# *The Development of an Inquiry-based Field Trip Activity to Promote Students' Positive Perceptions of the Educational Curriculum Course*

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The Asian Conference on Education 2021
Official Conference Proceedings

**Abstract**
An inquiry-based field trip activity was designed for graduate students in the science education program to enhance their understanding of the school curriculum as well as to promote positive perceptions of the Educational Curriculum course. The course focuses on basic knowledge about the school curriculum and how to develop it. Four secondary schools with distinguished curricula were chosen as models for school visits. The learning activity consisted of three phases. In the preparation phase, students were asked to develop questions about the curriculum based on the schools that were visited. In the exploration phase, students were guided by the questions to gather information from each school visit. Finally, each group of students conducted two presentations in the presentation phase, consisting of a comparative study of each school curriculum and the development of a school curriculum based on desired goals and visions. After completing the course, a Likert-scale type questionnaire was applied to investigate students' perceptions of their understanding and the learning activities. In terms of understanding, students perceived that they understood the school curriculum at a high level, especially applying knowledge from the field trips to develop a new curriculum. In terms of learning activities, not only did students show a moderately positive perception towards each phase of the learning activities, but they also showed a highly positive perception towards the course. Thus, the developed activity could be utilized as a model for developing an effective school field trip for a teacher-training program.

Keywords: Inquiry-Based Learning, Field Trip, Educational Curriculum, Teacher Education

## Introduction

The Master of Science Education program at King Mongkut's University of Technology Thonburi, Thailand aims to produce a new generation of science and mathematics teachers equipped with a fruitful and in-depth understanding of content knowledge as well as good teacher spirit. Students with a bachelor's degree in science or engineering have been the target group for applying to the program. The program structure is divided into two years of full-time study. In the first year, students with no background in the educational field are provided with basic knowledge of education, including educational philosophy, school curriculum, measurement and evaluation, educational psychology, innovation in education, research in science education, etc. In the second year, students will practice and gain teaching experience as pre-service teachers in schools, followed by conducting a thesis. The time of graduation can be extended based on students' progression of the thesis.

Educational Philosophy and Curriculum is taught in the first semester for first-year students. The course aims to provide students with understanding of educational philosophy, as well as how the school curriculum can be developed and implemented. The course content is divided into two main areas: educational philosophy and educational curriculum. There are three learning outcomes, particularly the educational curriculum aspect that includes 1) students will be able to explain curriculum theories and principles for effective curriculum design, 2) students will be able to analyze and evaluate a school curriculum, and 3) students will be able to create or develop science and mathematics curricula for high school.

In the previous course, lecture-based learning was the main pedagogy for teaching the curriculum content. Based on the nature of the content, however, the pedagogy can be developed by enriching students' experience of how a curriculum can be created and developed in real school settings. The pedagogy that can be applied is experiential learning, which is a method that instructors use to provide students' experiences from different situations and allows students to discover and reflect on those experiences based on the learning outcomes (Association for Experiential Education, 2020, https://www.aee.org/what-is-ee). Teaching that focuses on the learning experience of learners with the learning style and learning space of the learner is used in higher education in a variety of fields to increase the effectiveness of teaching and encourage students to learn (Kolb & Kolb, 2017).

Field trips or out-of-school visits is one of the teaching methods that focus on providing students with off-site learning experience. Some research has shown that the field trips can engage students' learning, improve their social skills, promote 21$^{st}$-century skills, and provide more understanding in addition to the in-class content (Behrendt & Franklin, 2014; Coll & Coll, 2018; DeWitt & Storksdieck, 2008; Larsen, Walsh, Almond, & Myers, 2017; Lavie Alon & Tal, 2015). To manage an effective field trip learning activity, teachers play a key role in a well-organized connection between out-of-school visit experience with the desired course-learning outcome that requires different techniques and methods compared to regular classroom learning, which can be a very challenging task for teachers (Behrendt & Franklin, 2014; Rebar & Enochs, 2010).

Inquiry-based learning is a pedagogy that focuses on students' understanding of how knowledge can be acquired through the acquisition process. According to the National Research Council (2000), inquiry-based learning consists of five key steps: 1) students are engaged by questions, 2) students acquire evidence, 3) students formulate explanations from the evidence, 4) students evaluate their explanations, and 5) students communicate their

proposed explanations. In higher education, inquiry-based learning can be used in different forms such as problem-based learning, project-based learning, case-based teaching, etc. (Aditomo, Goodyear, Bliuc, & Ellis, 2013). However, research has indicated that if instructors can design learning activities as an open inquiry by compelling students to formulate their questions and seek answers by themselves, it would promote better research skills than structured inquiry, in which teachers prepare the questions and methods of finding answers for students to follow (Spronken-Smith & Walker, 2010).

