# A Study of Bring Your Own Device (BYOD) Initiative for Reflective Engagement in a Higher Education Institution

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*Abstract: The paper reports on a study aiming at exploring the impact of the Bring Your Own Device (BYOD) initiative on supporting learners to develop the dimensions of personal and social reflective engagement at a higher education institution. Participants who were 26 in-service teachers for a five-week professional development programme on e-Learning brought and used their own portable computing devices to support their reflective engagement. The study found that the learners perceived that the initiative could help them better manage learning process, and enhance their group interaction and experience sharing with peers and teachers for knowledge construction. These results imply that the BYOD initiative can promote learners to be engaged in personal and social reflective inquiry.*

**Keywords:** Bring Your Own Device (BYOD), higher education, reflective engagement

## 1. Introduction

Higher education currently emphasizes the goal of promoting reflective engagement among learners. The rich amount of digital learning resources and communication tools in the e-Learning process provide learners with the opportunities to realize reflective engagement in subject learning. Higher education currently promotes Bring Your Own Device (BYOD) as a prevailing e-Learning initiative (Al-Qahtani & Higgins, 2013; Pegrum, Oakley, & Faulkner, 2013). This paper aims to investigate the current situations of implementing the BYOD initiative for reflective engagement in higher education.

## 2. Background of Study

### 2.1. Reflective Engagement for Learner-centered Learning

Reflective engagement refers to learners' continual and active participation in their problem inquiry with a continuous and critical judgment of inquiry process and inquiry outcomes for possible improvement (Farr & Riordan, 2012; Lyons, 2006; Rodman, 2010). Engagement refers to an action or a set of behaviors in which learners devote time, energy and resources for enhancing learning; and it often leads learners to the reflection on their learning (Krause, 2005; Pittaway, 2012). The process of learning reflection is often initiated by learners on an individual basis, researchers suggest that learners in their reflective engagement should concern the personal dimension, with an awareness of learning intentions

and expectations; as well as the social dimension, with an awareness of learning interactions with peers and teachers (Atkinson, 2011; Gebre, Saroyan, & Bracewell, 2014; Pittaway, 2012).

### *2.2. Framework of Reflective Engagement*

This paper defines reflective engagement as "learners' continual, active and reflective participation in their problem inquiry across different spaces". Emerging from the reflective engagement literature, we develop a reflective engagement framework that includes three types of engagement to be examined over time in learners' inquiry process: intellectual, personal and social reflective engagement (see Figure 1). This paper focuses on discussing the personal and social dimensions of reflective engagement. For the dimension of personal reflective engagement, learners demonstrate an awareness of learning processes and learning outcomes. For the dimension of social reflective engagement, learners make active interactions with peers and teachers for knowledge construction.
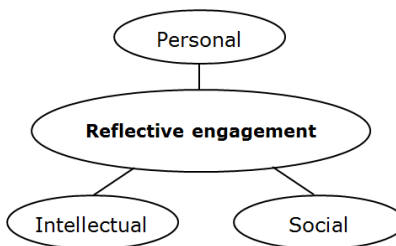


*Figure 1.* Framework of reflective engagement.

This study investigated the research question: "To what extent has the BYOD initiative implemented in this study facilitated learners' personal and social reflective engagement?"

## 3. Methodology

The participants were a cohort of 26 in-service teachers (4 from primary and 22 from secondary schools) who were learners of a five-week professional development programme in Hong Kong. The normal class size at 26 in the programme gave a reasonable sample size in the study. These learners are experienced teachers in general, with 17.269 years of experience in average (SD = 7.341). Their teaching areas covered ICT, ICT and Maths, and ICT and Arts. The programme consisted of seven lessons on "what" is e-Learning and "how" to implement e-Learning. The programme adopted the blended pedagogy for the learning tasks of reading, discussion and sharing inside and outside of lesson time.

