Chang, M. et al. (Eds.) (2019). Proceedings of the 27th International Conference on Computers in Education. Taiwan: Asia-Pacific Society for Computers in Education

Design for choreographies/ambiance for global AGILE learning to foster future skills

Tosh YAMAMOTO[a*], Juling SHIH[b] , Benson ONG[c] , Chris PANG[d] , Hui-Chun CHU[e] , Takuro OZAKI [f] , & Yasuhiro HAYASHI [g]
[a]*Center for Teaching and Learning, Kansai University, Japan*
[b]*Dept. of Information and Learning Technology, NUTN, Taiwan*
[c]*Dept. of Business Management, NYP, Singapore*
[d]*Dept. of Business Management, NYP, Singapore*
[e]*Dept. of Computer Science and Information Management, Soochow University, Taiwan*
[f]*IT Center, Osaka Educational University, Japan*
[g]*Dept. of Data Science, Musashino University, Japan*
*ctltosh@kansai-u.ac.jp

Abstract: This workshop will bring the audience to the agile paradigm of learning targeting new at the future generation equipped with the future skills defined by Vision 2020, Horizon 2020 and IFTF. In order to promote the future mindset for education, Critical/Creative Thinking Skills with Tesseractive© mindset will be fully employed during the workshop. Thus, instead of the workshop for dissemination of a new concept or idea for dissemination into academia, this session will bring the participants to a new paradigm of learning ambiance, where actively engaged learners from various countries form global agile teams to conduct PBL in their self-defined projects. The style of the workshop follows the discussion style in the agile framework with combination of hands-on and heads-on sessions with BYOD, i.e., smart phones, pads, and PCs. The participants are encouraged to bring their own devices to jump into the global and agile learning environment.

Keywords: AGILE Learning, Future Skills, critical thinking, creative thinking, Tesseractive© Learning, global PBL, BYOD

1. Introduction

1.1 Rationale

The Oxford University predicts that the 47% of the work will be replaced by AI or robots at the time of singularity in 2045, which is only 26 years from now. As defined by IFTF, the mission of the future design of education is to make students survive and succeed even after the singularity. The 21st Century Skills are defined as the skills composed of Critical thinking, Technology literacy, Creativity, Flexibility, Collaboration, Leadership, Communication, Initiative, Information literacy, Productivity, Media literacy, Social skills with the global mindset. This workshop is the sense-making of the 21st Century Skills to the future curriculum. The goal is to share with the participants the future design of the curriculum incorporating the above mentioned 21st century skills in order for the students to survive even after the singularity.

1.2 Goals

This workshop will walk the participants through the steps to set up a global AGILE learning curriculum for their on-campus students without leaving their own campuses to conduct project-based learning with global team members. In order to foster team-building with empathy and trust, brainstorming, actively engaged discussions for consensus building, the team project management, collaborative learning activities, working on the global team project on the same page throughout the

course, as well as generating the final team report accompanied by the presentation in the virtual learning environment, robust cloud-based learning tools will be introduced with demonstrations.

The enthusiastic participants are encouraged to bring their own mobile devices to get involved in the hands-on and heads-on workshop.

2. Workshop Program

The workshop is organized in the following manner.

2.1 Introduction (By Tosh Yamamoto & Carol H.C. Chu)

2.1.1 Sessions:

- (Heads-on Session) Overview of Online Collaborative Learning
  General Concepts of Global AGILE learning in the realm of Global Liberal Arts
  All members in the team as well as in the course are on the same page of their projects (24/7)!
- (Hands-on Session) Crafting the learning environment to foster the learning environment harnessed with Learning Tools

2.1.2 Summary

With the rationale and the goals of the workshop described above, general concepts of Global AGILE learning in the realm of Global Liberal Arts are elaborated. In such learning environment, everyone must be on the same page 24/7 as the project progresses, including the visualization of the entire process of the progress with the bird's eye view. Learning tools to foster such PBL in global teams are introduced in the hands-on session.

2.2 Course Design (By Tosh Yamamoto, Juling Shih & Chris Pang)

2.2.1 Sessions:

- (Heads-on Session) Course Syllabus e-syllabus (concept)
  Syllabus Preparation to Course Operation – Task-based TBL
- (Hands-on Session) Planning on the course operation

2.2.2 Summary

Having the mission and its associated visions of the institution in mind in the process of the curriculum design, courses are laid out based on the meta-level syllabus and learning modules. Each learning module is composed of: Explanation of the learning module, Objective, Ideal number of learners in a team, Duration of learning, Steps in learning and the associated objectives, Material needed to conduct a good session, How to conduct the Steps in learning, Strategy and Tips, Complementary learning activities, Source, and other pertinent information. In here, designing the meta syllabus with Tesseractive© mindset is the key. The learning modules make full use of visual organizer tools and "gamestorming" toolkit.

