

การเสริมสร้างทักษะการเรียนรู้ในศตวรรษที่ 21 แก่นักเรียนระดับประถมศึกษา ด้วยการบูรณาการหลักสูตร Enhancing the Primary Students' 21st Century Learning Skills through the Curriculum Integration

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บทคัดย่อ

การวิจัยนี้เป็นการวิจัยและพัฒนา มีวัตถุประสงค์เพื่อพัฒนาและประเมินผลการใช้หลักสูตรสถานศึกษาระดับประถมศึกษา ที่บูรณาการทักษะการเรียนรู้ในศตวรรษที่ 21 ประกอบด้วย 3 ขั้นตอนในการวิจัย คือ ขั้นเตรียมการสร้างหลักสูตร ขั้นสร้างหลักสูตร และขั้นทดลองใช้ ประเมินและปรับปรุงหลักสูตร องค์ประกอบหลักสูตรควรประกอบไปด้วย วัตถุประสงค์ เนื้อหา กระบวนการจัดกิจกรรมการเรียนรู้ และการวัดและประเมินผลซึ่งบูรณาการทักษะการเรียนรู้ในศตวรรษที่ 21 ได้แก่ ทักษะการอ่านออก การเขียนได้ การคิดคำนวณ การคิดอย่างมีวิจารณญาณ และการแก้ปัญหา การคิดสร้างสรรค์ และนวัตกรรม ความเข้าใจความแตกต่างทางวัฒนธรรมต่างกระบวนทัศน์ ความร่วมมือ การทำงานเป็นทีมและภาวะผู้นำ การสื่อสาร สารสนเทศ และรู้เท่าทันสื่อ คอมพิวเตอร์ และรู้เท่าทันเทคโนโลยี อาชีพและการเรียนรู้ควมมีคุณธรรม มีเมตตา กรุณา มีระเบียบวินัย ซึ่งควรจะนำไปบูรณาการกับทุกองค์ประกอบของหลักสูตร ผลการศึกษาพบว่าผู้เรียนได้รับการพัฒนาให้มีทักษะการเรียนรู้ในศตวรรษที่ 21 สูงขึ้น สรุปได้ว่าหลักสูตรบูรณาการทักษะการเรียนรู้ในศตวรรษที่ 21 สามารถนำไปจัดกิจกรรมการเรียนรู้ในระดับประถมศึกษาได้อย่างเหมาะสม

คำสำคัญ: การพัฒนาหลักสูตร ทักษะการเรียนรู้ในศตวรรษที่ 21 หลักสูตรบูรณาการ การเรียนการสอนในศตวรรษที่ 21

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ABSTRACT

This research aimed to develop and evaluate the implementation of the primary school curriculum which integrated the 21st century learning skills. It was found that there are three stages of curriculum development: first, the preparation of the curriculum stage, second, the development of the curriculum stage, and third, the trial, evaluation and improvement of the curriculum stage. The core parts of curriculum should be consisted of objective, content, learning activity, and assessment. Furthermore, the 21st century learning skills consist of reading, writing, arithmetic, critical thinking and problem solving, creativity and innovation, cross-cultural understanding, collaboration teamwork and leadership, communications information and media literacy, computing and ICT literacy, career and learning skills, and compassion. They should be merged in every part of the curriculum. The results showed that the level of students' ability towards the 21st century learning skills was high. Thus, it was concluded that the curriculum, which integrated with the 21st century learning skills was suitable for teaching and learning in primary school.

Keywords: Curriculum development, The 21st century learning skills, Integrated curriculum, Teaching and learning in 21st century

Introduction and Literature Review

It is undeniable that the 21st century learning skills are the most popular educational trend nowadays. Students at the present have to survive effectively by their own way. They must learn how to think, learn, work, solve the problems, communicate, and to work efficiency with the others in their whole life. Schools are the place for them to practice by various learning activities and appropriated learning atmospheres. These may urge them to be more enthusiastic and vigilant into the rapidly change (Susan, 2010; Bellanca and Brandt, 2010). Normally, educational systems in schools are subject matter courses. So, there are duplicated in objectives, contents and activities. Some topics student have to learn repeatedly many times in the different time periods that is the lack of education. They can classify the same objectives, contents and activities from each subject into categories. Thus, appropriate learning activities may influence student's learning

more effectively (Schleigh, Michael and Tammy, 2011 ; Malik and Malik, 2011 ; Hartzle, 2000). Thus, the curriculum is set of the connection between knowledge and experience which providing cognitive, affective and efficiency domains altogether. Themes which integrated in curriculum should be related with real life, they may persuade students' social understanding and problem identifying. So, the students who learned with integrated curriculum can live in social peacefully and solve the problems appropriately (Susan and Rebecca, 2004 ; Todd, 2010. Presently, school curriculum put more weight on content. Students spend more time and effort to master the knowledge but no skills that are require to survive in the present day. The 21st century skills should be emphasized in the school curriculum.

