Effects of Active Learning for Curriculum Management:
with Focus on the “Courses of Study” of Japan

Hiroki Yoshida

Abstract—On November 22th, 2014, the Education Minister
of Japan proposed to promote “active learning” in elementary
and secondary education, and to promote effective curriculum
management at each school by aligning the process of planning,
implementing, assessing, and improving curricula. This study
purposed to promote pre-service teachers’ understanding and
skills of curriculum management by the implementation of
active learning. Participants were 56 first-year university
students who were taking pre-service teacher education courses
for elementary and secondary education. All of the participants
were participating in a curriculum studies class. Participants
first studied the aims, structure and contents of the “Courses of
Study” in Japan, and they learned how to develop, analyze,
manage, evaluate, and revise a school curriculum. Then, they
worked in a group of six using the jigsaw method to analyze the
“Courses of Study.” Results of the study show that students who
learned actively in a small group significantly increased their
understanding ($t$ (55) = 3.03, $p < .00$) and skills ($t$ (55) = 6.51, $p
< .00$) in curriculum management week by week. Results suggest
that if students learn actively and cooperatively, they could
understand what is important in managing a curriculum.

Index Terms—Active learning, Jigsaw method, curriculum
management, “courses of study”.

I. INTRODUCTION

Knowledge-based society has brought about a paradigm
shift in teaching and learning [1]. In order to cope with
the structural change of the society, school systems are required
to recognize the significance of learning objectives such as
social competence, critical thinking, knowledge sharing, and
cooperation techniques [2]. DeSeco [3] defined three
categories of key competencies that are essential for children
in the knowledge-based society, namely, 1) using tools
interactively, 2) interacting in socially heterogeneous groups,
and 3) acting autonomously. In Japan, the Ministry of
Education, Culture, Sports, Science and Technology [4] noted
in “Improving ‘Courses of Study’ of Kindergartens,
Elementary Schools, Lower and Upper Secondary Schools,
and Schools for Special Needs Education: Report” that 1)
basic and fundamental knowledge and skills, and 2) thinking
skills, decision-making skills, expression skills are required to
survive the society, and 3) coexistence and cooperation is
necessary for the sustainable growth of the society. Therefore,
learning methods that require active and promotive interaction
among the learners such as active learning are being implemented in schools at all levels: from elementary to
higher education.

Active learning is defined by Bonwell & Eison [5] as an
instructional method “that involves students in doing things
and thinking about the things they are doing.” The core
elements of active learning are “student activity and
engagement in the learning process” [6]. Previous studies
note that active learning promotes students’ academic
achievement [7]-[9], engagement [10]-[12], motivation
[13]-[15], self-efficacy [16]-[18], and attitude [19], [20].

A. “Courses of Study” as a National Education Guideline
for Elementary and Secondary Education in Japan

Elementary and secondary schools in Japan develop school
curricula and classroom lessons based on the national
education guideline “Courses of Study.” It is specified in the
Regulations for the Enforcement of the School Education Act,
which were issued in 1947 that curricula in elementary and
secondary schools in Japan have to meet standards established by the Minister of Education in its “Courses of
Study.”

The first “Courses of Study (Tentative Draft)” was
announced in 1947 and the respective “Courses of Study” for
each subject: Japanese language, social studies, mathematics,
science, music, physical education, arts and crafts, home
economics, and free study followed it. Social Studies formed
the core of the “Courses of Study,” with the purpose of
teaching students about community life, and promoting their
social skills and attitude to adapt to their society [21]. Since
then, the “Courses of Study” has been revised seven times.

In 1996, the sixth “Courses of Study” was revised
following the recommendations of the Central Council for
Education. The Central Council for Education reported in
“The Model for Japanese Education in the Perspective of the
21st Century” to develop students’ “zest for living” through
autonomous learning. [22], [23]” “Zest of living” means well-balanced competencies of 1) solid academic capabilities,
2) well-rounded character, and 3) healthy body in order to live in the rapid changing society [24]. Fig. 1 depicts the concept of “zest of living.”

