Initial Research of Cross-Level Thematic Task Implementation to Build Learning Initiatives and Democratization outside School

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ABSTRACT
Implementation of thematic assignment performed outside the classroom allows students developed learning interactions between different levels of education or different age levels. Similarities and differences in experiences on the assignment theme, becomes an important and interesting part for the development of materials and learning activities. Early research on the implementation of thematic assignment instructions, conducted during two months in Sangihe, indicating that cross-learning education can build learning interactions, attitudes and behavior of democratic learning and initiatives that encourage the development of learning activities outside of school.

Keywords: Cross level, democratic attitude, learning initiative

INTRODUCTION

The survey result by Unima Physics Department lecturer team in 2012 at the Sangihe Regency (in order to develop thematic task) shows that the siblings communication in a family or between neighbors decreased compared to the situation before 1970. Some parents express the care downturn of older sister/brother to younger sister/brother, as well as the downturn of trust of young sister/brother in older sister/brother. Learning activities between brothers/sisters almost did not happen again[1]. The issue of character education in Indonesia is very prominent these days, especially with the brawl and violence among the youth or children. Practical and innovative things need to be developed to establish the communication of different ages children. The reflection of survey result in Sangihe indicates the deterioration of the children's behavior with regard to decreasing communication and caring brothers. Through the Youth in Action Bulletin NCJ-171 688, US Department of Justice proclaimed the importance of cross-age education, because the cross-age education can prevent and reduce criminal behavior of children. Strategic issues such as education that is relevant to the needs of children, use of learning resources, increasing the role of parents in the policy and implementation of the curriculum 2013, has become a challenge and an opportunity for the development of cross-age or cross-level learning.

Since 2013, our team has developed a collaborative research on thematic-task-instruction-based democratic learning-based which is conducted in the school and outside the classroom, involving the role of parents/community. The thematic task material is taken from issues around student i.e.: landslides, water cycle, coast abrasion, mangrove forests and energy. The cross-level (SMP-SMA) thematic-task-instruction-based learning model is part of a collaborative research of thematic task[2]. This cross-level learning model adopts the concept of cross-age learning. Cross-age learning is defined as the process in which a young man teaches younger age children. The cross-age learning programs can be implemented in schools or in non-
formal education, such as enrichment programs or club activities. Further, the Centre for Youth Development, University of California states that in the cross-age learning, a student of higher level of education teaches or train specific materials in the curriculum and not only help doing homework, but to build new knowledge for younger students. The research results indicate that cross-age learning gives positive impact on knowledge, attitudes and behavior of students. Through the cross-age learning model, teachers and parents can give a stronger effect. The cross-age learning is potential to: (1) increase the abstract thinking capability, (2) establish identity, (3) build independence, (4) improve learning outcomes, (5) the transition to adulthood. The research results by Ultay and Ultay show that cross-age learning in science (chemistry) can overcome any problem of false concept and make the concepts mapping more meaningful. Calik and Ayas conduct research of cross-age teaching for 7th grade student group (13-14 years old) with a group of students in grade 10 (16-17 years old). The identification result of the research subject reveals that there is one misconception about the solution of the substance and the conservation of mass due to lack of knowledge about these concepts. Students have difficulty in connecting knowledge and life experiences. Students are also very limited in providing an example of what is seen in everyday life. Cross-age learning outcomes showed that although students need more time to work on instruction, but an increase in the mastery of concepts occur gradually in grade 7 to grade 10. Uzun et al. in a cross-age study research of physics learning on the light topic proves that participants can describe the effect of light and its interaction as physical properties. The study conducted by Al-arfay shows that the response of students has increased gradually after the cross-age group discussions. Intervention through cross-age groups learning activities enables students to do instruction thoroughly (wave lesson) from two instructions to five instructions. Students can improve the initial response and transfer the new understanding through learning resources and discussion in (cross-age) small groups. The potential of cross-age or cross-level thematic task activities development is possible because: (1) students have the same local phenomenon, but differ in the understanding, (2) students have the same needs or different but related by theme. Similarities and differences in experience, understanding and needs turn into a material to build communication and learning together. The initial research results in 2013 at three districts in Sangihe (Tamako District, Manganitu District and Central Tabukan District) indicates that the field activities involving high school students can build academic communication, initiatives to discuss, efforts to obtain information or knowledge on the parents, teacher and student researchers. The material and activity design of cross-age learning can respond to the important issues in the imposition of Curriculum 2013, e.g.: the learning is relevant to the needs and experience of children, the learning utilizes the resources of the surrounding environment, the learning involves the role of parents and the community. Learning is designed as an thematic task instruction activity, i.e. the task drafted and implemented interactively and integrative, involving components of learning implementers (teachers, students, parents and community). The concept of thematic task development is based on two principles: (1) the substance of learning instruction (task) in the form of thematic, and (2) the implementation of learning activities as a democratic process. According to Medellu, thematic substance aims to: (1) improve the relation mastery of the concept and the context, (2) build a holistic understanding or interactive of the concepts from several fields of study on the theme of learning, (3) increase skills as the application of procedural mastery, (4) provide the value reinforcement (natural resources, socio-cultural) through the understanding of its relation with concepts in the field of study. Democratic learning allows interaction between people from one another in a real context. Learning is contributed by a variety of materials, individuals and institutions, which in the end to give experience to individuals. In a democratic learning, members exchange experiences, do the Review (peer review), which is a experience-based reflective learning form (experiential learning). In a democratic learning, individual differences are not an obstacle but must be understood and accommodated.
OBJECTIVES

