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A Lesson Study of the Changes of Students' English Learning Motivation through Global Learning

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We aimed to ascertain the changes and the progress of students' English learning motivation, being engaged in the materials of global learning (GL), assimilating several projects such as card-exchange project through iEARN, post-crossing, cultural package exchange, and so on. The methodology we handle the GL is based on PBL (Project-based Learning) and also encourage pupils to develop the competence of creative or multicultural performance as the main part of the evaluation. We combine some social issues in class to enhance them to take more care of the environments they live in and the people they are with in the world. Furthermore, we invite some foreigners into the classroom to share their culture and customs. That really draws the students back to the authentic world and explore the culture shock. Most start to get more enthusiasm in grabbing more language tools for their curiosity and make some more conversation. In addition, we also prepare other cultural assignment for students, involving them to make presentations or reports about the foreign countries. What they do is nothing but break the countries' boundaries, also make the knowledge from the textbooks Alive' And they also improve the collaboration and teamwork.

This study discusses the process and progress of the experiment of assimilating GL as ESL material, the observation of the different types of motivation GL has enhanced and inspired in English learning, and the role of motivation in English learning has played. The subjects in the thesis are Guang Wu middle school students (Grade 7-9, 150 in total), and the author designed a questionnaire on students' responses about their competence of vocabulary, confidence of oral presentation and conversation in English, and the last but not least, the motivations. The purpose of the study was to figure out how much is the scale that the GL material can affect the motivation not only in English learning but also the cultural tolerance and friendliness. According to the core concepts of Pintrich's theory on Learning Motivation (1989), the author analyzed the students' motivation. The implications explain how motivation can help to satisfy or raise the students' self-efficacy, value, the emotion needs, and expectation. Meanwhile, as a curriculum-designer, organizer and operator in teaching, teachers should pay more attention to every individual capacity in learning, and be flexible and make them have fun learning English and enjoying the culture shock.

In this research, all the data and information were collected through the class observation, questionnaires, classroom videos, worksheets, and discussion with collaborative teachers.

So far, we have got the findings from this research as classified into three types of motivation based on the theory of Pintrich in 1989. First, as emotional motivation is concerned, students get motivated the most. The survey data shows that global learning raises students' interests in knowing the cultural difference by learning English, make them much more confident in using English to introduce Chinese culture or tradition to foreigners, make them feel more proud of their own culture, and increase their compassion and care for the world. Second, considering the value of the task, the questionnaire data says more students value what they do on the GL projects in English class and that means a lot for the sense of achievement and dignity

when confronting with different culture. The last of the Pintrich's motivation theory, the study also clearly shows the students' expectation of their self-efficacy especially in academics English learning, including the vocabulary quantity, the paragraph-writing skills, and the oral presentation.

Keywords:

Global Learning, International perspective, English learning motivation, iEARN, Global citizen

Lesson Study: A Framework for Developing Lessons That Integrate Science and Mathematics

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Science and mathematics ought to be taught in an integrated way, in the context of real-world problems, to be more relevant to students. Such an integrated approach may also help in concept retrieval, meaning making, and the transfer of understanding to new situations (NAS 2014). There is thus a need to develop integrated lessons. However, how does one design integrated lessons? Where would the integration entry points in a curriculum be? In what ways could differing disciplines be integrated? The challenges that teachers might face in designing integrated lessons could be addressed, we think, by the lesson study process.

This realization is based on our experience as part of a lesson study team that included teachers of a high school in Metro Manila. As participants in an APEC Lesson Study project, we were required to design mathematical tasks in the context of natural hazards and conduct lesson study that makes use of these tasks. The ultimate aim was for the research lessons to create disaster awareness and preparedness among students. The assigned themes were earthquakes and tsunamis, floods and typhoons, and volcanic eruptions and fires.

Guided by the themes, we then selected specific science-related contexts and surveyed the mathematics curriculum to identify possible entry points. In 2012, a mathematical task was developed where students were asked to formulate questions whose answers were based on a graph of seismic waves. In 2013, the task was to find, using different ways, the area of a watershed, to be able to calculate the volume of rainwater and predict if there would be floods. In 2014, we developed a task where students had to identify changing quantities in volcanic deposits and determine their functional relationship.

The mathematics teachers and the department head were initially reluctant, believing that the lesson should be taken up in a science class. The teachers also felt they lacked the confidence to teach the lesson because of inadequate understanding of the science concepts involved. To cope with the challenge, one of us addressed the science-related questions of the teachers, providing them with background knowledge that gradually built their confidence.

The teachers were also apprehensive whether the students would be able to do the tasks since they have never done these in their mathematics classes. But contrary to the teachers' expectations, we found out during implementation that the students were able to carry out the mathematical tasks. The teachers thus realized that given the opportunity the students could do tasks they have not done before, such as coming up with multiple solutions to a single problem.

We also found out that the students were interested in the lessons because all of them have experienced earthquakes and floods, while some have also experienced volcanic eruptions. During a post-lesson discussion, a teacher commented that they too included applications of mathematics in science but unlike what were developed in the lesson study. She appreciated that through the lessons, the students got the chance to see that what they were studying in mathematics were related to events that they experienced in daily life.

The intention of the project was not to explicitly develop lessons that integrated science with mathematics. In hindsight, however, we came to recognize that the lesson study approach provided the steps helpful in designing integrated lessons: agreeing on a theme that involves connections between disciplines; careful study of the corresponding curricula; active collaboration among subject-area specialists and knowledgeable others; lesson implementation and observation (because lesson development should not end when the lesson plan has only been drawn up); and discussion by the lesson study team and reflection on what was learned.

Using Lesson Study to Introduce Stem Education

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Being competence in Science, Technology, Engineering and Mathematics (STEM) competencies is believed to be crucial in the future as it is not only necessary for the jobs but also for daily life and participation in the community. The current school curriculum and teachers teaching practice, however, do not highly focus on improving students' STEM competencies. STEM-based teaching was believed as a teaching strategy that can create a creative learning environment as students are involved in designing, assembling and testing. Through such strategy it is expected that students' interest and competencies in STEM will improve.

Open-source hardware and software were especially developed by the researcher team as teaching media for the teachers to introduce STEM. Instead of using factory-made instrument, these open-source hardware and software were deliberately chosen to present technology as something students' may create. The equipment consist of weather sensors (temperature, humidity, dust, carbon dioxide, light intensity, noise), data receivers, and a software that allow students to access data using their computers or mobile phone.

Principles of Lesson study (Plan-Do-See) were used as the model for building teachers' confidence and competencies to teach STEM in their classrooms. The study involved three junior secondary teachers from three schools in Bandung, Indonesia. At each school, two full cycles of Lesson study were conducted. Data were collected from each phase of the Lesson Study phases that include lesson plan, video of the lessons, interviews with teachers and students, students' questionnaires, and records of discussions sessions.

This study finds that STEM-based teaching creates a learning environment that promotes students' creative disposition. Students' also perceived themselves as becoming more creative. However, significant efforts and supports are needed for the teachers to be able to conduct STEM-based teaching. These include building teachers' confidence, supporting teachers in integrating STEM education into the existing curriculum, helping teachers in developing teaching materials and implementing STEM-based teaching strategies, and raising students' interest in STEM.

The adoption of Lesson Study approach was very helpful since it created informal but yet fruitful environment for the teachers to share and to learn from each other in a small learning community. Instead having face-to-face meeting, the three teachers used social media for their communication. Sharing experiences with other fellow teachers provide opportunities to learn from each other but more importantly it gives psychological support to the teachers. Teachers found that they are not alone as they have fellows to support when they need it.