.22	23.53	11.76	3.20	1.00
5. Develop a persuasive argument based on supporting evidence or reasoning	3.85	21.15	28.85	25.00	21.15	3.38	1.16
6. Try to solve complex problems or answer questions that have no single correct solution or answer	3.85	26.92	34.62	23.08	11.54	3.12	1.06
					Average	**3.31**	**1.08**

Note: S.D.= standard deviation

Collaboration Skills

The distribution of mean and standard deviation for each item under the adoption of collaboration skills in teaching and learning is shown in Table 5. The analysis shows that item 1 *Work in pairs or small groups to complete a task together* has the highest mean score of 3.58 among the six items for this category. Item 3 *Create joint products using contributions from each student* has the lowest mean score of 2.96. The overall mean score and standard deviation for the adoption of collaboration skills in teaching and learning is 3.17 and 1.10 respectively.

Table 5

Mean and Standard Deviation Distribution for Adoption of Collaboration Skills in Teaching and Learning

Item	Scale					Mean	S.D.
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)		
1. Work in pairs or small groups to complete a task together	0.00	15.38	38.46	19.23	26.92	3.58	1.05
2. Work with other students to set goals and create a plan for their team	5.77	26.92	32.69	26.92	7.69	3.04	1.05
3. Create joint products using contributions from each student	7.69	25.00	38.46	21.15	7.69	2.96	1.05
4. Present their group work to the class, teacher or others	5.77	28.85	28.85	21.15	15.38	3.12	1.17
5. Work as a team to incorporate feedback on group tasks or products	3.85	30.77	25.00	26.92	13.46	3.15	1.13
6. Give feedback to peers or assess other students' work	1.92	32.69	32.69	19.23	13.46	3.10	1.07
					Average	**3.17**	**1.10**

Note: S.D.= standard deviation

Use of Technology

The distribution of mean and standard deviation for each item under the category for the use of technology in teaching and learning is shown in Table 6. The analysis shows that item 2 *Select appropriate technology tools or resources for completing a task* has the highest mean score of 3.27 among the eight items for this category. Item 7 *Use technology to interact directly with experts or members of local/global communities* has the lowest mean score of 2.67. The overall mean score and standard deviation for the use of technology in teaching and learning is 3.00 and 1.13 respectively.

Table 6

Mean and Standard Deviation Distribution for Use of Technology in Teaching and Learning

Item	Scale					Mean	S.D.
	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)		
1. Use technology or the Internet for self-instruction (e.g., Khan Academy or other videos, tutorials, Self-instructional websites, etc.)	7.69	28.85	25.00	23.08	15.38	3.10	1.21
2. Select appropriate technology tools or resources for completing a task	3.85	23.08	34.62	19.23	19.23	3.27	1.14
3. Evaluate the credibility and relevance of online resources	5.77	26.92	36.54	25.00	5.77	2.98	1.00

Table 6 (cont')

Mean and Standard Deviation Distribution for Use of Technology in Teaching and Learning

4. Use technology to analyze information (e.g., databases, spreadsheets, graphic programs, etc.)	5.77	32.69	26.92	25.00	9.62	3.00	1.10
5. Use technology to help them share information (e.g., multimedia presentations using sound or video, presentation software, blogs, podcasts, etc.)	3.85	36.54	28.85	23.08	7.69	2.94	1.04
6. Use technology to support team work or collaboration (e.g., shared work spaces, email exchanges, Giving and receiving feedback, etc.)	9.62	30.77	23.08	23.08	13.46	3.00	1.22
7. Use technology to interact directly with experts or members of local/global communities	15.38	38.46	19.23	17.31	9.62	2.67	1.22
8. Use technology to keep track of their work on extended tasks or assignments	5.77	28.85	32.69	25.00	7.69	3.00	1.05
					Average	**3.00**	**1.13**

Note: S.D.= standard deviation

Communication Skills

The distribution of mean and standard deviation for each item for the adoption of communication skills in teaching and learning is shown in Table 7. The analysis shows that item 3 *Prepare and deliver an oral presentation to the teacher or others* has the highest mean score of 3.27 among the five items for this category. Item 1 *Structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs)* has the lowest mean score of 2.79. The overall mean score and standard deviation for the adoption of communication skills in teaching and learning is 2.95 and 1.05 respectively.

