

13th ICLEHI Osaka 2019 102-095 CHOW, Ho Chi Eric

Towards the Development of a Community of Practice in Educational Mobile Application Development

CHOW, Ho Chi Eric
Apps Resource Centre, Hong Kong Baptist University,
DLB 634, Shaw Campus, Baptist University Road, Kowloon, Hong Kong
choweric@hkbu.edu.hk

Abstract

Mobile learning is becoming a norm in higher education landscape, yet, instructors are often at a lost on how to acquire, develop or utilize mobile learning solutions to enhance teaching and learning. One source of hesitation lies in the difficulty in the development of educational mobile apps tailored to their specific teaching needs. These apps cannot be designed and developed by the instructors alone, and requires corporation of subject experts, instructional designers, visual designers and computer programmers. What kind of leadership is needed to ensure the functioning of such a multi-disciplinary team? Traditional leader-centred leadership model is increasingly being questioned by scholars for its effectiveness, while collaborative and distributed leadership is emerging in leadership literature and practice. In recent years, a form of collaborative leadership called Community of Practice (CoP) becomes popular in the field of education. CoPs in Hong Kong higher education sector are not uncommon, with themes ranging from English language skills development, service learning, to student assessment. However, there currently lacks a CoP in Hong Kong that addresses the development of educational mobile apps in higher education. We discuss a research that explores the feasibility of setting up a CoP in educational mobile apps development in the context of Hong Kong higher education. The negotiation of meaning is a core activity in the development of CoP (Wenger, 1998). As CoP is a highly self-initiated social process, sensemaking is an important element to form and sustain a CoP. Therefore, we discuss how the proposed research design will utilize the theoretical framework of sensemaking theory (Weick, 1979). The audience of interest will be higher education leadership and administrators who are seeking to better facilitate mobile learning development in higher education.

Keywords: Community of practice, mobile learning, sensemaking

Introduction

As mobile devices are becoming ever more accessible, mobile learning is also becoming a norm in today's education landscape. In Hong Kong, approximately 98% of Hong Kong students having access to a mobile device or laptop in the classroom (Lam, Wong, Wong, & McNaught, 2010). This suggest that there is great potential to implement mobile learning in Hong Kong's education landscape. In recent years, post-secondary institutions in Hong Kong are adopting a Bring Your Own Device (BYOD) policy. However, instructors are often at a lost on how to acquire or utilize mobile learning solutions to enhance teaching and learning. One source of hesitation lies in the difficulty in the development of educational mobile applications (apps) tailored to their specific teaching needs. These apps cannot be designed and developed by the instructors alone, and requires cooperation of instructional designers, visual designers and computer programmers. What kind of leadership is needed to ensure the functioning of such a multi-

disciplinary team? Traditional leader-centered leadership model is increasingly being questioned by scholars for its effectiveness, while collaborative and distributed leadership is emerging in leadership literature and practice. In recent years, a form of collaborative leadership called Community of Practice (CoP) becomes popular in the field of education. Wenger (2000, p. 4) defined CoP as “a group of people informally bound together by shared expertise and passion for a joint enterprise.”

Objectives and Significance of Study

The current proposed research will explore the feasibility of setting up a CoP in educational mobile apps development in the context of Hong Kong higher education. CoPs in Hong Kong higher education sector are not uncommon, with themes ranging from English language skills development, service learning, to student assessment and internalization (Zou 2016; Chan, 2017). One particular mobile learning CoP in Hong Kong higher education (Wang & Ma, 2017) focuses on deployment and usage of mobile learning solutions and have produced positive outcomes. However, there currently lacks a CoP in Hong Kong that addresses the *development* of subject-specific educational mobile apps. The proposed CoP in the current research would fill this gap.

The proposed research is intended for two groups of audiences. The first group is administrators in Hong Kong higher education, who are interested in promoting mobile learning and harnessing the power of CoP to create highly effective mobile educational apps suited for Hong Kong higher education. They can learn about the concerns and challenges faced by instructors in using and developing mobile learning apps, and find ways to facilitate effective communication and working relationship between instructors, information technology experts, and designers in a CoP. The second group of audience is information technology experts and designers who are interested to develop mobile learning apps in the context of Hong Kong higher education. They can learn about the concerns and challenges from the perspective of instructors, so as to build a better working relationship with them. The current proposed research will also contribute to current practice as the CoP may be adapted by other Asian countries with similar cultural and educational context as Hong Kong.

