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Full Length Research Paper

Thailand's classroom learning practices at secondary level: Are we ready for learning in the 21st-Century?

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Abstract

Based on data from a survey of students and teachers in 933 Thailand secondary schools in the Northeastern area of the country, this study explores students' and teachers' perspectives of current-, issues and needs of the classroom practices towards 21st century learning. The majority of the reported current instructional circumstance is traditional. The results found unsteady and slow internet connection, lack of technology, and uninteresting teaching methods as major problems in classroom practices. Responses to the needs of improvement suggest implementing new teaching strategies, more fun and relevance, better quality of internet connection, and enough devices and technology provided in schools. Additionally, digital behaviors of the students and teachers showed that they spend a couple hours a day online, mostly during 6pm to 10pm at home. The purpose of internet use is searching for information, whereas the most frequently used device accessing the internet is the Smartphone, and Facebook is the most-used social media. The delay of internet connection is found to be the most severe problem of internet usage through the experience of students and teachers in Thailand.

Keywords: Classroom learning, secondary schools, 21st century learning skills, Thailand.

INTRODUCTION

Education in Thailand is provided mainly by the Thai government through the Ministry of Education from pre-school to senior high school. A free basic education of twelve years is guaranteed by the constitution, and a minimum of nine years' school attendance is mandatory. In 2009, the Ministry of Education announced the extension of a free, mandatory education to fifteen years. Formal education consists of at least twelve years of basic education and higher education. Basic education is divided into six years of elementary education and six years of secondary education, the latter being further divided into three years of lower- and upper-secondary levels. Kindergarten levels of pre-elementary education, also part of the basic education level, span 2 to 3 years depending on the locale and are variably provided. Non-formal education is also supported by the state. Independent schools contribute significantly to the general education infrastructure (UNICEF, 2013).

Nowadays, we live in a technology- and media-suffused environment in that an abundance of information can be accessed in a second among dramatically changes in the technology tools of a digital society.

Citizens and workers must be able to create, evaluate, and effectively utilize information, media, and technology, to be effective in the 21st century. Accordingly, today's students need to develop thinking skills, content knowledge, social, and emotional competencies to navigate complex life and work environments. Ken Kay (2015), CEO of EdLeader21, remarked, “Today‟s students need critical thinking and problem-solving skills not just to solve the problems of their current jobs, but to meet the challenges of adapting to our constantly changing workforce.”

During the last decade, there has been increasing global awareness that students, who are now the generation of digital natives, are required to master 21st century skills in preparation for success in work, life, and citizenship. While traditional academic skills are considered as important skills to teach in schools; these skills alone cannot provide significant advancement opportunities (Graham, 2015). In a school, a smart student can solve an advanced mathematical problem, but he might not be able to explain how to solve the problem to his classmates. Life skills, communication skills, for example, are continuing to play important roles in determining chances of achieving success.

The partnership for 21st century skills (P21) developed P21‟s Framework for 21st Century Learning which created the new educational movement which is “21st learning skills” (P21, 2017). The *P21's Framework for 21st Century Learning* was developed with input from teachers, education experts, and business leaders to define and illustrate the skills and knowledge students need to succeed in work, life and citizenship, as well as the support systems necessary for 21st century learning outcomes. It has been used by thousands of educators and hundreds of schools in the Thailand and other countries to put 21st century skills at the center of learning. The P21 Framework represents both 21st century student outcomes (as represented by the arches of the rainbow) and support systems (as represented by the pools at the bottom) (P21's Partnership for 21st Century Learning, 2017).

The elements described subsequently in this study are the critical systems necessary to ensure 21st century readiness for every student. 21st century standards, assessments, curriculum, instruction, professional development and learning environments must be aligned to produce 21st century outcomes for today‟s students. Mastery of fundamental subjects and 21st century themes is essential for students in the 21st century. Disciplines include English, Reading or Language Arts, World Languages, Arts, Mathematics, Economics, Science, Geography, History, and Government and Civics. In addition to these subjects, we believe schools must move beyond a focus on basic competency to promoting understanding of academic content at much higher levels by weaving 21st century interdisciplinary themes into curriculum on global awareness, financial, economic, business and entrepreneurial literacy, civic literacy, health literacy, and environmental literacy (P21's Partnership for 21st Century Learning, 2017).

Figure 1 reports that the elements described here as “21st century student outcomes” are the skills, knowledge and expertise students should master to succeed in work and life in the 21st century.

Learning and innovation skills

Learning and innovation skills increasingly are being recognized as the skills that separate students who are prepared for increasingly complex life and work environments in the 21st century, and those who are not. A focus on creativity, critical thinking, communication and collaboration is essential to prepare students for the future.

Information, media and technology skills

Today, people live in a technology and media-suffused environment with: (1) access to an abundance of information, (2) rapid changes in technology tools, and (3) the ability to collaborate and make individual contributions on an unprecedented scale. To be effective in the 21st century, citizens and workers must be able to create, evaluate, and effectively utilize information, media, and technology.

Life and career skill

Today's students need to develop thinking skills, content knowledge, and social and emotional competencies to navigate complex life and work environments. P21's essential Life and Career Skills include flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility (P21's Partnership for 21st Century Learning, 2017).

The 21st learning skills are well known as “Three Rs” and “Four Cs” which need to be put into classroom practices. A few decades ago, it was enough to master the Three Rs (reading, writing, and arithmetic), but in the modern digital-wide world, the “Three Rs” simply are not enough. If today‟s students want to compete in this global society, however, they must also be proficient communicators, creators, critical thinkers, and collaborators (the “Four Cs”). This 21st century skills movement has made huge effects to education worldwide, as well as to Thailand‟s system of education.