A post-questionnaire survey was conducted to examine learners' perceptions of the BYOD initiative on facilitating the dimensions of personal and social reflective engagement. Through a series of consultation and validation with two experts in the related research fields, the questionnaire was designed to include 14 questions on a 5-likert scale (from 1 = strongly disagree to 5 = strongly agree): eight questions focusing on the personal dimension of reflective engagement; and six questions on the social dimension of reflective engagement. The Cronbach's alpha reliability coefficient of this survey was 0.849. A focus group discussion was also conducted after the survey for data triangulation.

## 4. Results and Discussions

The BYOD initiative was found to facilitate learners' personal reflective engagement (see Table 1). The highest rated item by the learners was the impact of the BYOD initiative on empowering control over learning followed by the support to store learning outcomes efficiently, improve learning motivation in class, and develop understanding of the topics with an access to course-related e-resources.

*Table 1*. Survey results of learners' personal reflective engagement (n=24).

| Question: I think the implementation of the BYOD initiative | Mean* | SD |
|---|---|---|
| Empowers my control over learning | 4.042 | 0.464 |
| Stores my learning outcomes efficiently | 3.958 | 0.550 |
| Improves learning motivation in class | 3.917 | 0.584 |
| Facilitates understanding of the topics by getting access to course-related e-resources | 3.833 | 0.637 |
| Enlightens me to have effective study methods and skills | 3.792 | 0.779 |
| Fosters self-reflection of learning after class | 3.750 | 0.442 |
| Keeps track of my learning progress | 3.750 | 0.676 |
| Arouses my attention to the lecture | 3.667 | 0.565 |

\* 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

The learners provided further explanations on these survey results in the focus group discussion. They pointed out that the BYOD initiative encouraged them to take more control over their learning, in terms of the pace of learning, the use of learning materials and the time for learning. The learners also indicated that they had high learning motivation in the BYOD lessons, as the interactive tasks in class promoted them to access more online resources and new tools for learning exploration on their own or in collaboration with others, apart from the traditional learning through teacher's lecturing.

The learners were also facilitated to make social reflective engagement (see Table 2). They agreed that the BYOD initiative could promote them to enhance course-related interaction with lecturers and with peers. The learners also recognized the positive impact of the BYOD initiative on stimulating their desire of exploring course-related e-resources and fostering collaboration in their course work.

*Table 2*. Survey results of learners' social reflective engagement (n=24).

| Question: I think the implementation of the BYOD initiative | Mean* | SD |
|---|---|---|
| Enhances course-related interaction with lecturers | 4.000 | 0.600 |
| Enhances course-related interaction with peers | 3.958 | 0.550 |
| Stimulates my desire of exploring course-related e-resources | 3.958 | 0.690 |
| Fosters collaboration in course work | 3.917 | 0.408 |
| Provides instant feedback from peers | 3.750 | 0.532 |
| Provides instant feedback from lecturers | 3.750 | 0.608 |

\* 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

The feedback from learners in the focus group discussion further explains these survey results. The learners indicated that the BYOD initiative could support them to experience more interactions in the learning process both inside and outside classroom. They pointed out that there were in-class learning tasks which required the whole class to respond to online postings; and this prompted all learners, including the quiet ones, to interact with peers and the teacher for sharing ideas, giving comments and participating in discussion. The learners also pointed out that these online discussions were extended after class time; and this encouraged them to think in more depth and reflect more on the learned topic.

In sum, the BYOD initiative was found to facilitate learners' personal and social reflective engagement. The enhanced social interaction with peers and teachers together with the exploratory use of course-related e-resources stimulated learners' personal motivation and control over their learning.

## 5. Conclusion

The paper reports on a study of investigating the Bring Your Own Device (BYOD) initiative on learners' reflective engagement at a higher education institution. From the results of a questionnaire survey and a focus group discussion with 26 in-service teacher participants, the BYOD initiative promoted learners' personal and social reflective engagement. It played an important role in stimulating learners to engage more in knowledge construction and interact more with peers and teachers. Such stimulation, however, does not happen automatically. It needs teachers' good pedagogical designs and sufficient patience for realization. This reveals the need to enhance teacher professional development related to the use of the BYOD initiative under the reflective engagement framework for fostering learners' deep personal engagement and high-quality social interaction in their learning process.

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