Curriculum development

The processes of the curriculum development should be systematically organized.

Then the well information about the curriculum development from educators are the most essential tools for the curriculum developers who can develop the curriculum more effectively. From the integral and significant role of the curriculum definition in curriculum development, this topic is widely investigated in a vast number of issue with variety results. The definition of curriculum derided into two groups. First, curriculum is a plan that provide for the learners. It is a plan that guides the objective for the schools to design learning activities for students. (Oliva, 1992 ; Saylor and Alexander, 1974). Second, curriculum is an experience that provides for the learners (Taba, 1962; Jacob, 1989). The experience should provide various activities based on real life situations (Beauchamp, 1981). Hargreaves (2003) and Marsh (2004) stated that the four components of the curriculum. 1) Objective is the final goal for student to get, 2) Content is the learning experience for leading students to hit the objectives, 3) Activities is the learning processes that and assessment, and, 4) Evaluation is the way to judge the learning quality. According to Taba (1962), there are seven stages of curriculum development approach including 1) diagnosis of needs, 2) formulation of objectives, 3) selection of content, 4) organization of content, 5) selection of learning experiences, 6) Organization of learning experiences and finally, 7) determination of evaluate and of the ways and means of doing it. Finally, the curriculum development should basically consist of three stages : the preparation of the curriculum stage, the development of the curriculum stage and the trial, evaluation and improvement of the curriculum stage.

The integrated curriculum

The integrated curriculum is another way for enhancing curriculum organization.

As the integrated curriculum can combine many disciplines together. It also make learning more meaningful to the students. Then, the details of the integrated curriculum should be focused as many educators informed. Good (1973) stated that integrated curriculum is a curriculum organization which cuts across subject-matter lines to focus upon comprehensive life problems or broad based areas of study that brings together the various segments of the curriculum into meaningful association. Like as Fogarty (1991). also stated integrated curriculum into ten forms as fragmented, connected, nested, sequenced, Shared, webbed, threaded, integrated, immersed and networked. Based on Sowell (1996), there are essential components of an integrated curriculum as following 1) core skills and processes that include basic skills, such as reading, mathematics, social skills and problem solving. 2) curriculum strands and themes which are the organizing principles around which the curriculum is built. 3) major themes which is further divided from curriculum strand. 4) questions are used to define major themes and focus activities. 5) Unit development should be related to the concepts. 6) evaluation assessed the student progress. Lemlech (2002) summarized the positive effects of curriculum integration as the following findings: 1) integrated curriculum helps students apply skills. 2) an integrated knowledge base leads to faster retrieval of information. 3) multiple perspectives lead to a more integrated knowledge base. 4) integrated curriculum encourages depth and breadth in learning. 5) integrated curriculum promotes positive attitudes

in students. And, 6) integrated curriculum provides for more quality time for curriculum exploration. Any types of the integration the curriculum should have themes which lead the various of topics, contents or skills join together. The themes of the curriculum should be interesting, useful, and clear.

The 21st century learning skills

Living in the new era is the risk for the learners. The 21st century learning skills are the essential skills to apply for living in society nowadays. Education management for the 21st century is challenged. Many educators found several technique for supporting future needed skills. Trilling and Fadel (2009) informed that the students should know the core subjects as following mother's tongue language and world's important languages, arts, mathematics, politic and civic duty, economics, geography, and history. Moreover, there are main concepts to know for surviving in the society such as global awareness environmental literacy, civic literacy, health literacy, financial, economics, business and entrepreneurial Literacy. Hence, there are also emphasizing skills for life long learning in the 21st century, like as reading, writing, arithmetic, critical thinking and problem solving, creativity and innovation, cross-cultural understanding, collaboration, teamwork and leadership, communications, information, and media literacy, computing and ICT literacy and career and learning skills. Then, the 21st century learning skills can be categorized into parts : Key subjects-3Rs, life and career skills, learning and innovation skills, and information, media and technology skills. Moreover, the teaching and learning in the 21st century should emphasize on mastery learning, teaching less but learning more lifelong learning and formative assessing.