Since the word “21st-century skill” was first nation-wide spread in 2012, there have been many attempts of the educators to implement the skills into school practices;

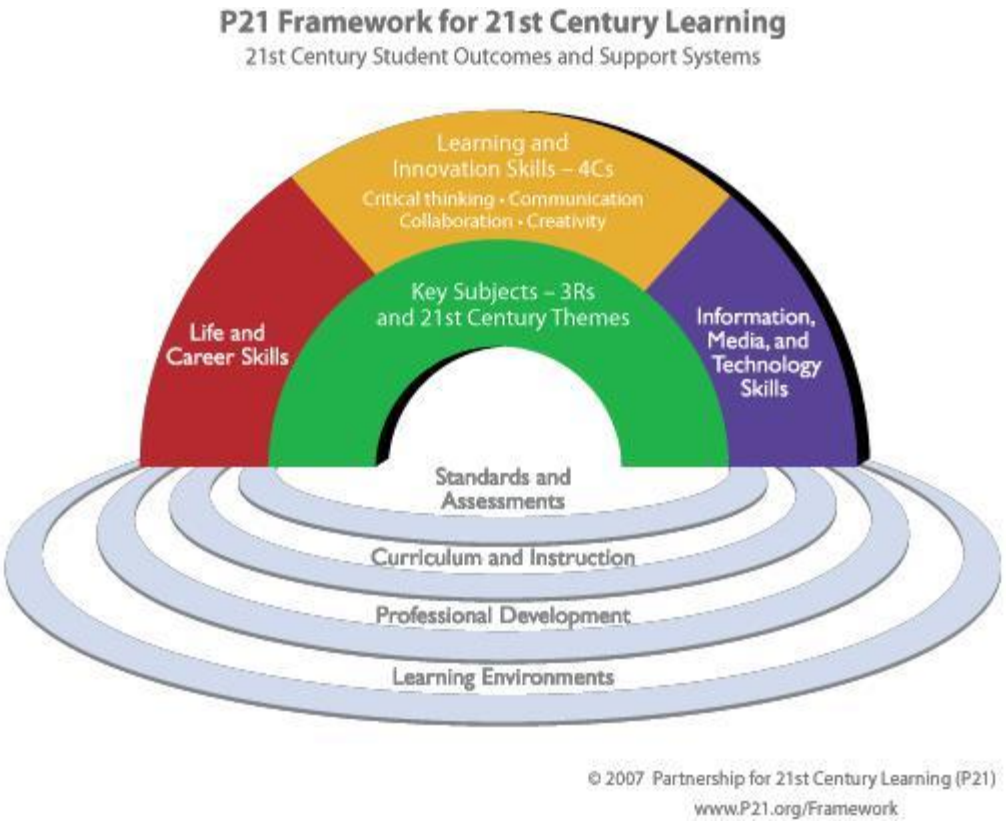


Figure 1. P21 Framework for 21st-century learning.

yet, there was no solid movement in the nation educational policy. According to the Thailand educational system, the schools were categorized into three groups by their sizes which are large, medium, and small-sized schools, based on the number of students in a school. There is an enormous gap between large-sized schools and small-sized schools concerning the number of students and the facilitated technology support. In a large sized secondary school, the number of students can grow to 5,000 students (Office of the Basic Education Commission, 2016); on the other hand, a small-sized secondary school may have only 41 students. In contrast, the first school can provide a MacLab for their students adequately, but the second school might be able to get only 10 desktop computers.

Friedman (2005) described that the computer technology is almost ubiquitous and a major contributor to the "flat world". Technology and, more generally, knowledge are diffusing today at an unprecedented rate along pathways limited only by the global reach of the internet. The S&T enterprise is now global, as has been observed by Friedman (2005) and others. This enables researchers who are far apart to rapidly build on the results of others, accelerating the advance in many areas. This new reality also increases the potential for disruption, since an advance made by one group of researchers can be exploited by another group working on a problem in an entirely different regime. Researching the next big thing, also known as a "killer app(lication)," involves identifying innovations and their current and potential applications. To be disruptive, technologies need not be radical or novel from an engineering or technical point of view. Many become disruptive merely because they cross a tipping point in price or performance or dramatically increase accessibility and/or capabilities relative to the incumbent technologies. Sometimes, ubiquity also characterizes a disruptive technology (Friedman, 2005).

The English language dominates science, scholarship, and instruction as never before. While it is unlikely that English will achieve the status that Latin had as the sole language of teaching and scholarship at the 13th-century universities in Europe, the Latin analogy has some relevance today. Back then, Latin not only permitted the internationalization of universities but allowed the Roman Catholic Church to dominate intellectual and academic life. It was only the Protestant Reformation led by Martin Luther, combined with a growing sense of national identity that challenged and then displaced Latin with national languages. As late as the 1930s, German was a widely used international scientific language. Until the mid-20th century, most countries used their national

languages for university teaching and for science and scholarship. French, German, Russian, and Spanish were, and to some extent still are, used for academic and scientific publications and have some regional sway. Scholarly communities in Japanese, Chinese, Swedish, and many other languages continue to exist as well. English was the closest thing to an international language, with several major academic systems using it, the United States, Britain, Australia, New Zealand, and most of Canada. In addition, the emerging academic systems of the former British Empire, especially India, Pakistan, South Africa, and Nigeria, have traditionally used English as the main teaching and publishing language. But English did not dominate scholarly communication until the 1950s, and national academic communities seemed in general committed to national languages.

To understand the issues and determine the best possibility to put 21st century skills into classroom practices nationally, the aim of this study is to survey students‟ and teachers‟ perception of their experiences in current classrooms‟ management and atmosphere. By also focusing on the students‟ digital behaviors, the study gains insight of how the 21st century skills will fit in the practices under Thailand‟s educational conditions.

