รูปแบบการออกแบบยูบิควิตัสมูลโดยใช้วิธีทำให้เกิดความขัดแย้งทางความคิดเพื่อส่งเสริมสมรรถนะข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต

นายบุญรัตน์ แผลงศร

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Chulalongkorn University

บทคัดย่อและแฟ้มข้อมูลฉบับเต็มของวิทยานิพนธ์ตั้งแต่ปีการศึกษา 2554 ที่ให้บริการในคลังปัญญาจุฬาฯ (CUIR)
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A UBIQUITOUS MOOC INSTRUCTIONAL DESIGN MODEL BASED ON COGNITIVE DISSONANCE FOR ENHANCING HIGHER EDUCATION STUDENTS' CROSS–CULTURAL COMPETENCE

Mr. Boonrat Plangsorn

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

A Dissertation Submitted in Partial Fulfillment of the Requirements
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By	Mr. Boonrat Plangsorn
Field of Study	Educational Technology and Communications
Thesis Advisor	Associate Professor Jaitip Na-songkhla, Ph.D.
Thesis Co-Advisor	Professor Lara M. Luetkehans, Ph.D.

Accepted by the Faculty of Education, Chulalongkorn University in Partial Fulfillment of the Requirements for the Doctoral Degree

.....Dean of the Faculty of Education
(Associate Professor Siridej Sujiva, Ph.D.)

THESIS COMMITTEE

.....Chairman
(Assistant Professor Pornsook Tantrarungroj, Ph.D.)

.....Thesis Advisor
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.....Thesis Co-Advisor
(Professor Lara M. Luetkehans, Ph.D.)

.....Examiner
(Assistant Professor Praweenya Suwannatthachote, Ph.D.)

.....Examiner
(Theeravadee Thangkabutra, Ph.D.)

.....External Examiner
(Associate Professor Prachyanun Nilsook, Ph.D.)

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การวิจัยครั้งนี้มีวัตถุประสงค์ คือ (1) เพื่อศึกษาความคิดเห็นของนักศึกษาระดับปริญญาบัณฑิตเกี่ยวกับการออกแบบยูบิควิตัสมูค (2) เพื่อพัฒนารูปแบบการออกแบบยูบิควิตัสมูคโดยใช้วิธีทำให้เกิดความขัดแย้งทางความคิดเพื่อส่งเสริมสมรรถนะข้ามวัฒนธรรมของนักศึกษาระดับปริญญาบัณฑิต และ (3) เพื่อศึกษาผลของรูปแบบการออกแบบยูบิควิตัสมูคโดยใช้วิธีทำให้เกิดความขัดแย้งทางความคิดเพื่อส่งเสริมสมรรถนะข้ามวัฒนธรรมของนักศึกษาระดับปริญญาบัณฑิต การวิจัยครั้งนี้ดำเนินการวิจัยด้วยการวิจัยและพัฒนา แบ่งเป็น 3 ระยะ คือ การวิจัยเชิงสำรวจ การพัฒนารูปแบบการออกแบบยูบิควิตัสมูค และการวิจัยเชิงทดลอง กลุ่มตัวอย่างในระยะสำรวจ คือ นักศึกษาระดับปริญญาบัณฑิต จำนวน 410 คน จากมหาวิทยาลัยของรัฐ 8 แห่ง สำหรับกลุ่มตัวอย่างในระยะทดลอง คือ นักศึกษาระดับปริญญาบัณฑิต จำนวน 30 คน เครื่องมือที่ใช้ในการวิจัย คือ แบบสอบถามความคิดเห็นของนักศึกษาเกี่ยวกับการออกแบบยูบิควิตัสมูค แบบสอบถามความคิดเห็นของผู้เชี่ยวชาญเกี่ยวกับเนื้อหาการสื่อสารข้ามวัฒนธรรม แบบวัดสมรรถนะข้ามวัฒนธรรม และแบบสัมภาษณ์ ผลการวิจัยพบว่า

1. ความคิดเห็นของนักศึกษาระดับปริญญาบัณฑิตเกี่ยวกับการออกแบบยูบิควิตัสมูค มี 3 ส่วนได้แก่ ด้านยูเลิร์นนิ่ง ด้านมูค และด้านการออกแบบยูบิควิตัสมูคเพื่อส่งเสริมสมรรถนะข้ามวัฒนธรรม สำหรับด้านที่มีค่าเฉลี่ยสูงสุด คือ ด้านการออกแบบยูบิควิตัสมูคเพื่อส่งเสริมสมรรถนะข้ามวัฒนธรรม รองลงมา คือ ด้านมูค และด้านยูเลิร์นนิ่ง ตามลำดับ

2. รูปแบบการออกแบบยูบิควิตัสมูคฯ ที่พัฒนาขึ้น มี 6 ขั้นตอน ได้แก่ (1) ระบุวัตถุประสงค์การเรียนรู้แบบออนไลน์ (2) วิเคราะห์สภาพแวดล้อมที่จำเป็นของยูบิควิตัสมูค (3) พัฒนาแผนกิจกรรมการเรียนรู้ในยูบิควิตัสมูค (4) พัฒนายูบิควิตัสมูค (5) นำบทเรียนไปใช้กับผู้เรียนต่างวัฒนธรรม และ (6) ประเมินผลการเรียนรู้ของผู้เรียน

3. ผลของรูปแบบการออกแบบยูบิควิตัสมูคฯ พบว่า ผลการเปรียบเทียบสมรรถนะข้ามวัฒนธรรมของนักศึกษาระหว่างก่อนและหลังการทดลอง มีคะแนนเฉลี่ยแตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 นอกจากนี้ ในการศึกษาการพัฒนาสมรรถนะข้ามวัฒนธรรมของนักศึกษาโดยใช้รูปแบบการเรียนการสอนแบบยูบิควิตัสมูค แบ่งเป็น 3 ด้าน คือ การเรียนแบบยูบิควิตัสมูค การขัดแย้งทางความคิด และข้อเสนอแนะของยูบิควิตัสมูค

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ปีการศึกษา	2560	ลายมือชื่อ อ.ที่ปรึกษาร่วม	.....

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BOONRAT PLANGSORN: A UBIQUITOUS MOOC INSTRUCTIONAL DESIGN MODEL BASED ON COGNITIVE DISSONANCE FOR ENHANCING HIGHER EDUCATION STUDENTS' CROSS–CULTURAL COMPETENCE. ADVISOR: ASSOC. PROF. JAITIP NA-SONGKHLA, Ph.D., CO-ADVISOR: PROF. LARA M. LUETKEHANS, Ph.D., 185 pp.

The research objectives of this study were (1) to study undergraduate students' opinions in designing a ubiquitous MOOC, (2) to develop a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross–cultural competence (U-MOOC model), and (3) to study the effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross–cultural competence. This study used the research and development research methodology divided into three phases: survey research, U-MOOC model development, and experimental research. The samples of survey phase were 410 undergraduate students recruited from eight government universities. The participants of experiment phase were 30 undergraduate students. The research instruments comprised three questionnaires; undergraduate students' opinions in designing a ubiquitous MOOC, experts' opinions about cross-cultural communication content, and experts' opinions about the U-MOOC model; cross-cultural competence scale; and interview protocol. The research findings were summarized as follows:

1. Undergraduate students' opinions in designing a ubiquitous MOOC included three concepts; u-learning, massive open online course (MOOC), and instructional design of ubiquitous MOOC for enhancing cross–cultural competence. The highest average score was instructional design of ubiquitous MOOC for enhancing cross–cultural competence, followed by MOOC and u-learning, respectively.

2. The developed U-MOOC model consisted of six steps: (1) Define online learning objectives, (2) Analyze U-MOOC environment needs, (3) Develop U-MOOC learning activity plan, (4) Develop U-MOOC, (5) Deliver to multi-cultural learners, and (6) Assess learners' learning.

3. The effects of U-MOOC model indicated that student's cross–cultural competence between pretest and posttest were statistically significant difference ($p < .05$). In addition, an exploration of the enhancing higher education student's cross–cultural competence in ubiquitous MOOC instructional model were divided into three parts; ubiquitous MOOC learning, cognitive dissonance, and recommendations for ubiquitous MOOC.

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CHAPTER I

INTRODUCTION

Rationale

The Association of Southeast Asian Nations (ASEAN) Community consists of three pillars including ASEAN Political-Security Community (APSC), ASEAN Economic Community (AEC), and ASEAN Social-Cultural Community (ASCC). The strategic framework was launched in 2015 as a result of the new ASEAN regional integration strategy among counties in Southeast Asian (Association of Southeast Asian Nations, 2014). The liberalization of trade in educational services would increase the flow in both electronic and traditional services (Kuroda, Yuki, & Kang, 2010), and the number of international students also increased for higher education institutions (HEIs) in Thailand (Chunpen, 2013; Office of the Higher Education Commission, 2010). In 2014, there were more than 10,000 international undergraduate students in Thailand (International Trade Administration, 2017). The Office of the National Education Council (2005) in Thailand has stated that understanding cultures from different countries will help "Thai people understand, accept, and appreciate the values of cultures different from their own and others." Also, National Education Association (2014) has defined "cultural competence is a key factor in enabling educators to be effective with students from other cultures than their own." Thus, helping Thai educators and students to understand and be aware of cultural differences and to adapt to a new learning environment has become a crucial element in teaching and learning.

According to previous studies (J. Bennett, 1993; Nieto & Bode, 2008; L. J. Rasmussen, 2013), cross-cultural competencies help educators develop mutual understanding, human relationships, and broaden their worldview. Thus, cross-cultural competencies have become necessary skills to collaborate with people around the world for both teaching, learning, and training in the workplace. These competencies are especially important for educators who understand the importance of cross-cultural competence, preparing themselves to study or interact more efficiently with diverse students. The more Thai educators understand students' backgrounds, both culturally and linguistically, the more they can help their students to learn (Caitcheon, 2012). Cross-cultural competence can prove to be advantageous for educators, as preparing the necessary knowledge, skills, and individual characteristics that empower students to adapt excellently in culturally different situations (Culhane, 2012). Nevertheless, the cross-cultural competence could lead Thai educators to more effective teaching and more creative problem-solving in diverse classrooms.

Common cross-cultural courses and books usually use the significant contents such as: verbal, nonverbal, and identity in cross-cultural communication competence, culture influence on perception, co-cultural group membership, intercultural relationships, and adapting to an unfamiliar culture (Beamer & Varner, 2008; Gudykunst, 2003; Jandt, 2013; Kurylo, 2013; Samovar, Porter, & McDaniel, 2009). Moreover, educators designed the measurement of cross-cultural competence such as Chunpen (2013) formed cross-cultural competence scales, which consist of

four indicators: (1) background, (2) cultural awareness, (3) cultural knowledge and understanding, and (4) personal skills.

For cross-cultural competence in higher education institutions, this study has examined different dimensions that can help strengthen both theoretical and practical aspects of open learning. Open learning or flexible learning is a concept of all education that decreases barriers to access contents, open to registry and exit courses, and allows flexibility of time and place whenever the student is ready (Gunawardena & McIsaac, 2004; Richey, 2013). For example, open learning has provided learners opportunity and flexibility to choose from a variety of options in relation to the time, place, instructional methods, approaches of access, and other factors related to their learning processes.

One of the outcomes of open learning would be Massive Open Online Courses (MOOCs), which are normally open enrollment for everyone who wants to learn in a course (Martindale, 2015). Worldwide higher education institutions have provided open content through different types of platforms and have created some open enrollment platforms such as Coursera, Edx, and Udacity to diverse learners around the world. MOOCs have provided viable alternatives to contents supporting from top-tier universities, low cost or free in some cases(Evans, Baker, & Dee, 2016). MOOCs usually use asynchronous activities, so the learners can learn in any time zone as well as in multiple languages and cultures (Martindale, 2015). Some MOOC platforms allow learners to access a number of digital learning resources throughout a number of mobile devices via the wireless Internet. This flexibility has made learners become ubiquitous learners who use mobile devices to interact and receive feedback from experts and peers. Nearly all university students use their own smartphones every day. Thus they have skill to use mobile devices more than desktop computers. It is vital to focus on smartphones and tablets as mobile devices for ubiquitous learning (Kitazawa, Sato, & Akahori, 2016).

