

論文の内容の要旨

論文題目 MANAGING STUDENT DIVERSITY FOR SUSTAINABILITY EDUCATION IN
HIGHER EDUCATION SETTINGS
(高等教育の場におけるサステイナビリティ教育のための学生の多様性活用)

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1. Problem Statement

The twenty first century has witnessed increasingly expanding damage to the environment and unbalanced societies against the economic growth such as global warming, ozone depletion, loss of biodiversity, acid deposition, desertification, overpopulation and resource intensive consumption. These have even worsened the poverty of people in the Third World, who have little knowledge about livelihood rather than exploiting natural resources, and affected the well-being of millions (Schmandt and Ward, 2000). Sustainable development is therefore an urgent need, a 'do or die' movement that was triggered since the emergence of concern for natural resources limit and carrying capacity of the earth. In the United Nations World Commission on Environment and Development 1987, where the official definition of sustainable development was coined, we once expected sustainable development to be achieved by 2000. However, until now it is hardly to foresee the realization of the sustainable development goals even in 2030 unless researchers and policy makers more strongly work on a global strategy to raise people's awareness and behaviours. Only the power of education could mobilize all available resources for making this proposal happen. Sustainability education is hence one of the useful solutions to long term sustainable development.

In the last two decades, nations worldwide have been observing increase in both diversity and recognition of diversity in many fields, including education (Banks and Banks, 2009). "The worlds increasing social and cultural diversity, often characterized by extreme race-ethnic disparities, requires higher education institutions to become more responsive to diversity and inclusive of difference" (Allen et al., 2006). In the Tremblay et al. (2012), it is said that "A number of global trends have shaped the development and wide-ranging mutations of higher education over the past half century. Higher education today is characterised by massive expansion and wider participation; more diverse profiles of institutions, programmes and their students; greater internationalisation, competition and signalling mechanisms".

Due to the nature of sustainability (Kajikawa, 2008; Kates, 2011; Komiyama and Takeuchi, 2006), the inter-connected complexity cannot be solved dispersedly by certain expertise or at certain location. The research argues that higher education should be the place where dialogs about sustainability are discussed by multiple perspectives and through the lens of different cultures. This leads to the search for diversity of students, which has been emphasized as an important factor in improving education for decades, such as in Ely (2004); Gurin et al. (2002); Piland et al. (2000).

My previous research (Dan, 2011) has fostered the debate on whether student diversity is significant in education for sustainable development or not, mostly drawn on the perspective of the students. I was able to affirm that diversity of students is greatly beneficial for sustainability education; yet one single factor cannot make up the complete success of the education. Additionally, merely adding diverse people to a homogeneous environment does not automatically create a more welcoming and intellectually stimulating campus as diversity is just a means of achieving educational and institutional goals (Fine and Handelsman, 2010). Therefore, if lecturers do not best employ student diversity, that might be a waste of resource.

Approaching the issue of managing diversity, Cotton et al. (2007); Erkilic (2008); Hopkinson and James (2010); Redman (2013) are some of limited work that have discussed the pedagogy and instructing strategy in sustainability education but none of them mentioned the presence of various academic and cultural backgrounds or how to be effective in that environment concretely. This study extends the researcher's prior work on

examining the relationship between diversity of students and sustainability education by identifying proper pedagogical approaches for class instructors to nurture diversity as an internal strength in this education.

2. Objectives and Presumptions

2.1 Objectives

The dissertation aims at two goals within the scope of sustainability education: (1) to understand the mechanism of how diversity of students is beneficial and crucial to sustainability learning; and (2) to identify pedagogical/andragogical methodologies that could help taking advantage of diversity, which is assumed to have already existed. Arguing that without proper attention and methods, the presence of structural diversity itself does not guarantee meaningful interactions among students, the dissertation targets in answering three sets of questions:

- Q1: What is the current instructing/teaching methodology for sustainability education? What does teaching sustainability mean and how has diversity been considered in teaching sustainability?
- Q2: What are the factors that lead to the success/failure of a practical program on sustainability that introduces diversity of students?
- Q3: Pedagogy of what educational theory or philosophy (Ashworth et al., 2004; Pritchard, 2009) could be best applied in dealing with diversity to improve the positive impact and effectiveness of having various disciplines and cultures in sustainability learning?

2.2 Presumption

- Student diversity already exists in the classroom. What we need to study is how we could prove the importance of it in sustainability education and how to nurture it.
- Higher education faculty working in various fields could be valuable sources, who are expected to give hints and input for answering research questions.
- Due to limited existence of available sustainability programs for research, we assume that working on multiple typical case study at the same time as conducting survey and interviews can mutually complement and enrich the findings.
- By choosing some classes to apply the methodologies, results could be verified in reality.

3. Prospective Contributions

To the educators, class instructors: This research is hopefully a pedagogical material for the lecturers in sustainability courses. Firstly, it could make them realize the importance of having diverse academic background and culture so that they are optimistically prepared for both benefits and challenges brought by diversity. Then the suggestions provided by the end of the treatise could possibly help them to enrich their lectures by fully utilize the strength in each learner's background. All would results in better understanding about and better trained skills for sustainability.