Methodology

Research Design

Research and Development was designed in the study. Both qualitative and quantitative research method were utilized. Thus. it is one-shot case study. Firstly, Need assessment of the curriculum was studied. Next, the curriculum development team designed the curriculum. Then, the curriculum was checked for the need and appropriateness of the curriculum by the experts. After that, after the curriculum was improved, it was taught with the sample group. The test was provided after the session. Finally, the curriculum was improved again in order to be a complete curriculum.

Participants

The population was divided into two groups: 1) seven experts in the field of curriculum and instruction, measurement and evaluation, teaching of Thai language subject , teaching of Mathematic subject, teaching of Science and technology subject and teaching of English language subject. 2) 13 grade one students from Ban Bothong School, Pakchong District, Nakhon Ratchasima Province. To determine the respondents of this study, the researcher used a Purposive Sampling method (Kumar, 2011).

Instrumentation

The instrument in this study were :A curriculum evaluation check list questionnaire. And, the 21st Century learning skills test which is a multiple choice test with 40 items. The instruments were validated experts in the field and IOC value ranged from 0.57 to 1.00.

Data collection procedures

The data were collected from 3 stages :1) The researcher studied the documents about the curriculum development, the integration, the 21st century learning skills, then making a primary curriculum which integrated with the 21st century learning skills. In this stage, there are the participants joined to make a curriculum : school's director, primary teachers, parents, school's committee, students, school's stakeholders. 2) The primary curriculum which integrated with the 21st century learning skills and a curriculum evaluation check list questionnaire was checked by the experts. 3) The teacher taught the sampling group students with the primary curriculum which integrated with the 21st Century learning skills for 180 hours. After that, the students did the 21st century learning skills test .

Data analysis

Qualitative content analysis from sets of data as following ;the expert s' questionnaires was analyzed and transcribed to see the need and the appropriateness of the curriculum, the IOC was utilized. The students' 21stcentury learning skills test was analyzed and transcribed to see the students' ability in 21stcentury learning skills. The score was provided in percentage.

Results

There are three parts of the result :

1) The primary curriculum which integrated with the 21st century learning skills consists of the four main integrated subjects ; Thai language, Mathematics, Science, and English from grade 1-6 shown in the figure 1.