2.3 Course Operation (By Tosh Yamamoto, Takuro Ozaki & Benson Ong)

2.3.1 Sessions:

- (Heads-on Session) Course Operation
  Course Operation – Task-based TBL in action
- (Hands-on Session) Implementing the above in the course

FlipGrid®, Padlet®, Trello®, Asana®
NOTE: No legacy LMS technologies will be employed in this framework.

2.3.2 Summary

The course is designed so that all learners and instructors on global campuses can be "on the same page" of learning, 24/7, throughout the course operation. Furthermore, in order to guarantee the concept of "on the same page" of learning, all activities are archived on a single page for view. In this way, learners can view their own progress of learning as well as their teammates' progresses of learning at the same time. In other words, this learning design for choreographies/ambiance for global AGILE learning will foster the future skills defined in this workshop.

2.4 Assessment Strategies (By Chris Pang, Tosh Yamamoto & Maki Okunuki)

2.4.1 Sessions:

- (Heads-on Session) Assessment Concepts in such learning
  MGT Model, Big Data approach to assessment such as NMF, and Learning Analytics
- (Hands-on Session) Designing Assessment Strategies with FINCODA and etc.

2.4.2 Summary

While the traditional evaluation is based on results of learning such as testing, the assessment in this workshop is based on the process of learning from the beginning to the end of a course. Thus, innovative assessment strategies are employed. In the workshop, prominent assessment strategies are shared with participants.

MGT or M-GTA(Modified Grounded Theory Approach) is a text-mining strategy to assess learning, which was originally proposed by Barney Glaser and Anselm Strauss, as a qualitative analysis for grounded-on-data. MGT is a useful for the qualitative assessment for PBL of the social fundamental skills targeting the students of the liberal arts majors. Based on the theory that the major conceptual components are buried in the written data and further, that such conceptual components are minable through a certain procedure, M-GTA takes the following steps for analysis.

(1) Analyzing the written data such as reflective writing and the survey by interviewing.
(2) Creating concepts by considering and interpreting meanings of data and categories of several concepts closely linked.
(3) Analyzing relevance among conceptual components.
(4) Mapping the all conceptual components on a sheet for the holistic view.
(5) Visualizing the learning process and effect of PBL.

NMF (Non-negative Matrix Factorization) is a method of text mining by extracting key attributes/cues of learners in the learning process. The basic idea is composed of the fact that the choice of words in writing crucially vary in the course of learning, that what is not in mind will not appear in words in reflective writing, and the observation that peculiar characteristics may appear when the learner shift to a higher strata of learning.

FINCODA, i.e., Innovation Competence Assessment, is another qualitative assessment tool. In an age of disruptive changes, innovation, as a critical determinant of company competitiveness, underpins the dynamic capacity to create sustainable future growth. FINCODA, the Framework for Innovation Competencies Development and Assessment, was developed in response to this increased competitive pressure organization now face (Peñalver et al., 2018). Progressive organizations recognize that their innovations are a result of their employees. As such, it is important to be able to assess the innovative performance of individuals and teams in such organizations. Similarly, institutions of higher learning can benefit from the ability to assess the development of innovative competence of students.

The FINCODA Innovation Barometer Assessment Tool is a psychometric tool that measures individuals' capacity for innovation. It is an online scale that measures innovation competence for individuals, groups and entire companies. It provides both individual and group developmental reports with five dimensions of innovation competence namely:

1) Creativity: The ability to think beyond tradition to generate or adapt meaningful alternatives.

2) Critical Thinking: The ability to deconstruct and analyze ideas.
3) Initiative: The ability to make decision or carry out actions to operationalize ideas as well as mobilize and manage an implementation team.
4) Teamwork: The ability to work efficiently in a group.
5) Networking: The ability to involve internal/external stakeholders.

The FINCODA project is led by Turku University of Applied Sciences, Finland, and comprised of a consortium of universities and businesses. The development was funded by the EU.

The workshop will go over the basic concepts of the assessment strategies and the participants will go through the FINCODA Assessment.

2.5 Workshop Format

The workshop is composed of (i) a heads-on session for brainstorming among participants, and (ii) the associated hands-on session to foster learning experience of the participants, who will conduct their active learning through team-based PBL in AGILE manner.