Ubiquitous learning implies a capacity of learning for flexibility and adaptation in different contexts. Besides, the learners are able to access teaching materials at all times and from any device (Gros, Kinshuk, & Maina, 2016). The learning strategies allow learners to embed their learning activities in a real physical environment with technology into their daily life as results of learning anytime and anywhere using any device in any location (Huang & Chiu, 2015; Hwang & Tsai, 2011; Joo, Park, & Choi, 2014). Moreover, u-learning environment not only provides content and learning activities in the moderate level but also supports low-achieving students to improve their potential (Huang & Chiu, 2015).

Although MOOCs have provided learners opportunities and flexibilities in terms of learning, there are some challenges remaining for further study. Because MOOCs allow open enrollment leaners to access the worldwide Internet, a diversity of cultural background and communication may be encountered as part of the challenges for educators who are interested in offering their course as a MOOC. When it comes to different cultural backgrounds across global leaners, some miscommunication and conflict may occur during the learning process. Therefore, research in this study also examines cognitive dissonance theory that may help to design the instructional strategy for reducing the dissonance about cultural diversity.

Cognitive dissonance, a social psychological theory, indicates that the people are motivated to reduce consistency because people prefer inconsistency

(Cooper, 2007; McKimmie, 2015). Dissonance can be reduced by generating new understandings to restore consonance or changing one of the understandings (McKimmie, 2015). When learners interact with diverse peers in a course such as MOOCs, they are likely to share their knowledge and opinions, dissonance may occur when the information conflicts with their prior beliefs and experiences (McFalls & Cobb-Roberts, 2001; Wimer, 2003). In this research, cognitive dissonance theory uses instructional strategy to reduce the dissonant that would happen in diverse learners.

In the case of learners have misunderstanding or confusion about content, the instructor should provide reliable information and select the suitable communication. Agenda-setting is a communication theory that states media influences the receiver by using communication. Agenda-setting referred to a mass media or mass culture that provided the power of learning process by giving massive selected information, which may affect learners' cognitive beliefs (Freeland, 2012; Iyengar & Kinder, 1987; McCombs, 2004; Sanchez, 2002). In this research, Agenda-setting would be used as an influential communication strategy as part of the learning process by sharing information throughout a variety of media for influent learners' perception and beliefs.

Learning activities are necessary to help learners improve skill, knowledge, and attitudes by applying them and receiving feedback (Horton, 2011). MOOCs usually have learning activities such as lecture video and online role-playing. Experiential learning should consider embedding as part of learning activity design. Several studies have contributed significance of applying experiential learning especially in online education (C. I. Bennett, 2003; D. A. Kolb, 1984; Marlow & McLain, 2011; Moon, 2004). Experiential learning is an instructional strategy that can be effective with culturally diverse groups of learners because there are no specific knowledge or skill prerequisites for initial involvement. Furthermore, experiential learning is a "whole-person" learning process that combines the affective and cognitive domains in the learning processes that help educators to bridge the instructional gaps.

Cross-cultural competence is a crucial factor to help higher education learners to learn with diverse peers. A possible approach is MOOC because it is open for everyone to participate in the online course. MOOCs are more flexible to absorb with ubiquitous learning, and they use cognitive dissonance theory to reduce culture consistency. MOOCs design information with agenda-setting theory and they plan activities with experiential learning. Moreover, this research creates the specific MOOC needed to have instructional design model in order to help planning. Therefore, the purpose of this research is to create an instructional design model for ubiquitous MOOCs that are based upon cognitive dissonance theory to support cross-cultural competence in higher education institutions.

Research Questions

1. What are undergraduate students' opinions about a using ubiquitous MOOC as learning environment for enhancing cross–cultural competence?

2. What are components and procedures in a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross–cultural competence?

3. What is the effect of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross–cultural competence?

4. What is the effect of instruction using a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross–cultural competence?

Research Objectives

1. To study undergraduate students' opinions in designing a ubiquitous MOOC.

2. To develop a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross–cultural competence.

3. To study the effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross–cultural competence.

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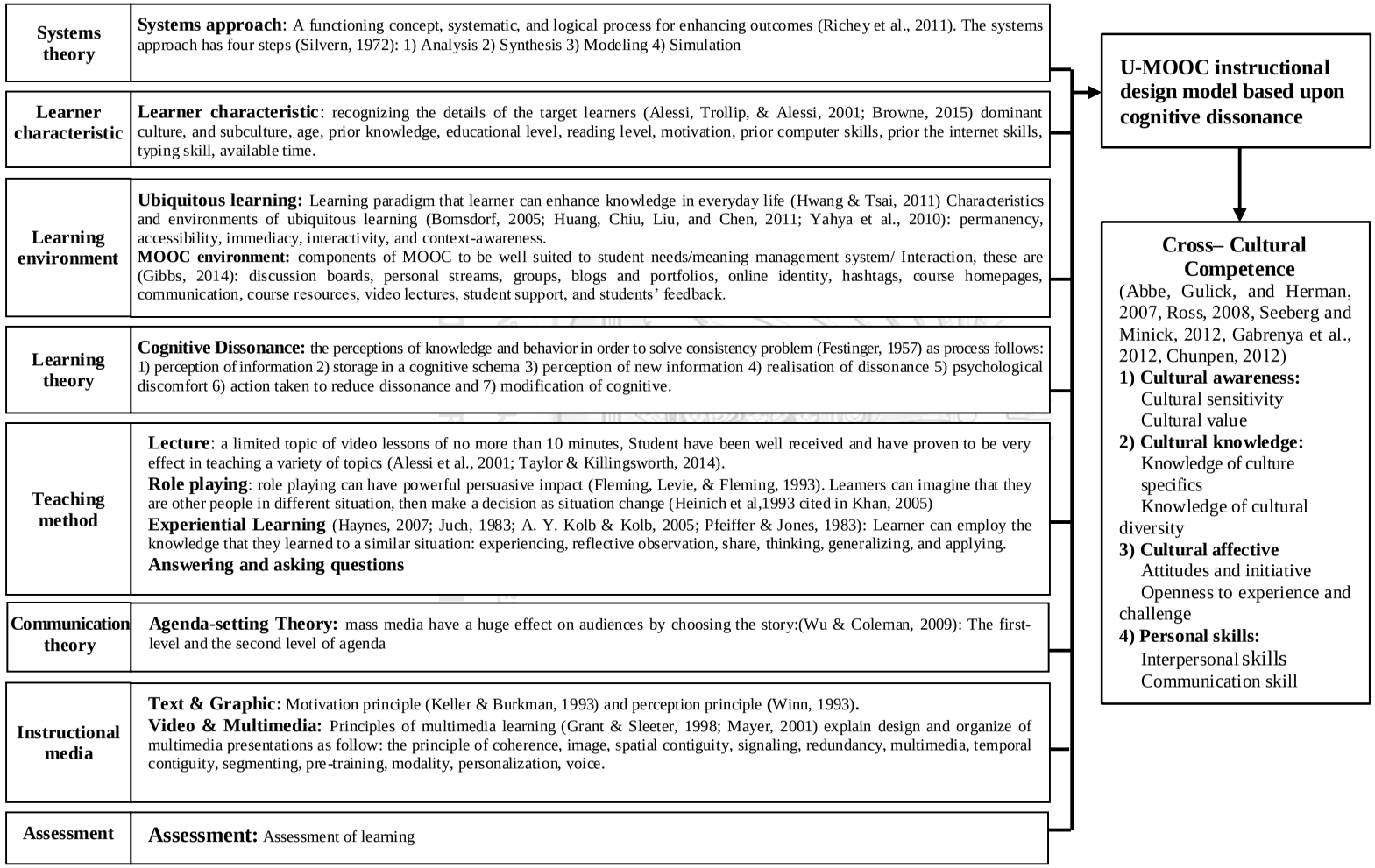

Figure 1.1 Conceptual framework

The conceptual framework is based on nine concepts: (1) systems theory, (2) learner characteristic, (3) learning environment, (4) learning theory, (5) teaching method, (6) communication theory, (7) instructional media, (8) assessment, and (9) instructional design.

1) Systems theory

A functioning concept, systematic, and logical process for enhancing outcomes (Richey, Klein, & Tracey, 2011). This research used systems approach as systems theory. There are four stages in the systems approach (Silvern, 1972 cited in Richey et al., 2011): 1) Analysis 2) Synthesis 3) Modeling and 4) Simulation

2) Learner characteristic

Learner characteristic is a principal of recognizing the details of the target learners (Alessi et al., 2001; Browne, 2015) dominant culture, and subculture, age, prior knowledge, educational level, reading level, motivation, prior computer skills, prior the internet skills, typing skill, available time.

(3) Learning environment

A learning environment is the context of instruction including the instructor, the content, the learners, and the learning place (Brown & Green, 2015). In this research, the learning environment comprised of ubiquitous learning and MOOC, as followed:

Ubiquitous learning is a capacity of learning for flexibility and adaptation in different contexts. Besides, the learners are able to access teaching materials at all times and from any device (Gros et al., 2016). The following describes characteristics of ubiquitous learning and ubiquitous learning environments (Bomsdorf, 2005; Huang, Chiu, Liu, and Chen, 2011; Yahya et al., 2010)

1) Permanency: learning data remain unless the learners purposely remove it.

2) Accessibility: learning data is always accessible.

3) Immediacy: learning data can be recovered directly by the learners.

4) Interactivity: the learners can communicate with classmates and teachers experts through different tools.

5) Context-awareness: the learning tools can adjust to the learners' real situation to deliver suitable learning data for the learners.

MOOC environment is an online course, open everyone to register, with the opportunity of free accessing and provide online resources (McAuley, Stewart, Siemens, and Cormier, 2010). Na-songkhla (2014) proposed three learning characteristics on MOOC as follows.

1) Accessibility: free and open registration

2) Interaction: A course provides combination of passive and active learning

3) Freedom: anyone can participate in a free online course.

4) Learning theory

Learning theory is a theory of learning which involves developing and modifying about knowledge, skills, attitudes, and behaviors (Schunk, 2012). This research used cognitive dissonance theory as the learning theory.

Cognitive dissonance theory is a concept that the perceptions of knowledge and behavior in order to solve consistency problem (Festinger, 1957). The following describes cognitive dissonance four steps (Festinger, 1957; West & Turner, 2010):

(1) Selecting experience, or looking for consistent data and assists to decrease dissonance. (2) Selecting attention means to observing at consistent data. (3) Selective knowledge involves unclear data to becomes consistent. (4) Selecting recall to learn consistent information. The cognitive dissonance theory has led to a number of studies that used cognitive dissonance to effect both behavioral and attitude changes (Aronson, 1992).

5) Teaching method

This research used many teaching methods using for U-MOOC instructional design model, as followed:

Lecture in this research used a video lecture and limited topic of video lessons of no more than 10 minutes; Student would be well received and proven to be very effect in teaching a variety of topics (Alessi et al., 2001; Taylor & Killingsworth, 2014).

Role-playing can have a powerful persuasive impact (Fleming et al., 1993). Learners can imagine that they are other people in different situation, then make a decision as situation change (Heinich et al.,1993 cited in Khan, 2005)

Answering and asking questions usually used for provoking learner to interest and curiosity about a topic (Cohen, Manion, Morrison, & Wyse, 2010).

Experiential Learning is a principle which explained how the learner could employ the knowledge that they learned to a similar situation (Beard, Wilson, & Beard, 2006). The following describes the steps that comprise experiential (Haynes, 2007; Juch, 1983; A. Y. Kolb & Kolb, 2005; Pfeiffer & Jones, 1983).

1) Experiencing: learning by doing in a new experience. The learners would open mind and attitude to detect problems and situations.

2) Reflective observation: learners interact with a new experience. The learner would understand concepts and situations from many perspectives.

3) Share: learners would share the learning and observations by talking or discussing their experience.

4) Thinking: learners would create logically ideas to understand and planning to solve problems.

5) Generalizing: learners link the knowledge or experience with real-world cases.

6) Applying: learners would discuss how to apply new learnings to another situation. Also, discuss how can develop from the new knowledge.

(6) Communication theory

Communication theory is a theory about **"**interactions (most often public) between groups and large masses of people" (Richey et al., 2011). The researcher used the agenda-setting theory as the communication theory in this research.

