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Article

Enhancing of Personality of Thai People in Learning Skill Development and Activities according to His Majesty Concept of the King: In Case of Chiang Mai Rajabhat University Demonstration School

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Abstract: The Demonstration School of Chiang Mai Rajabhat University adopts the royal concepts of education into practice to cultivate Thai youths to have the following 4 characteristics: (1) a good and correct attitude, (2) a stable and strong life foundation, (3) appropriate career, and (4) a good citizen with discipline. The school uses the teaching process integrated into STEAM education with the school botanical garden to develop 21st-century learning skills. The integrated activity is used to cultivate the 4 characteristics for learners. Teachers assess learning outcomes according to learners' behaviors in the 4 characteristics by the activities implemented in primary school, As a result, it was found that the student's learning achievement at the primary school passed the school's standard criteria (70%) and the activities were effective in enhancing a good and correct attitude and being a good citizen with discipline. A stable and strong life foundation and finding appropriate careers are achieved in a long-term incubation process.

Keywords: STEAM Education, School botanical garden, 4 characteristics of Thai people

1. Introduction

The development of schools is to have learning centers and develop educational innovations for local schools. It is also one of the targets of the Rajabhat University Strategic Plan for Local Development during 2017–2036. The Demonstration School of Chiang Mai Rajabhat University has a vision of developing a teaching model according to the context to develop learning skills in the 21st century based on King's philosophy. Schools operate according to the goals with strategic plans and visions. STEM education supports the development of learning skills in the 21st century (Stehle et al, 2019). STEM education was proposed in Japan, and the United States and the United Kingdom developed a conceptual model of science, technology, mathematics, and engineering for the education of structures, processes, and systems. Yata, Ohtani, and Isobe proposed a conceptual framework for the best practice of STEM education under the principles of science, technology, and mathematics in engineering activities. However, the key in the practice of STEM education was to examine and design the proper sequence and integration of learning processes in each field (Yata et al., 2020). The teaching staff of Chiang Mai Rajabhat Demonstration School believes an integrated teaching model of STEM education develops 21st-century learning skills. The integrated teaching model of STEAM education and the School botanical garden was developed in the context of the school (RSPG, 2017). During the epidemic of COVID, normal teaching could not be carried out. Thus, an integrated teaching model was a solution for school operations. The integrated teaching model in Chiang Mai Rajabhat Demonstration School started with toy cars in the scheme of STEM education (Boonchom, 2021). Teaching staff developed an idea of developing 21st-century learning skills through STEM education with the addition of art content by using the school's botanical garden as a learning space. The development of the teaching model of schools corresponded to the goal of the Rajabhat University Strategic Plan. The strategic plan was a part of the royal concept of education to cultivate Thai youths to have the following 4 characteristics: (1) a good and correct attitude, (2) a stable strong life foundation, (3) a career, and (4) a good citizen with discipline. Thus, the objective of integrated activities is combined into 2 goals. The integrated activities were developed for learners' achievements. In addition, the royal concept of education was practiced using integrated activities.

2. Materials and Methods

The first step was to create a professional learning community (PLC) to understand how STEAM education activities develop 21st-century skills. The skills are composed of reading, writing, arithmetic, critical thinking, problem-solving, creativity and innovation, collaboration, teamwork and leadership, communication information and media literacy, cross-cultural understanding, computing and ICT literacy, career and learning skills, and compassion (3R8C). Thailand added compassion to 21st-century skills. The integrated activity contributes to the development of the skills. In the second step, teachers create plans for learning methods and their operations. Then, teachers assess the learning outcomes of 21st-century skills and learning skills that affect the 4 characteristics. Finally, teachers form a professional learning community for carrying out the activities to exchange and improve the activities for the next academic year.

3. Results

The PLC process of teaching staff affects a mind map in STEAM education. The mind map corresponds to the country's core curriculum of basic education including 3R (reading, writing, and arithmetic), 7C (critical thinking, problem-solving, creativity and innovation, collaboration teamwork and leadership, communication information and media literacy, cross-cultural understanding, computing and ICT literacy, career and learning skills and compassion), and 4 characteristics of Thai youths (Fig. 1). The concept of cultivating the 4 characteristics of Thai youths is shown in Fig. 2.

