Comparison of learning patterns of human body recognition between five-year-old and eight-year-old students in Kubu Raya Regency, West Kalimantan, Indonesia

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Abstract. This research was intended to measure and compare students’ ability in learning human body recognition. Students who were participants in this study were five year-olds in kindergarten and eight-year-olds in elementary school in Kubu Raya Regency, West Kalimantan, Indonesia. They studied in 19 kindergartens and 5 elementary schools in Kubu Raya Regency. The participant of students in kindergarten was 223 and the students from elementary school was 107 students. Both groups learned the human body during as many as three meetings. Data was collected and measured by questionnaire with 7 statements including 2 statements about what they knew before the lesson, 2 statements about what they did during the lesson, and 3 statements about how they did their homework; alone, with their parents, or their friends. Overall, these results indicate that 72% of students in elementary schools were better prepared for the lesson than students in kindergarten, but 89% of students in kindergarten did their homework alone and 63% of students in elementary school did their homework with their parents and their friends. In Summary, five-year-old students in kindergarten are more autonomous than eight-year-old students in elementary school.

1. Introduction

Learning pattern of human body recognition is shifting direct learning out of the large group learning space and moving it into the individual learning space, with the help of one of several technologies. The main idea of the human body recognition classroom is to shift the learning of new content and concepts to before class in the form of videos and spending in-class time applying the material through complex problem solving, deeper conceptual coverage, and peer interaction [1,2]. In kindergarten, five-year-old students engage with lectures or other materials outside of the class to prepare for an active learning experience in the classroom. Before class time, students are asked to watch short online lecture videos prepared or selected by their teachers followed by small activities (a short quiz, discussion, one paragraph summary, concept map, etc.). During the class, students are asked to engage
in concepts by participating in individual and/or group activities with the guidance of the teachers. On the other hand, eight-year-old students in elementary school are think-pair-share activities, discussion, interview, role play, think-aloud pair problem solving, critical debate, case study, peer editing, or group investigation [3].

The purpose of this study was to compare Learning Patterns of Human Body Recognition Between Five-year-old and Eight-year-old Students in Kubu Raya Regency, West Kalimantan, Indonesia. The following research questions guided this study.

1. Are there any differences learning patterns of human body recognition between five-year-old and eight-year-old students? The null hypothesis for this research question is: There is no significant difference learning patterns of human body recognition between five-year-old and eight-year-old students.

2. What are the student perceptions regarding learning patterns of human body recognition by lesson study?

As for the in-class activities for five year old, teachers primarily focus on starting with a brief content review or short lecture to help students recall the material and clarify any misunderstandings. This content review is also accomplished with a short question/answer session. Then, most class time is spent on group learning activities that are focusing on applying the knowledge learned from the video lectures, such as solving advanced problems with the support of the teacher and peers or working on projects. Eight-year-old activities include but are not limited to individual practices, student presentations, and taking quizzes. Even though after-class activity is not common in the kindergarten, the review of the literature shows that some teachers in elementary school practice completion of self-evaluation or reflection as an after-class activity [4]. Research show that students in kindergarten and elementary are generally satisfied with the learning patterns of human body recognition by their teacher. Qualitative comments from these studies suggest that the new way of watching videos before class and working through advanced problems in the classroom with peers is the most important feature that contributed to a high satisfaction of the eight-year-old [4].

The learning pattern in five-year-old and eight-year-old includes different pre-class, in-class, and after-class learning activities depending on the instructor and learning outcomes (Table 1).

| Table 1. Differentiation Activities of Five-year-old and Eight-year-old Students. |
|---------------------------------|--------------------|--------------------|
| **Pre-Class Activities**        | Watching instructional videos | Reading Text Materials |
|                                 | Competing Exercises    | Completing Discussions |
|                                 | (Taking Notes & Quizzes) |                     |
| **In-Class Activities**         | Brief Content Review /Short Lecture or Question and Answers | Individual Practices (Worksheets) |
|                                 | Group Activities (Worksheets and/or projects) | Student Presentations |
|                                 |                       | Quizzes |
| **After Class Activities**      | Completing self-evaluation or reflection |                     |

The literature review summarizes the current empirical studies of the learning patterns of human body recognition. The review provides a definition of the learning patterns of human body recognition, an overview of students in kindergarten and elementary activities, and the findings of the effects of the learning patterns of human body recognition on student achievement and satisfaction. While the number of learning patterns of human body recognition studies has been increasing [1].