Agenda-setting theory is a theory which involves mass media have a huge effect on audiences by choosing the story.

Wu and Coleman (2009) proposed two level of agenda-setting: first-level and the second level of agenda, as follows:

1) First-level Agenda-setting explained elements, both agenda-setting and priming demonstrate, nearer attention to the precise content of mass media messages (Dearing & Rogers, 1996).

2) The second level of agenda focuses on exploring what topics of mass media cover to how they did (McCombs & Ghanem, 2001).

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(7) Instructional media

Instructional media or instructional materials are the mediated instruction for a student to accomplish learning objectives. The researcher used two main instructional media both text & graphic and video & multimedia

Text & graphic consisted of 1) motivation principle (Keller & Burkman, 1993) 2) Perception Principle (Winn, 1993).

Video & multimedia consisted of principles of multimedia learning (Grant & Sleeter, 1998; Mayer, 2001) explain the design and organize of multimedia presentations as follow: the principle of coherence, image, spatial contiguity, signaling, redundancy, multimedia, temporal contiguity, segmenting, pre-training, modality, personalization, voice.

(8) Assessment

Assessment is an assessment of learning and helps determine achievement of instruction.

9) Instructional design of U-MOOC instructional design model based upon cognitive dissonance

Instructional design is a logical process to adapt the learning theory to lesson plans for learning resources, activities, and assessment. The following describes components of instructional design (Dick, Carey, & Carey, 2014; Gagné, Briggs, & Wager, 1992; Gerlach & Ely, 1971; Morrison, 2011; Richey et al., 2011).

(1) Identify objective method consists of nine elements: performance analysis, need assessment, clarity in instruction goals, criteria for establishing instruction goals, problem identification, competence, training requirement, target objectives, and enabling objective.

(2) Task analysis consists of two elements: identifying subordinate skill and entry behaviors and identifying prerequisites.

(3) Learning analysis consists of seven characteristically elements: general, specific entry, learning styles, educational information, personal and social, culturally diverse learners, and group.

(*4) Context analysis* consists of six contextual elements: orienting, instruction, transferring, the relevance of workplace, social aspects of the site, and compatibility of the site with instructional requirements.

(5) Define objective consists of five elements: cognitive domain, psychomotor domain, affective domain, terminal objective, and subordinate objectives.

(6) Design and conduct evaluation of instruction consists of two elements: formative evaluation and summative evaluation

(*7) Selection of media*

(*8) Determine content* consists of three elements: analysis content, determine content, and content ordering.

(*9) Design instructional strategies*

(10) Design the communication consists of two elements: text and picture.

(11) Developing assessment instrument consists of seven elements: entry behaviors test, pretest, posttests, practice test, testing knowledge, skill/behavior assessments, and attitudes.

(12) Development instructional materials consist of three elements: mediation of pretest, mediation of instruction, mediation of learner participation and feedback.

(13) Delivery system for instruction consists of two elements: group instruction and individualized instruction implementation.

(14) evaluating instruction consists of three elements: formative evaluation and summative evaluation.

(15) Empirical try-out of courseware with learner population.

10) Cross-cultural competence

Cross-cultural competence consists of four factors are cultural awareness, cultural knowledge, cultural affective, and personal skills.

(1) Cultural awareness is the expression feelings, awareness, and benefits of value and importance of cultural diversity, accept differences between individual ability and modify their own behavior and thoughts to the cultural differences. Cultural awareness has two indicators both cultural sensitivity and cultural values.

Cultural sensitivity is the sensitive expression of the perceptions of individuals when faced with a where a cultural difference can be recognized or noticed the change of the person, society, and culture around quickly.

Cultural values are proud in their own culture from appreciating the importance and benefit of learning about different cultures, show interest in learning, understanding about manners, customs, and traditions practiced in their own culture and other cultures.

(2) Cultural knowledge is the ability to recognize meaningful interpretation or translation elaborating on culture, language, traditions, values desired of their own nation and other nations. Cultural knowledge has two indicators both knowledge of culture-specific and knowledge of cultural diversity.

Knowledge of culture-specific is the ability to recognize meaningful interpretation or translation elaborating on national culture and local culture as well as a knowledge of the traditions, national languages, dialects, and desirable values in society.

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Knowledge of cultural diversity is the ability to recognize the interpretive translation or interpretation extends to different cultures, traditions, and values desirable, understand the similarities and differences between cultures.

(3) Cultural affective is thoughts or emotions about different cultures, resulting from the perception of the environment. Cultural affective has two tasks both attitudes and initiative and openness to experience and challenge.

Attitudes and initiative are interests to find ways to interact with people of different cultures.

Openness to experience and challenge needs to know and do something new to gain experience.

(4) Personal skills are the expertise of the individual to live a normal life in a multicultural society, ability to establish good relationships with others, accept and adapt to the circumstances or conditions which are cultural differences appropriately. Personal skills consist of three tasks are interpersonal skill, communication skill, and cognitive skill.

Interpersonal skill is the ability to build relationships with other people and to interact better, respect and honor every individual culture. Including the ability to work with people with different cultures effectively.

Communication skill is the ability to adjust the style of communication, both verbal and non-verbal expression, including the use of gestures to communicate to a person with the cultural differences properly with regard to the meaning, communication behavior and the impact that may cause arise from a misunderstanding and lead to a cultural conflict.

Cognitive skill is the ability to analyze situations and use of knowledge to understanding solutions.

Scope of the Study

Learners of the research were students of higher education in both dominant culture and subculture. Moreover, Contents of the study were divided into two parts both the contents of cross-cultural or intercultural and the Specified content of Thai culture, as followed:

1) The contents of cross-cultural or intercultural were synthesis from many scholars (Beamer & Varner, 2008; Gudykunst, 2003; Jandt, 2013; Kurylo, 2013; Samovar et al., 2009) consisted eight chapters: (1) introduction to cross-cultural communication; (2) cross-cultural communication competence; (3) identity; (4) verbal and nonverbal in cross-cultural communication; (5) culture's influence on perception; (6) co-cultural group membership; (7) intercultural relationships; and (8) another culture overview such as adapting to an unfamiliar culture, comparative cultural patterns.

2) The specified content of Thai culture (Kiengsiri, Bhinyoying, & Promathatavedi, 2007) consisted of eight chapters: (1) Manners in greeting; (2) Manners in eating, (3) Manners in visiting; (4) Manners in public places; (5) Manners when in company; (6) Manners in clothes wearing; (7) Manners in conversation; and (8) Manners when in standing, walking, and setting.

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Operational Definitions

The following terms and phrases defined in this section are currently used in the field of education. They are listed to assist the reader and to clarify the terminology used by the researcher.

Massive open online course (MOOC): online learning, which no limit on attendance, learners will interact with each other through digital tools by the interactive web to share and create knowledge in small groups-based approach.

Ubiquitous learning is a learning paradigm that learner can enhance knowledge in everyday life using a combination of PC, tablet, or smartphone.

Ubiquitous MOOC (U-MOOC): an online learning in everyday life with no limit on attendance and learner can enhance knowledge everywhere every time focus on group interaction activities to incorporate cognitive dissonance, in which contents are available to view on PC, tablet, or smartphone. The contents/modules are laid for mass communication in two levels as Agenda-setting (Wu & Coleman, 2009) in first-level Agenda-setting are focuses on the amount of coverage of an issue and suggesting that the media decide what issues the public will be aware of, in the second level of agenda is setting perceived importance of attributes or issues.

The cultural learning common teaches by teaching technique such as lecture, role-playing, and experience learning. During the learning, student can use instructional media such as text, graphic, video, and multimedia for learning contents.

Experiential learning: the methodology of education to develop learner with direct experience and focused reflection.

Lecture: a limited topic in lessons of no more than 10 minutes, Student has been well received and have proven to be very effect in teaching a variety of topics (Taylor & Killingsworth, 2014).

Role-playing: role-playing can have a powerful persuasive impact (Fleming et al., 1993). Learners can imagine that they are other people in the different situation, and then make a decision as situation change (Heinich et al., 1993 cited in Khan, 2005).

Cognitive dissonance: is a concept that the perceptions of knowledge and behavior in order to reduce the dissonance or solve consistency problem.

Agenda-setting theory: the principle of communication which explained the mass media has influenced to receiver by using communication two levels of agenda.

Cross-cultural competence: is knowledge, skill, and behavior to adjust oneself for another culture, measured by the higher education student's cross-cultural competence scale (see appendix 4), Measured before during, and after learning by U-MOOC.

Research Contributions

The result of this study will support in determining factors to design a MOOC environment in ubiquitous devices. Also, they could help instructional designers understand what factors affect the developing of ubiquitous learning and open online learning. The instructional design model of a ubiquitous MOOC based on cognitive dissonance for enhancing higher education student's cross-cultural competence could assist a teacher to improve students to understand and have enough skills to adjust themselves for different culture via a MOOC. The teacher might use this result to design a massive practical course with other racially/ethnically diverse learners in further research.

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Summary

MOOC offers learners can participate without any distance limitations with various learners who come from several countries with different backgrounds and cultures by digital technologies. The MOOC learners who have a high level of Cross-Cultural competence can reduce a confliction within a diverse classroom. MOOC instructors should have the capability to design a course that supports diverse learners. The study resulted in a MOOC instructional design model based on appropriate theories and technology in order to enhance student's cross-cultural competence.

The next chapter provides the literature review for this study relevant to cross-cultural competence, cognitive dissonance, massive open online course, ubiquitous learning, experiential learning, and Agenda-setting theory

CHAPTER II

LITERATURE REVIEW

In this chapter, the relevant bodies of literature were reviewed to frame this dissertation. The aims of the review are to provide a foundation for the study, to position this study among other research studies already completed, and to categorize areas related to the U-MOOC instructional design model by using experiential learning, cognitive dissonance, and Agenda-setting theory for improving cross–cultural in higher education.

This literature review is divided into six areas:

- Cross-cultural competence
- Cognitive dissonance
- Massive open online course
- Ubiquitous learning
- Experiential learning
- Agenda-setting theory

Each literature consisted of definition, component or characteristic, explanation, and summary. As following:

Cross-Cultural Competence

Many foreigners come to visit Thailand for many purposes such as tourist, business, and education. Moreover, there were more than 10,000 international undergraduate students in Thailand (International Trade Administration, 2017). Cultural competence is a basic potential in order to communicate with people diverse cultures in globalization. Category of Cross-Cultural competence could be divided into four reviews are 1) definition of Cross-Cultural competence 2) developing cross-cultural competence and 3) important of cross-cultural competence.

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Definition of culture and cross-cultural competence

Goodenough (1973) defined culture is a system of standards for perceiving, believing, evaluating, and acting

Mead (1976, as cited in Davidman & Davidman, 1997) defines culture is the patterned behavior learned by each individual from the day of birth as he or she is educated (socialized and enculturated) by parents and peers to become, and remain, a member of the particular group into which he or she was born or joined.

Bodley (1994) defined a culture is a group of community, rules, and customs that describe a social group.

Culhane (2012) established that cross-cultural competence is a group of cultural knowledge, skills, abilities, and attributes. Cross-cultural competence can be developed through education, drill, and practice that improve the capability to activate with any complex cultural environment.

Gertsen (1990) described that cross-cultural competence is the capability of individuals to work effectively in a different culture. The cross-cultural competence comprises of three aspects: an affective aspect (individuality characters and attitudes),

a cognitive aspect (develop and classify cultural knowledge), and a communicative behavioral aspect (effective communicator).

Sands and Haines (2013) presented that cross-cultural competence mean capability to understand and express action in cross-cultural situations.

Adler and Bartholomew (1992) defined cross-cultural competence in terms of global competence. The global competence consists of four abilities, as followed:

1) Practice about many diverse cultures, viewpoints, styles, and skills.
2) Ability to work with people from different cultures efficiency.
3) Skill to adapt to diverse cultures.
4) Understand how to cooperate with people from a different background as equals.

Cross, Bazron, Dennis, and Isaacs (1989) described that cross-cultural competence is the way of ability to learn new patterns of action and adapt to the proper situations. A person who has cross-cultural competent would have the ability to work effectively in other cultural environments. Cross-cultural competence consists of four levels: cultural destructiveness, cultural incapacity, cultural blindness, cultural pre-competence, and advanced cultural competence, as follow the table 2.1 below.