To the school leaders, curriculum designers, policy makers: For those who do not directly interact with students in classes, results of this research might contribute to the way the curriculum is designed and developed; the teacher/student are recruited; and how they could best collaborate with teachers in promoting diversity in sustainability education.

To current literature: There has been relatively little research into the relationship of sustainability education and diversity. Although it seems that the benefit diversity could bring to the education is obvious and easy to accept, a logical, empirical way of explaining the linkage has not been well grounded. How we could mobilize student diversity as a collective power for the education, and then for a more sustainable society; as well as why we need more secured connection of different academic fields since school period would be clearly demonstrated.

4. Research design and methodology

Firstly, research questions are raised after considering objectives of the whole research. Literature helps build up preliminary study and a questionnaire followed by interviews are central data collection sources. Research questions are partly answered through these first two steps and then verified by a number of case study. Finally what is suggested after obtaining those results will be applied/tested in a study case in Vietnam. Along the way of doing the research, the research questions and objectives are constantly adjusted to fit in the contemporary situation (real-time study) and methods are ensured to correlate to make the most use of triangulation. A five-component methodology is developed as following to support the logic flow:

- A questionnaire to some worldwide networks of educators;
- Some deep interviews to selected respondents;

- Three case studies: IPOS, TTFPP, GPRD analysed under the theory of change;
- An comparative study to see students feedback; and
- A lesson study in Vietnam as an action research.

The study relies on a qualitative research but uses mixed data and analysis on all accounts.

5. Results

By asking about thirty questions of three categories: instructors' experience, attitude; their know-how and skills and their personal information, the questionnaire revealed different ways of valuing the diversity through 45 detailed answers. Most of the respondents showed their observation in improving competencies for sustainability when students interact with each other. Student diversity is, however, not the core reason for individual's failure or dissension as the researcher assumed from the previous research with students. Other reasons include: students' own effort, class size or lecture's content.

Some "unanticipated discussions" were also recorded, which is the root for sustainability innovation. To overcome diversity's side effects like losing students' consensus or degrading the quality of lecturing, key suggestions include improving the social interactions among students and with communities to localize sustainability issues, applying frequent discussion with considerate guidance and observation of the instructors, or using a flexible mechanism to evaluate students through close monitoring and regular feedbacks.

Looking at the three case studies of IPOS, UDS and APIEL (GPRD unit) which intentionally involve a great heterogeneity of learners, we could see the change of students in terms of sustainability knowledge and skills and find that its successful factors lie under the mix of disciplines and continuous efforts of educators in revising the program. Students in the comparative study also confirm that they value the two seminars in different ways, but have more confidence with the diverse group. As an action research, through a couple of face to face surveys, a workshop with students (about 60) who were learning about sustainable development, a discussion with faculty members for the sake of sustainability education in Vietnam and numerous observations, it is observed that with changes in pedagogical components, from a classical classroom (teacher-centered) to more learner-centered, collaborative, reflective (constructivism) and exchanged (connectivism) method, learners get better ideas of what sustainability science is by interrelating their prior experiences while learning.

6. Discussion and Conclusion

Educators value student diversity more than the students themselves, who are attacked by conflict during the group discussion process, or controversial, debatable points in the lecture. Studies have shown that 'bad' memories linger longer than smooth one. By having frequent debates and dissatisfaction, students naturally input in their mind the problems and they keep working on and linking it with facts, which is the major task of solving inter-disciplinary and long term sustainability issues. Besides, as the meaning of consensus building nowadays is changing from everybody agree to everybody involved, a single concrete result should be replaced by multiple scenarios contributed by diverse intelligence and indigenous knowledge. Theory of information/decision making with similarity attraction explains that diverse group, despite of time-consumption, tend to have more thorough findings on their projects.

There are three types of pedagogical approaches located: constructivist, behaviourist and connectivist techniques. Constructivism explains that each learner is a builder of knowledge and learners with prior knowledge and experience can acquire more new knowledge as more interactions happen. Connectivist approach adds that the connections between learners are also a type of knowledge and more connections means better understanding about the changing world. Sustainability science is complex and dynamic, thus students cannot acquire new understanding or solve sustainability problems standing at a single viewpoint. Measuring the comprehensive success of each examined program is challenging, but through constructivism and connectivism we could say with the contribution of diversity of students, both students and staffs benefit from the networks and collaboration it develops. Behaviourist school of education, however, states that we impose reward and punishment to ensure certain expected behaviours; which is also true in a too diverging group that need some common rules to share basic norms. Therefore learning sustainability is in fact the process of constructing new knowledge and connecting that knowledge, with proper attention to the initial expected goals. What lecturers should do in diverse class is to utilize a flexible mixture of constructivist, connectivist and behaviourist pedagogy to ensure the effectiveness of sustainability education.