Research objective

The purpose of this research study was to address current classroom practices in Thailand schools in order to determine the possibility and readiness of applying 21st century skills to Thailand‟s classrooms, what the 21st century learning movement has achieved, which improvement is needed, and what the current barriers might have been.

Research questions

The research studied students‟ and teachers‟ perspectives of classroom practices for 21st century learning in Thailand schools. More specifically, these research questions followed:

(1) What are the current classroom practices, issues, and needs for 21st century learning in Thailand schools?
(2) What do the students‟ and the teachers‟ digital behaviors and internet usage look like?

DATA COLLECTION AND PARTICIPANTS

Participants

Participants were students and teachers in secondary schools at the Grade 7 to 12th level in the Northeastern region of Thailand. The sample consisted of 2,430 secondary students of 90 schools from 993 schools which were selected by a multi-stage random sampling method: (1) grouped schools by education service areas and (2) randomly selected six schools in each of the areas. A sample in each school was selected by its principal. The researchers had no influence on the schools‟ decision in selecting samples.

However, in terms of the criteria of sample size, which the criteria of this sample size consisted for promoting access to secondary learning at an appropriate age, and on improving the quality of education. It aims to reach children and young people both in and out of school, and emphasizes equal access for all children, regardless of gender, social and economic status, or ethnicity and religious beliefs. It promotes innovative teaching methods, such as multimedia‟s, grade education, and promotes life skills, school readiness and learning achievements.

Current classroom practices, issues, and needs for 21st century learning survey

The data was collected through an online survey about the current classroom practices, issues, and needs for 21st century learning in Thailand schools; also the students‟ and the teachers‟ digital behaviors of using technology to support teaching and learning in the 21st century. The participants were asked to give their perspectives in a series of classroom management and environmental aspects in their schools.

The survey of students‟ and teachers‟ perspectives of classroom practices was administered online. All students accessed the online survey which had been made using a Google form. Before the study, the researchers had sent a consent letter to the principals in each school to ask for their cooperation in participating in the study from their students and teachers with no specific numbers of participants. Once the school accepted, students and teachers who were selected randomly would get the link to access the survey. The survey was made in the January 2017.

In detail, the survey included four sections. Section one required a participant to give an overview information of himself/herself, for example, grade level, gender and size of the school. Section two asked the participant to give his/her information and perspective on the use of information communication technology. Section three asked the participant to reflect on his/her perspective of current classroom practices, and section four asked the participant to give specific details of improvement needed, and suggestions to improve classroom practices in 21st century learning.

The random controlled testing

Properly conducted, randomized controlled trials are the gold standard for assessing the effectiveness and safety of interventions, yet are rarely conducted in the assessment of current classroom practices in Thailand, in order to determine the possibility and readiness of applying 21st century skills to Thailand‟s classrooms, what the 21st century learning movement has achieved, which improvement is needed, and what the current barriers might have been.

Instead, the classroom practices studies are commonly performed to assess the characteristics of a students‟ skill ability test including sensitivity and specificity. While the classroom practices can inform us about the relative accuracy of an experimental classroom practices intervention compared to a reference standard, students do not inform about whether the differences in accuracy are clinically important, or the degree of current classroom practices in Thailand for applying 21st century skills. In this research study, research team provides the advantages of the applying 21st century skills that randomized controlled trial and suggest a greater awareness and uptake in this conduct. The random controlled testing, disclosure of relevant

Table 1. Statuses of respondents who participated in the online survey.

Respondents' statuses	Percentage
School sizes	
Large	68.2
Medium	21.5
Small	10.3
Role	
Student	93.2
Teacher	6.9
Gender	
Male	32.1
Female	67.9

users, structured and graphic information are provided.

After the researchers got the feedback, which were responses from the students and teachers in 90 schools that participated in this research, the researchers worked together, simultaneously analyzing the data and discussing interpretations. The analyzed data are presented as means and standard deviations for descriptive purpose.

RESULTS

Respondents' statuses

As it was mentioned previously that the researchers had not got their hands on selecting the respondents of the survey, we would like to identify who gave their perspectives in the survey. The respondents‟ statuses are presented in three groups: (1) schools‟ sizes, (2) role in the school, and (3) gender.

In Table 1, the feedbacks have shown that the respondents were more female students (67.9%) than male students (32.1%) and most of the respondents were in large schools (68.2%).

Students' and teachers' perspectives on classroom practices for 21st century learning

From the online classroom practices survey, for the month of January 2017 that the survey was opened to receive the response, there were both students and teachers in the secondary participant schools who responded to the online survey. In the research findings from the feedback data, the results are presented as the following.

Current classroom practices

The respondents informed us that classrooms, management and atmosphere recently gradually involved technology support learning in the classroom. For example, a large-sized secondary school has provided one desktop computer with a projector to one classroom for the entire school. From this movement, the teachers have moved their teaching method to be more digitalized as they are found using slides and power point presentations during their lectures, and some have asked their students to take a class in the school‟s computer laboratory from time to time. Moreover, since 21st century learning has spread around the country, new teaching techniques were promoted and integrated into the classrooms, such as collaborative learning, Science, Technology, Engineering, and Mathematics (STEM) education, game-based learning, and problem-based learning. From this movement, the teachers have moved their teaching method to be more digitalized as they are found using slides, transparencies, and PowerPoint slides. Because transparencies use is not digitalized teaching approach and PowerPoint presentations during their lectures.