Table 2.1 Level of Cross-cultural competence

Levels	Details
Cultural destructiveness	Destructive attitudes, strategies, and performs about different cultures and personalities.
Cultural incapacity	Biased personalities in the principal group, decisions and actions with anxiety, biased in resource sharing, discriminant, unfriendly, and lower attitudes for cross-culture.
Cultural blindness	Partisanship in rules, performs, and attitudes, and cultural knowledge missing
Cultural pre-competence	Positive personalities, accept and respect for differences, adaptability diverse situations.
Advanced cultural competence	Superlative personalities, confident, and positive attitude.

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Lynch and Hanson (2004) developed cross-cultural competence: a guide for working with young children and their families in 1998. They stated that cultural competence could not accomplish in one day or a couple of workshop training. Cross-cultural competence initiate replaces beliefs of cultural sensitivity and awareness.

Chunpen (2013) proposed indicators and a scale for measuring teachers' cross-cultural competence: testing measurement invariance by teachers' background that includes 1) cultural awareness factors consist of cultural sensitivity and cultural values 2) cultural knowledge and understanding consist of knowledge of culture specifics and knowledge of cultural diversity 3) personal skills consist of interpersonal skill, communication, flexibility, and self-regulation

From Abbe, Gulick, and Herman (2007), Ross (2008), Seeberg and Minick (2012), Gabrenya Jr, Griffith, Moukarzel, Pomerance, and Reid (2012), and Chunpen (2013), variables of cross-cultural competence can be concluded as table 2.2

Table 2.2 Synthesis variables of cross-cultural competence

Variables	Abbe, Gulick, and Herman (2007)	Ross (2008)	Seeberg and Minick (2012)	Gabrenya et al. (2012)	Chunpen (2013)	Researcher
1. Cultural awareness	✓		✓		✓	✓
1.1 cultural–sensitivity					✓	✓
1.2 cultural–values			✓		✓	✓
2. Cultural knowledge	✓		✓	✓	✓	✓
2.1. Knowledge of culture-specific			✓	✓	✓	✓
2.1. Knowledge of cultural diversity	✓		✓	✓	✓	✓
3. Cultural affective						✓
3.1 Attitudes and initiative	✓			✓		✓
3.2 Empathy	✓	✓				
3.3 Need for closure	✓					
3.4 motivation to learn				✓		
3.5 Willingness to engage		✓				
3.6 Openness to experience and challenge		✓	✓			✓
4. Personal skill						
4.1 Interpersonal skills	✓	✓	✓		✓	✓
4.2 Self-regulation	✓				✓	
4.3 Flexibility	✓				✓	
4.4 communication				✓	✓	✓
4.5 cognitive skill		✓		✓		✓
4.6 language				✓		
4.7 Change agent skills			✓			
4.8 Relationship-building		✓		✓		
4.9 Culturally appropriate behaviors				✓		

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According to table 2.2, variables of cross-cultural competence can be summarized four components (1) cultural awareness (cultural sensitivity, and cultural value), (2) cultural knowledge (knowledge of culture specifics, and knowledge of cultural diversity), (3) cultural affective (attitudes and initiative, and openness to experience and challenge), and (4) personal skills (interpersonal skills, communication skill, and cognitive skill).

Developing cross-cultural competences

There are several suggestions from many scholars about developing cross-cultural competences, as followed:

Zakaria (2009) proposed that three areas to improve cross-cultural competence be investigative the competences, personalities, and behaviors, as followed:

1) Cultural awareness: engaging cultural training and understanding dos and don'ts.

2) Cultural sensitivity: inculcate sympathy, gratitude, patience, and honor for diversity.

3) Cultural adroitness: proper cultural acting in manners and customs to people.

L. Rasmussen (2013) proposed that cross-cultural competence is a capability to effectively recognize and participate persons from diverse cultures. There are many essential characteristics of cross-cultural competence, which were usually found in the scholars' literatures:

1) Stay concentrate on your targets and keep building cross-cultural relations. Then, the work will complete effectively.

2) Comprehend and aware your own culture, background, personal history, and culture.

3) Keep improving attitudes about the cross-culture.

4) Retain learning about the cross-culture knowledge from various resources such as website, radio, television, etc.

5) Improve trustworthy information, for example asking information from local people about their culture and check with another in order to compare the information.

6) Choose a new culture and focus learning the culture efficiently.

7) Find out the reason people from different culture do.

8) Try to explain to people about the behavior or knowledge of diverse culture

9) Try to change your opinion or perspective of the people from the different backgrounds that would make clearly understanding of another culture.

10) Try to design cross-cultural communication, for example, plan to communicate with people from another country.

11) Practice to introduce yourself and your culture to people from another culture.

12) Make self-evaluation from diverse persons' feedback.

These principles which are essential to improve cross-cultural competence for people who interested in.

Suggestion of Co-operative Education Program and Career Services (2005), University of Victoria (2005) for develop cross-cultural competences when communicating in cross-cultural environments:

1) Cross-cultural motivation: the ways to open mind when curious about different environments and cultures:

- Appreciated the chance to learn more about the culture of the organization, town, province, and country.
- Start to discover your environment.
- Communicate with people from diverse cultures.
- Pay attention and engage events in the city.
- Participate with people in community.
- Understand own strengths and weakness for improving.

2) Cross-cultural knowledge: comprehending of diversity cultures and comparing both similar and different:

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- Understand cross-cultural by discuss with people from diverse cultures.
- Recognize how to correspond with persons who speak a different language.
- Recognize how to adjust in a new cultural setting.
- Recognize in what way to manage changing.
- training phrases or study a different language.

3) Strategic thinking: effectively invent a cultural plan from the cultural knowledge:

- Always aware of assumptions involving cross-cultural issues.
- Consider how you can start to learn from another culture people.
- Plan how to pursue networking opportunities with people from different cultural backgrounds.
- Think plans for each cultural confrontation.

4) Cross-cultural behavior: flexibility communications and adjust to cultural situations.

- Present a positive attitude about diversity and different environments.
- Adjust to new cross-cultural situations.
- Adapt verbal and nonverbal behaviors fitting to a new cultural environment.
- Present adaptable and investigate reasonable solutions in a creative way.

Important of Cross-cultural Competence

Cross-cultural competence can prove beneficial in various areas such as education or communication. There was some scholars state about important of cross-cultural competence as follow:

1) In the education area, instructors with understanding and appreciate their own culture, they can recognize the worldviews of their diverse learners (J. Bennett, 1993).

2) In tourism area, people with cross-cultural communication, they can be successful improving the mutual recognizing and social relationships that are essential for succeeding professional goals (L. J. Rasmussen, 2013).

3) In the business area, cross-cultural competence comes up with the prior knowledge, skills, and individual characteristics that empower them to work efficiently in culturally diverse situations (Culhane, 2012) as followed:

Knowledge: knowledge defines as a form of functional information (McDonald, McGuire, Johnston, Selmeski, & Abbe, 2008), as followed:

- Understanding the meaning of culture and why the culture is important to mission success.
- Understanding cultural concepts and procedures.
- Understanding how culture affects other's perspective.

Skills: skills defines as observable behaviors that essential to achieve a learned performance (McDonald et al., 2008).

- Linking culture to planning and implementation for mission achievement.
- Decoding verbal and nonverbal communications.
- Influencing people (e.g., building relationship).
- Predicting others' behaviors.

- Applying cultural knowledge to specific culture.
- Adjusting cultural skills to culture-specific environment.

Personal Characteristics: a personal characteristic defines as an attitude that effects personal decisions to act in a certain way (McDonald et al., 2008), as followed:

- Representing an openness and craving to learn a new culture.
- Representing a readiness to cultural engage.
- Handling own emotions and monitoring own behaviors.
- Representing patience in uncertain situations.

Summary

Cross-cultural competence is knowledge, skill, and behavior to adjust oneself to another culture, measured by a scale for measuring cross-cultural competence, measured before during, and after learning. Cross-cultural Competence consists of four components (1) cultural awareness, (2) cultural knowledge, (3) cultural affective, and (4) personal skills. Cross-cultural competence can develop by learning through communicating with diverse people. During communication, people would feel uncomfortable when dissonant occur. The dissonant would reduce by using cognitive dissonance theory.

Cognitive Dissonance

There were many dissonances in the culture group when interacting with different culture people. The cognitive dissonance is theory, which explains how dissonances happen and how to reduce them. Category of cognitive dissonance theory can be divided into four reviews are (1) definition of cognitive dissonance, (2) cognitive dissonance paradigms, (3) steps in the cognitive dissonance process, and (4) Characteristic of cognitive dissonance.

Definition of cognitive dissonance

Festinger (1957) suggested the theory of cognitive dissonance in order to describe the tendency of perceptions and behavior to pursue consistency with each other. After an inconsistency happens among perception and behavior, the personage is unpleasant. This unpleasant encourages the personage to act to reduce the unpleasant or the dissonance. However, Festinger (1957) explained the cognitive dissonance theory that

"*Two opinions, or beliefs, or items of knowledge are dissonant with each other if they do not fit together that is, if they are inconsistent, or if, considering only the particular two items, one does not follow from the other.*"

Festinger (1957) divided the theory of cognitive dissonance into three parts:

1) Dissonance occurs after an individual's attitudes dispute another's attitude or actions.

2) Dissonance is an unfavorable state; thus, a person feels the anxiety to decrease the dissonance and prevent future increases of dissonance.

3) A person tries to decrease this unfavorable state within behavior changes, cognition changes, and prevention of introduction to new information or opinions that could produce dissonance

Festinger (1957) proposed that cognitive dissonance could be decreased in two ways: a) adding new beliefs or b) changing existing beliefs. Adding new beliefs

can decrease dissonance if the new beliefs decrease the importance of the dissonant viewpoints. Also, changing existing beliefs decreases dissonance if the new content makes them less conflicting with others.

Cognitive dissonance paradigms

From several studies, cognitive dissonance paradigms comprise of three effective hypotheses are: belief disconfirmation paradigm, free-choice paradigm, and induced-compliance paradigm

1) Belief disconfirmation paradigm

A paradigm involved the selection of information-pursuing following a resolution (Wilson & Keil, 2001). If the decision is difficult to undo, the personality is driven both to avoid consequent information to be dissonant with a resolution and to look for consequent information to support the resolution. (Freedman & Sears, 1965; Frey, 1986).

2) Free-choice paradigm

Free-choice paradigm concerned the attitude of values in order to make a decision (Wilson & Keil, 2001). Any selections are suggested to create dissonance, to reduce the selection dissonance, the personality is probable to exaggerate the benefits of the selections and to devalue the benefits of the selections to rejected. The effects intensely perform when the selection is both challenging and irrevocable (Wilson & Keil, 2001).

3) Induced-compliance paradigm

Induced-compliance paradigm studied the effects of the enforced agreement, in which a personality is encouraged to engage in counter-attitude action (Festinger & Carlsmith, 1959). The dissonance develops from a conflict among the individual's action and attitudes. To the extent that an obvious action is harder to change than a belief, attitudes are changed to agree to behavior (Cooper & Fazio, 1984).

Cognitive-dissonance process

Aïmeur et al. (1997) proposed the stages in the cognitive-dissonance process from Festinger's explanation.

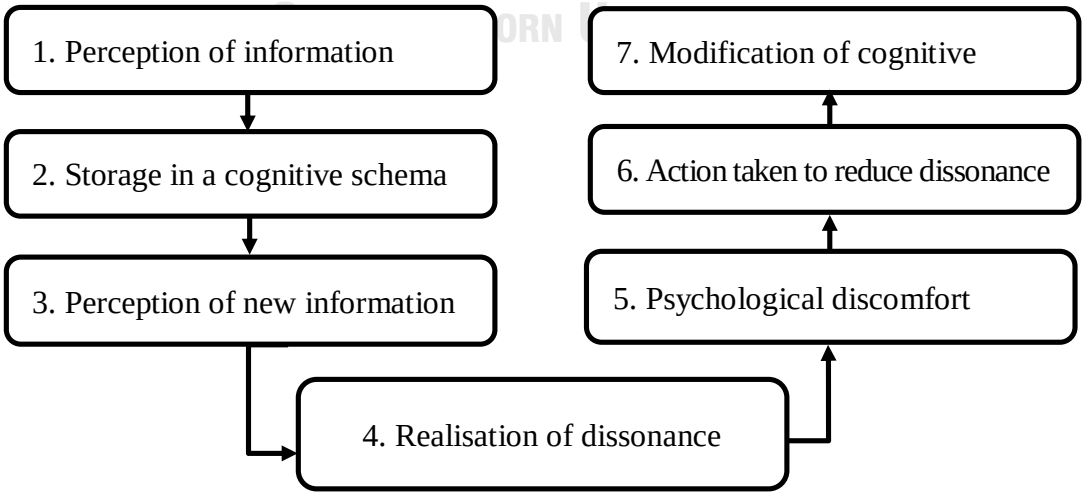

Figure 2.1 Steps in the cognitive-dissonance process

(Aïmeur, Dufort, Leibu, & Frasson, 1997)

The strength of dissonance (Aïmeur, 1998):

1) The perceived capability of the person or group communicating the conflicting opinion.