Table 7

Mean and Standard Deviation Distribution for Adoption of Communication Skills in Teaching and Learning

Item	**Scale**					**Mean**	**S.D.**
	1 (%)	**2 (%)**	**3 (%)**	**4 (%)**	**5 (%)**		
1. Structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs)	3.85	40.38	30.77	23.08	1.92	2.79	0.91

Table 7 (cont')

Mean and Standard Deviation Distribution for Adoption of Communication Skills in Teaching and Learning

2. Convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.)	7.69	32.69	26.92	30.77	1.92	2.87	1.01
3. Prepare and deliver an oral presentation to the teacher or others	1.92	26.92	30.77	23.08	17.31	3.27	1.10
4. Answer questions in front of an audience	13.46	21.15	36.54	19.23	9.62	2.90	1.16
5. Decide how they will present their work or demonstrate their learning	5.77	32.69	28.85	26.92	5.77	2.94	1.04
					Average	**2.95**	**1.05**

Note: S.D.= standard deviation

- What are the implications of the level of 21st century skills adoption in teaching and learning among teachers of Kuching Samarahan District?

The mean score for creativity is 3.39 and is rated as average in terms of adoption of this skills for teaching and learning by Kuching Samarahan Division teachers. Similar average adoption of the skills has been reported in research by Chew and Shashipriya (2014). The average adoption of creativity among teachers in teaching and learning implied that teachers need to encourage students more often to test out different ideas. Teachers also need to use more techniques like mind mapping and brainstorming to encourage creative thinking skills among students. Besides, students also need to be encouraged to generate ideas for a problem/question or invent solution for an open-ended question/problem. It is found that teachers are lacking in carrying out activities that required students to create an original product or performance to express their ideas. Thus, teachers need to carry out more activities that instill creativity to increase the level of adoption of the skill in teaching and learning.

The adoption of critical thinking skills in teaching and learning is at a mean score of 3.31 which is also rated as average. Chew and Shashipriya (2014) have also reported similar average adoption of the skills in their research. This implied that teachers need to carry out more activities that encouraged students to summarize or create their own interpretation of what they have read or been taught. More activities that encouraged students to develop persuasive argument as well as comparing information from different sources should be carried out as well. Teachers also need to prepare more activities that encourage students to analyze competing arguments, perspectives or solutions to a problem. Furthermore, activities

that encouraged students to solve complex problems or answer questions that have no single correct solution or answer should be carried out even more often. Teachers should overcome any barriers that might hinder them to adopt critical thinking skills more often in teaching and learning to increase the level of adoption.

The mean score for the adoption of collaboration skills in teaching and learning is 3.17 which is also rated as average. Low adoption of the skills is also reported in research by Alan and Andrew (2015). This implied that teachers need to ask students to do more pair work or group work when completing a task. Besides, teachers need to encourage students to work in teams more often to give feedback on group tasks or projects. More presentations as well as peer feedback or assessment should be carried out. Even though teachers do ask students to create joint products using contributions from each students but this is the least being carried out. Thus, students should be asked more often to create joint products as a team. Teachers need to be aware of the factors that hinder them from adopting more collaboration skills in their teaching and learning.