Nevertheless, small-sized schools seemed to have quite different circumstances. In the small-sized secondary schools in Thailand, there were a very small number of schools that could have a hundred students or less. The schools may not have the capability to provide those educational technologies in their classrooms. Thus, the classroom tended to be flatter and less digitally involved than in the medium and large sized schools. Not surprisingly, the feedbacks revealed that the students in large, medium and even small-sized schools had no problem with the rapid changes in technology. They reported a very welcoming mind and positive attitude of using technology enhanced students‟ learning achievements. However, the adequacy of provided technology in schools was not enough for all of the students that were associated.

In the classroom practices, it was found that the assessment varied by subjects, basically a paper-based test. Likewise, the assessment results were used to assess students‟ knowledge rather than to adjust an instructor‟s teaching of 21st century skills in the schools, and the survey had asked the respondents to reflect on these skill integrations in their classrooms. The skills implementation, such as critical thinking, creativity, and communication, appeared in the feedbacks but only in a few responses this was practiced. Thailand classroom practices still are aligned with the curriculum standards and the teachers are teaching students to meet a school academic indicator. The effort to move classroom practices in Thailand schools to 21st century learning have been made, but the practical movement needs more driving force from the nation‟s education policy.

Obstacles in Thailand's classroom practices

The collected data has shown three major problems in Thailand‟s classroom practices consisting of the internet,

educational technology, and teaching method.

While almost every secondary school in the country has provided the internet connection within a school both by wired and wireless access, the number one severe problem which the respondents reflected in the survey was the internet connection. More than one-third of the respondents stated: “the internet in schools is very slow and frequently a loss of the connection occurs.” A respondent, who is a teacher, wrote: “the internet connection is a big barrier in applying educational technology in schools when the connection is weak, it is almost impossible to integrate those drolleries from smart devices and online applications into the learning activity.”

Secondly, educational technology is a big issue the schools have been facing recently, especially small-sized schools. From the feedback data, it was found that there was not enough technology provided. An institution like a small-sized school in the rural area of Thailand may have merely a hundred students in their school and in the best case, they may have one computer laboratory with 30 desktop computers that are rarely working. Even a bigger school that has 2,000 students from the 7th Grade to the 12th Grade level still reported the same problem. Educational technology, not only computers for all students, but other hardware learning support like tablets, projectors, and smart TVs were not adequate, either. In the same way, software learning support, for example, Google apps for education and the worldwide famous quiz application „Kahoot", were online and because of the limitations of the weak internet connection, which was the biggest problem the study found, sometimes could not be used efficiently.

The third major issue found in this research is the traditional teaching method. It appeared in the feedback data that the students were bored, as the students responded, while a teacher feedback said students did not give their full attention to a learning activity and easily got distracted by the social media. The students reflected that they did not understand the content with a traditional teaching style. A respondent wrote, “The learning activity was not interesting at all.” Another said, “I could not find the connection between content and how to apply it to my daily life. Moreover, there was a respondents who said “those contents are just a text. Students sit in the classroom and a teacher talks.”

Finally, secondary schools recently developed school-wide classroom learning environments but have yet to develop a formal process to assess student and whole-school progress in achieving its 21st century learning expectations. Schools" administrators, lead teachers, and instructional coaches drafted four schools to assess students" abilities to set goals, communicate, analyze, and problem-solve effectively. This research study was to administer classroom learning practices for assessing academic goal setting has been used in all learning classes, and the results are communicated to families at the end of semesters. A handful of teachers have piloted the remaining classroom learning practices and have provided valuable suggestions to improve their usefulness in evaluating student mastery of the 21st century learning expectations.

Needs to improve the classroom practices

When considering the requirement of the respondents to improve classroom practices, the result can also be grouped into the same three categories as the obstacles discussed earlier, but in a different order.

A large number of responses reflected that the most desired need is new teaching methods. The requirements varied but they pointed to 21st century learning. When analyzing the feedback data, they were fun, not stressful, student-centered, and hands-on learning activities that were needed within classrooms. Not only the 3Rs that should be focused, but also the 4Cs that students required to achieve are managed. According to the survey, the respondents need the activities that promote students" understanding, critical thinking, engagement, and problem-solving skills. A respondent stated: “We want teachers to change their teaching style to be up-to-date: more fun, engaged and technology-rich as the world changes daily but we, students, have been learning with the same teaching style since elementary level.” It was noticeable from the feedback that the students need less homework, a respondent said “As I learn content, I want to be able to see the connection between the knowledge and how can I apply it, not to learn to take a test and get the score. Learning like this is worthless.” While the teachers responded that they need the schools to provide enough technology support learning, they, in their turn, would be able to advance their teaching styles.

The second requirement is computer and technology learning support. According to the lack of educational technology that was found as one of the three major problems from the survey, the feedback insisted that it needed to be provided adequately. Some schools may not be able to provide more devices, the respondents stated that “schools should accommodate their students and teachers by providing updates and maintenance once the devices were already installed”, just as it was remarkable in the feedback that “the technology provided like computers are very old and very slow.” Thus, the technology does not only have to be sufficient in terms of demand but has also to be ready to use.

Internet improvement is another major need in classroom practices. Nowadays, most of the students in secondary schools in Thailand have their own smart devices that can access the internet. Because knowledge has moved from paper-based context to cloud-based context, it is unavoidable to involve online learning into classroom practices. The study found numbers of “high-speed internet” and “strong signal” needs. It can obviously be seen that even though the schools can get

enough computers for the students but without stable Internet connection, this is only half-way efficient when many resources are online.