2) The sensitive connection to the person or group communicating the conflicting opinion.

The personal experiencing cognitive-dissonance caused by another person can respond to four methods (Aïmeur, 1998):

1) Dismissing the subject of argument as being insignificant.

2) Dismissing the other person as being unimportant.

3) Trying to remove the dissonance by replacing one's own opinion or by trying to adjust the opinion of the other person (by starting a dispute with that person).

4) Pursuing new information, which would support an opinion.

West and Turner (2010) proposed people could cope with dissonance by

- Adding to our consonant beliefs
- Reducing the importance of our dissonant beliefs
- Changing our beliefs to eliminate the dissonance in some way.

Characteristic of cognitive dissonance

Cooper (2007) summarize cognitive dissonance, as followed:

1) Cognitive dissonance appears following decisions.

2) Cognitive dissonance decreased by attitude change that increases the attraction of the choice alternatives. The chosen alternative turns out to be more attractive and the unchosen turn out to be less attractive.

3) The more challenging the decision, the more dissonance.

4) Cognitive dissonance is a pervasive phenomenon to make a choice all the time. However, in the real world, people make many decisions every day. At university, choosing courses to take, courses to teach, books to buy. At home, choosing television programs to watch, vacations to take. Each time people make one of those decisions, people are subjected to the experience of cognitive dissonance and act to reduce it.

Cognitive dissonance theory consisted of four hypotheses, as followed:

1) A person requires consistency in their beliefs, attitudes, and behaviors.

2) Dissonance is formed by psychological inconsistencies.

3) Dissonance is an opposed state that motivates people to actions.

4) Dissonance encourages to accomplish consonance and encourages dissonance reduction.

Summary

Cognitive dissonance is the theory that explains when the opinions and actions of a personality seem to contrast, cognitive dissonance will occur and changes one's opinions and actions to be more consistent in which decrease the dissonance. Cognitive dissonance could be decreased in both increasing new beliefs and replacing existing ones. When people found the dissonant, they should reduce dissonant by sharing & discussion, and seek support information.

Agenda-setting Theory

Agenda-setting theory is a communication theory which explains how information has a large influence on audiences through a cognitive process. Category of Agenda-setting theory can be divided into two reviews are 1) definition of Agenda-setting theory 2) component of Agenda-setting theory.

Definition of Agenda-setting theory

Agenda-setting theory described an effect of the media as the capability to inform a person what matters are important. Many scholars have concerned that the media influenced to perform images to the public.

Rodman (2014) described the agenda-setting theory refers to the mass-media have a huge influence on audiences by choosing the stories to consider newsworthy. Agenda-setting theory has the ability of the mass media to transfer significance mass agendas to the public agendas.

Freeland (2012) defined agenda-setting role of the mass media as the media establishes the public agenda by informing what to concern, though not precisely what to think.

McCombs and Ghanem (2001) proposed that agenda-setting mean the strong correlation philosophy among the importance that mass media set on convinced issues and the significance recognized to these matters by a mass audience.

Agenda-setting appears throughout a cognitive process recognized as "accessibility," which indicates that the more often and obviously the media covers a topic, the more that topic turns out to be accessible in the audience's memory (Iyengar & Kinder, 1987).

Strategy of Agenda-setting

McCombs (2005) proposed a strategy of agenda-setting that results of the news media, as followed:

Clear media: persuading the images in audiences' heads, the agenda-setting effect of the media of aiming public attention on a specific topic.

High relevance and low uncertainty: an adequate required for high relevance and uncertainty, a high need for direction.

Sources of the media agenda: the pattern of news coverage that defines the media agenda results from the norms and traditions of journalism, the daily interactions among news organizations themselves, and the continuous interactions of news organizations with numerous sources and their agendas.

Consequences of agenda-setting effects: agenda-setting theory has recognized three different effects of agenda-setting: establishing an opinion, preparing opinions about public facts through a stress on specific issues, and determining an opinion through a stress on specific attributes.

Components of Agenda-setting theory

Dearing and Rogers (1996) proposed two components as levels of agenda-setting theory as followed:

The first level agenda-setting: explained elements, both agenda-setting and priming demonstrate, nearer attention to the precise content of mass media messages (Dearing & Rogers, 1996).

Need for orientation: There are two conceptions (1) relevance and uncertainty and (2) define a personality's need for orientation. Relevance proposes that a personality will not pursue media information if a topic is not individually relevant. Thus, if relevance is low, persons will not feel the need orientation. Many associations try to set issues to pave the way for audiences' attention. The defining condition of the need for orientation, audiences' degree of uncertainty is low because personalities already have all the information that they desire about a topic.

Inter-media agenda-setting: Inter-media agenda-setting is an element of media agenda-setting studies that explore who sets the media agenda and how to set agenda. There is a variation of elements, such as individuality characteristics, issue values, norms, and policy (Gans, 1979).

The second level agenda-setting: the second level of agenda focus on exploring what topics of mass media cover to how they did (McCombs & Ghanem, 2001).

Priming: Priming happens after content proposes to audiences that they should to use specific issues as benchmarks for assessing the performance of leaders and governments. It is regularly understood as an extension of Agenda-setting.

Chaffee and Berger (1997) proposed criteria for agenda-setting, as followed:

- Agenda-setting has the ability to explain why people attention to the same issues.
- Agenda-setting has the ability to predict, if persons are exposed to the similar media, they will feel the same issues.
- Agenda-setting is not complicated and easy to understand.
- Its meta-theoretical assumptions are balanced on the scientific side
- Agenda-setting is a trigger for further research
- Agenda-setting has the ability to help organize current knowledge of media effects.

Wu and Coleman (2009) proposed furthering agenda-setting theory of two levels of agenda-setting influence, as followed:

1) The first-level Agenda-setting
   - Attentions to the amount of coverage of an issue.
   - Proposing the media adopt what issues the public will be aware of.
2) The second-level of Agenda-setting
   - Deciding perceived importance of elements or issues.

Summary

Agenda-setting theory is the theory of communication that the media has influenced to receiver by using communication two levels of agenda. Moreover, there are four strategies of agenda-setting effects of the news media: (1) clear media, (2) high relevance and low uncertainty, (3) sources of the media agenda, and (4) consequences of agenda-setting effects. Agenda-setting theory is a powerful function of the massive media to the specific content of messages.

Massive Open Online Course

Massive open online course (MOOC) is an online course with the option of free and open registration, a publicly shared curriculum, and open-ended outcomes. MOOC can be divided into three reviews are (1) definition of MOOC (2) characteristics of massive open online course and (3) advantages of MOOC.

Definition of Massive Open Online Course

MOOCs were established by Stephen Downes and George Siemens as they design a course structure to fit with the theory of connectivism. The course was known as connectivism and connective knowledge. The design of a MOOC is based on open and online (Waard et al., 2011) in the platforms that including facilities for handling the massive learners and learning materials. The role of instructors in MOOC is to develop contents, the learning tasks, and the learning evaluation (Uvalić-Trumbić & Daniel, 2013).

McAuley, Stewart, Siemens, and Cormier (2010) defined MOOC an online course with the opening of registration, shared content, and flexible outcomes. MOOCs also incorporate both social networking and online learning resources.

Krause and Lowe (2014) indicated that MOOC is an acronym for Massive Open Online Course. Massive implies to the capability of huge registrations of students from all areas. Open implies to open admission for everyone who interested and can access the Internet. Online implies to content distribution. Course implies to conventional course functions, such as enrollment, content developing, and learning evaluation.

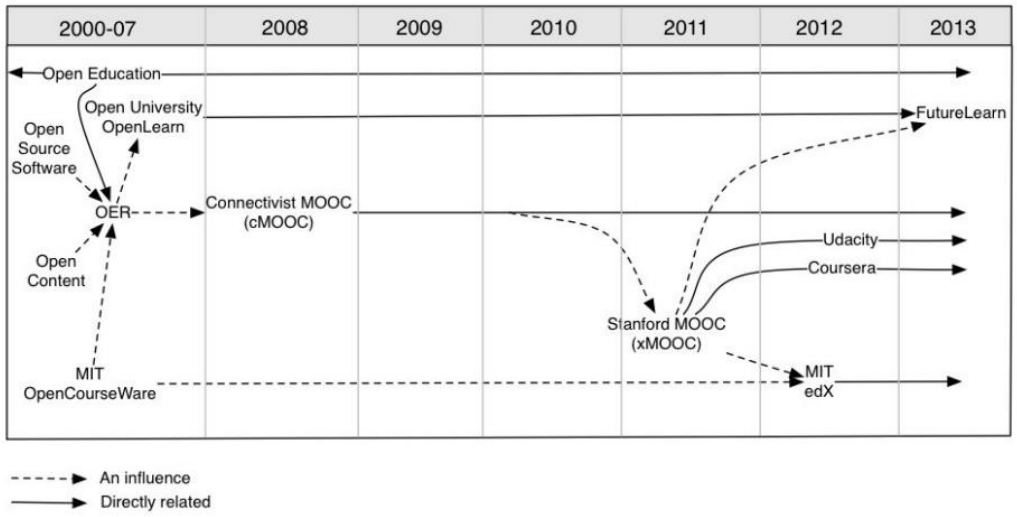

Figure 2.2 MOOC and open education timeline

(Yuan & Powell, 2013)

MOOC Models

MOOC has emerged from two distinct pedagogical MOOC models (Taneja & Goel, 2014).

1) cMOOCs are based on the connectivist approach that established by George Siemens. cMOOC is based upon the conception that learning occurs in a network as the peer learning model. cMOOC drives on open source platforms and attention to learners' relations and community. Learners communicate, share, and

generate knowledge with each classmate by online tools, for example, Wikipedia, learning blogs, etc.

2) xMOOCs is based on the Cognitive-Behaviorist approach, relating lectures and discussion. xMOOCs run on specific platforms created by companies. Nowadays, there are the three leading xMOOC providers are Coursera, edX, and Udacity.

Smith and Eng (2013) compared MOOC characteristic differences between cMOOCs and xMOOCs, as shown in table 2.3.

Table 2.3 A Comparison of cMOOC and xMOOC

Features	cMOOC	xMOOC
Course Content	- Learning content does not describe the course. - Investigative in nature. - Learners have to select learning materials at the beginning. - Learners are motivated to share and provide materials.	- Learning content is specific and packaged; controlled. - Learning activities like a traditional online course. - Totally learning materials published online.
Interaction	- Mostly peer to peer and observed by instructors - Encouraged to participate in decentralized forums and social media platforms	- Directly feedback from Instructor and peer. - Mostly online discussion forums.
Assessment Methods	- Formative - Summative - Instructor-graded - Peer-graded	- Formative - Summative - Self-assessment - Peer-graded
Instructor/ Student Roles	- Non-traditional: distributed and chaotic - Learners expected to develop and share personal knowledge - Autonomous learners	- Traditional: instructor transfer knowledge to learners.
Pedagogy	Connectivist	Cognitive-Behaviorist

Characteristics of Massive Open Online Course

Center for Digital Education (2013) proposed Characteristics of MOOC is assignments which learner will send assignments every week. MOOC learners should dedicate at least six hours per week in order to retain the weekly assignments. Learners post issues in the online forums, then they will vote for a topic they think important. Lecturer and learners will discuss the topic with high priority.