According to the importance of experiential and inquiry-based learning, the Philosophy and Educational Curriculum course, particularly the educational curriculum content, was redesigned to be an inquiry-based field trip learning activity, as shown in the research framework (see Figure 1). The activity aims to enhance students' understanding of the school curriculum and to promote positive perceptions or satisfaction with the course. The details of inquiry-based field trip activity and the effectiveness of the activity on students' perceptions are presented in this paper.

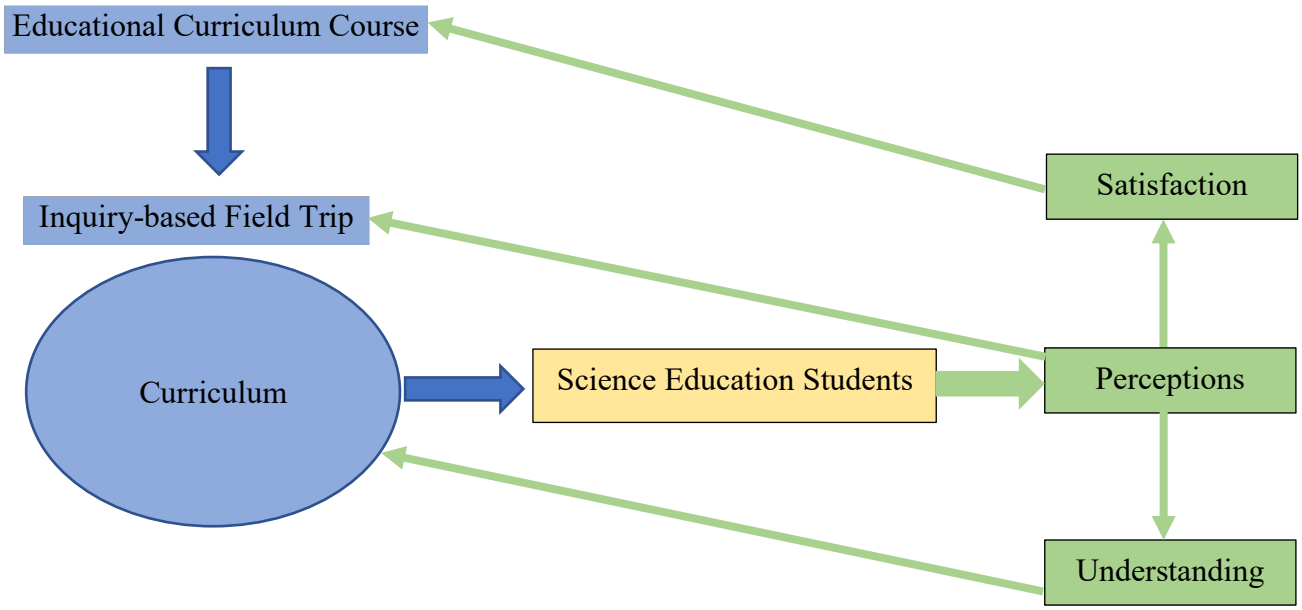


Figure 1: Research Framework

**Description and Implementation of the Inquiry-Based Field Trip Activity**

In this study, the inquiry-based field trip activity was developed in the Philosophy and Educational Curriculum course. The learning activity was implemented for 12 graduate students in the Science Education program. Four secondary schools in Thailand having distinguished curricula, such as an English program, advanced science and mathematics program, and competency-based program were chosen as models for school visits.

The learning activity was organized into three phases including the preparation phase, exploration phase, and presentation phase (see Table 1). In the preparation phase, students were asked to develop questions about the curriculum based on the schools that were visited. In the exploration phase, students were guided by the questions to gather information from

each school visit. Finally, in the presentation phase, each group of students conducted two presentations consisting of a comparative study of each school curriculum and the development of a school curriculum based on desired goals and visions.

Table 1: Three Phases of the Inquiry-Based Field Trip Activity

| Phase | Inquiry-based Field-Trip Activity |
|---|---|
| Preparation | 1. Students were asked to form a group of six persons.<br>2. The teacher engaged students in searching for preliminary information about the curriculum of the school field trip on the internet.<br>3. The teacher encouraged students to formulate up to 10 questions about the school curriculum and submit them to the teacher before each school visit. |
| Exploration | 1. A group of teachers and students visited the schools to observe the school environment and join a presentation about the curriculum organized by the school team.<br>2. While visiting, each group of students collected information to answer the questions. If there were questions that arose while participating, students were encouraged to ask extended questions.<br>3. After a field trip, if there were questions that had not been answered yet or were unclear, students were allowed to search for more information from other sources. |
| Presentation | 1. In the first presentation, each group of students presented the results according to the prepared questions.<br>2. The teacher encouraged students to discuss the principles and concepts of the school curriculum, as well as to assess the strengths and weaknesses of each school curriculum.<br>3. Then, the teacher allowed students to utilize the information from the field trip to create or develop a science and mathematics curriculum for their dream school in the second presentation. |

## Research Method

This study aims to answer the research questions below:

1. Can the designed inquiry-based field trip activity promote positive perceptions among students concerning the educational curriculum course?
2. What are students' perceptions of the designed inquiry-based field trip activity?