Using technology as the tools for learning and developing 21st century learning

This study examined work samples and reflections consisted of 2,430 secondary students and 180 preservice teachers of 90 schools in the secondary schools under the Secondary Educational Service Area Offices under that Office of the Basic Education Commission in Northeast Region of Thailand. In addition to addressing these questions, the data from 180 preservice teacher work samples and 2,430 secondary reflections were examined through the lens of the "National Educational Technology Standards and Performance Indicators for Teachers" and "National Educational Technology Standards for Students: The Next Generation" Findings indicated 81% of secondary and preservice teachers integrated technology skills and knowledge in instructional practice with their secondary students. Approximately 60% of the work samples and reflections documented secondary students' use of technology in the areas of creativity and innovation, communication and collaboration, and research and information fluency. There is little evidence that secondary students used technology to support critical thinking, problem solving, and decision-making.

The challenge of 21st-century learning

Teaching students to be successful in a 21st century, knowledge-based economy requires a different way of teaching. Unfortunately, many teachers do not yet possess the skills necessary to be successful in facilitating 21st century learning. One of the many factors preventing teachers from doing so is a lack of technology training. Too often, teachers have not been provided with the necessary technology skills to create a modern learning environment.

Teachers not only need to understand how to use technology in their teaching, they need to understand how to help students use technology to help guide their own learning. Teachers need to provide students with the tools to learn both within and outside the classroom. Teachers are the first to recognize this need. Concerned teachers are continually requesting more training and additional professional development. This research results discussed the importance of professional development in helping teachers gain confidence and experience with technology to engage today"s student. With this in mind, it is no wonder that many students have little patience for the typical school environment with its slower pace, high structure and reliance on teacher-directed instruction. Technology (especially social media) is one of the primary ways in which students communicate. If teachers do not fully understand how to apply these technologies in their teaching, they will not have the basic tools to communicate with their students. Simply put, without the tools of communication, teachers will be unable to communicate with their digital native students.

The information and communications technologies in classroom practices

Today, information and communications technologies (ICTs) infiltrate classrooms around the world at an exceedingly rapid pace. In the wake of this influx, educators face growing challenges as they teach a very “wired” and more and more “wireless” generation of students using technology that is evolving every day. This white paper helps educators understand and embrace ICT to create better learning environments for students. It defines 21st century students and teachers and presents the challenges educators face as these students and their accompanying technology cross the classroom threshold. This paper also presents solutions to help teachers effectively meet the needs of these students while preparing them for the 21st century workforce.

Overall, there was one of the feedbacks that can be used to conclude the best suited classroom practices, maintaining, “The classroom practices should be focused on providing students" experiences through learning activities that are differentiated by contents and students" abilities.” When this is achieved, the students will be able to live according to 21st century requirements.

Digital behaviors

The feedback data showed the information of the respondents" digital profiles which can be categorized according to their behaviors as an average hour spent, daily average use, internet access device, place, digital activity, social media, and problem-solving.

The highest number of hours spent daily on the Internet was found at a couple of hours a day (27.1%). However, the percentages of three ranks behind were not much different as shown in Table 2. Top two of time spent was more than five hours a day (23.2%) followed with 2 to 3 hours and 4 to 5 hours a day, sequentially, with very close values (22.5 and 21.8%).

The feedbacks also revealed that the popular hours were from 6 am to 10 pm (45.4%) when the students and teachers mostly use internet during a day (Figure 2), while the use at lunch time was number two in the time span (32.6%).

The survey findings show that the respondents" home/accommodation and school were the places most

Table 2. Average daily hour spent.

Hour spent daily	Percentage
Less than 1 hour	5.4
1-2 hours	27.1
2-3 hours	22.5
4-5 hours	21.8
More than 5 hours	23.2

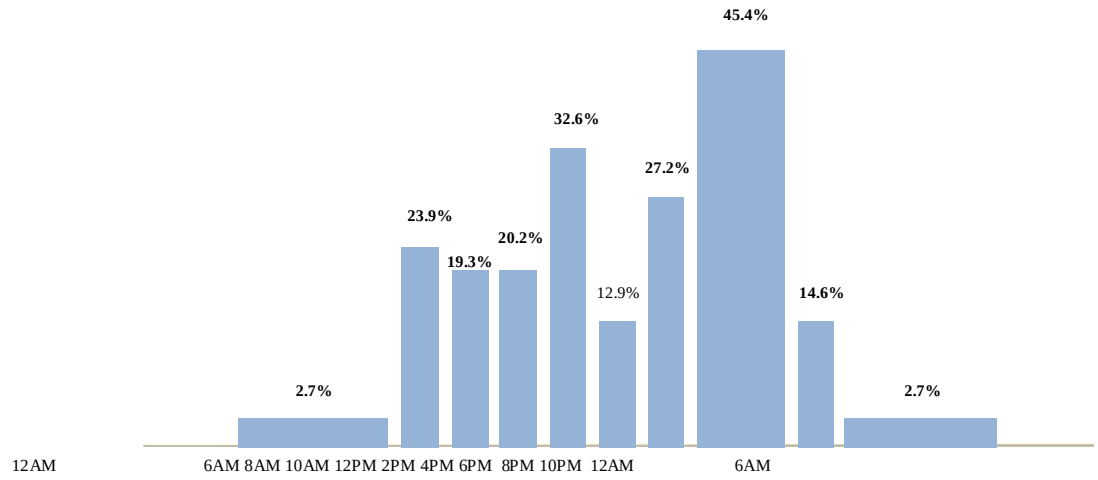


Figure 2. Internet usage time span.