Na-songkhla (2014) proposed three learning characteristics of MOOCs as followed.

1) Accessibility: Learning by MOOC is not used expense for registration, people who have the Internet can learn by YouTube.

2) Interaction: In MOOC, learners not only listening and watching the video but also answering and asking questions.

3) Freedom: Learners can choose a subject that they like, learn as much as they want, and get a certificate when they finish the homework.

X. Chen, Barnett, and Stephens (2013) proposed the MOOC characteristics is massiveness, openness, and a connectivist philosophy as followed;

Massiveness: MOOCs offer huge numbers of learner who might have problem of time, location, prerequisites, and finance

Openness: The system uses open-source application, everyone can register for courses, and the curriculum including learning sources are open to using.

Connectivism: MOOCs offer an integrate online instructional approach with a connectivist philosophy. Connectivism instructional approaches allow an instructor to play a role in a facilitator to communicate with learners.

Russell et al. (2013) proposed that MOOC have two fundamental differences from previous educational technology:

1) MOOC is accessible anywhere/anytime, allow learners to learn in a variety of environment and times.

2) Effective MOOC has involved social societies; students can pose problems, resolutions, insert material to the online course, and support another learners' learning.

Waard (2013) proposed MOOC characteristics in six parts, as followed:

Part 1 Designing

- Offer a ubiquitous learning environment to strategy and content. Therefore people can switch between devices at their own preference.
- Design a user-friendly, afford the learners with a configuration that they can arrange for self-regulating learning.

Part 2 Self-directed learning

- Afford self-directed learning approaches the learners.
- Allowing instant access to learning material.
- Provide synchronous and asynchronous communication within learner activities.
- Offer a calendar of the course, while inserting time for reflection into the course timeline.

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Part 3 Digital skills

- Offer training essential digital skills for the learner before the course begin.

Part 4 Content

- Provide a catalog of learning materials that support an array of places and times.
- Offer a consciousness of ownership about the learning content and the learning materials in order to encourage learner motivation.

Part 5 Human learning environment

- Guarantee a safe learning environment in order to trust and motivate learner to express idea such as writing in a non-native language and not being judged for grammar or format.
- Supervise the group-size.
- Provide networks to emerge in the course.

Part 6 Course activities

- Provide icebreaker activities or learners' introduction to the course start.
- Arouse learner to debates or discussions.
- Increases the information the learners need.
- Offer an issue related learner diversity in examples or activities.

MOOC Providers

There were three main xMOOC providers, Udacity, EdX, and Coursera. The providers also have their own online learning platform, as follows.

1) Coursera: was established in 2012 by Daphne Koller and Andrew NG at Stanford University. They aim to make education more accessible and global.

2) EdX: was established in 2012 by a partnership between MIT and Harvard. They aim to open access to quality education.

3) Udacity: was established in 2011 by Sebastian Thurn and Peter Novig, at Stanford University. They aim to overcome the gap between education, employment, and skills.

Taneja and Goel (2014) compared three MOOC providers including Coursera, Udacity, and Edx, See table 2.4.

Table 2.4 Comparison of three providers

MOOC provider	**Coursera**	**EdX**	**Udacity**
No of Students	7 million +	2 million+	1.5 million +
Courses/Courseware	640+	175+	35+
Institutions	100+	45+	10+
For profit	Yes	No	Yes
Free to access	Yes	Yes	Yes
Certificate fee	Yes	Yes	Yes
Institutional credits	Partial	No	Partial
Open Platform	No	Yes	No
Specialization	Yes	No	Yes
Coaching	No	No	Yes
Peer Connect	Yes	Yes	Yes
Physical Presence	Yes	No	No
Mobile Site	No	No	No
Responsive Web	No	Yes	No
Native App	Yes	No	Yes
App Platform	iOS, Android	-	iOS
Completion %	Low	Low	Low
Languages Available	Arabic, Chinese, English, French, German, Greek, Hebrew, Italian, Japanese, Portuguese, Russian, Spanish, Turkish, Ukrainian	English, French, Hindi, Mandarin, Spanish	English
Technology	Closed Platform	Open Platform	Closed Platform

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Advantages of MOOC

X. Chen et al. (2013) pointed out MOOC have improved preferences for accessibility, developed the potential for student engagement, and extended lifelong learning opportunities, as followed:

Accessibility: MOOCs are normally free of charge. MOOCs have not been limited and open learners at any age to participate in.

Student Engagement: MOOC environments are developed in order to develop learners' engagement, participation, and motivation.

Lifelong Learning Experiences: MOOC environments are designed to allow learners to engage in professional development.

Summary

MOOC is an online learning platform, with no limit on attendance. Learners can interact with each other through digital tools to share and create knowledge in small groups-based approach. There are two distinct pedagogical MOOC models: cMOOC focused on learners' community and connections and xMOOC based upon the cognitive-behaviorist approach. Almost all MOOCs are designed for a desktop computer with high-speed internet platforms. Many students always use their own smartphones every day. Thus they have the skill to use mobile devices more than desktop computers. It is vital to focus on smartphones and tablets as mobile devices for ubiquitous learning.

Ubiquitous Learning

Ubiquitous learning (u-learning) is learning the concept that helps to design an online course, which can learn anywhere anytime. Category of ubiquitous learning can be divided into four sections are 1) definition of ubiquitous learning 2) characteristics of ubiquitous learning 3) ubiquitous learning architecture 4) Comparison of e-learning, m-learning, and u-learning.

Definition of ubiquitous learning

Several educators proposed a definition of ubiquitous learning these are:

Hwang and Tsai (2011) explained ubiquitous learning is a learning methodology to result from combining E-learning and M-learning, and the good point is learner can learn everywhere anytime.

Kim, Caytiles, and Kim (2012) explained u-learning is a learner-centered concept categorized by detecting the proper contents, and the proper learning facilities in the proper location and the proper time based on the student's environments.

Na-songkhla (2011) explained u-learning is a simple mobile learning through a mobile or tablet platform, learning surroundings can be retrieved in different environments and conditions.

Yahya, Ahmad, and Jalil (2010) and Shih, Kuo, and Liu (2012) explained u-learning is a learning concept which makes use of a ubiquitous computing environment to allows everyone to learn at the proper place and time.

Characteristics of ubiquitous learning

Bomsdorf (2005) proposed characteristics of ubiquitous learning and ubiquitous learning environments by developing from Curtis, Luchini, Bobrowsky,

Quintana, and Soloway (2002); Y. S. Chen, Kao, and Sheu (2003);(Ogata & Yano, 2004)

Permanency: learners can access their files including learning resources and assignment except intentional deleted. Furthermore, entire the learning procedures are recorded.

Accessibility: learners are able to access to their files, data, or learning resources from anyplace.

Immediacy: learners can learn or get any data immediately wherever they are.

Interactivity: learners can connect with the instructor, or classmate in the various ways both synchronous and asynchronous communication.

Situating of instructional activities: learners can use the course functions that relevant activities in daily life.

Adaptability: learners can receive the proper information at the proper place in the proper communication.

Moreover, Yahya et al. (2010) added context-awareness into characteristics of u-learning which defined as the learning functions provide adaptive information to the learners.

Yang, Okamoto, and Tseng (2008) reviewed the characteristics of ubiquitous learning, as followed:

• Mobility: uninterrupted while learners move from one place to another.
• Location awareness: the ability to identify learners' locations.
• Interoperability: the ability to operate on different platforms.
• Seamlessness: the ability to connect to any device.
• Situation awareness: the ability to detect what and where learners do.
• Social awareness: the ability to aware of learners' social relationship.
• Adaptability: the ability to adjust learning materials on learners' preferences.
• Pervasiveness: the ability to predict what learners need.

Huang, Chiu, Liu, and Chen (2011) explained characteristics in term of descriptions and functions of u-learning as table 2.5

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Table 2.5 Characteristics of u-learning

Characteristics	Descriptions	Example functions
Urgency of learning need	The capability to offer information instantly.	- Keyword searches - Online problem diagnoses
Initiative of knowledge acquisition	The capability to provide information.	- Material presentations - Study guidance
Interactivity of learning process	The capability to effectively communicate with classmates and teachers.	- Emails - Chat application - Discussion board
Situation of instructional activity	The capability to embed knowledge into daily life.	- Linking to related learning materials

Table 2.5 Characteristics of u-learning (continue)

Characteristics	**Descriptions**	**Example functions**
Context-awareness	The capability of a realistic environment to offer related information to learners.	- RFIDs - GPSs - Bio-feedback
Actively provides personalization	The capability to provide learners' personalized supports.	- Individualized learning database - User guidance
Self-regulated learning	The capability to provide utilities that help learners to control their learning.	- Calendars - Task-lists
Learning community	The capability to share experience to the community.	- Blogs or forums - Chat rooms
Adaptive learning	The capability to adjust each one's learning.	- Recommended system
Constructivist learning	The capability to increase the new knowledge.	- Testing System - Diagnostic System

From Bomsdorf (2005), Yahya et al. (2010), and Huang, Chiu, Liu, and Chen (2011) definitions of U-learning can be concluded as table 2.6.

Table 2.6 Synthesis of characteristics of U-learning

Characteristics of U-learning	**Bomsdorf (2005)**	**Yahya et al. (2010)**	**Huang, Chiu, Liu, and Chen (2011)**	**Researcher**
1) Permanency / Urgency of learning need	✓	✓	✓	✓
2) Accessibility/ Initiative of knowledge acquisition	✓	✓	✓	✓
3) Immediacy	✓	✓	✓	✓
4) Interactivity	✓	✓	✓	✓
5) Context-awareness/ Situating of instructional activities	✓	✓	✓	✓
7) Adaptability	✓	-	✓	-
8) Actively provides personalization	-	-	✓	-
9) Self-regulated learning	-	-	✓	-
10) Learning community	-	-	✓	-
11) Constructivist learning	-	-	✓	-

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According to table 2.6 can be summarized four characteristics of u-learning are permanency, accessibility, immediacy, interactivity, and context-awareness as followed:

1) Permanency: learners can access their files including learning resources and assignment except intentional deleted.

2) Accessibility: learners are able to access their files, data, or learning resources from anyplace.

3) Immediacy: learners can learn or get any data immediately wherever they are.

4) Interactivity: learners can connect with the instructor, or classmate in the various ways both synchronous and asynchronous communication.

5) Context-awareness: learning functions provide adaptive information to the learners.

Comparison of e-learning, m-learning, and u-learning

Liu and Hwang (2009) compared the e-learning, m-learning, and u-learning, as table 2.7.

Table 2.7 Comparison of e-learning, m-learning, and u-learning

Theoretical factors		**E-learning**	**M-learning**	**U-learning**
Distinct features of learning		Unlimited distance, complete learning, synchronous and asynchronous communication	Unlimited distance, complete learning, synchronous and asynchronous communication, located in authentic environment, instantly access to learning information	Unlimited distance, complete learning, synchronous and asynchronous communication, located in authentic environment, instantly access to learning information, adaptive learning support
Learning tools		Personal computer, laptop, and Internet-supported devices	Mobile devices with cellular network	Sensor technologies, mobile devices with cellular network
Locus of control	Internal, based on learner perspective	Self-directed user	Active user	Active user, sensor-motivated user
	External, based on tool application	Guidance based on online behaviors	Guidance based on wireless, networked learning behaviors	Guidance based on online and authentic learning behaviors
Sources of information		Wired servers	Wireless servers and authentic objects	Wireless servers and authentic objects with embedded sensors

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Table 2.7 Comparison of e-learning, m-learning, and u-learning (continue)

Theoretical factors	E-learning	M-learning	U-learning
Instructional modes	One-to-one, one-to-many, or many-to-many	One-to-one, one-to-many or many-to-many with authentic context information.	One-to-one, one-to-many or many-to-many with authentic context information for procedural knowledge
Assessment modes	Value-based, evaluate by self, peers or instructors, or computer grading from the learning system.	Value-based, evaluate by self, peers or instructors, or computer grading from the learning system.	Value-based, evaluate by self, peers or instructors, or computer grading from the learning system, real-world learning activities evaluation
Learning Scenarios	Passive online learning context	Real world and passive online learning context	Real world and more active online learning context

Summary

Ubiquitous learning is learning paradigm that learner can enhance knowledge in everyday life using a combination of PC, tablet, or smartphone. There are four characteristics of U-learning: permanency, accessibility, immediacy, interactivity, and context-awareness. On the other hand, ubiquitous learning can design appropriate learning activities in everyday life as experiential learning.