Fig. 1. Structure of “zest for living” (source: MEXT, 2010, translated by
author).

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In 2006, the Central Council for Education issued the importance to popularize the concept of curriculum management in “Improving ‘Courses of Study’ of Kindergartens, Elementary Schools, Lower and Upper Secondary Schools, and Schools for Special Needs Education: Report [4].” The Council required curriculum administrators to 1) provide teachers practical examples of what the “Courses of Study” puts major emphasis on, 2) improve the educational environment so that teachers have enough time to communicate well with students, 3) develop and implement reality-based school curricula, 4) properly assess educational outcomes, and 5) improve educational activities based on the basis of school assessment. That is to say, curriculum administrators should manage curricula using a Plan-Do-Check-Act (PDCA) cycle.

Furthermore, in the “Curriculum Standards for Elementary and Secondary Education: Inquiry,” Education Minister Shimomura proposed to the Central Council for Education to promote effective curriculum management at each school by aligning the process of planning, implementing, assessing, and improving curricula along with the revision of the current “Courses of Study [31].” Under these circumstances, it is necessary to enhance pre-service elementary and secondary teachers’ understanding and skills in curriculum management and active learning. Therefore, this study proposed to identify the effects of active learning on pre-service teachers’ understanding and skills of curriculum management.

II. PURPOSE

The purpose of the study is to investigate the effects of active learning on pre-service teachers’ understanding and skills of curriculum management, and their attitude toward active learning.

The research questions to be addressed in this study are: 1) What effects do active learning have on pre-service teachers’ understanding of curriculum management? 2) What effects do active learning have on pre-service teachers’ curriculum management skills? 3) What effects do active learning have on pre-service teachers’ attitude toward active learning?

III. METHOD

The study was conducted from April 27th to May 18th, 2015 with the purpose of identifying the effects of active learning on pre-service teachers’ understanding and skills of curriculum management.

A. Participants

Participants were 56 first-year university students who were taking pre-service teacher education courses for elementary and secondary education. All of the participants were participating in a curriculum studies class.

B. Instruments

Six assessment instruments were used to assess participants’ achievement and performance. Mini-quizzes were used to assess participants understanding of curriculum management and a worksheet was used to evaluate their performance of curriculum management. Fig. 2 shows the...
A task-specific coaching rubric with three criteria and four standards/rating levels: S (Exceeds expectations), A (Meets expectations), B (Needs Improvement), C (Inadequate) was used to assess participants’ performance, and a ten-item quiz was used to assess participants understanding on curriculum management. As the rubric was a coaching rubric, it was provided to the participants in advance of the active learning activity so as to enhance participants’ skills and understanding of curriculum management. Fig. 3 shows the outline of the rubric used in this study.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Description that typifies the Xth version of the Courses of Study</th>
<th>Difference and similarity between the two versions of the Courses of Study</th>
<th>Description that typifies the Yth version of the Courses of Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Education</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. 2. Outline of the worksheet used in this study (translated by author).

Fig. 3. Outline of the coaching rubric used in this study.

Set out below are the criteria and standards of the rubric.

1) Item: Worksheet

- Criteria one: Extraction of information that typifies the Xth version of the “Courses of Study”
  1) S: Has extracted information that typifies the Xth version of the “Courses of Study” in all of the subjects, and the description is specific.
  2) A: Has extracted information that typifies the Xth version of the “Courses of Study” in more than three subjects.
  3) B: Has not extracted information that typifies the Xth version of the “Courses of Study” in one or two subjects.
  4) C: Has not extracted information that typifies the Xth version of the “Courses of Study” in more than three subjects.

- Criteria two: Extraction of information that typifies the Yth version of the “Courses of Study”
  1) S: Has extracted information that typifies the Yth version of the “Courses of Study” in all of the subjects, and the description is specific.
  2) A: Has extracted information that typifies the Yth version of the “Courses of Study” in more than three subjects.
  3) B: Has not extracted information that typifies the Yth version of the “Courses of Study” in one or two subjects.
  4) C: Has not extracted information that typifies the Yth version of the “Courses of Study” in more than three subjects.

