



## SEA-VET.NET GOOD PRACTICE

# Project-Based Learning with Webinar

*Engaging Students' in Active Learning for Mastery of Real-World Skills*

April 2019

## **Project-Based Learning with Webinar** **(PBL with Webinar)**

### **BACKGROUND CONTEXT**

#### **Engaging 21st Century Students**

In many institutions, traditional theoretical instructions by teachers have not been able to promote motivation, interest and ultimately the mastery of skills required in vocational and technical education (Odo et al., 2012). Engaging disengaged students is a common challenge in education institutions as students of the 21st century are different from the old school; being “active seekers and co-creators of knowledge”, therefore “linear and didactic pedagogy” may not work for them” (Gilbert, 2007:16).

According to Odo et al. (2012), vocational and technical education students would benefit from active learning whereas activity-based instruction could enhance mastery of practical skills.

#### **Improving Delivery of Server Administration Module**

In ITE College East, the School of Electronics & Info-Communication Technology (SEIT) reflected that the standard curriculum of Server Administration module taught primarily via ‘passive methods’, using laboratory labsheets (Fig. 1), instructional videos, quizzes and presentations, was not very effective in engaging and motivating students during both practical and theory lessons.

Many students have not reached the stage of ‘authentic engagement’ but rather of ‘passive’ or ‘ritual compliance’. In worst cases, students could be retreating into their own world or disrupting other students during lessons (Schlechty, 2011).

### **IMPLEMENTATION OF THE PRACTICE**

#### **Project-Based Learning with Webinar**

### **Overview**

<b>Implementing Institution(s):</b>	Institute of Technical Education (ITE), Singapore
<b>Region(s) of Implementation:</b>	ITE College East, School of Electronics & Info-Communication Technology (SEIT) for Higher Nitec in Information Technology.
<b>Timeline:</b>	Trial Implementation: March 2016 to September 2016 Full implementation: 2016 to date (on-going)
<b>Beneficiaries:</b>	Higher Nitec in Information Technology students from ITE College East, School of Electronics & Info-Communication Technology (SEIT)
<b>Total cost incurred/resources required:</b>	<ol style="list-style-type: none"> <li>1. Hardware*: Tablets/Smart phone and PCs/Laptops</li> <li>2. Software: : ITE’s Learning Management System (LMS) platform (MyConnexion) and free software such as: Kahoot!, Padlet, Xmind, VLC video player, Movie Maker, YouTube and Google Hangout.</li> </ol> <p>* For Bring-Your-Own-Device (BYOD) implementation: ITE provides students the Opportunity Fund as a financial support to purchase their own laptops.</p>

In cognizance of the challenge to revive interest of students to learn and master skills, PBL with Webinar is designed to engage students in active learning. Students are required to be creators and not just consumers of knowledge whereby they carry out realistic project tasks and then present their creation through webinar.

Through three phases of student activities (Fig. 2), students actively assume responsibility for their learning. First, they acquire prerequisite knowledge through labsheets, quizzes and reflections (Initiation Phase). These would then enable them to effectively create their content video in groups (Design & Implementation Phase) and subsequently share and discuss their learnings via webinar (Reflection Phase).