Sensemaking theory will be used as a guiding theoretical framework for the research design. A summary of seminal works on sensemaking theory and collective sensemaking on innovation based on reviews by Bansemir (2013) and Maitlis (2014) will be presented. Then, a proposed research design shaped by sensemaking theory will be described.

Literature Review

Sensemaking Theory

Sensemaking theory was first introduced in the context of organizational study by Weick's (1979) in *The Social Psychology of Organizing*. During the 1960s to 1970s, research in psychology and sociology has laid the ground work for research on both cognitive and social aspect of sensemaking. Berger (1966) challenged the notion of objective reality and proposed social construction of reality. Heap (1974) found lack of previous work on sensemaking as a social process. Manis (1978) described the cognitive dissonance, the cognitive basis that initiates sensemaking process. These works were not yet being contextualized into organizational study. In the 1980s, researchers mainly focused on studying cognitive aspect of sensemaking process. They also started contextualizing their study in organizational context. Louis (1980) studied how sensemaking are triggered for members who are new to an organization. Kiesler & Sproull (1982) described how managers make sense of managerial problems in the work environment thru noticing, interpreting and incorporating stimuli. Starbuck & Milliken

(1988) used the concept of “perceptual filtering” to explain how company executives process and weight cognitive cues in a workplace for sensemaking. In the 1990s, Weick (1995) published *Sensemaking in Organizations*, which summarized the state of sensemaking research at the time. Other researchers also steered their research to communication (language, storytelling) and social aspect of sensemaking (Boyce, 1995; Hill & Levenhagen, 1995). Sensemaking was also applied to studying cases of historical events and crisis, such as the well-known Mann Gulch disaster (Weick, 1993). In the 2000s, Weick et al. (2005) conducted yet another review of current trend in sensemaking research and highlighted the importance of emotion and power influencing sensemaking. During this period, scholars mainly studied sensemaking as social process (Maitlis, 2005; Rouleau, 2005) and its relationship with narratives and languages (O’Leary & Chia, 2007; Sonenshein, 2010; Cornelissen, 2012). Works by Christiansen & Varnes, (2009) and Hill & Birkinshaw, (2010) also showed how sensemaking theory can provide a theoretical lens into analyzing and understanding how innovation is created through social interaction.

Collective Sensemaking for Innovation

Development of mobile educational apps requires innovation – it is essentially the development of new teaching tools and new pedagogy by a team of instructors, designers, and information technologists. In light of this, the rest of this section attempts to contextualize some of the seminal works discussed, with an addition of a few relevant researches, to the collective sensemaking for innovation.

Sensemaking is defined as the collective construction of meaning from stimuli that are different from expectation (Weick, 1995; Maitlis, 2005). According to this definition, there are two tenets in collective sensemaking: there must be the act of “collective construction of meaning”, and “stimuli that are different from expectation” must be present.

For the first tenet, “collective construction of meaning”, or *joint meaning creation*, work by Maitlis (2005) and Weick (2005) asserts that collective or joint meaning are developed through interpretation and interactions among individuals. When collective or joint meanings are present, individuals are able to perform concerted activities, known as *collectively action* (Maitlis, 2005; Starbuck & Milliken, 1988; Weick, 1995). In addition, Hemetsberger et al. (2006) and Soekijad et al. (2004) asserts that interactions among individuals with diverse views and information can help paint a complete picture of the problem at hand. The subject of the proposed study, CoP in mobile education apps development, is such an example of joint meaning creation – through collective efforts, instructors, information technologists and designers from different professional background and knowledge come together to paint a complete picture of the pedagogical, technical and design challenges that must be overcome in order to design and develop mobile educational apps suited for Hong Kong higher education.

We now explore the second tenet, “stimuli that are different from expectation”. Stimuli are events interpreted based on individual’s cognitive frame through comparison with prior experiences and understanding. Balogun et al. (2004) and Maitlis (2005) state that when individuals receive stimuli that are significantly incongruent with their prior experience (unexpected events), then stimulation occurs. One type of such incongruity is known as *cognitive distance*, or a lack of overlap in cognitive frames between individuals. For example, individuals working with other people from different working styles, objectives, language, education or professional background can result in stimulation (Boschma, 2005; Knobens & Oerlemans, 2006). Such stimulation can induce the transfer of concepts from one context into another, fueling innovation (Lakhani et al., 2007). Individuals with cognitive distance working together collectively (such as in a CoP) can

generate innovation by the transfer of perspectives, knowledge and concepts to other domains (Amin & Roberts, 2008; Mørk et al., 2008).