The cross-level thematic task development research is a special part of the collaboration research of the thematic task development in schools supported by Manado State University. The study is designed to be implemented over five years (2014-2018). The emphasis of research includes improving the capacity and cooperation of teachers, developing thematic learning (thematic task instructions) that supported be parents and the community, building a democratic attitude of students through the creation of a democratic learning climate, building a learning initiative outside the classroom. This article describes the results of the initial research implementation of the cross-level thematic task instruction in landslides topic high school students at Tamako District. The described information research in this article is the study group interaction described in the democratic attitudes and behavior, and the forms of learning initiative that are developed in groups.

RESEARCH METHODS

The design implementation research of cross-level thematic task is a specific part of a scheme of five years research on the development of thematic task in school (in North Sulawesi), with the support of Manado State University. The umbrella study was developed in four main stages i.e.: (1) the design of basic thematic task instruction, (2) development of basic thematic task instruction by incorporating elements of local (social science and culture), (3) implementation of the thematic task instructions, and (4) evaluation, revision and development of instructional design (material and activities).

![Diagram of Research Methods](image)

Figure 1. Model, the design, implementation, and feedback development direction of cross-level thematic task development.
The implementation research of cross-level thematic task is a part or a variant of research that is developed at the implementation stage of thematic task. The initial implementation research of cross-level thematic task has been carried out in 2014 in the Manganitu District and Tamako District, Sangihe. The examined themes in cross-level thematic task research include five themes are: water cycle, landslide, energy, coastal erosion, and mangrove forests. The study is conducted from January 5th to February 27th 2014. The results described here is the result of the implementation of the thematic task at landslides theme. The study results of other themes are almost same. The development data of group interaction, attitudes and democratic behavior, and learning initiatives are obtained using the observation form that is designed based on the thematic task instruction design and the activity elaboration.

The instrument (observation form) contains in indicators of democratic learning interaction and learning initiatives. Indicators of democratic learning attitude/behavior are: (1) to motivate the group to create a climate of democratic learning, (2) to motivate parents to be involved in learning activities, (3) to ask/respond to questions that are relevant to the material and activities, (4) to appreciate the views or activities that are done by friends, (5) to criticize the formulation of materials and activities, and (6) to argue the need for alternative answers or activities, (7) to suggest relevant answers or alternative activities, (8) to propose the need for facilitation by a team of researchers and teachers, (9) to suggests the problems experienced in the learning process, (10) to clarify the results of the assessment. The learning initiative indicator are: (1) the initiative to invite the group to repeat activities outside the schedule, (2) the initiatives to develop alternative relevant activities, (3) the initiative to reflect on the work and fix it, (4) the initiative to get relevant alternative sources of learning/information, (5) the initiative to develop the activity reports that are specified in the thematic task instructions. The results are presented quantitatively according to the intensity of the democratic learning interaction and learning initiatives, as well as the description of cross-level student group interaction, from the beginning to the last meeting. The intensity of the learning democratization and learning initiative is measured by the frequency of each indicator that appears in each meeting/activity. The topic or sub-activities, lesson classification, and the main activities form of students are presented in Table 1 (appendix).