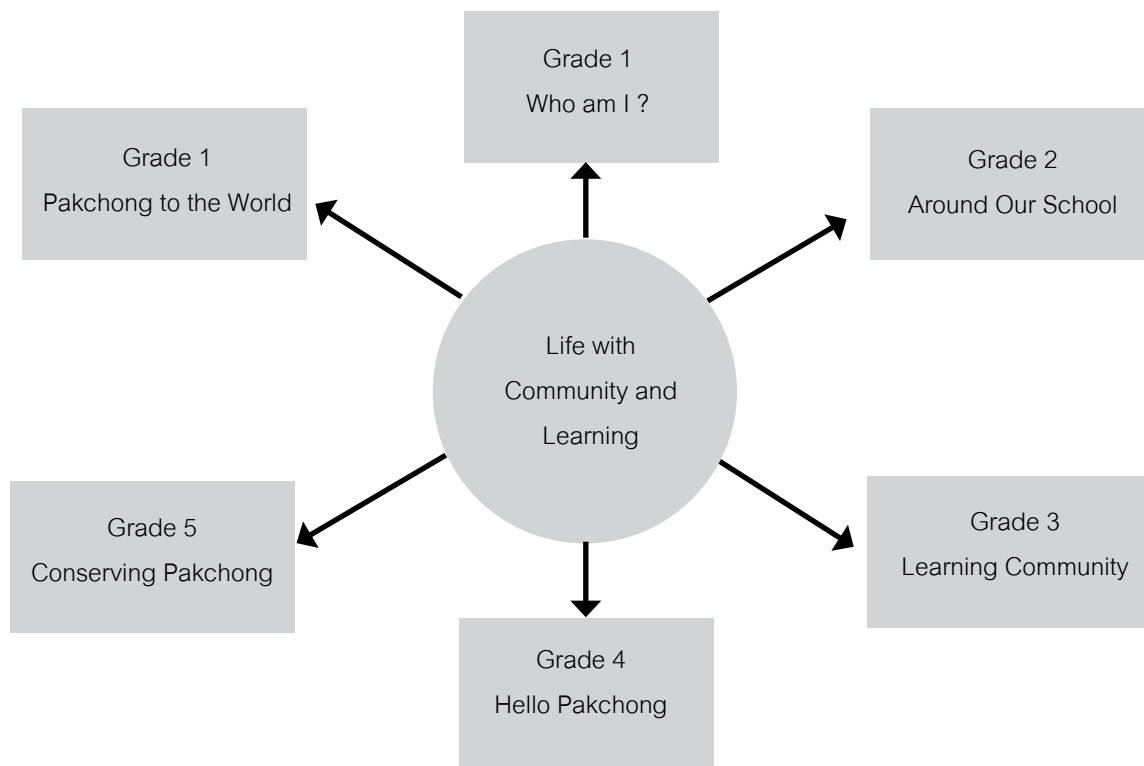


Figure 1 The integrated curriculum

The subjects from grade 1-6 in the curriculum was merged with 21st century learning skills every parts of the curriculum such as the subject's descriptions, objectives, themes . Each subject contained 520 hours with 8 themes. The example of Grade 1 : Who am I subject as shown in figure 2.

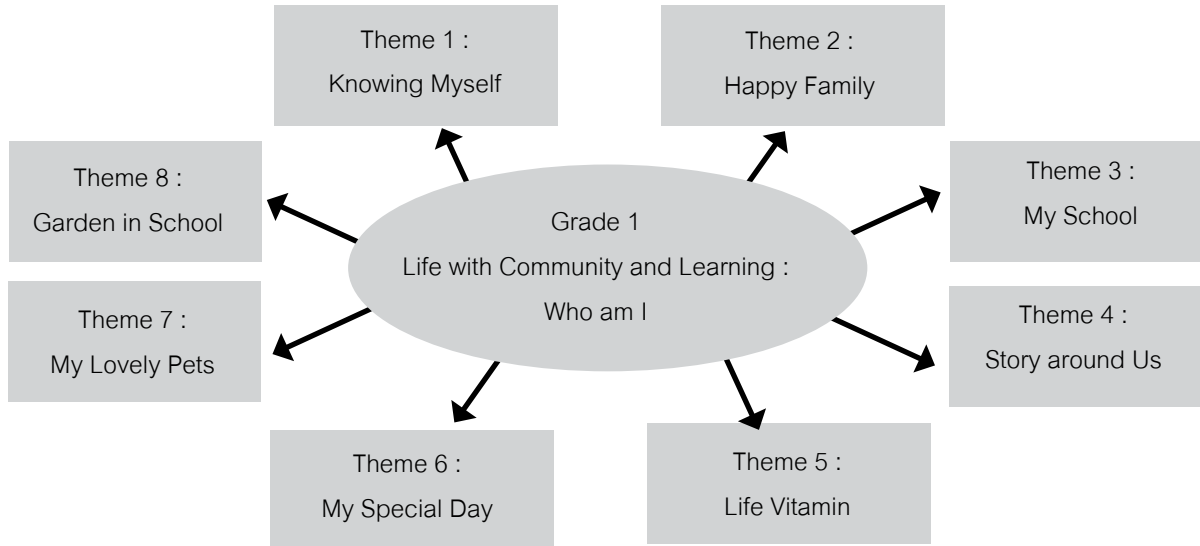


Figure 2 Themes in "Grade 1 Life with Community and Learning : Who am I"

Themes in the curriculum were merged by 21st century learning concept which was suitable for the student to learn. The curriculum development team selected the appropriated standards and indicators for each theme. Then, we designed the thematic lesson plan according to the 21st century learning skills as shown in figure 3.