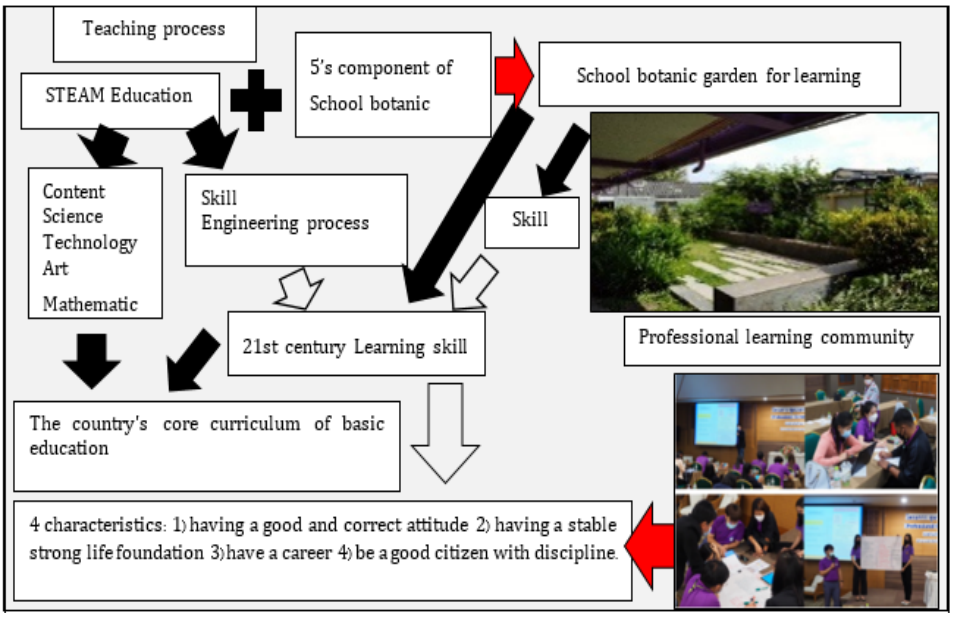

Fig. 1. Mind mapping concept from PLC.

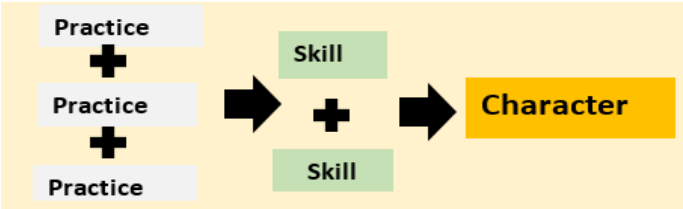

Fig. 2. Concept of cultivating 4 characteristics of Thai people.

The results of the activities are classified into 2 parts. The first part is the result of the STEAM education activities as shown in Fig. 3. Learners studied content from the country's core curriculum of basic education and developed skills in the engineering process. The second part was the concept of linking 21st-century skills developed through activities as shown in Fig. 4. The concept of linking the skills is obtained from the brainstorming of teachers. This leads to planning for teaching at the level of classrooms.