Experiential Learning

The area of Experiential learning can be divided into five sections are 1) Definition of Experiential learning 2) Learning Style 3) The importance of experiential learning 4) Experiential Learning Procedure and 5) Instructor Roles in Experiential Learning.

Definition of Experiential learning

Several educators proposed a definition of experiential learning, as followed:

D. A. Kolb (1984) proposed the experiential learning theory is consist of six schemes.

1) Should engage learners in a course and improve their learning by feedback on their learning.

2) Extend the learners' beliefs and opinions about learning issues.

3) Ask for revision concerning reflection and action or feeling and thinking.

4) The combined performance of thoughtful, sensation, understanding, and performing.

5) Integrating new experiences into existing ideas and accepting existing ideas to new experience.

6) Build and rebuild the individual knowledge of the learner.

Association for Experiential Education (2007) proposed experiential learning conceptions, as followed:

- Experiential learning encouraged by reflection, analysis, and synthesis.
- Expected learner has ability to take the initiative, find resolutions and be explain the results.
- The learner can ask questions, exploring, investigating, enquiring, solving problems, supposing responsibility, and being creative.
- Perceived that the learning assignment is authentic.
- The outcomes of the learning are the individual basis for future experience.
- The instructor and student may experience success, failure, adventure, risk-taking and uncertainty because the outcomes of the experience cannot totally be predicted.
- Arouse learners and instructors to investigate and assess their values.
- Instructors should have arranged appropriate experiences, set limits, assist learners, insurance physical and sensitive safety, and facilitate the learning activity.
- The learning experience should include the opportunity to learn from natural consequences, errors, and achievements.

In summary, experiential learning is the methodology of education to develop learner with direct experience and focused reflection.

Importance of experiential learning

Experiential learning combines the cognitive, affective, and behavioral domains in learning processes to help learners practicing for their chosen careers.

The importance of experiential learning can furthermore be seen in the light of the 1997 Dearing report in Britain and the related West report in Australia which both advocated a merging between the world of work and academic knowledge. Also, the traditional separation of university subject knowledge and work practices has been further eroded through the shift towards knowledge developed in practice (Gibbons, 1994).

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Experiential Learning Procedure

D. A. Kolb (1984) proposed experiential learning procedure as follow:

1) Specific experience implies concrete realistic experience to achieving a new task.
2) Reflect observation by discussing and revising learners' experiences.
3) Encourage learners to create and generalize a conceptual model.
4) Active experimentation the learner using concepts to solve problems, make decisions.

Juch (1983) proposed experiential learning process as 4 step of learning cycles:

1) Doing
2) Sensing or observation
3) Thinking
4) Addressing or Planning

Haynes (2007) offered a process of experiential learning in five stages, as followed:

1) Discovering Experience: learners would complete experience without instructor assistance. A key component of this stage is what the learners learns from the experience.

2) Reflecting: learners would share their experiences to classmates.

3) Analyzing: learner would review, explore, and describe their own experience in order to categorize themes.

4) Generalizing: learners would adapt the experience with reality samples.

5) Application: learners would apply their comprehension to future situation.

From Pfeiffer and Jones (1983), Juch (1983), D. A. Kolb (1984) and Haynes (2007), process of experiential learning process can be concluded as table 2.9.

Table 2.8 Experiential learning process

Experiential learning process	Pfeiffer and Jones (1983)	Juch (1983)	Kolb, (1984)	Haynes (2007)	Researcher
Experiencing/concrete experience (feeling)	✓		✓	✓	✓
Sensing or observing/ Reflective observation		✓	✓		✓
Publishing/share	✓			✓	✓
Processing /Thinking/Abstract conceptualization	✓	✓	✓	✓	✓
Generalizing	✓			✓	✓
Addressing or planning		✓			
Applying/ Doing/Active experimentation	✓	✓	✓	✓	✓

According to table 2.8, the process can be summarized six processes are experiencing or concrete experience, reflective observation, share, processing/ thinking, generalizing, and applying.

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Experiential learning procedure

1. Experiencing

This stage of the learning cycle emphasizes personal involvement with people in everyday situations. In this stage, the learner would tend to rely more on feelings than on a systematic approach to problems and situations. In a learning situation, the learner relies on the ability to be open-minded and adaptable to change.

For example, a student performs an initial interview for the first-time reflective observation.

2. Reflective observation

In this stage of the learning cycle, people understand ideas and situations from different points of view. In a learning situation, the learner would rely on patience, objectivity, and careful judgment but would not necessarily take any action. The learner would rely on their own thoughts and feelings in forming opinions.

For example, after finishing the student reflects on what they did, makes observations and discusses how they went with their educator.

3. Share

In this stage of the learning cycle, people will share the results, reactions, and observations. Get the participants to talk about their experience. Share reactions and observations. Discuss feelings generated by the experience. Let the group (or individual) talk freely and acknowledge the ideas they generate.

4. Processing/Thinking

In this stage, learning involves using theories, logic and ideas, rather than feelings, to understand problems or situations. Typically, the learner relies on systematic planning and develops theories and ideas to solve problems.

For example, the student then thinks about the interview process and their performance and tries to make links between the previous experience of interviewing, the client and what they heard, and any theories or knowledge they can apply.

5. Generalizing

Learning in this stage is connecting the experience with real-world examples. Find general trends or common truths in the experience. Identify “real life” principles that surfaced. List key terms that capture the learning.

6. Applying

Learning in this stage take action by applies what was learned to a similar or different situation, learn from past experiences, practice. Discuss how new learning can be applied to other situations. Discuss how issues raised can be useful in the future. Discuss how more effective behaviors can develop from the new learnings. Help everyone feel a sense of ownership for what was learned

Instructor Roles in Experiential Learning

In experiential learning, the instructor guides rather than directs the learning process where students are naturally interested in learning. The instructor assumes the role of facilitator and is guided by a number of steps crucial to experiential learning. (Wurdinger & Carlson, 2010).

1) Be willing to accept a less teacher-centric role in the classroom.

2) Approach the learning experience in a positive, non-dominating way.

3) Identify an experience in which students will find interest and be personally committed.

4) Explain the purpose of the experiential learning situation to the students.

5) Share your feelings and thoughts with your students and let them know that you are learning from the experience too.

6) Tie the course learning objectives to course activities and direct experiences so students know what they are supposed to do.

7) Provide relevant and meaningful resources to help students succeed.

8) Allow students to experiment and discover solutions on their own.

9) Find a sense of balance between the academic and nurturing aspects of teaching.

10) Clarify students‟ and instructor roles.

Learner Roles in Experiential Learning

Qualities of experiential learning are those in which students decide themselves to be personally involved in the learning experience (students are actively participating in their own learning and have a personal role in the direction of learning). Students are not completely left to teach themselves; however, the instructor assumes the role of guide and facilitates the learning process. (Wurdinger & Carlson, 2010)

1. Learners will be engaged in problems which are realistic, social, and individual.
2. Learners will be allowed openness in the classroom.
3. Learners will be engaged with challenging situations while learning.
4. Learners will self-evaluate their own progress or achievement in the learning process.
5. Learners will learn from the learning process and an open mind to learn from an authentic experience.

Summary

Experiential learning is the methodology of education to develop learner with direct experience and focused reflection. There are six experiential learning processes: (1) experiencing or concrete experience, (2) Reflective Observation, (3) Share, (4) Processing/Thinking, (5) Generalizing, and (6) Applying.

Chapter Summary

Literature in this research was divided into six categories: cross-cultural competence, cognitive dissonance, massive open online course, ubiquitous learning, experiential learning, and Agenda-setting theory. The four components of cross-cultural competence could be used for developing of cross-cultural competence scale. The four strategies of agenda-setting effects of the news media and the six experiential learning processes could be used for designing the Ubiquitous MOOC strategies. The characteristics of the massive open online course and the ubiquitous learning could be used for designing the learning environment.

The next chapter described the research methodology of this study which explained how to study of students' opinions in designing a ubiquitous MOOC, how to develop the U-MOOC model, and how to study of effects of a U-MOOC model.

CHAPTER III

RESEARCH METHODOLOGY

This study used a research and development research design (R&D)(Richey & Klein, 2014), a type of investigation unique to the instructional design and technology field, to develop and study the effects of a ubiquitous MOOC instructional design model (U-MOOC model) based on cognitive dissonance for enhancing higher education student's cross-cultural competence . This chapter is divided into three phases as follows: ***Phase 1*** A study of students' opinions in designing a ubiquitous MOOC, ***Phase 2*** The development of U-MOOC model, and ***Phase 3*** A study of effects of a U-MOOC model.

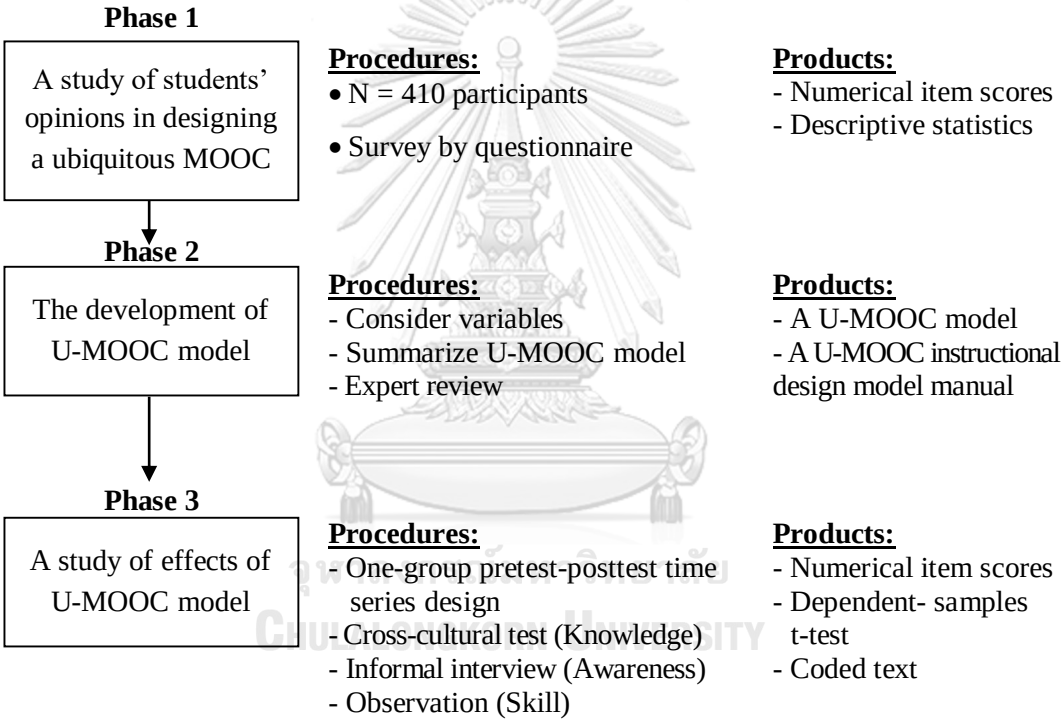

Figure 3.1 Visual model for research and development procedures diagram

Phase 1 A study of undergraduate students' opinions about ubiquitous MOOC

This phase aimed to study of undergraduate students' opinions about ubiquitous MOOC. Survey research was used to study undergraduate students' opinions in designing a ubiquitous MOOC. In this phase, it was divided into six parts as follows: (1.1) population, (1.2) determination of sample size, (1.3) sampling procedures, (1.4) data collection procedure, (1.5) instrumentation, and (1.6) data analysis.

1.1 Population

There were 170,986 undergraduate students in the Faculty of Education in Thailand (Office of the Higher Education Commission, B.E. 2557).

1.2 Determination of the Sample Size

This phase use table for determining the sample size of Krejcie and Morgan (1970) to calculate the total respondents required for the study. Therefore, the number of data that need to be collected was 384. However, 20% of the sample size was added in order to substitute for response rate. Therefore, the sample required at least 468 undergraduate students.

1.3 Sampling Procedures

The participants were recruited by using two-stage sampling design based on the following two sampling units: regional and university type.