2. Experimental Method

This research used experimental method by looking at the comparison of learning patterns of human body recognition between five-year-old and eight-year-old students in Kubu Raya Regency, West Kalimantan, Indonesia with different treatment. The design used in this research is posttest-only control group design and a descriptive survey focusing on the experiences five-year-old and eight-
year-old students in the class during as many as three meetings. A comparison group are most often used when it is impossible to randomize individuals or groups for treatment and control groups [5]. In this design, there are two groups of each selected randomly.

This research was conducted at 4 Kindergarten (Perintis, Khulafaur Rasyidin, An Najiah, and Niaga) and 4 elementary school (Khulafaur Rasyidin, An Najiah, Miiftahul ulum, and SDN 7) which is located at Kubu Raya Regency, West Kalimantan province, Indonesia. This research conducted on March, 15 – May 28, 2019.

Participants in this study was used purposive sampling. Purposive (convenience) sampling also known as availability sampling. The purposive sampling is a specific type of non-probability sampling method that relies on data collection from population members who are conveniently available to participate in a study [6]. The participant of students in kindergarten was 223 and the students from elementary school was 107 students. Both groups learned the human body during as many as three meetings (Table 2).

### Table 2. Participants and Meetings

<table>
<thead>
<tr>
<th>Meeting</th>
<th>Team 1</th>
<th>Team 2</th>
<th>Team 3</th>
<th>Team 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Teacher A</td>
<td>Teacher B</td>
<td>Teacher C</td>
<td>Teacher D</td>
</tr>
<tr>
<td></td>
<td>5Y=56; 8Y=25</td>
<td>5Y=49; 8Y=47</td>
<td>5Y=53; 8Y=23</td>
<td>5Y=49; 8Y=45</td>
</tr>
<tr>
<td>II</td>
<td>Teacher A</td>
<td>Teacher B</td>
<td>Teacher C</td>
<td>Teacher D</td>
</tr>
<tr>
<td></td>
<td>5Y=63; 8Y=20</td>
<td>5Y=55; 8Y=14</td>
<td>5Y=63; 8Y=21</td>
<td>5Y=55; 8Y=12</td>
</tr>
<tr>
<td>III</td>
<td>Teacher A</td>
<td>Teacher B</td>
<td>Teacher C</td>
<td>Teacher D</td>
</tr>
<tr>
<td></td>
<td>5Y=52; 8Y=23</td>
<td>5Y=47; 8Y=47</td>
<td>5Y=60; 8Y=21</td>
<td>5Y=54; 8Y=13</td>
</tr>
</tbody>
</table>

*5Y = five-year-old  8Y= eight-year-old

### 3. Result and Discussion

#### 3.1. Analyzing and Comparing Student Learning of Human Body Recognition (Posttest)

In the data analysis of the posttest score t-test and analysis of variance (ANOVA) were used. There were no significant differences in the score comparison of the four remaining schools (Table 3).

### Table 3. Posttest Comparison of five-years-old and eight-years-old students

<table>
<thead>
<tr>
<th></th>
<th>5Y</th>
<th>8Y</th>
<th>5Y vs 8Y</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>t-test</td>
<td>.000</td>
<td>.000</td>
<td>.006</td>
<td>No difference</td>
</tr>
<tr>
<td>Teacher A</td>
<td>.000</td>
<td>.000</td>
<td>.010</td>
<td>No difference</td>
</tr>
<tr>
<td>Teacher C</td>
<td>.000</td>
<td>.000</td>
<td>.001</td>
<td>5Y higher</td>
</tr>
<tr>
<td>Teacher D</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>8Y higher</td>
</tr>
</tbody>
</table>

P<=.001  5Y = five-year-old  8Y= eight-year-old

The t-test analysis was used to determine whether a significant difference exists between students in different grade [7]. According to the comparison of the posttest results, 7 teachers scored significantly higher on their eight-years-old students in learning patterns of human body recognition, while one teacher scored significantly higher on his/her traditional classroom. Figure 1 shows the mean scores of the posttest for both five-years-old and eight-years-old classrooms.
Figure 1. Both five-years-old versus eight-years-old classrooms

Figure 1 shows that students five-year-old were less prepared (28%) in TB and TD (Teacher B and Teacher D), but they agreed that lesson study was implemented in their classroom was more enjoyable and motivational than the traditional classroom. It provided them with the opportunity to work at their own pace because that classroom use video as the instructional tool. They could re-watch or pause videos as many times as needed [7, 8]. 84% students reported that watching lesson videos was better than reading text-based materials [4].

