**Enhancing Pre-Service Teachers’ Interdisciplinary Team Teaching Through Online Collaborative Reflective Practice**

**Abstract**: In this paper, the author will present a case engaging pre-service teachers in interdisciplinary team teaching through online collaborative reflective practice via Web 2.0 tools. The author will share the design of the interdisciplinary team teaching projects; collaborative tools that students’ used in this project, with a focus on the learning process through collaborative team. Themes and learning outcomes from teacher candidates who participated in this project will be shared with attendees. Strategies to facilitate interdisciplinary collaboration will also be shared by the presenter who designed, developed and implemented this project.

**Introduction**

Equipping teacher candidates with technology integration skills has been on the front-line task of teacher educators in instructional technology field. Many researchers have invested time and resources to find best practices to address such needs. Tondeur, van Braak, Ertmer & Ottenbreit-Leftwich (2016) reviewed the literature on the relationship between teachers’ pedagogical beliefs and technology use in education, and they suggested that one of the best practices is to model technology usage for students before they teach on their own. In the technology standards for teachers listed by International Society of Technology in Education (ISTE, 2018), teachers are expected to “design authentic, learner-driven activities and environments that recognize and accommodate learner variability” and teachers are to “use technology to create, adapt and personalize learning experiences that foster independent learning and accommodate learner differences and needs.” (p.2), however field reports surveying teachers’ technology use in schools showed that teachers “have not adopted new technology as an instructional tool in their classrooms” (p.10, McLaughlin, Glaab, & Carrasco, 2014). It is described that many teachers are not mastering the skills of “use technology to teach” (p.10, McLaughlin, et, al., 2014). These findings echo the conclusions from classroom observations done by many researchers (Andrew, 2007; Bauer & Kenton, 2005). The purpose of this presentation is to showcase a work-place-like learning environment for teacher candidates to practice their instructional design skills and technology integration skills through collaboration and reflection with the aid of online tools.

**Context**

A project-based learning approach was used to engage teacher candidates to work with members from different teaching concentrations. Teacher candidates in a northeast metropolitan university in the United States completed the projects. Participants work in teams of three, and each team was formed based on their teaching concentration/discipline. The design task for each team is to create a technology-integrated interdisciplinary thematic unit for middle school students, and the unit should cover each of the teaching concentration represented by each team member.

Project Explanation

*“ In echoing the recent major shifts that is happening in our city (state adoption of Common Core State Standards and city emphasis on middle school education, as a pre-service teacher, you now have the opportunity to practice and refine your teaching skills in this team instructional design project towards middle school students.*

*In this team project, you are working in a team of three (3) members and each team consists team members with different focus on their disciplines or teaching concentrations. The task for your team is to apply the knowledge you obtained this semester and expertise from your teaching concentration to choose a topic to design and implement an interdisciplinary technology-integrate lesson for middle school students. Specify the common core standards achieved. ”*

Time-line

A timetable was established to support students completing the project.

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| **Phases** | **Purpose** | **Tasks and Deliverables** |
| Phase I: Defining a topic and constructing a concept map.  | Brainstorming the topic and identify the related Common Core State Standards. | * Topic
* Collaboratively create a concept map identify the relationships between relevant concepts in this topic.

Remember: Each of you is representing one discipline. So please include all three concentrations in when you brainstorm and create your concept map. Standards should also be from different concentration. |
| Phase II: Planning the Lesson | Making the lesson plan and make sure to integrate **at least** **two Web 2.0 tools** into the lesson | Updating the group concept map and start writing up your lesson. |
| Phase III: Drafting the Lesson  | Teaching the lesson your group planned and designed with each member playing different roles in the lesson.  | Completing the team lesson plan. |
| Phase IV: Peer-review the lesson and reflection | Group Peer-review: Group member gather together to watch the mini teaching video (at their own choice of time) and debrief the effectiveness of the lesson and any follow-up to modify the lesson plan. Individual reflection: Guiding questions will be given and each student writes their own reflection on the project. Peer evaluation on team members will also be conducted. | * Group peer-review
* Individual reflection
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| Phase V: Final Presentation  | **\*** | Team Presentation |

Tools

Cloud-based tools (such as Google Drive, and Lucidchart <https://www.lucidchart.com/>) were used to facilitate the interdisciplinary collaboration. Prior to the project starts, students registered to use the tools, and two training sessions on concept mapping and Lucidchart were provided to facilitate students’ collaboration process.

**Conclusion**

Students learning outcomes in terms of technology integration will be shared in this presentation with emphasis on the following aspects: using concept map facilitating interdisciplinary; self-efficacy of technology integration and what do students gain through interdisciplinary collaboration. Strategies to facilitate interdisciplinary collaboration will also be shared by the presenter who designed, developed and implemented this project.

**References**

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