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Using an e-learning platform to craft NE project tasks

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Introduction

In 1996, the Singapore Ministry of Education (MOE) launched three initiatives i.e. National Education (NE), the Thinking Programme (TP) and the Master Plan for Information Technology in Education (MPITE). Three years later, the Project Work (PW) initiative was implemented in 1999. These initiatives represent the change in the landscape in our education system and as a nation itself. While the NE initiative calls for us to better understand our existence as a nation, the PW initiative aims to better prepare our students for the challenges of the 21st century and to achieve our country's vision of Thinking Schools, Learning Nation (TSLN). The infusion of NE into the curriculum also provides learning opportunities for the pupils to better equip themselves about Singapore as a nation and its survival.

PW is implemented in schools and across all levels ranging from primary schools to pre-university. Opportunities are provided for the exploration of the inter-relationships and inter-connectedness of subject-specific knowledge. PW provides the platform for students to be better equipped with creative and critical thinking skills, have their communication skills improved, their collaborative learning skills fostered, and their self-directed inquiry and life-long learning skills developed (Ministry of Education, 1999). While PW has been implemented in the school curriculum (estimated curriculum hours of 20-25 hours per academic year) in the last four years, we maintain that it is timely to explore creatively how PW can be implemented to better meet the learning needs of the students, and to better address the NE issues which have grown in importance as Singapore matures as a nation. This paper documents how a group of trainee teachers use the e-learning platform to design NE theme-based projects collaboratively. The strategies, suggestions and the feasibility of adopting an online learning approach for PW in schools will also be shared.

Why use an e-learning platform?

In schools, it is often observed that before the PW lesson is conducted in the classroom, the teachers would design their authentic interdisciplinary projects in groups. Often, they have to schedule and hold numerous face-to-face discussions with their colleagues to discuss the requirement, scope and depth of an interdisciplinary project. We feel that the technology, that is, the e-learning platform could be better deployed to hold these discussions more effectively. For instance, for a face-to-face discussion, someone would have to be the scribe to document the flow of the discussion and the decisions made, and therefore will not be able to participate fully in the discussion. However, an e-learning platform provides opportunities for everyone to participate actively and contribute their ideas to the discussions because it is able to

automatically capture the discussion and negotiation of ideas which contribute to the process of crafting of projects as well as the crafted project as the product.

Why use National Education (NE) as the theme?

MOE introduced the NE initiative and has embarked on a two-pronged approach in the cultivation of national instincts among students. The first is to develop an awareness of facts, circumstances and opportunities facing Singapore, so that they will be able to make decisions for their future with conviction and realism. The second is to develop a sense of emotional belonging and commitment to the community and nation so that they will stay and fight when the odds are against us. We feel that crafting NE theme-based PW tasks will expose the trainee teachers to a wide variety of topics that are current as well as pertinent. In addition, the use of NE as a theme lends itself to a wide range of topics from which authentic tasks can be identified.

Background

The module “Project Work - Understanding process and product” was taught over a span of six weeks to a group of 80 trainee teachers (Diploma in Education, Year 2 programme). The teachers were divided into 4 tutorial groups and a total of 36 hours were planned for lectures and tutorials. In this elective, the module had 50% of face-to-face sessions and 50% of online sessions. The main objective of the module was to enable the crafting of a project task collaboratively in a computer-supported learning environment using Knowledge Community (KC).

The course was structured in the following manner:

- Firstly, the trainee teachers were introduced to the background and research on Computer-Supported Learning Environment (CSLE). They were provided with information and referred to websites where relevant information about CSLE could be found.
- Next, the trainee teachers were introduced to the newly developed e-learning platform; Knowledge Community (KC) which was used to craft their NE theme based projects collaboratively. The trainee teachers were briefed about working collaboratively, that is, across classes, in groups of 4-5, brainstorm and negotiate ideas, and design projects with an NE focus.
- This was followed by introducing the trainee teachers to the concepts of student-centred learning and their roles as designers and facilitators. In addition, the trainee teachers were provided with samples of project tasks by the Ministry of Education (1999) so that they had a better idea of what was expected of them.
- In addition, the trainee teachers were taught the concepts of an interdisciplinary project, the key features of an interdisciplinary task such as, the purpose of the project focus, how guiding questions were formulated and curriculum links made. They also visited relevant websites, such as, the global schoolhouse and other sites which had well-designed Internet activities incorporated within the interdisciplinary projects (Leshin, 1998).
- Having acquired the necessary concept knowledge, the trainee teachers were then introduced to KC prior to crafting the NE projects. A hands-on session on using KC was conducted and the trainee teachers were given time to access and familiarize the key features, such as, scaffolds and thinking types built within the e-learning platform. We

also provided an online helpline to support our trainee teachers in the course of the crafting process.