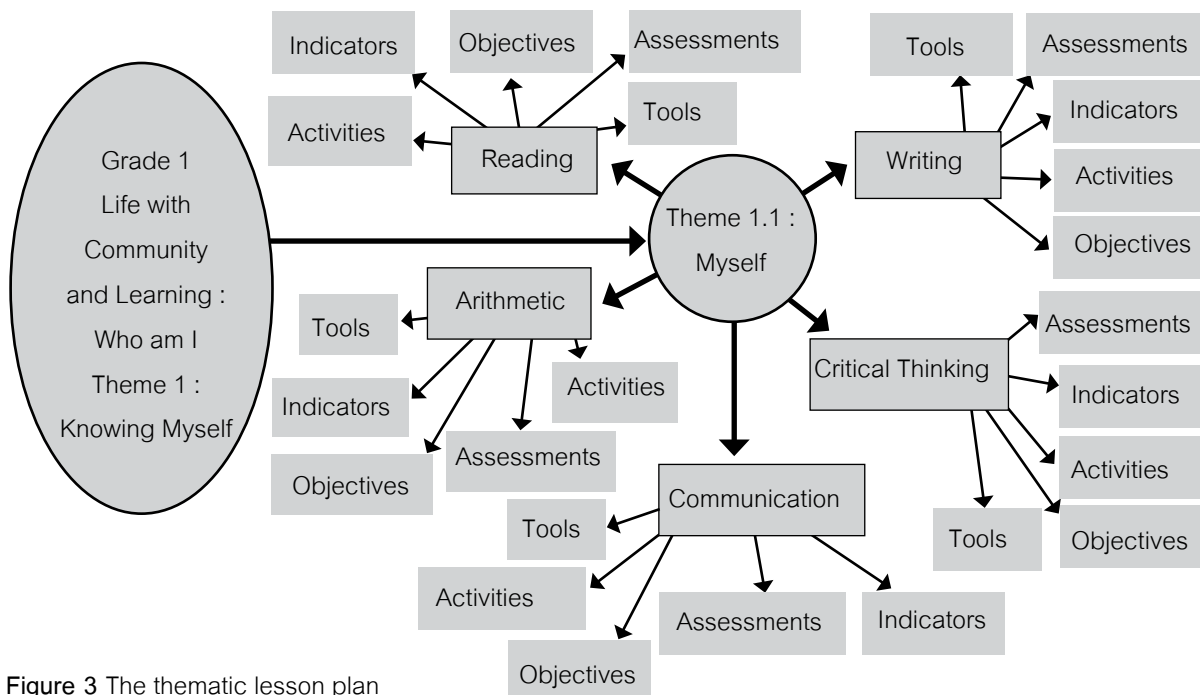


Figure 3 The thematic lesson plan

2) The need and appropriateness of the curriculum. The result as shown in table 1.

Table 1: The need and appropriateness of the curriculum (IOC)

Item	N	Min	Max
22 items	7	0.57	1.00

Table 1 shows the result of the need and appropriateness of the curriculum from the experts. They believed that the elements in the primary curriculum which integrated with the 21st century learning skills are related, consistent and appropriate for teaching and learning in the primary schools (IOC = 0.57-1.00).

3) The students' 21st Century learning skills(3R8C).

The 21st century learning skills can be classified into 11 categories (3R8C) and the students' 21st Century learning skills in each categories shown in figure 4.