The implementation of lesson study helped them increase their interaction with the classmates and the teacher during class meetings and helped eliminate unnecessary wasted class time spent by the teacher [9]. Teachers are continually challenged to find new strategies in teaching [2], particularly in human body recognition lesson. This material is the basic material for studying other scientific material. Thus, students are more required to understand more deeply in learning this material.

3.2. Students Learning Gains

Figure 3 shows the learning gains comparison of five-years-old versus eight-years-old teaching. This research resulted that implementation of lesson study can help students perform significantly better overall than students in traditional classrooms. That statement was supported by the result of previous studies [10, 11, 12].

When teachers in the elementary (8Y) and kindergarten (5Y) were asked about the drawbacks of their experiment, they mentioned that the lesson study has challenges, such as heavy front-end preparation, open class, observation, and reflexion.

Teachers reported that preparing the materials in lesson study stage was time-consuming. This challenge is also reported in a lot of previous studies [13]. As a solution, John [14] and Desimore [15] explained that going from the traditional to lesson study requires additional work and new skills for the teachers. This learning curve could be mitigated by entering the model slowly and preparing the learning materials in lesson study progressively. The second concern from teachers was the difficulty in ensuring that students truly watch the videos before open class.

3.3. Learning Pattern of Human Body Recognition (Students Response)

Data was collected and measured by questionnaire with 7 statements including 2 statements about what they knew before the lesson, 2 statements about what they did during the lesson, and 3 statements about how they did their homework; alone, with their parents, or their friends. Overall, these results indicate that 72% of students in elementary schools were better prepared for the lesson.
than students in kindergarten, but 89% of students in kindergarten did their homework alone and 63% of students in elementary school did their homework with their parents and their friends.

Based on the opinions of five-year-old and eight-year-old students, as many as 20% of each students reported their concerns with learning by applying of lesson study in their classroom. Their said that it was required them to learn first at home. This is a difficult thing to do. For example, some of the students reported that they are not used to “learning at home” prior to the class, and they prefer to “learn in class.” The previous studies suggested that more than pupils participants will hold the conventional classroom because of their unfamiliarity of the lesson study [16, 17, 18]. To overcome this problem, communication between teacher and student is necessary to promote students’ acceptance of the lesson study. Specifically, teachers should detail the open class goal as well as its routines and procedures. Demonstrating to the students how to learn through the lesson study is very important for successful implementation [19, 20, 21].

5% of the student have a opinion that “watching a videos was consuming many time” and “students do not like homework on the worksheet.” the prior researchers explained that this type of concern in two dimensions. As a problem solution, Targamadze & Petruskiene [22] and Barford & Weston [23] stated that for the five-year-old students, teachers sometimes create video as instructional tool that are too long to focus. These long videos then become boring and passive for students. In contrast, for eight-year-old the teacher creating minimum length videos that are meaningful and cover the lesson content. This might require teachers in kindergarten to revisit their videos as instructional tool [24, 25]. On the other hand, Green, et al. [26] suggested that, even in the teaching and learning, there will be students who will prefer to avoid homework and doing task in the classroom. They suggested that teachers provide opportunities for students to view the short lesson videos in the classroom [27].

4. Conclusion
Overall, these results indicate that 72% of students in elementary schools were better prepared for the lesson than students in kindergarten, but 89% of students in kindergarten did their homework alone and 63% of students in elementary school did their homework with their parents and their friends. In Summary, five-year-old students in kindergarten are more autonomous than eight-year-old students in elementary school. five-year-old and eight-year old students, as many as 20% of each students reported their concerns with learning by applying of lesson study in their classroom. Then the teachers mentioned that the lesson study has challenges, such as heavy front-end preparation, open class, observation, and reflexion.

The findings regarding student five-year-old perceptions toward the human body recognition were mostly positive. Students believed that the experiment of teaching and learning with the lesson study in human body material was successful, exciting, and motivational. On the other hand, feedback from eight-year-old students highlighted the challenges with the new instructional approach. Students reported the following challenges (1) unfamiliarity with the lesson study, (2) watching long and boring video lectures, and (3) having no time to watch videos at home. Teacher related challenges were (1) time spent on preparation and (2) students not watching the videos.

5. Acknowledgments
Thank you to Kemenristek Dikti Indonesia for funding this research. To all the teachers in partner schools and students who were sampled in this study. To the Dean of FKIP Tanjungpura University and Chair of the department, the head of the Biology Education study program and the PAUD study program that has provided facilities and infrastructure to conduct this research.

6. References