- Criteria three: Clarification of the differences between the two versions of the “Courses of Study”
  1) S: Has clarified the differences between the two versions of the “Courses of Study” in all of the subjects along with some specific rationale.
  2) A: Has clarified the differences between the two versions of the “Courses of Study” in more than three subjects.
  3) B: Has not clarified the differences between the two versions of the “Courses of Study” in one or two subjects.
  4) C: Has not clarified the differences between the two versions of the “Courses of Study” in more than three subjects.

A five item questionnaire on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree) was used for peer evaluation of participants’ performance in active learning. The five questions were:

1) Has extracted information that typifies the Xth version of the “Courses of Study.”
2) Has extracted information that typifies the Yth version of the “Courses of Study.”
3) Has clarified the differences between the two versions of the “Courses of Study.”
4) Has pointed out features of the “Courses of Studies” which I did not notice.
5) The presentation was well organized.

A seven item questionnaire on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree) was used to assess their attitude toward active learning. The seven questions were:

1) Active learning is useful for learning how to learn.
2) Learning actively in a group is delightful.
3) I can focus on studying when I learn actively.
4) I can deepen my understanding of the topic by learning cooperatively.
5) I can develop confidence by learning cooperatively.
6) I can understand the importance of the group members by learning cooperatively.
7) I can understand the individual learning by learning cooperatively.
C. Procedure

All of the participants attended a curriculum studies class for fifteen weeks. Participants studied the aims, structure and contents of the “Courses of Study” in Japan, and they learned how to develop, analyze, manage, evaluate, and revise a school curriculum. Participants analyzed the “Courses of Study” in the former six weeks, and then, they developed a school curriculum in the latter nine weeks.

During the curriculum analysis session, participants worked cooperatively in a group of six. The “Courses of Study” for elementary education is composed of nine subjects: Japanese language, social studies, mathematics, science, music, physical education, arts and crafts, life environmental studies, and home economics so each member of the group was assigned to a different subject. Jigsaw method was used as a method of active learning to facilitate participants’ cooperation. Each lesson was structured as follows:

(Before class: Analysis of a subject curriculum)
1) Mini-quiz: 5 min.
2) Comments and advices on the active learning activity of the previous week: 5 min.
3) Instruction on the active learning activity: 5 min.
4) Discussion in expert group: 20 min.
5) Discussion in home group: 20 min.
6) Report on group discussion: 5 min.
7) Lecture on curriculum management: 25 min.
8) Notice on next week’s lesson: 5 min.
Total: 90 min.

The jigsaw method was developed by Elliot Aronson as a cooperative learning technique [33]. In the jigsaw leaning environment, members of each cooperative group are assigned materials or tasks and are required to become “experts” on the sub-topics of the study. After becoming “experts” on the different aspects of the topic, members from different groups form a jigsaw group to discuss the main topic. The jigsaw group’s goal is that all members of the group master all aspects of the main topic [34]-[36].” The jigsaw method was applied in this study for three major reasons: 1) to enable students share roles and responsibilities by learning cooperatively, 2) to enable students widen their ideas by sharing different ideas, and 3) to enable students deepen their ideas by teaching and/or reporting their ideas to other group members.

On the first week, participants were provided guidance on the class, were instructed what jigsaw method is, and were informed of the basic competences that would be achieved in the class. On the second week, students were lectured on the basic concepts, procedure, skills of curriculum management, and they experienced jigsaw learning on trial.

From the third to sixth week, participants worked in jigsaw active learning groups. Firstly, participants were assigned to expert groups according to the subject curriculum they were to analyze. Participants analyzed six subject curricula: Japanese language, social studies, mathematics, science, music, and physical education. Each student exchanged their findings of the subject curricula they studied. Then, they discussed and summarized the features of the subject curricula. Secondly, participants worked in home groups (see Fig. 4). Participants reported their findings in the expert groups. Next, each jigsaw group formed conclusions on the features of the “Courses of Study” they analyzed. Thirdly, participants reported the summary of their findings and conclusion to other groups.