Figure 4: The students' 3R8C abilities

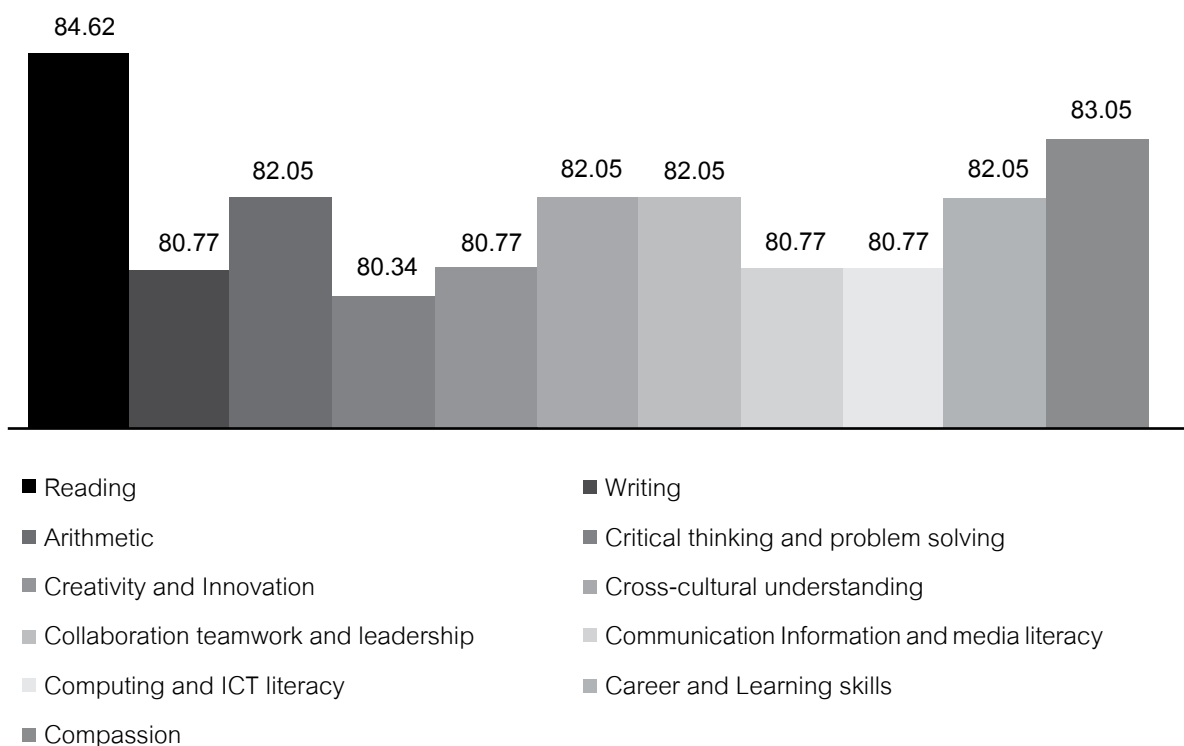


Figure 4 The students' 21st century learning skills

Figure 4 shows the students' 21st century learning skills (3R8C). It can be assumed that the students' 3R8C abilities are excellent in every skills (percentage > 80.00). The lowest skill is critical thinking and problem solving (percentage = 80.34) while the highest one is reading (percentage = 84.62).

Conclusion

The 21st century learning skills are the most interesting educational trend nowadays. There are many strategies that the educators around the world designed. The development of the curriculum is one of the way to promote the students' 21st century learning skills. The well curriculum should be consisted of clear objectives, useful and relevant contents, valuable and energetic activities, and authentic assessment. The primary curriculum which integrated with the 21st century learning skills is another way to enhance that. The curriculum that merged with the 21st century learning skills in every parts, helped the teachers clearly designed learning activities. The students who studied with the primary curriculum which integrated with the 21st century learning skills got the 21st century learning skills by the various activities. The appropriated thematic unit plans should be interesting, useful and flexible. The students who knows the 21st century learning skills can easily adapt themselves and live effectively in society.

Discussion

The results revealed that the integrated curriculum are appropriately used in the primary school and highly enhanced the students' 21st century learning skills. The development of the curriculum should be emphasizing focus on the important factors as the objectives, contents, activities and assessments (Marsh, 2004). Similarly, the research of Hartwell and Barry (2001) implied that the curriculum should consider the groups of the needs, processes, applications and assessments. Moreover, this successful curriculum are the participation from many school stakeholder as

teachers, directors, students, parents and local politicians as offered by the study of Keith and Elias (1990) stated that the developing a curriculum development is widespread support for it may be necessary conditions for success came from a representative sample of teachers, curriculum developers, school inspectors, school heads, ministry officials and teacher educators.

This study shows that developing curriculum was good alternative way to promote the students' 21st century learning skills same as the studies by Chevalier (2001) and Suto (2013). They are also believe that an alternative view on the optimal development of 21st century skills is that curricular should be developed to cover them explicitly. Moreover, this study also implied that the integration of the 21st century skills through the curriculum are appropriated. Donovan and Green (2014) suggest that 21st century skill did not mean to be taught as a separate subject, it should be integrated across the school curriculum. As, the mean score of critical thinking and problem solving skill is the lowest. Kuncel and Hezlett (2010) and Halpern (1998) explained that critical thinking exists as a domain-general construct distinct from general cognitive ability or it is a specific ability. It is the kind of thinking involved in solving problems, formulating inferences, calculating likelihood, and making decisions. Based on these findings, it can be concluded that the primary curriculum which integrated with the 21st century learning skills can effectively enhance the students' 21st century learning skills. Finally, they find out that the 21st century learning skills are very important for their lives.

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