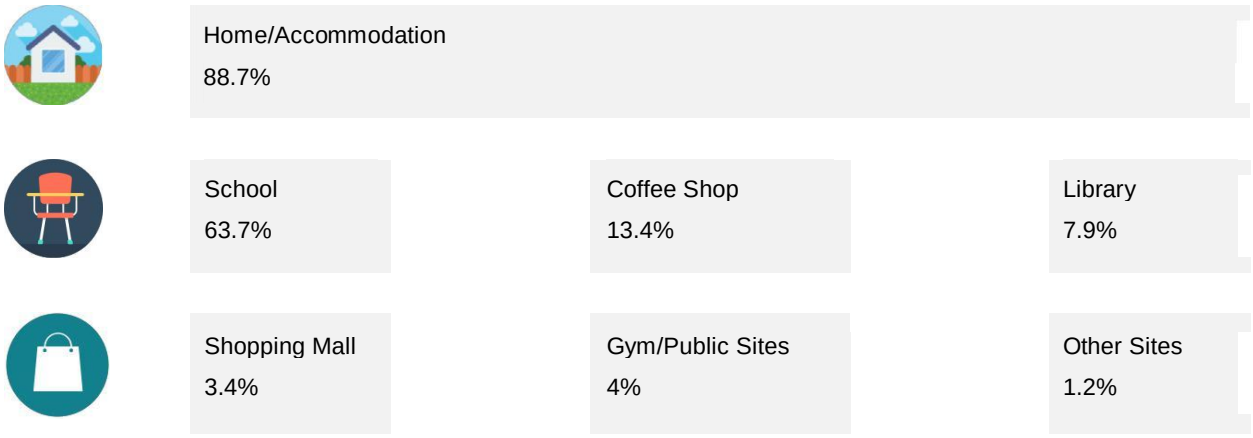


Figure 3. The internet usage sites.

frequently used by 88.7 and 63.7% of the internet users respectively, as shown in Figure 3.

Because of decreasing prices of mobile devices, network development, and mobile applications, survey findings discovered that 92.4% of the students and teachers accessed the internet via their personal mobile devices which remarkably beats the secondly ranked, laptops, where there was only a 38.3% use while personal computers were ranked third place at 28.4% (Figure 4).

When considering the purposes of internet usage in Figure 5, the participants mostly accessed internet for searching for information (59.7%), the activity ranked secondly was for social media (57.5%), while the third-

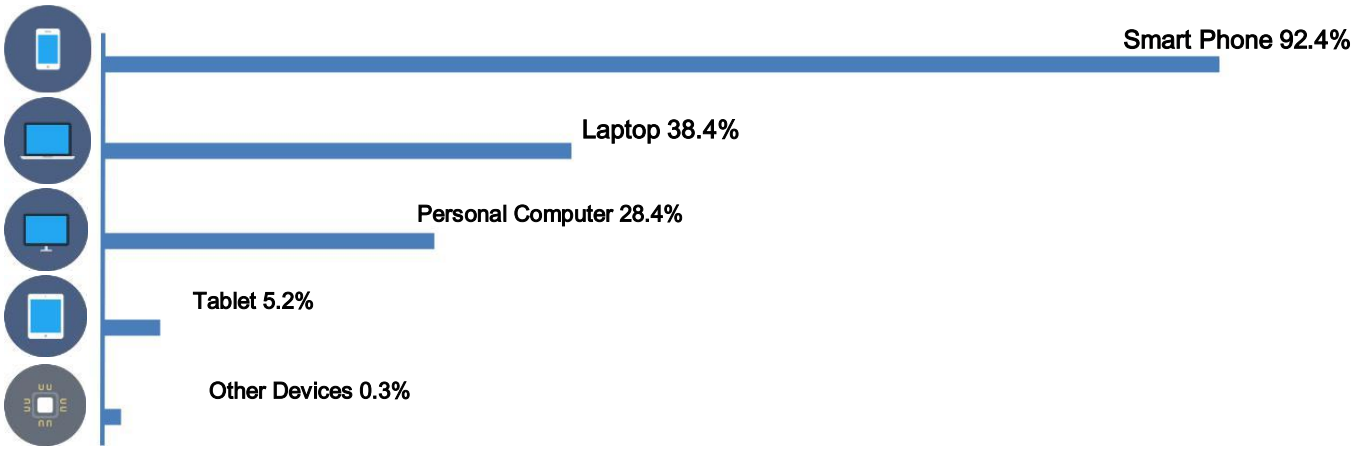


Figure 4. Mostly used devices.

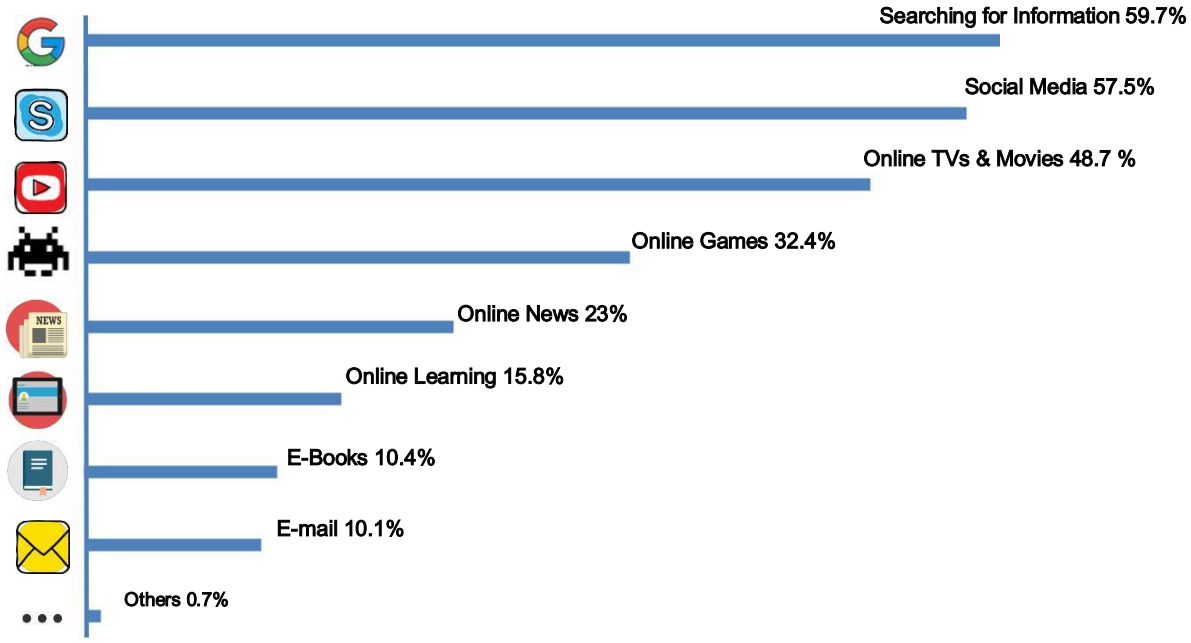
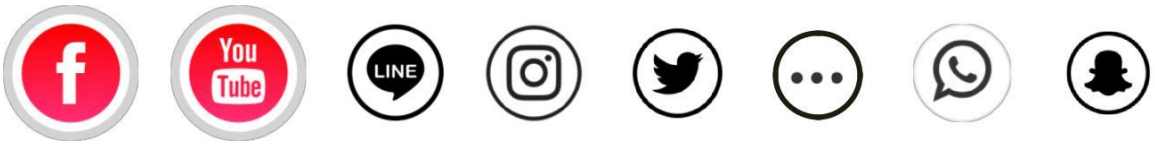