The process of jigsaw active learning was based on the following learning cycle: presentation, reflection, reconstruction, and organization (see Fig. 5).

After the active learning phase, participants got lectures about the features of the next two versions of the “Courses of Studies,” and they were instructed what they are going to do next week.

IV. RESULTS

All of the 56 participants completed the learning task, mini-quizzes, and questionnaire. This means that the response rate was 100.00 percent. Hereinafter, results of the 56 answers will be introduced.

A. Participants’ Profile

Table I shows the breakdown of participants by gender and teacher education courses they enrolled.

B. Effects of Active Learning on Understanding of Curriculum Management

Participants’ understanding of curriculum management was evaluated by a ten-item quiz on a ten-point scale. Table II shows the week-by-week changes in participants’ scores.

Effects of active learning were examined by comparing participants’ scores on the third and sixth week.
evaluation of the differences, Student’s one-tailed t-test was used.

**TABLE I: PARTICIPANTS’ PROFILE**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Male</th>
<th>30</th>
<th>53.57%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>26</td>
<td>46.43%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>56</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teacher education courses enrolled (multiple answers)</th>
<th>Elementary education</th>
<th>56</th>
<th>100.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Secondary education</td>
<td>16</td>
<td>28.57%</td>
</tr>
<tr>
<td></td>
<td>Physical education</td>
<td>10</td>
<td>17.86%</td>
</tr>
<tr>
<td></td>
<td>Lifelong Learning</td>
<td>10</td>
<td>17.86%</td>
</tr>
<tr>
<td></td>
<td>Educational Psychology</td>
<td>15</td>
<td>26.79%</td>
</tr>
<tr>
<td></td>
<td>Clinical Psychology</td>
<td>15</td>
<td>26.79%</td>
</tr>
</tbody>
</table>

Table II shows the effects of active learning on participants’ understanding of curriculum management. Results indicate that learners’ understanding of curriculum management significantly increased by the implementation of active learning ($t (55) = 3.03, p < .00$).

**TABLE III: EFFECTS OF ACTIVE LEARNING ON PARTICIPANTS’ UNDERSTANDING OF CURRICULUM MANAGEMENT**

<table>
<thead>
<tr>
<th>Understanding of Curriculum Management</th>
<th>week 3 (mean, SD)</th>
<th>week 6 (mean, SD)</th>
<th>df</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding of Curriculum Management</td>
<td>6.94 (2.14)</td>
<td>7.90 (1.43)</td>
<td>55</td>
<td>3.03</td>
<td>&lt; .00</td>
</tr>
</tbody>
</table>

**C. Effects of Active Learning on Curriculum Management Skills**

Participants’ performances of curriculum management were evaluated by a three criteria task-specific rubric on a 5 point scale. Table IV shows the week-by-week changes in participants’ scores.

**TABLE IV: PARTICIPANTS’ CURRICULUM MANAGEMENT SKILLS**

<table>
<thead>
<tr>
<th>Curriculum Management Skills</th>
<th>week 3</th>
<th>week 4</th>
<th>week 5</th>
<th>week 6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.83</td>
<td>4.10</td>
<td>4.03</td>
<td>4.38</td>
</tr>
</tbody>
</table>

Effects of active learning were examined by comparing participants’ scores of the learning task on the third and sixth week. For evaluation of the differences, Student’s one-tailed t-test was used.

**TABLE V: EFFECTS OF ACTIVE LEARNING ON THE PROMOTION OF PARTICIPANTS’ CURRICULUM MANAGEMENT SKILLS**

<table>
<thead>
<tr>
<th>Curriculum Management Skills</th>
<th>week 3 (mean, SD)</th>
<th>week 6 (mean, SD)</th>
<th>df</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.83 (0.56)</td>
<td>4.38 (0.32)</td>
<td>55</td>
<td>6.51</td>
<td>&lt; .00</td>
</tr>
</tbody>
</table>

Table V shows the effects of active learning on participants’ curriculum management skills. Results indicate that learners’ curriculum management skills significantly increased by the implementation of active learning ($t (55) = 6.51, p < .00$).