However, there are evidence that collective sensemaking may not always lead to innovation. Work by Nooteboom (2000) shows that during early stage of innovation development, cognitive distance and divergent perspectives can actually lead to communication breakdowns. In addition, Schoberth et al. (2006) shows that cognitive distance can cause resistance and hesitant among individuals, hindering joint meaning creation. This is echoed by Bechky's (2003) study of interaction between engineers and factory line workers, in which the two sides have conflict in value, leading to communication breakdown.

Methodology

Research Questions

As discussed, the proposed research will explore the feasibility of setting up a CoP in educational mobile apps development in the context of Hong Kong higher education. Specifically, the proposed study will consist of two research questions:

1. What is the current practice and perception of instructors in Hong Kong higher education on mobile learning?
2. What are the opportunities and barriers in Hong Kong higher education in setting up a community of practice to help facilitate educational mobile apps development?

Feasibility will be examined in two ways. The first is related to instructors' acceptability of using mobile devices and education apps for teaching. Are they currently using them? And if so, what are they using, and how are they using them? And if they are not using them, why not? What do instructors perceive as the advantages and disadvantages of using mobile apps for teaching? From the perspective of sensemaking theory, are instructors' perceived value and usefulness of educational apps for teaching (internal view) aligned with functionalities of the apps provided by the institution or available on the market? This will be addressed in the first research question. The second research question will examine instructors' acceptability and willingness to work in cross-disciplinary manner. As discussed, CoP is a collective sensemaking effort, and innovation can happen when collective sensemaking take place between individuals with cognitive distance. What are instructors' current practice in working with designers and information technologists on digital teaching materials? Are instructors receptive to working and communicating with people from professional background different from their own?

Data Collection

The proposed research will be qualitative in nature. Data collection will be performed by semi-structure interviews to gauge instructors' sensemaking of mobile learning and working in cross-disciplinary manner. The interview questions that address the first research question may look like the following:

1. What is your current practice in using mobile apps for teaching?
2. What do you think is the advantage of mobile learning?
3. How do you feel about the availability of mobile apps that helps enhance your teaching?

For the second research question, interview questions may look like the following:

1. What is your current practice and process in developing digital teaching material?
2. What is your experience in working with the information technology office from your own institution?

Limitation of Study

The limitation of the proposed study will be related to the cultural and geographical context. Hong Kong is used to the traditional Confucius style of education, where instructors still play a central role in the classroom as a transmitter of knowledge. Hong Kong instructors may have lower acceptance in the use of technology such as mobile learning to facilitate teaching and learning. In such case, the result of the proposed study may not be applicable to instructors in Western education system. In addition, the communication style of Asian instructors with other stakeholders in the proposed CoP may differ with their counterparts in the West. Therefore, the research may be limited in its applicability in geographical and cultural context. Furthermore, the proposed study will only examine feasibility from the perspective of instructors. The view of other stakeholders of the proposed CoP (i.e. information technologists and designers) will not be considered. Therefore, a further study is merited to examine the sensemaking of other stakeholders with respect to educational mobile apps development in Hong Kong higher education.

Conclusion

This paper describes a proposed research design that explores the feasibility of setting up a CoP in educational mobile apps development in the context of Hong Kong higher education. The audience of interest will be higher education leadership and administrators who are seeking to better facilitate mobile learning development in Hong Kong higher education. As shown in this paper, sensemaking theory has guided the design of interview questions. Furthermore, sensemaking theory will also inform the way in which qualitative data collected from instructors will be analyzed. For the first research question, if the research data reveal that there is a large discrepancy between instructors' perception and the actual benefits of mobile learning, then interventions in which leadership can help instructors to close the sensemaking gap will be recommended. This will help to reduce resistance when leadership attempts to push for policy and implementation of mobile learning in higher education. In addition, if it is found that instructors' lack the experience or hold negative perception towards working with experts from other disciplines (such as information technologists and designers), then leadership will need to come up with ways or channels to facilitate communication and understanding. The findings and recommendations from the proposed research will directly inform the feasibility of the proposed CoP and how success can be achieved.

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