The entire crafting process was made up of group discussions and notes typed in by the trainee teachers using the ready-made templates. This data was captured in the weekly forums which could be found in the e-learning platform. Besides the on-going individual reflection, the trainee teachers were expected to reflect as a group at the end of crafting of the NE project tasks. The trainee teachers were also expected to write an essay about how they might conduct and facilitate their crafted NE project to their pupils. The next section presents the relevant literature about the Computer-Supported Intentional Learning environment (CSILE) for teaching and learning.

Related literature

Jonassen, Peck and Wilson (1999) challenged the traditional conceptions of using educational technologies merely as delivery vehicles in computer-assisted instruction, tutorials as well as drill-and-practice. He strongly believed that technologies should be used as tools to engage and facilitate thinking and knowledge construction of learners (Jonassen, et. al. 1999). Technologies are also used to provide platforms for conversing, representing and reflecting the learners' learning, beliefs and perspectives. With these claims of how technologies have the potential to enhance the learning such as collaboration and communication of learners, the highly researched Computer-Supported Intentional Learning Environment (CSILE) (Scardamalia & Bereiter, 1996) has led to the development of various computer conferencing systems and communication tools. The online discussion platform is an example of the asynchronous computer conferencing tool that engages participants in discussions. According to Angeli, Bonk, and Hara (1998), asynchronous computer conferencing platform promotes reflective learning because the participants are able to view the notes discussed earlier, think through the ideas and issues raised by their peers before responding. Through the online discussions, these activities also promote communities of 'learning partners' leading to a better understanding about the subject matter discussed. All these meaningful activities reflect the extent of active thinking and self-directed learning exhibited by the learners. The online discussions platform also provides a non-threatening learning environment. It gives equal opportunities to all the participants to contribute their ideas through typing rather than having to be too concerned about the tone and facial expressions of the participants.

In the design of interdisciplinary curriculum, Goodrich, Hatch, Wiatrowski and Unger (1995) suggested that teachers from various disciplines work as a group of designers. As an approach to curriculum design, Jacobs (1989) used the interdisciplinary curriculum to develop learning units which can be lessons or projects for students. His process of crafting an interdisciplinary project included the selection of a theme, brainstorming connections using the interdisciplinary planning map, deciding on the depth and order of the guiding questions and incorporating activities within the project task. Typically an interdisciplinary project revolved around themes which were more conceptually based. It also consisted of 2 or more subject disciplines connected to a thematic concept. However, some critics felt that the students might not master the depth of knowledge in the subject disciplines if this approach was adopted in teaching and learning throughout the entire academic year.

Both Jacobs (1989) and Fogarty (1995) highlighted three advantages of interdisciplinary curriculum in teaching and learning. Students were provided opportunities to see the interrelationships of subject disciplines and the interdependency between subject areas. This could help to enhance their retention of knowledge. At the teachers' level, interdisciplinary curriculum promotes close collaboration among teachers as they brainstorm, plan together and implement the interdisciplinary curriculum lessons in their classrooms. The teamwork displayed by the teachers could also lead to a more 'welcoming' learning environment which encourages increased innovative instructional approaches and professional practices in schools. There were numerous approaches to interdisciplinary curriculum design and teaching (Post, Ellis, Humphreys & Buggey, 1997) but we have chosen the crafting approach which was in line with that recommended by the Ministry of Education.

Process of crafting NE projects

The total number of trainee teachers who opted for this elective module was 80. These trainee teachers were then divided into 4 classes. They were numbered groups 1 to 4. For collaboration purposes, the trainee teachers were divided into 2 communities. The first community was made up of groups 1 and 3 and the second community was made up of groups 2 and 4. Every trainee teacher was issued with a password to access the e-learning platform in KC. After the trainee teachers had familiarized themselves with the features of the e-learning platform, they started to communicate with one another using the forums prepared in the module. Some of these planned forums provided for these teachers were:

- What are my NE project ideas?
- How do we select our project idea?
- How do we form our project group?
- What is our project about?
- What are the questions we want to explore?
- What are the project skills required?