Fig. 6 is an example of a worksheet that was developed by the participants.

**D. Peer Evaluation of Participants’ Performance in Active Learning**

Participants did peer evaluation on their performance in active learning by a five item questionnaire on a four-point Likert scale. Table VI shows results of peer evaluation of participants’ performance in active learning. The mean was calculated by giving each of the Likert scale points a number value, where strongly disagree=1, disagree=2, agree=3, and strongly agree=4.

**TABLE VI: PEER EVALUATION OF PARTICIPANTS’ PERFORMANCE IN ACTIVE LEARNING**

<table>
<thead>
<tr>
<th>Has extracted information that «Courses of Study.»</th>
<th>week 3</th>
<th>week 4</th>
<th>week 5</th>
<th>week 6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.25</td>
<td>3.44</td>
<td>3.51</td>
<td>3.71</td>
</tr>
<tr>
<td>Has extracted information that «Courses of Study.»</td>
<td>3.25</td>
<td>3.39</td>
<td>3.46</td>
<td>3.64</td>
</tr>
<tr>
<td>Has clarified the differences between the two versions of the «Courses of Study.»</td>
<td>3.25</td>
<td>3.26</td>
<td>3.51</td>
<td>3.52</td>
</tr>
<tr>
<td>Has pointed out features of the «Courses of Study» which I did not notice.</td>
<td>3.20</td>
<td>3.06</td>
<td>3.25</td>
<td>3.15</td>
</tr>
<tr>
<td>The presentation was well organized.</td>
<td>3.18</td>
<td>3.04</td>
<td>3.37</td>
<td>3.44</td>
</tr>
</tbody>
</table>

Effects of active learning on peer evaluation of
participants’ performance were examined by comparing participants’ peer evaluation scores on the third and sixth week. For evaluation of the differences, Student’s one-tailed t-test was used. Table VII shows the difference of participants’ peer evaluation scores of participants’ performance in active learning. Results show that learners’ performance in analyzing a curriculum (t(42) = 3.56, p < .00; t(42) = 2.89, p < .00), and their skills in organizing a presentation (t(42) = 2.12, p < .05) have significantly increased by the use of active learning.

Table VII: Statistical Analysis of Peer Evaluation of Participants’ Performance in Active Learning

<table>
<thead>
<tr>
<th>Item</th>
<th>week 3 mean (SD)</th>
<th>week 6 mean (SD)</th>
<th>df</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has extracted information that typifies the Xth version of the “Courses of Study.”</td>
<td>3.25 (0.74)</td>
<td>3.71 (0.56)</td>
<td>42</td>
<td>3.56</td>
<td>&lt; .00</td>
</tr>
<tr>
<td>Has extracted information that typifies the Yth version of the “Courses of Study.”</td>
<td>3.25 (0.72)</td>
<td>3.64 (0.60)</td>
<td>42</td>
<td>2.89</td>
<td>&lt; .00</td>
</tr>
<tr>
<td>Has clarified the differences between the two versions of the “Courses of Study.”</td>
<td>3.25 (0.79)</td>
<td>3.52 (0.74)</td>
<td>42</td>
<td>1.57</td>
<td>0.06</td>
</tr>
<tr>
<td>Has pointed out features of the “Courses of Study” which I did not notice.</td>
<td>3.2 (0.75)</td>
<td>3.15 (0.83)</td>
<td>42</td>
<td>0.20</td>
<td>0.42</td>
</tr>
<tr>
<td>The presentation was well organized.</td>
<td>3.18 (0.66)</td>
<td>3.44 (0.60)</td>
<td>42</td>
<td>2.12</td>
<td>&lt; .05</td>
</tr>
</tbody>
</table>