Figure 5. Online activities.

ranked one was for entertainment purposes like watching online television and movies (48.7%). From the information shown in Figure 5, the usage for academic purposes was not popular as online learning, reading electronic books (e-book), and email correspondence, they were ranked in positions 6 (15.8%), 7 (10.4%), and 8 (10.1%) under playing online games and reading online news.

As the survey findings revealed the users" second favorite digital activity was using social media. In this connection, the survey examined the current most popular social media sites in Figure 6. It was found that the number one accessed site that 86.9% of the respondents used was Facebook, followed by YouTube, Line, and Instagram, respectively.

The last dimension of the digital activities that the survey indicated was problems of internet usage (Figure 7). The respondents" feedbacks pointed out that the problems with their internet accessing experiences, mostly found at 80%, was connection delay. Secondly, it appeared that 50% of the users were annoyed by unwanted online advertisements. The third problem was unsteady internet connection which was found at 48.7% followed by high rates of service fees (28.7%) and lack of readiness to purchase personal smart devices (8.4%) sequentially.



86.9% 69.9% 38.7% 34.3% 5.9% 1.2% 0.8% 0.7%

Figure 6. Favorite social media sites

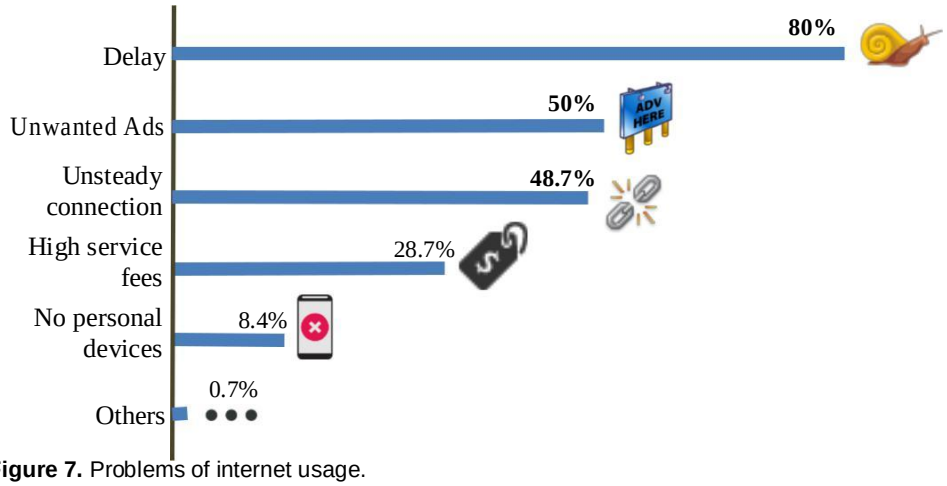


Figure 7. Problems of internet usage.

It is also noticeable that the major problems one through to four had relevance to internet service infrastructure. In order to alleviate their severity and get rid of them eventually, service agencies should consult these concerns and increase their efforts to solve the problems. The findings can contribute most applicable to Thailand schools" and classrooms" drive towards 21st century learning.

DISCUSSION

It can be detected that the current classroom practices in Thailand schools are not sufficient for learning in the 2^{1st} century. Based on the findings, there are three major issues that need to be improved: internet speed, adequacy of technology learning support, and teaching methods. However, it appeared that the first priority problem that needs to get rid of first was the old-fashioned teaching method. Apparently, students are not satisfied anymore with a learning where things are quite traditional: desks in rows, lecture instruction. More fun and engaging but less stressful teaching techniques are required. This finding is parallel with Carlson and Winquist (2011), who found that non-traditional teaching style improved student attitudes and learning outcomes. Also, when teachers revised their course, the majority of these instructors enjoyed their new courses (Garfield, 2002).

The second major improvement need is the speed of internet in schools. The results of the study revealed that the internet connection problem was the most severe issue, along with the results from the digital behavior survey that found the internet connection"s delay to be the main issue of students" digital experiences. Schools must provide strong internet signal with fast speed of the connection. It is obvious that today, we live technology, not just use it as a tool. Also, content is not limited to textbooks anymore, the power of the Internet makes it very easy to get content knowledge. With the wide spread of technology and information through the digital world, students need to be trained in schools to be able to efficiently select facts and pick quality data out of a thousand data responses in a single search. This concurs with Huneycutt (2013) that online tasks can keep students focused longer. The use of computers to look up information is a tremendous time saver, especially when used to access a comprehensive resource like the Internet to conduct research.