The entire workshop is organized with experts in the field of global PBL instructors including the following components:

- Rationale behind global PBL & Essence of ICT-enhanced Learning Environment
- Hands-on/Heads-on Sessions on cloud-based services such as FlipGrid®, Padlet®, Trello®, Google® and so forth.
- Integration of various approaches: consensus building though team-based PBL

3. Workshop Organizers

This section deals with the introduction of the organizers for the workshop. In what follows, names, affiliations, and short biographies of the workshop organizers are listed in order.

3.1 Organizers

A. Dr. Tosh Yamamoto, CTL, Kansai University, Japan

Tosh Yamamoto is a professor at Center for Teaching and Learning at Kansai University in Japan, who has been active in disseminating Tesseractive and AGILE Learning in the global context in the social constructive paradigm. He is also collaborating with the organizers of the workshop here to promote STEM/STEAM enriched with gamification features.

B. Dr. Juling Shih, Dept. of Information and Learning Technology, NUTN, Taiwan

Professor Juling Shih is a professor in Department of Computer Science and Media Technology at National University of Tainan in Taiwan, who is specialized in designing and operating gamification-enhanced STEAM for K-12. She has been active promoting computational mindset to school children through the great Voyage Project. She has been collaborating with Tosh Yamamoto at Kansai University in designing active learning COIL courses to foster global mindset to raise future generation.

C. Professor Benson Ong, Dept. of Business Management, NYP, Singapore

Professor Benson Ong is a professor in Department of Business Management at Nanyang Polytechnic University in Singapore, who is specialized in designing and operating social entrepreneurship courses. He has been collaborating with Tosh Yamamoto at Kansai University in designing social entrepreneurship COIL courses in the realm of SDGs to foster global mindset.

D. Professor Chris Pang, Dept. of Business Management, NYP, Singapore

Professor Chris Pang is a professor in Department of Business Management at Nanyang Polytechnic University in Singapore, who is specialized in designing and planning social entrepreneurship mindset to students as well as societal members. He has been collaborating with Tosh

Yamamoto at Kansai University in designing social entrepreneurship COIL courses in the realm of SDGs to foster global mindset as well as assessment strategies in such courses.

E. Dr. Carol H.C. Chu (Hui-Chun Chu), Department of Computer Science and Information Management, Soochow University
Professor Carol H.C. Chu is a professor in Department of Computer Science and Information Management at Soochow University in Taipei, who is specialized in designing and planning computational thinking mindset to students and implementing gamification to higher education. She has been collaborating with Tosh Yamamoto at Kansai University in designing glocal social entrepreneurship COIL courses in the realm of SDGs to foster global mindset as well as gamification strategies in learning.

F. Professor Takuro Ozaki, IT Center, Osaka Educational University
Professor Takuro Ozaki is a professor in IT Center at Osaka Educational University in Japan, who is specialized in designing, planning, and deploying ICT-enhanced learning environment at the institutional level. He is also a specialist in applying new technologies to various levels of learning, i.e., sense-making of cloud services with learning activities for team-based PBL.

G. Professor Yasuhiro Hayashi, Dept. of Data Science, Musashino University
Professor Yasuhiro Hayashi is a professor in Department of Data Science at Musashino University in Japan, who is specialized in designing, planning, and deploying ICT-enhanced cyber learning environment across campuses. He is also a specialist in applying new technologies to various levels of learning, i.e., sense-making of cloud services with learning activities for team-based PBL, not to mention, a specialist in deploying critical/creative thinking in the field of science and engineering.

3.2 Program Committee

A list of prospective members of the workshop program committee is given below.

- *Dr. Kazuya Takemata, KIT (International College of Technology), Japan*
- *Dr. Akiyuki Minamide, KIT (International College of Technology), Japan*
- *Professor Elvita Viasih, Kansai University, Japan*
- *Dr. Mihoko Chiba, Konan University, Japan*
- *Dr. Yasuhiro Hayashi, Dept. of Data Science, Musashino University, Japan (Also WKSP Organizer member)*
- *Dr. Yoshinobu Tachi, KIT, Japan*

4. Target Audience

The length of the workshop is planned for a full-day, composed of a morning session and an afternoon session. Target audience for the workshop would be educators with at least three to ten years of instructional experiences in international collaborative learning, as well as with the novice to beginner level of ICT literacy.

Acknowledgements

We would like to thank all the people who spent many hours preparing for the design and planning of this hands-on and heads-on interactive workshop.

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WORKSHOP 14 - The Applications of Information and Communication Technologies in Adult and Continuing Education