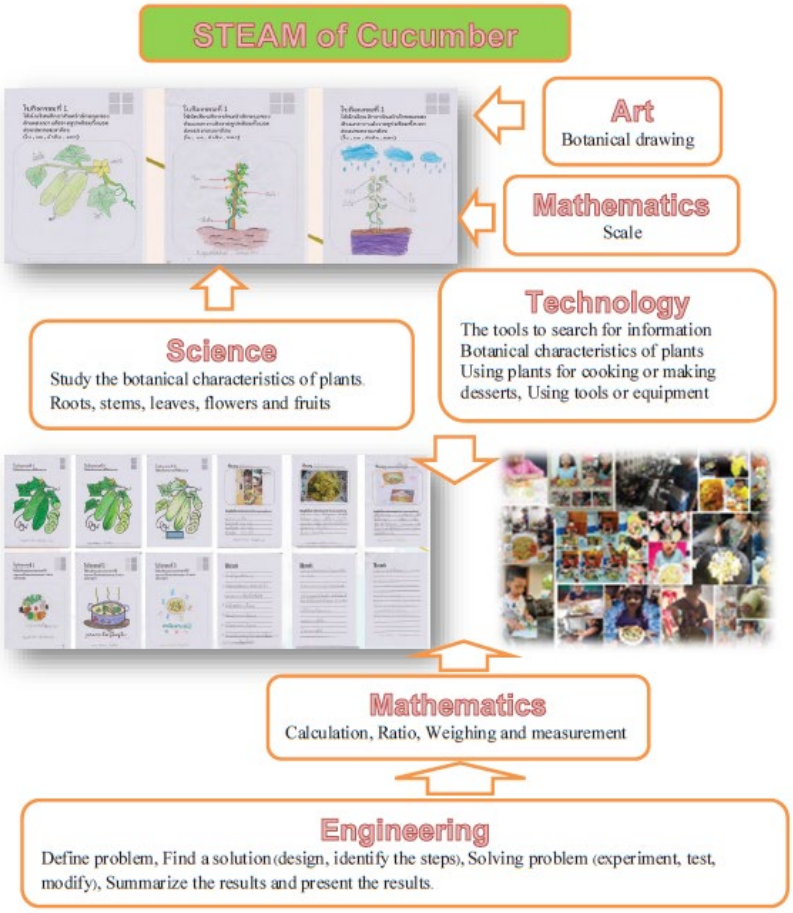

Fig. 3. Conceptual STEAM Education in farming cucumber (Nagdi and Roehrig, 2020).

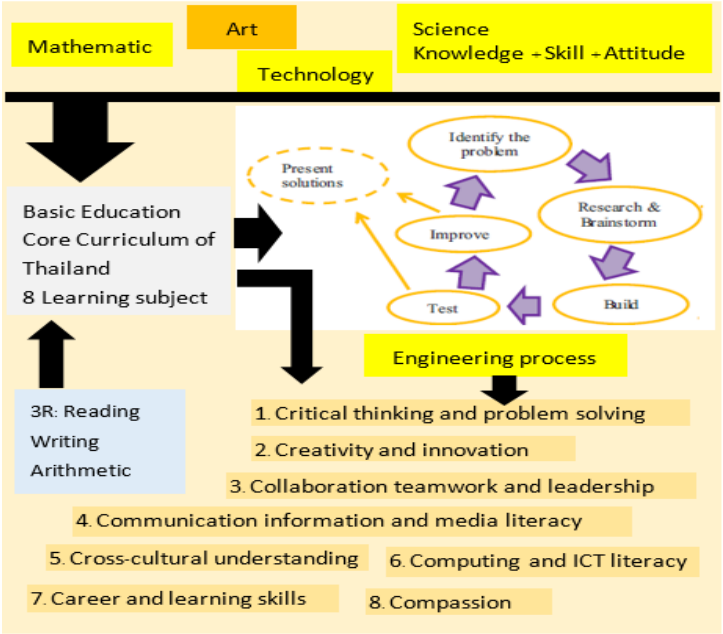

Fig. 4. Concept of linking skills through activities.

Teachers analyze the effects of the developed skills from activities. The important factors of developing skills in the 4 characteristics of Thai youth are shown in Fig. 5. The figure shows a result from teacher brainstorming that leads to establishing

learning models. An example of the outcome of the activities for the skills and the cultivation 4 characteristics of Thai youths in integrated learning is shown in Fig. 6.

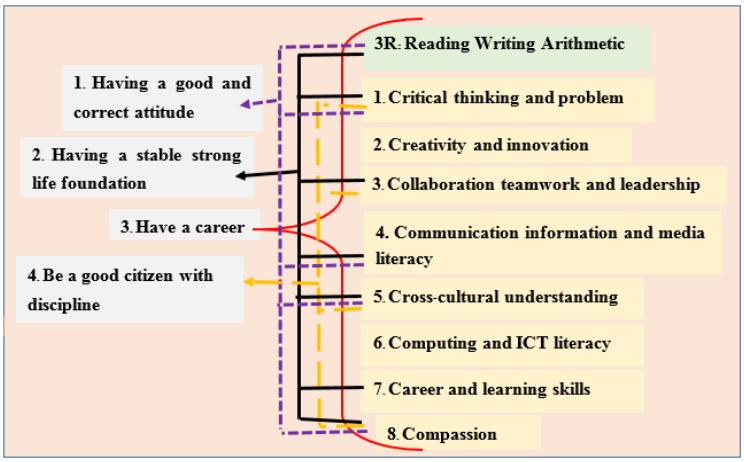

Fig. 5. Concept of linking learning skills in the 21st century (3R8C) and 4 characteristics of Thai people.

Fig. 6. Examples of learning management on cucumber.