These trainee teachers participated in the forums actively by contributing their responses. They participated by making their 'stands' through selecting the appropriate thinking types, such as, asking questions or building on an argument or disagreeing, provided in the e-learning platform. They also used the appropriate scaffolds which helped to support the learners in expressing their views and questions in the forums. These scaffolds are provided in the e-learning platform. Some examples of scaffolds are: My idea and I need to understand. Before the formation of collaborative design teams, these teachers posted at least one project idea related to the NE theme in the e-learning platform. These teachers visited the ideas posted and asked questions to clarify. Some examples of the project ideas posted in the e-learning platform are:

- Social cohesion
- Waste no more electricity
- Sports school
- Globalization
- National service
- The neglected
- Understanding inter-racial marriages
- Newater in Singapore
- Total defence

- Singapore as one country

After one week of the posting of project ideas, the trainee teachers chose one project idea that they had the intention to work on. They formed design teams of 4-5 people. During the online crafting, they brainstormed project ideas, discussed their roles, scheduled online meetings, and conducted group reflections. They also formulated the guiding questions that they wanted to ask and explore. By and large they conducted their own online meetings and developed their project tasks. An example of an NE task crafting process is shown in Figure 1.

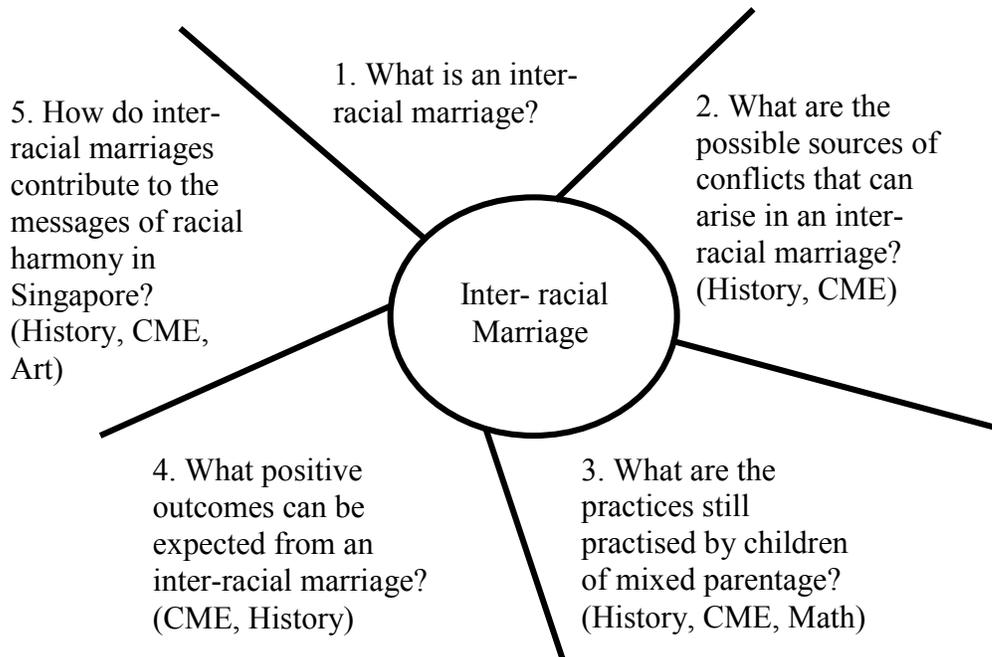


Figure 1: A project web on inter-racial marriage

[Project web template was adapted from Project Work Guidelines (MOE,1999)]

Results and Conclusion

The use of technology, that is, the e-learning platform, in designing projects, provides authentic learning opportunities for the teachers to collaborate in design teams and participate actively in contributing their ideas. The development of the trainee teachers' written communication skills and interpersonal skills can be tracked from their notes found in the online discussions and the written project task. From the teachers' reflection logs, they indicated that they had acquired relevant knowledge and learnt necessary skills about crafting projects. They also gained experience in working with their peers, playing the different roles such as facilitator and members in the project group. They also learnt the value of collaborative effort, showing respect for others' view points and establishing collegial relationships both in the online and face-to-face sessions.

This is our first and successful attempt in deploying technology to enhance the knowledge and skills of the trainee teachers as designers and facilitators in technologically rich environments. Having acquired new teaching strategies for skilful teaching and learning in the online learning

environments, these trainee teachers are more prepared for the futuristic borderless classrooms. Similarly, we, the designers and facilitators of this module, have also acquired new skills in designing online courses, creating opportunities for learners to interact as well as engaging learners in meaningful discussions and construction of ideas. We can confidently say that we are ready to move on to the teaching and learning in the 21st century.

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