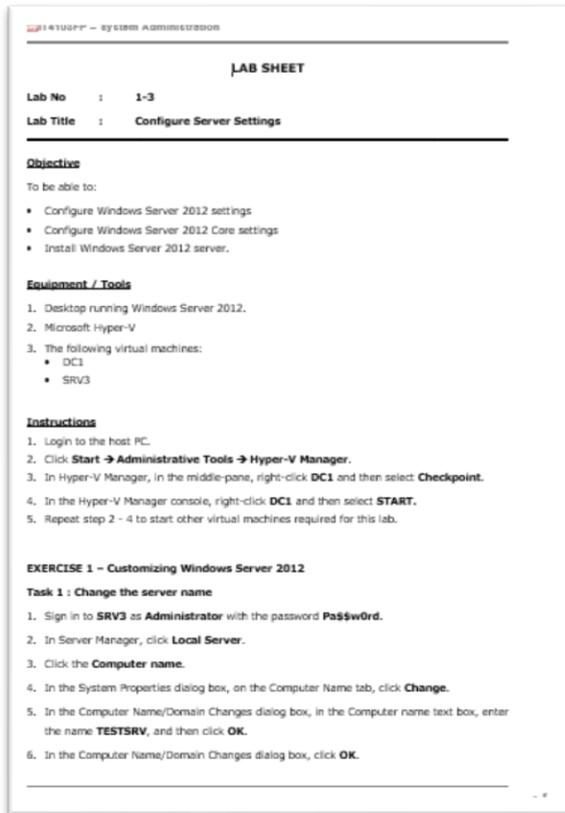


Figure 1: Example of Lab Sheet Used

This process of acquiring skills and knowledge from bite-sized concepts to knowledge application in project tasks help students actively link the practical and theoretical components more effectively; enabling a meaningful and systemic learning process of fragmented content within the curriculum syllabus.

Additionally, the variety of technology tools, student activities and delivery modes used are to break the monotony and engage student participation and learning.

PBL with Webinar extends learning beyond the classroom through asynchronous and synchronous learning. Using their own laptops to interact, collaborate, create mind-maps, and submit video-based assignments via the institution's learning management system 'MyConnexion' (Fig. 3), students can view instructional videos and notes, attempt self-check quizzes and short questions, check on project progress and discuss with peers and instructor

any time, any place at any pace. As for synchronous learning, students create video tutorials and teach others how to install, configure and maintain Server Operating System via the webinar tool Google Hangouts.

### Skills Framework and Skills Mastery

This multi-faceted pedagogical approach is organized around the standard content of the Server Administration Curriculum and real-world tasks are derived by referencing the 'Skills Framework for Infocomm Technology', jointly developed by SkillsFuture Singapore (SSG), Workforce Singapore (WSG), Info-Communications Media Development Authority (IMDA), together with industry associations, education institutions, training providers, organizations and unions.

PBL with Webinar aligns with the Singapore SkillsFuture initiative; making use of researched information such as sector trend information, career pathways, occupations, job roles, existing and emerging skills and training programmes for skills upgrading and mastery and also applying one of the Generic Skills Competencies (Digital Literacy) hence the syllabus includes learning how to use ICT tools, equipment and software to create, evaluate and share information digitally with others.

Students, in preparation for the real-world of work, learn through self-monitoring and self-discovery of issues related to the realistic problems, target questioning,

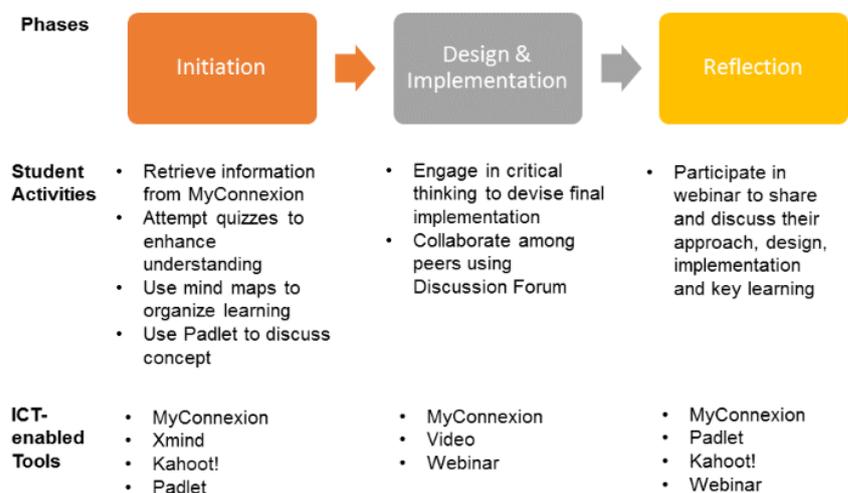
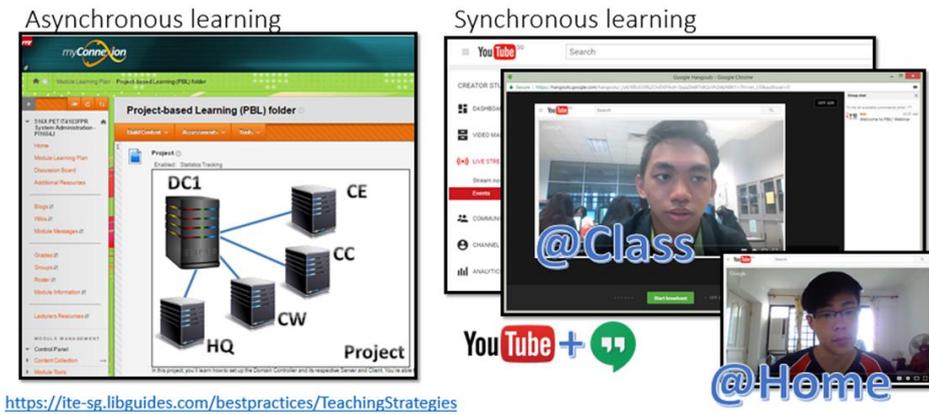