**RESULTS AND DISCUSSION**

Table-2 (Appendix) presents the observation data analysis results of the democratic learning attitude/behavior and learning initiatives intensity (in group). The data of both variables are presented as the intensity average data of each indicator of both variables. The intensity data of the group activity is the total of group activity for each indicator at each meeting or implementation of the activities (activity 1 to 9). The intensity mean of each indicator is the activity intensity average of the three groups (across levels). In this study, there are three cross-level groups of students. Each group consists of three senior high school students and three junior high school students. The data at Table 2 shows that the democratic of attitudes and behavior form in activity-1 (identification of landslide events) to activity-4 (identification of local wisdom, government policies, and customs of the people) is quite intensive. Students can openly communicate, give feedback, appreciate views/opinions of others, suggests answers and relevant activity alternatives. The communication intensity of group member is about the same. The junior high school students tend to ask and argue while the senior high school students answer the questions, provide direction and motivation. In motivating and encouraging the involvement of parents, the groups do it together. Attitudes and behavior of democratic learning in the study group member meeting/activity 1 to 4 are supported by students' knowledge and observations about the landslides that occurred in the village and surrounding villages. This reinforces the results of researches that suggest the importance of the information or the suitability of learning materials with the child's experience in the process of knowledge construction.
The intensity of interaction in the group at concept discussion activities of mathematics, physics, biology (activity 5 to d 8) is less intensive than their interaction on the activity 1 to 4. The results of self-search reveal the lack mastery of the concept and the lack of experience in identifying the science and mathematics concepts of the facts and phenomena. Student groups tend to ask the need for facilitation by the research team and expressed the problems experienced in the learning process. This phenomenon indicates the need for strengthening the concept, identifying relations of the concept and context, and formulating the relations between science and mathematics concept networks. In connection with these materials, it needs intervention of teacher to explain these concepts, while training students to identify concepts in a natural phenomenon. The fact of the research result, the science and mathematics teachers also have difficulty in identifying the relation between the fact/phenomenon and the concept. Teachers need assistance to build the experience until they can do it independently.

The intensity of democratic learning interactions in field activities (measuring land slope and determining the potential for landslides) are very high. Students are very intensive discussing in the group (ask and answer, suggest opinion and alternative activities), as well as discussions with parents who participated in the field work. Parents help measuring and communicating their experiences in measuring the slope of the surface. The groups of students with parents who accompany develop alternative measurement. Parents have the satisfaction of the content and activities of student learning. Parents gain flexible knowledge about the technique to measure the right angle in the field, slope and potential determination of landslides. Despite the reporting of the data analysis and discussion of the concept in the field of activities is not optimal, but the intensity of the interaction between students is very high and it can strengthen democratic learning climate. The lack of concept mastery is the obstacle in the development of procedural activities in depth. The intensity of study interaction in ten activities (discussion explains the landslide with the concept of motion in the incline and the changes of energy) is performed intensively. The group members motivate each other, respond to questions and appreciate the views of friends, criticize the formulation result and propose alternative answers from the formulation of joint. Although the mastery of science and mathematics concepts are weak, but the field activities and study interactions in the previous activity can motivate students to discuss and the lesson of activity 10.

The learning initiative intensity of student groups shows the same tendency with the intensity of democratic attitudes and behavior. It is associated with the identification of issues and factors (natural and social), as well as the implementation of field activities, groups of students show a high learning initiative. In connection with the discussion of the concept, the relation of the concept to the context with the formulation of the concept networking, the initiative of students is low or very less. This is due to the lack of concepts mastery and lack of experience in connecting facts/phenomena with the concept. These results indicate that the initiative can develop good learning if students are faced with the situation with regard to the experience and knowledge they had. The demonstrated initiative by the group of students in the field of activities is quite high. The direction of the teacher and his research team at the time of carrying out field activities is responded very well by a group of students. Students actively do the measuring steps even bring up alternative measurement that is confirmed to teachers and researchers. The developing initiatives in the field activities are also supported by the involvement of parents. Parents submit ideas and questions that are then tested by the group of students. In the last activity (discussion explains the landslide event with the concept of motion in the incline and energy change), the groups of students discuss the variations of experience and opinion that are outlined in the activity report. Initiatives that evolved during the learning process (discussions and field activities) need direction and control because it is potential to widespread and out of the learning objectives. This happens at the beginning of the activities to identify and explore the landslides issues. The implementation process of the thematic task instruction requires the teacher's role as facilitator and controller on the activities of the student group.
The research results indicate that the learning activities of the student group are quite effective in encouraging the development of democratic study attitudes and behavior. The high group learning activity in the measurements activity in the field (the scientific process) is potential to improve science learning achievement\textsuperscript{[13]}. High cooperative attitude of each group member according to Borich\textsuperscript{[14]} will built independent critical thinking skills in inside and outside the classroom.