After completing the learning activity, the students' perceptions of the designed inquiry-based field trips activity were evaluated using a questionnaire. The purpose of the questionnaire was to evaluate students' perceptions through three main constructs: 1) Perceptions of the course learning outcomes achievement (items 1-4), 2) perceptions of the developed inquiry-based field trip activity (items 5-16), and 3) perceptions of the learning activity in general (items 17-21) (see Table 2). Students were asked how they perceived each statement on the questionnaire using a five-point Likert scale, with 1 being strongly disagree and 5 being strongly agree. The results from this section were analyzed and interpreted using the following criteria: Highly negative (1.00-1.50); moderately negative (1.51-2.50); neutral (2.51-3.50); moderately positive (3.51-4.50); and highly positive (4.51-5.00) (Duangpummet, Chaiyen, & Chenprakhon, 2019), as shown in Table 2.

## Findings

The findings are reported in three parts according to the three constructs of the questionnaire. The first and the third constructs of the questionnaire aim to answer the first research questions, and the second construct aims to answer the second research question. Data were collected from 10 out of 12 students because there were two students who did not complete the questionnaire.

In the first construct of the questionnaire (see Table 2), the students' perceptions toward the course learning outcomes achievement were moderately positive, with a mean score of 4.23 ± 0.62. The most positive student perceptions regarded students can establish or develop science and mathematics curricula for high schools, with a mean score of 4.50 ± 0.53. Meanwhile, the students least positively perceived on making a comparative study of strengthens and weaknesses of each school curriculum, with a mean score of 3.90 ± 0.88.

In the third construct of the questionnaire (see Table 2), the mean score of students' satisfaction towards the course learning activity was highly positive at 4.60 ± 0.52. Particularly, students highly perceived that the inquiry-based field trips activity not only provided their understanding about school curriculum, but they also learned other professional teaching aspects from the activity, with a mean score of 4.60 ± 0.52. The reason may arise from students' participation in the field trip; they not only were provided curriculum content from a school team, but also had a chance to observe the classroom atmosphere and interact with an in-service teacher, which could provide better understanding about a teacher's role. The students agreed that they enjoyed the school field trip and the activity boosted their desire to become a teacher at a moderately positive level, with a mean score of 4.50 ± 0.53 and 4.00 ± 0.82, respectively. Finally, students agreed that the inquiry-based field trip was an effective pedagogy to teach the educational curriculum content at a moderately positive level, with a mean score of 4.50 ± 0.71.

For answering the second research question, the second construct of the questionnaire was analyzed for the in-depth understanding of students' perceptions toward the learning activity in each phase (see Table 2). The learning activity consisted of three phases including preparation, exploration, and presentation. In the preparation phase, the mean score of students' responses to the learning activity was moderately positive at 3.96 ± 0.75. Students agreed that they were encouraged to do preliminary study from the internet for preparing questions before the field trips with the highest mean score at 4.20 ± 0.63. However, planning to find the answers systematically was responded at the lowest mean score at 3.70 ± 0.95. In the exploration phase, the mean score of students' responses to the learning activity was moderately positive, at 3.95 ± 0.81. Students agreed that they were encouraged to find more information if they had not been provided with a clear answer from the field trips yet with the highest mean score at 4.20 ± 0.79. Nonetheless, questioning helped them learn better about school curriculum and they responded with the lowest mean score at 3.70 ± 0.67. Finally, in the presentation phase, the mean score of students' responses to the learning activity compared with the other two aspects was the highest at 4.23 ± 0.57, but still at a moderately positive level. Students agreed that the presentation activity provided them the opportunity to work as a team to develop a new curriculum and prepare for a presentation, which helped them gain more understanding about curriculum content.