Figure 2: Phases of PBL with Webinar



<https://ite-sg.libguides.com/bestpractices/TeachingStrategies>

Figure 3: Engaging Students Beyond the Classroom

how to configure administration accounts in Windows Server 2012 OS.

**Example 2:** students present a case study via webinar video tutorial session on how to assign folder permissions to several group of specific users within an organization.

investigative activities, and seeking answers to the target questions with the support from peers and two teacher facilitators.

**Example 1:** an open-ended task requesting students to conduct a webinar video tutorial session; showing

### Collaboration within Professional Community

From the initial planning stages, implementation, monitoring to evaluation of PBL with Webinar, the team of academic leaders, mentors, module coordinators and lecturers work collaboratively to ensure strategic and pedagogic success of implementation. See Table 1.

Table 1: Collaboration within Professional Community

Stages	Academic Leader	Mentor	Module Coordinator	Lecturer
<b>Planning</b>	Approve the learning objectives and outcome.	Carry out literature research on PBL and Webinar.  Provide learning pedagogy support.	Provide consultancy as Module Coordinator and planned the lesson schedule.  Brief lecturers on the requirements.	Design the learner engagement plan. Setup student laptop environment to support the learning. Create PBL folder in MyConnexion Upload PBL diagrams, files, videos into the PBL folders Setup quizzes. Broadcast Information to class Assist in training the students on the use of tools (Kahoot!, Padlet, VLC, Xmind and YouTube+Hangout).
<b>Implementation</b>	Review the learning performance.	Review the learning performance.	Assist the module lecturer to carry out the lesson objectives.	Carry out the lesson plan based on teaching strategies for PBL with Webinar. <i>Eg of Teaching strategies:</i> 1) Map skills standard to the project; 2) Build Project teams; 3) Make Project context authentic; 4) Setup Formative Assessment (Quizzes); and 5) Activate intrinsic motivation by engaging class to create video/webinar.
<b>Monitoring</b>	Monitor learning performance.	Conduct lesson observation to understand the impact of the learning.	Conduct lesson observation to understand the impact of the learning.	Conduct lesson observation to understand the impact of the learning.
<b>Evaluation</b>	Evaluate learning performance.	Evaluate the impact on learning and engagement.	Evaluate the impact on learning and engagement.	Evaluate the students' quiz results.

## IMPACT OF IMPLEMENTATION

The students who underwent the PBL with webinar pedagogical approach were found to outperform the control-group students who underwent typical learning in their theory examination at the end of the case study period (Fig. 4). There were reduced percentages in the lower tier grades (i.e., “D”, “E” and “F”) and increased percentages of the upper tier grades (i.e., “A”, “B” and “C”) for students who were engaged in PBL with Webinar.

PBL increased the retention of content and improved students' attitudes towards learning as developing a video-based assignment requires more preparation and effort than a typical written lab sheet assignment or class presentation. The iterative processes involved in video creation and editing through planning, scripting and recording collaboratively provides multiple opportunities to construct meaning and reinforce subject understanding. As the videos will be uploaded to share in the class, students also tend to ensure that they master the content to create a good video product.

Another important aspect is that while the students are engaged in this activity, they are actively learning, honing their critical thinking skills, problem-solving abilities and communication skills, instead of passively sitting through a lesson, which suit the profile of 21st century students, who are Experiential & Exploratory Learners, Practical & Results-oriented, Impatient, Digital Natives and Collaborative Learners.

As a result, there was a significant drop in disengaged learning behaviour and improvement in attendance and punctuality. Students were empowered to own their learning via PBL with Webinar. Their self-worth and self-motivation increased as they demo and teach other students. Sharing and collaborating on realistic project tasks helped student build their confidence in the subject.