E. Participants’ Attitude toward Active Learning

Table VIII: Participants’ Attitude Toward Active Learning

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Active learning is useful for learning how to learn.</td>
<td>3.43</td>
</tr>
<tr>
<td>2. Learning actively in a group is delightful.</td>
<td>3.43</td>
</tr>
<tr>
<td>3. I can focus on studying when I learn actively.</td>
<td>3.30</td>
</tr>
<tr>
<td>4. I can deepen my understanding of the topic by learning cooperatively.</td>
<td>3.50</td>
</tr>
<tr>
<td>5. I can develop confidence by learning cooperatively.</td>
<td>2.95</td>
</tr>
<tr>
<td>6. I can understand the importance of the group members by learning cooperatively.</td>
<td>3.50</td>
</tr>
<tr>
<td>7. I can understand the importance of individual learning by learning cooperatively.</td>
<td>3.59</td>
</tr>
</tbody>
</table>

Participants’ attitude toward active learning was evaluated by a seven item questionnaire on a four-point Likert scale. Table VIII shows participants’ attitude toward active learning. The mean was calculated by giving each of the Likert scale points a number value, where strongly disagree=1, disagree=2, agree=3, and strongly agree=4. Results indicate that participants who experienced active learning found it delightful and useful.

V. DISCUSSION

The purpose of the study was to identify the effects of active learning on pre-service teachers’ understanding and skills of curriculum management.

Regarding the first research question “What effects do active learning have on pre-service teachers’ understanding of curriculum management?,” results of the study show that students who learned actively in a small group increased their understanding in curriculum management week by week (t(55) = 3.03, p < .00). Results indicate that if learners learn actively and cooperatively, they could increase understanding on the elements and features of curriculum management. This means that a variety of perspectives, and reflection on each participants’ work increase participants’ understanding of the features of the curriculum.

With regard to the second research question “What effects do active learning have on pre-service teachers’ curriculum management skills?,” participants’ performance show that learners who learned actively in a small group increased their performance in curriculum management week by week (t(55) = 6.51, p < .00). Results suggest that if students learn actively and cooperatively, they could understand what is important in managing a curriculum. Moreover, results of participants’ peer evaluation indicate that participants improved their skills in analyzing a curriculum and organizing a presentation. It is interesting that the mean score of the fourth item: “Has pointed out features of the ‘Courses of Studies’ which I did not notice.” has not increased. This should not mean that participants’ skills in curriculum management have not improved but their point of view has become valid.

With regard to the third research question “What effects do active learning have on pre-service teachers’ attitude toward active learning?,” results of the questionnaire survey revealed that participants recognized that via active learning, they could learn how to learn, they were delightful learning in a group, they could focus on studying, they could deepen their understanding of the topic, they could understand the importance of the group members, and they could understand the importance of individual learning. However, 25.00 percent of the participants mentioned that they do not agree that they could develop confidence by learning cooperatively. It is expected to explore strategies to increase students’ confidence in learning cooperatively to enhance the quality of active learning.

VI. CONCLUSIONS

Results of the current study suggest that active learning enhances learners’ knowledge and understanding of curriculum management, and promotes learners’ skills to manage a curriculum. Results indicate that learning in a small group with a variety of perspectives provide valid view of what is important in the curriculum they are managing. Results also suggest that active learning has positive effects on learners’ attitude toward active learning. Via active
learning, participants were delightful and they could focus on studying. They could also understand the importance of learning cooperatively and learning individually.

As the participants of the current study were Japanese pre-service teachers who were taking teacher education courses in university, it is recommended to use other samples from other ages, nationality, and prior teaching experience for future generalization. Especially, it is meaningful to investigate the effects of active learning on in-service teachers’ understanding and skills of curriculum management. Given the findings of the study, it is necessary for pre-service teachers in Japan who are required to promote active learning to experience, understand, and design curricula and lessons for active learning. Therefore, it is important to introduce pre-service teachers to active learning methods such as the jigsaw method that require students’ activity and their engagement in the learning process.

In addition, findings of this study are expected to contribute to suggest teacher educators how to promote pre-service teachers’ confidence or self-efficacy in active learning. It is also expected to facilitate pre-service teachers’ understanding and skills to facilitate students’ self-efficacy in active learning, and consequently lead to enhance the quality of active learning in elementary and secondary schools.

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REFERENCES

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