4. Discussion

The integrated teaching model of STEAM education using the botanical garden was used in the academic year 2020 during the COVID-19 pandemic. The average learning achievement of primary school students (528) in eight subject groups exceeded 70% which was the criterion set by the school (Fig. 7). The school's standard criteria were used for the internal quality assessment of the school. When compared to the 2019 academic year, the achievement of mathematics (77.41% in 2019) and science (77.11%

in 2019) were lower but still within the school standard. Those of practical subjects such as technology (77.27% in 2019) and art (79.06% in 2019) were higher. Owing to an online teaching session and teaching activities focusing on the practice of learners, skills were acquired by students. The subjects such as mathematics and science required focusing, repeating, and reviewing in the teaching process mostly in the classroom.

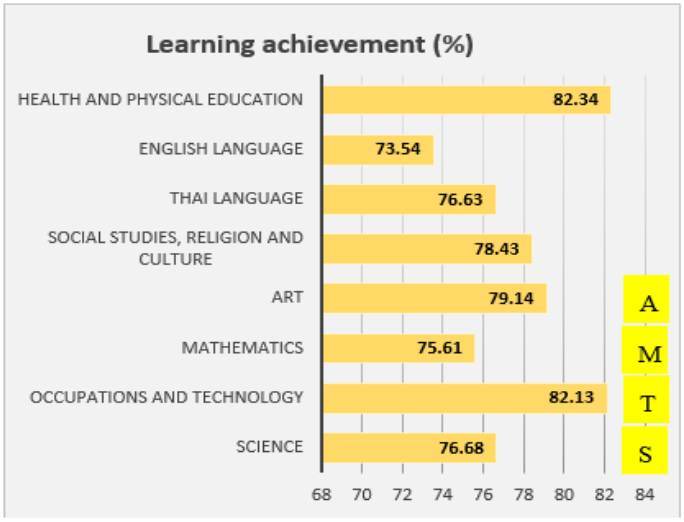

Fig. 7. Average learning achievement.

In the teaching model of this study, learners were encouraged to have better academic achievement in school**. In the model,** teachers help and guide learners to solve problems and focus, repeat, and review what they learn**.** In addition to the development of main subjects, Science, Mathematics, Occupations, Technology, and Art were used in the engineering process to promote scientific skills**.** The related activities promoted other subjects such as the Thai language, English language, Social studies, Religion and Culture, and Health and Physical education**. T**he atmosphere of STEM teaching encourages collaboration, critical thinking, and motivation in the development of teaching methods (Nagdi and Roehrig, 2020). For the last step of the process, the school organized PLC activities at the end of the academic year (Fig. 8). The teaching model allows the exchange and improvement of educational management for the next academic year. The PLC activities helped teaching staff understand the royal concept of education to cultivate Thai youths to have 4 characteristics and use integrated activities for developing 21st-century skills and cultivating the 4 characteristics. The PLC activities also allowed teaching staff to analyze the effect of activities. A good and correct attitude and being a good citizen with discipline are short-term results from the activities while a stable strong life foundation and developing a career are from the long-term process as shown in Fig. 2.

Fig. 8. PLC activities.

5. Conclusions

The development of schools as learning centers with educational innovations for local schools is one of the goals of the Rajabhat University Strategic Plan for Local Development during 2017−2036. The Demonstration School of Chiang Mai Rajabhat University operates according to the goals under the strategic plan and the vision of the school. A teaching model is developed in the context of the school to develop learning skills in the 21st century based on King's science. The Rajabhat University Strategic Plans follow the royal concept of education to cultivate the following 4 characteristics of Thai youths: (1) a good and correct attitude, (2) a stable strong life foundation, (3) a career, and (4) a good citizen with discipline. The school combined 2 goals of having learning skills and the royal concept of education into practice. The integrated teaching model of STEAM education and the botanical garden was developed for PLC activities. The integrated teaching model was used in the academic year 2020 during the COVID-19 pandemic. The outcome of the activities shows that students' activities allowed them to have their learning achievements. The average learning achievement of primary school students **(**528**)** in eight subject groups was higher than 70**%.** When compared to the 2019 academic year, mathematics and science achievements were lower but still within the school standard. The practical subjects such as technology and art learning achievement showed better achievements. The reason for this is that online teaching sessions and teaching activities focused on the practice of learners acquiring the skills. The teaching model required focusing, repeating, and reviewing in the classroom. In addition to the development of learners, teachers need to develop PLC activities. The PLC activities help the teaching staff analyze the effect of activities to cultivate Thai youths to have the 4 characteristics. It was found that a good and correct attitude and being a good citizen with discipline were obtained in the short term while a stable strong life foundation and developing a career were obtained in the long term.

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Conflicts of Interest: The authors declare no conflict of interest.

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