Due to extended time spent with students, the instructors formed a good rapport and deeper relationship with their students. Instructors gladly noted that students helped their peers more spontaneously in this learning environment, as compared to normal classroom settings.

## LESSONS LEARNT AND FUTURE OUTLOOK

PBL with Webinar received positive responses from students, instructors and faculty. The successful implementation in this context was due to the bottom-up strategy taken through the formation of a Professional Learning Community (PLC), comprising mentors, module co-ordinators and lecturers, who worked with the single vision to engage and enhance students' learning.

Having firm support from academic leaders at the management level ensures that resources can be properly allocated for the use of PBL with Webinar. In this case, although PBL with Webinar uses various

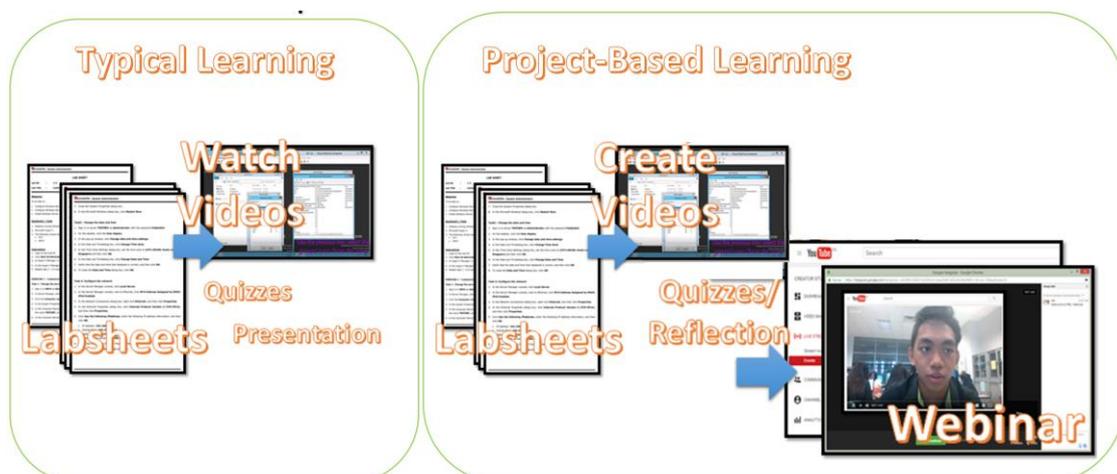


Figure 4: Comparing Typical Learning and PBL with Webinar

technology hardware and software, no additional cost is incurred as instructors and students are able to use existing PCs or laptops in the institution or their own laptops. Software tools used were free and adopted for its ease-of-use. On top of that, the availability of ITE's \*Opportunity Fund has provided students with financial support to purchase their own laptops.

*(\*Opportunity Fund Info: Full time 1st year students whose gross monthly household income (GHI) ≤ \$4,000 or gross monthly household per capita income (PCI) ≤ \$1,000 are eligible to apply for the Opportunity Fund (OF) which can offset 80% of the cost of PC/tablet capped at \$400. Device type has to meet the minimum specifications for the course and must be bought from any local retail IT vendor or the college's appointed vendors. Amount stated are in SGD.)*

For successful implementation, training for module staff has to be planned and conducted as well, which in this case was led by a lecturer mentor, about 2-4 weeks before the module staff implements PBL with Webinar. No training cost was incurred as it was an in-house training.

It is hoped that PBL with Webinar could be mass implemented across other departments and colleges in Singapore. As for regional replication, any technical institution keen to see improvement in learning engagement or integrate technology in teaching and learning could adopt or adapt PBL with Webinar.

## CONCLUSION

This case study presented the use of PBL with Webinar to increase the level of engagement among the students. It is shown that students have become

motivated to complete real-life bite-sized tasks in the learning process with this strategy. The findings show that empowering students to become content creators and actively engage in a variety of technology tools, student activities and delivery modes, is a good enabler in the active learning process. Ultimately, with improved retention and inter-relating of practical and theory components, skills mastery can be assured.

## REFERENCES

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## FURTHER INFORMATION

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“Good Practices” are chosen according to selection criteria that have been created by a working group. They aim to serve as benchmarks for transformation towards quality TVET. However, they reflect on the individual circumstances of the submitting country and may only be adopted with context specific modifications.

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