The mean score for use of technology in teaching and learning by teachers is 3.00 which is also rated as average. Furthermore, a research by Irfan Naufal and Amat Sazali (2015) has reported that the level of ICT integration by teachers in classroom was low. The findings implied that teachers need to carry out more activities that require students to select appropriate technology tools or resources for completing a task. Besides, teachers also need to encourage students more often to use technology or the internet for self-instruction. Furthermore, teachers also need to prepare more activities that require students to use technology to analyze information, to support team work or collaboration and to keep track of their work on extended tasks or assignments. However, teachers do less in asking the students to evaluate the credibility and relevance of online resources, to share information and to interact directly with experts or members of local/global communities. Thus, teachers need to do more to enable students to acquire the information, media and technology skills. Teachers also need to upgrade their own technology skills and find alternatives to overcome the barriers that might hinder them to adopt the use of technology more frequently.

The mean score for communication skills in teaching and learning by teachers is 2.95 which is also rated as average. The findings implied that teachers need to carry out more activities that require students to prepare and deliver an oral presentation at the same time answer questions in front of an audience. Students need to be exposed more often on how to structure data for use in written products or oral presentations, how to convey ideas using media other than a written paper and making decision on how they will present their work or demonstrate their learning. Thus,

teachers need to move away from conventional teaching and learning approach that might hinder them from adopting communication skills at a higher level.

CONCLUSION

This study aims to identify the level of 21st century skills adoption in teaching and learning by teachers of Kuching Samarahan Division. A discussion on the implications of the findings is also included. A quantitative survey was carried out by using a questionnaire as the data collection tool. The overall findings indicate that 21st century skills have been adopted at a moderate level by the teachers. Many implications have been discussed based on the findings which also provide suggestions on how to increase the level of 21st century skills adoption among the teachers. This study provides information that can help the teachers concerned to be aware of their status of 21st century skills adoption. Appropriate measures can then be taken by the teachers to help them increase their level of 21st century skills adoption in the future.

REFERENCES

Alan, D.G., & Andrew, H.N. (2015). *The role of education in soft skills***.** Wainhouse Research, LLC.

Apple, W. (1998). Work, power and curriculum reform: A response to Theodore Lewis's vocational education as general education. *Curriculum Inquiry*, *28*(3), 339-360.

Chew, F.P., & Shashipriya, N. (2014). Pelaksanaan kemahiran berfikir kreatif dan kritis dalam pengajaran dan pembelajaran Komsas di sekolah menengah. *Jurnal Pendidikan Bahasa Melayu (Malay Language Education Journal).*

Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16,* 297-334.

Eggen, P., & Kauchak, D. (2002). *Strategies for teachers: Teaching content and thinking skills* (4th ed.). Needham Heights: M.A. Allyn and Bacon.

Fullan, M. (2013). *Great to excellent: Launching the next stage of Ontario's education agenda.* Toronto: Ontario Ministry of Education. Retrieved from www.edu.gov.on.ca/eng/document/reports/FullanReport_EN_07.pdf.

Hodgkinson (1998). A rationale for an introduction of lifelong learning skills: Business, management and accounting undergraduate awards. *Journal of Further and Higher Education*, *22*(2), 151-162.

Hyland, T. & Johnson, S. (1998). Of cabbages and key skills: Exploding the mythology of core transferable skills in post school education. *Journal of Further and Higher Education*, *22*(2), 163 – 172

Irfan Naufal Umar & Amat Sazali Abu Hassan. (2015). Malaysian teachers' levels of ICT integration and its perceived impact on teaching and learning. *7th World Conference on Educational Sciences*, (WCES-2015), 05-07 February 2015, Novotel Athens Convention Center, Athens, Greece.

Jason, R., Nate, H., Mary, E., & John, M. (2012). Using project based learning to teach 21st century skills: Findings from a state wide initiatives. *Paper presented at Annual Meetings of American Educational Research Association*, Vancouver.

Kay, K. (2009). Enriching minds for the 21st century. In *Leading Edge anthology on 21st century skills.* James Bellanca & Ron Brandt. (Eds.) Bloomington, IN: Solution Tree Press.

Kementerian Pendidikan Malaysia (KPM). (2013). *Pelan Pembangunan Pendidikan Malaysia 2013-2025*. Putrajaya: Bahagian Pendidikan Guru.