Educational technology is another improvement domain that needs to be provided adequately. The study reported that there were not enough computers for classroom practice in many schools, particularly, the small-sized schools. The findings show that students considered this technology as the important tool to move their learning beyond paper-based learning. Significantly, they were

more engaged and having fun when they got an opportunity to learn differently, especially when technology is involved. Kahoot is one of the obvious examples of technology enhancing learning as it pulls all the students into learning activities (Singer, 2016). Huneycutt (2013) noted that the time-saving of the use of the computer to search for data online can keep students focused on a project much longer than they would be with books and paper resources, and it helps them develop better learning through exploration and research.

The study of students" digital behavior shows that students in Thailand are familiar with technology as they mostly use smart devices at home. The results of the usage hours during a day from 6 to 10 pm clearly pointed out that teachers can flip their classroom. Also, Bring Your Own Device (BYOD) policy can be promoted in schools to solve the problem of lacking enough devices. Social media, specifically Facebook as it is the most used among other social media applications according to the results, can be used to enhance learning. Teachers can use it as an instructional tool, discussion space, and back channel of the face-to-face classroom. This concurs with the study of Krentler and Willis-Furry (2010) that the incorporation of technology in the classroom does enhance actual student learning.

This research indicates that there are both benefits and limitations to using student surveys in teacher evaluations, as is true with many evaluation measures. In this findings from research on using student surveys as a measure of teacher effectiveness are grouped into four major categories: (1) use of students as raters, (2) reliability and validity of student ratings, (3) predictability of student achievement results, and (4) implementation issues. In making decisions on the use of student surveys as a component of a comprehensive teacher evaluation system, policy makers should consider both the benefits and limitations. However, the results of this study are consistent with the following relevant research studies.

The 21st century student

On average, secondary students spend 6.5 hours in each day saturated in print, electronic, digital, and broadcast and news media. They listen to and record music, view, create and publish internet content, play video games, watch television, talk on mobile phones and instant message every day. Students do not want to be bound by traditional schedules, and they do not necessarily want to sit in a classroom to learn or in an office to work. Instead, they prefer to use technology to study at any time of the day or night, telecommute from anywhere in the world and define “balance” in their own individual ways (Beck and Wade, 2004).

The 21st century teacher

Of the 75% of teachers who participated in educational technology integration professional development courses, the majority, more than 60%, spent less than eight hours in a 12-month period in this type of training. When so few hours were dedicated to this training, 87% of teachers said they did not experience a lot of improvement in their teaching (U.S. Department of Education National Center for Education Statistics, 2000). The number one reason teachers experience dissatisfaction with their jobs, causing them to either leave their profession or transfer to other schools, is lack of planning time (13). Technology requires teachers to play more of a facilitator role, rather than a more directive or authoritative one. This new role conflicts with traditional teaching methods and requires teachers to step back and allow learning to happen without their hands-on direction (U.S. Department of Education National Center for Education Statistics, 2001).

The 21st century challenges of teaching

The classroom has changed since teaching began moving through today"s school systems. Curricula evolve, and new teaching methodologies are developed to reach this generation, which spends as much time stimulated by digital media as it does in school. As teachers work to engage and educate this generation of students, they face the following challenges: learning must be relevant to students, technology can be distracting, and technology can be expensive. In Thailand, most of 80% of students advance through the country"s school systems from government secondary school (Pvtel, 2006).

Solutions for using technology to teach 21st century students

To effectively engage and teach Millennial students, school systems must be outfitted with a prerequisite of ICT resources, and curricula must be designed to promote a collaborative learner-centered environment to which students will relate and respond. As ICT is integrated into classrooms, educators must have professional development and certification of computing skills. Students must also be taught ICT skills relevant to their entry into the workforce (Fingar, 2006).

Conclusion

The aim of this action research was to gain the reflection of Thailand classroom practices through the views of the students and teachers to identify the current classroom practices, issues, and needs for 21st century learning in Thailand schools. The current practices were more based on traditional teaching style. The instructional strategies did not practically promote 21st century skills. As the major problems in the classroom the study found the

internet connection delay, inadequate educational technology and devices, and old-fashion teaching strategy. The study expressed views that instructional strategies of classroom practices should be more fun, engaging and relevant to other subjects and their daily lives. Classroom practices should provide students" experiences through learning activities that are varied by the nature of the content so that the students will be able to succeed in 21st century learning.

Digital behaviors and internet usage of the students and teachers showed that they are ready and very positive to get these technologies into their classrooms. Typically, students spend 1 to 2 hours on the internet in a day, mostly during 6 to 10 pm at home. The Smartphone is the most important of the internet access devices and Facebook is number one in social media use. The most severe problem the students are facing is the delay of internet connection. The study showed that online activity is their daily activity; strategies like a flipped classroom, online collaborative learning, and web-based instruction and so on can be applied. The way each teacher uses these strategies in his/her classroom might be different, as it will depend on students, content, and classroom background. Clearly, the results presented the desired improvement towards Thailand classroom practices from students" and teachers" perspectives. Hopefully, the research findings can help improve the effectiveness of teaching in the 21st century. Most importantly, students were given opportunities to have listened to their needs.

However, the changes of classroom practices in Thailand schools take effort and time. They are not going to succeed in a day. The implementation needs support from other teachers, schools, and national educational sectors but once teachers have started the effort to push their students through 21st century learning, it is worthwhile making these changes as we will know what works and what does not.

CONFLICT OF INTERESTS

The authors have not declared any conflicts of interests.

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