Conclusion

The student groups show high democratic learning interaction in identifying activity of the landslides issue, causing factors and socio-cultural aspects discussion. In the field activity, the student groups are very active in developing communication and measurement activities. The student groups are less active in the discussion of concepts, the relations of the concept and the context, and the network formulation of science-mathematics concepts of landslides. Groups of students show a high learning initiative in identifying issues and factors of landslides, social and cultural aspects related to the occurrence of landslides and the measurement / determination implementation of potential landslides in the field. The student groups are lack the initiative in discussing concepts, relations between concept and context, and concepts network of landslides.

Acknowledgement

The research team would like to thank S1, S2, S3 students and alumni who were involved in this study. Thanks also to the Regent of Sangihe, Head of Education Department in Sangihe and his staff, the school principal and the teachers and the community for facilitating and accommodating the researcher team for conducting research in Sangihe.

Appendix. The analysis result data of democratic attitude / behavior and learning initiatives that were developed during the implementation of the thematic task instruction on landslides theme.

**Theme: Landslide**

<table>
<thead>
<tr>
<th>Activity Number</th>
<th>Sub-theme / activity</th>
<th>Material classification code</th>
<th>Form code of activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td></td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>1</td>
<td>Identify landslide events in the village and elsewhere</td>
<td>1 2 3 4 5</td>
<td>a b c d e</td>
</tr>
<tr>
<td>2</td>
<td>Analyze the potential for landslides based on the influencing factors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Sum up the factors that cause the potential of avalanche or landslide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Identify local wisdom, government policies, and customs of the people and analyze the value of importance for the prevention of landslides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Discussion of concepts (math): comparison of the right-angled triangle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Discussion of the concept (physics): motion in the incline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Discussion on the type of plant roots and root function to prevent landslides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Discussion of the concept of energy change in landslides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Measurement of slope steepness and determine the potential for landslides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Discussion to explains the concept of avalanche events in the motion concept in the incline and energy changes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Description:**
Material classification code (column (3)): 1 = description of the facts / phenomena, 2 = concept-context relations, 3 = the process of science, 4 = formulation of concepts networking, 5 = a description of the social implications
Code forms of the main activities of students (column (4)): a = student group discussion, b = discussion of students with parents, c = reference/concept discussion facilitated by teacher, d = field observation/practice and reports, e = formulate personal / group view and commitment
Dark box in column (3) and (4) are not filled by data

Table-2. Observation result data of democratic learning attitude / behavior and learning initiatives

<table>
<thead>
<tr>
<th>Activity Number</th>
<th>The mean of democratic learning attitudes / behaviors intensity (group), the … indicator.</th>
<th>The mean of learning initiative intensity (group), the … indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**Notes:**
No. (code) of democratic attitudes / behaviors intensity: 1 = motivate the group to create a climate of democratic learning, 2 = motivate parents to be involved in learning activities, 3 = ask / respond to questions that are relevant to the material and activities, 4 = appreciate the views or activities undertaken by friends, 5 = criticize the formulation of materials and activities undertaken by friends, 6 = argue the need for alternative answers or activities, 7 = suggest relevant answers or alternative activities, 8 = propose the need for facilitation by the research team and teachers, 9 = raised the experienced issue in the learning process, 10 = clarify the results of the assessment.

No. (code) of learning initiatives: 1 = the initiative to invite the group to perform activity repetition outside the schedule, 2 = initiatives to develop alternative relevant activities, 3 = initiatives to reflect the work and fix, 4 = the initiative to get alternative relevant sources of learning / information, 5 = initiative to develop a report on the activities specified in the thematic task instructions

**REFERENCE**
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