Table 2: Results from the Questionnaire

| Items | Mean ± SD |
|---|---|
| **1) Perceptions of achievement of the course learning outcomes (Items 1-4)** | |
| 1. I can utilize the knowledge gained on a field trip to explain the meaning of the curriculum. | 4.10 ± 0.32 |
| 2. I can utilize the knowledge gained on a field trip to explain how a curriculum can be ideated and constructed. | 4.40 ± 0.52 |
| 3. I can evaluate the strengths and weaknesses of each school's curriculum on field trips. | 3.90 ± 0.88 |
| 4. I can apply the knowledge gained from field trips to create and develop science or mathematics curricula for secondary schools. | 4.50 ± 0.53 |
| **Overall** | **4.23 ± 0.62** |
| **2) Perceptions of the developed inquiry-based field trips activity (Items 5-16)** | |
| **2.1 Preparation phase** | |
| 5. I prepared questions with a group of friends for the field trip. | 4.10 ± 0.57 |
| 6. My group searched for preliminary information for preparing questions for a field trip. | 4.20 ± 0.63 |
| 7. My group planned to find the answers to the prepared questions systematically. | 3.70 ± 0.95 |
| 8. My group assigned an individual the duty to collect information from field trips. | 3.90 ± 0.74 |
| 9. At the end of a school trip, my group revised questions for subsequent schools to be more effective. | 3.90 ± 0.88 |
| **Overall** | **3.96 ± 0.75** |
| **2.2 Exploration phase** | |
| 10. Preparing questions before going on a field trip helped me to learn purposefully about each school's curriculum. | 4.00 ± 1.05 |
| 11. Formulating questions before a field trip helped me learn more about each school's curriculum. | 3.70 ± 0.67 |
| 12. I was enthusiastic to find the answers to the prepared questions. | 3.90 ± 0.74 |
| 13. If there were still questions that had not been answered yet or were unclear at the end of a school trip, my group sought answers from other sources. | 4.20 ± 0.79 |
| **Overall** | **3.95 ± 0.81** |
| **2.3 Presentation phase** | |
| 14. The presentation activity helped me gain more understanding of the curriculum. | 4.30 ± 0.48 |
| 15. Using information from the field trips to create or develop a curriculum for presentation helped boost my understanding about the curriculum. | 4.30 ± 0.63 |
| 16. Working in a team to create and present a curriculum helped me learn more about the curriculum. | 4.20 ± 0.63 |
| **Overall** | **4.23 ± 0.57** |
| **3) Perceptions of the learning activity in general (Items 17-21)** | |
| 17. The inquiry-based field trip activity is an effective pedagogy for teaching curriculum content. | 4.50 ± 0.71 |
| 18. I enjoyed the school field trip. | 4.50 ± 0.53 |
| 19. The inquiry-based field trip activity helped me understand other professional aspects of teaching in addition to the curriculum content. | 4.60 ± 0.52 |
| 20. The inquiry-based field trip activity increased my desire to become a teacher. | 4.00 ± 0.82 |
| 21. I have an enhanced level of satisfaction with learning educational curriculum content through the inquiry-based field trip activity. | 4.60 ± 0.52 |

According to the first and third constructs of the questionnaire, not only did students show a highly positive perception towards the course, but they also showed moderately positive perception towards the achievement of learning outcomes. Therefore, the designed inquiry-based field trip activity can promote positive perceptions among students concerning the educational curriculum course. However, evaluating the strengths and weaknesses of each school's curriculum on field trips is a learning outcome that needs to be emphasized more in the next implementation. According to the second construct of the questionnaire, the students showed a moderately positive perception towards each phase of the learning activities. This can indicate that the implemented learning activity is effective. However, some aspects need

to be improved further, such as preparing students to collect data from field trips systematically and training them to formulate good questions for school visits. In summary, not only do students gain better understanding of the curriculum content through the learning activity, but the activity also visualizes how an inquiry can be managed in practice through the learning experience that could allow them to apply the method for designing science and mathematics teaching in the future (Cianciolo, Flory, & Atwell, 2006).

## Conclusion and Implications

In this study, the inquiry-based field trip activity was designed for twelve graduate students in the science education program to enhance their understanding of the school curriculum, as well as to promote positive perceptions of the Educational Curriculum course. The field trip learning activity comprised three phases including preparation, exploration, and presentation based on the inquiry-based framework. After completing the learning activity, a questionnaire was used to investigate students' perceptions of the learning activity in three aspects: 1) perceptions of achievement of the course learning outcomes, 2) perceptions of the developed inquiry-based field trip activity, and 3) perceptions of the learning activity in general. In terms of understanding, the results showed that the students' perceptions toward the achievement of the course learning outcomes were moderately positive, especially applying knowledge from the field trip to develop a new curriculum. In terms of the learning activity, not only did students show a moderately positive perception towards each phase of the learning activity, but also showed a highly positive perception towards the course. The results indicated the designed inquiry-based field trip activity could promote positive perceptions among students concerning the Educational Curriculum course. Thus, the developed activity could be utilized as a model for developing effective school field trips in teacher training programs.

## Acknowledgments

I would like to thank the students who enthusiastically attended the learning activity. I would also like to acknowledge the research grant provided by the Scholarship of Teaching and Learning (SOTL), Fiscal Year 2020, Faculty of Science, King Mongkut's University of Technology Thonburi, Thailand.

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