KPM. (2014). *Kurikulum Abad Ke-21*. Putrajaya: Bahagian Pembangunan Kurikulum.

KPM. (2014). *Pelan Pembangunan Pendididkan Malaysia 2013-2015*. Putrajaya: Bahagian Pembangunan Kurikulum.

Malaysian Higher Learning Institution (2006). *Modul Pembangunan Kemahiran Insaniah (soft skills) untuk Institusi Pengajian Tinggi Malaysia*. Serdang, Malaysia: Penerbit Universiti Putra Malaysia.

Mary Elizabeth, Z. (2016). *The intersection of collaboration, critical thinking and technology: Implications for adult ESL learners using an inquiry approach*. Master Thesis: Hamline University, Saint Paul, Minnesota.

MOE. (2013). *Malaysia Education Blueprint 2013-2025 (Preschool to Post-Secondary Education)*. Putrajaya: Bahagian Pendidikan Guru.

NCREL & Group, Metiri. (2003). *EnGauge 21st century skills: Literacy in digital age*. Napierville, IL & Los Angeles, CA: NCREL & Metiri.

Norhaqikah Mohamad Khalil & Kamisah Osman. (2016). *Stem-21CS module: Fostering 21st century skills through integrated Stem*. Bangi: National University of Malaysia.

Nurul Ain Azmi, Zamri Mahamod, Nik Norhazimah Nek Ali, Noor Syazwani Roni & Mohd Shah Rizal Othman. (2012). Penyepaduan kemahiran-kemahiran abad ke-21 dalam pengajaran dan pembelajaran kesusasteraan Melayu*. International Seminar on Educational Comparative in Competency Based Curriculum Between Indonesia and Malaysia*.

OECD (Organisation for Economic Co-operation and Development). (2014). *PISA 2012 results: Creative problem solving (Volume V): Students' skills in tackling real-life problems.* Paris: PISA, OECD Publishing. Retrieved from http://dx.doi.org/10.1787/9789264208070-en.

Omar, O. (2005). Skills and competencies in the workplace - An overview of current problems and the balancing role for higher education in Malaysia. *Paper presented at the National Conference on Skill & Competencies in Education*, Universiti Sains Malaysia.

Ontario. (2016). *21st century competencies: Foundation document for discussion. Phase 1: Towards defining 21st Century competencies for Ontario*.

Partnership for 21st Century Skills. (2006). *Results that matter: 21st century skills and high school reform.*

Senechal, D. (2010). *The most daring education reform of all American educator* (pp: 1-13). Retrieved from http://www.aft.org/pdfs/americaneducator/spring2010/Senechal.pdf.

Sharifah Nadiyah Razali, Hanipah Hussin & Faaizah Shahbodin. (2014). 21st century core soft skills research focus for integrated online project based collaborative learning model. *Journal of Applied Science and Agriculture, 9*(11) Special 2014, 63-68.

Siti Ruzila Hassan, Roslinda Rosli & Effandi Zakaria. (2016)**.** The Use of i-Think map and questioning to promote higher-order thinking skills in mathematics. *Creative Education, 7,* 1069-1078.

Unit Perancang Ekonomi, Jabatan Perdana Menteri. (2010). *Rancangan Malaysia Ke-11(Kertas Strategi 10: Mentransformasi Sistem Pendidikan).*

Zamri Mahamod. (2011). Memperkasa guru, mempercekap pengajaran dan pembelajaran Bahasa Melayu abad Ke-21. *Prosiding Seminar Bahasa Melayu Singapura,* 1-30. Singapura: Pusat Bahasa Melayu Singapura.

Zamri Mahamod (2013). Merekayasakan pendidikan Bahasa Melayu pada abad ke-21. *Seminar Serantau Pascasiswazah Pendidikan Bahasa Melayu & Kesusasteraan Melayu Kali Kedua 2013.* Fakulti Pendidikan, Universiti Kebangsaan Malaysia.