Regional

There are five regions in Thailand – North, East, Northeast, South, and Central. This phase used the purposeful random sampling technique to select the Central, the Northeast, and the East for the study.

University type

There are two types of university in Thailand: (1) Universities and universities of Technology, and (2) Rajabhat Universities. Universities and universities of Technology normally were higher ranking than Rajabhat Universities (Aguillo, 2017). In order to represent both two types of university, the researcher conducted a disproportional sampling in order to select the numbers of universities from each group in equal numbers - four universities from each group. Then, the researcher conducted a simple random sampling technique to select four universities from each group. Therefore, eight universities were chosen in total.

Moreover, by unproportional sampling method, 52 undergraduate students from each university were randomly chosen. Therefore, 468 undergraduate students were chosen in total. Details are as follows:

Table 3.1 Description of universities and undergraduate students

Type of universities	Undergraduate students
University	
1. Chulalongkorn University	52
2. Srinakharinwirot University	52
3. Burapha University	52
4. Silpakorn University	52
Rajabhat University	
5. Rambhai Barni Rajabhat University	52
6. Suan Dusit Rajabhat University*	52
7. Ubon Ratchathani Rajabhat University	52
8. Dhonburi Rajabhat University	52
Total	**468**

*When data were collected, Suan Dusit Rajabhat University was in Rajabhat University.

1.4 Data Collection

For the data collection, the data was collected from 468 undergraduate students from eight universities. The official letters from the Faculty of Education, Chulalongkorn University, were sent to the lecturers of all eight universities. Then, the packed questionnaires with a covered letter for the purpose of the study were sent

to eight lecturers by the researcher. The undergraduate students were asked to complete the questionnaires. For the data collection, the number of data that need to be collected at least 384 questionnaires (see 1.2 determination of the sample size), 468 questionnaires were distributed 410 were returned (response rate = 87.61%).

1.5 Instrumentation

The questionnaire of undergraduate students' opinions in designing a ubiquitous MOOC consisted of two parts (see Appendix 3).

Part I Background information

The first part of the questionnaire was used obtain the participant's background information (e.g., gender, major of the study).

Part II The undergraduate students' opinions in designing a ubiquitous MOOC

The second part of the questionnaire was used to study undergraduate students' opinions in designing a ubiquitous MOOC. The questionnaire consisted of 60 items, which divided into three parts: u-learning, massive open online course (MOOC), and instructional design of ubiquitous MOOC for enhancing cross-cultural competence. Scale responses are made on a five-point Likert scale; 1 (*strongly disagree*), 2 (*disagree*), 3 (*neutral*), 4 (*agree*), and 5 (*strongly agree*).

The quality of questionnaire

The quality of the instrument was examined as follows:

1) Content validity

The instrument was designed to measure the levels of undergraduate students' opinions in designing a ubiquitous MOOC. The instrument was examined by five experts to confirm the quality of content validity by the index of item-objective congruence (IOC). The five experts (three experts in the field of Educational Technology and Communication and two experts in the field of Educational Measurement and Evaluation) examined instrument were presented (see Appendix 1).

The item-objective congruence (IOC) ranged between 0.60 and 1.00. The item-objective congruence (IOC) above 0.50 was considered acceptable (Kanjanawasee, 2011). Thus, all items were kept because item-objective congruence (IOC) was considered to be acceptable. Based on the experts' suggestions about the appropriate number of items, there are four subscales were improved. One item was added to each subscale: discussion boards, groups, video lectures, and attitudes, in order to provide the appropriate number of items for the Cronbach's alpha analysis.

Table 3.2 Description of content validity

Variables/subscales	Number of items	Weight (%)	Item numbers	Index of item-objective congruence (IOC)
1. U-learning				
1.1. Permanency	2	11.76	1-2	1.00, 0.60
1.2. Accessibility	4	23.53	3-6	1.00, 1.00, 1.00, 0.60
1.3. Immediacy	4	23.53	7-10	0.80, 0.80, 0.80, 0.80
1.4. Interactivity	4	23.53	11-14	1.00, 1.00, 1.00, 1.00
1.5. Context-awareness	3	17.65	15-17	0.60, 0.60, 0.60
Total	17	100.00		

Table 3.2 Description of content validity (continue)

Variables/subscales	Number of items	Weight (%)	Item numbers	Index of item-objective congruence (IOC)
2. MOOC				
2.1. Discussion boards	1	4.17	18	1.00
2.2. Personal streams	3	12.50	19-21	1.00, 1.00, 1.00
2.3. Groups	1	4.17	22	1.00
2.4. Blogs and portfolios	2	8.33	23-24	1.00, 1.00
2.5. Online identity	2	8.33	25-26	1.00, 1.00
2.6. Hashtags	2	8.33	27-28	1.00, 1.00
2.7. Course homepages	2	8.33	29-30	1.00, 1.00
2.8. Communication	4	16.67	31-34	1.00, 1.00, 1.00, 1.00
2.9. Course resources	2	8.33	35-36	1.00, 1.00
2.10. Video lectures	1	4.17	37	1.00
2.11. Student support	2	8.33	38-39	1.00, 1.00
2.12. Students' feedback	2	8.33	40-41	1.00, 1.00
Total	24	100.00		
3. Instructional design of ubiquitous MOOC for enhancing cross–cultural competence				
3.1. Cultural sensitivity	5	26.32	42-46	1.00, 1.00, 1.00, 0.80, 0.80
3.2. Cultural values	3	15.79	47-49	1.00, 1.00, 1.00
3.3. Knowledge of culture-specific	2	10.53	50-51	1.00, 1.00
3.4. Attitudes and initiative	1	5.26	52	1.00
3.5. Openness to experience and challenge	2	10.53	53-54	1.00, 1.00
3.6. Interpersonal skills	2	10.53	55-56	0.80, 1.00
3.7. Communication	2	10.53	57-58	1.00, 1.00
3.8. Cognitive skill	2	10.53	59-60	1.00, 1.00
Total	19	100		

As Table 3.3 Description of edited items shows, eight items were edited due to the experts' suggestions. All eight items were revised in order to make more clearly describing the statements.

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Table 3.3 Description of edited items

Number and items' detail	IOC	Edited items
2. นักศึกษาบันทึกกระบวนการเรียนรู้ไว้อย่างต่อเนื่อง (You always record the learning process.)	0.60	นักศึกษาบันทึกข้อมูล เนื้อหาความรู้ ไว้อย่างต่อเนื่อง (You always record learning data and content.)
13. นักศึกษาโทรศัพท์ผ่านอินเทอร์เน็ต เพื่อพูดคุยกับอาจารย์หรือเพื่อน ๆ (You always talk to your teacher or classmates via internet calling)	1.00	นักศึกษาโทรศัพท์ผ่านอินเทอร์เน็ต เพื่อพูดคุยวิชาการกับอาจารย์หรือเพื่อน ๆ (You always academically discuss to your teacher or friend via internet calling)

Table 3.3 Description of edited items

Number and items' detail	IOC	Edited items
14. นักศึกษาสนทนาโต้ตอบกับอาจารย์หรือเพื่อน ๆ โดยใช้กล้องเว็บแคม (You always connect with your teacher or classmates via webcam.)	1.00	นักศึกษาสนทนาโต้ตอบกับอาจารย์หรือเพื่อน ๆ โดยใช้โปรแกรมวิดีโอแชท เช่น facetime Skype เป็นต้น (You always connect with your teacher or classmates via video chat application (Facetime, Skype, etc.)
30. นักศึกษาเลือกเข้าชมเว็บที่มีตัวเลขผู้เข้าชมเยอะจากหน้าโฮมเพจ (You always visit the high rate visitor website)	1.00	นักศึกษาเลือกเข้าชมเว็บที่มีตัวเลขผู้เข้าชมจำนวนมากจากหน้าโฮมเพจ (You always visit the web with high rating score)
31. นักศึกษาคิดว่าควรมีช่องทางในการติดต่อกับผู้สอนหลายช่องทาง (It would better for having the various way to communicate with teacher)	1.00	นักศึกษาคิดว่าควรมีช่องทางในการติดต่อกับผู้สอนมากกว่า 1 ช่องทาง (It would better to have more than one channel to communicate with a teacher)
34. นักศึกษาเลือกวิธีสื่อสารกับเพื่อนหรืออาจารย์แบบตัวต่อตัว (You always choose one to one communication with your teacher or classmates.)	1.00	นักศึกษาเลือกวิธีสื่อสารออนไลน์กับเพื่อนหรืออาจารย์แบบตัวต่อตัว (You always choose online one to one communication with your teacher or classmates.)
35. นักศึกษาศึกษาเพิ่มเติมจากแหล่งข้อมูลอื่น ๆ เช่น e-book คลิปวิดีโอ รูปภาพ เป็นต้น (You always study from another source, such as e-book, video clips, pictures and so on.)	1.00	นักศึกษาศึกษาค้นคว้าความรู้เพิ่มเติมจากแหล่งข้อมูลอื่น ๆ เช่น e-book คลิปวิดีโอ รูปภาพ เป็นต้น (You always learn from another source, such as e-book, video clips, pictures and so on.)

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Table 3.3 Description of edited items (continue)

Number and items' detail	IOC	Edited items
58. ภาษาที่ใช้ในการติดต่อสื่อสาร ควรเป็นภาษากลางที่เพื่อนต่างวัฒนธรรมมีความเข้าใจ (The primary language should be a universal language that a classmate from the different cultures friends knows.	1.00	ภาษาที่ใช้ในการติดต่อสื่อสาร ควรเป็นภาษากลางที่เพื่อนต่างวัฒนธรรมสามารถเข้าใจได้ (The primary language should be a universal language that a classmate from the different cultures friends understands.)

2) Reliability

The instrument was tested with 36 undergraduate students to examine whether it was reliable. The Cronbach's alpha coefficient (α) was calculated. As a result, it was found that the alphas of u-learning, massive open online course (MOOC), and instructional design of ubiquitous MOOC for enhancing cross-cultural competence were 0.86, 0.92, and 0.91.

Table 3.4 Description of reliability

Variables/subscales	Number of items	Cronbach's alpha (α)
1. U-learning	17	0.86
2. Massive open online course (MOOC)	24	0.92
3. Instructional design of ubiquitous MOOC for enhancing cross-cultural competence	19	0.91

1.6 Data analysis

The data were analyzed by using the IBM SPSS Statistic version 23 program. The analytical methods in this part were divided into two parts as follows:

Part I: The analysis of undergraduate students' background information

To study the undergraduate students' background information by using frequency and percentage.

Part II The analysis for research question

To study undergraduate students' opinions in designing a ubiquitous MOOC by using mean (*M*) and standard deviation (*SD*).

The levels of undergraduate students' opinions in designing a ubiquitous MOOC were assigned the criteria for arranging mean into five levels adapt from Best's criteria (1977).

A mean of **1.00-1.80** represented	the **strongly disagree level** of undergraduate students' opinions in designing a ubiquitous MOOC
A mean of **1.81-2.60** represented	the **disagree level** of undergraduate students' opinions in designing a ubiquitous MOOC
A mean of **2.61-3.40** represented	the **neutral level** of undergraduate students' opinions in designing a ubiquitous MOOC
A mean of **3.41-4.20** represented	the **agree level** of undergraduate students' opinions in designing a ubiquitous MOOC
A mean of **4.21-5.00** represented	the **strongly agree level** of undergraduate students' opinions in designing a ubiquitous MOOC

The result of the study of undergraduate students' opinions about ubiquitous MOOC would use to develop the ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence in the next phase.

Phase 2: The Development of U-MOOC Model

This phase focused on developing a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence or U-MOOC model. The development of U-MOOC model was divided into six steps as follows:

Step 1 The researcher implemented the results from phase 1 (undergraduate students' opinions in a design of a ubiquitous MOOC) in order to design and develop a U-MOOC model and U-MOOC model manual.

Step 2 The researcher analyzed and synthesized the cross-cultural communication content based on cross-cultural and intercultural communication books: these are Gudykunst (2003), Samovar et al. (2009), Kurylo (2013), Beamer and Varner (2008), and Jandt (2013) (see Appendix 2).

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Table 3.5 Cross-cultural communication content

	Cross-cultural communication Content	**Gudykunst (2003)**	**Samovar et al. (2009)**	**Kurylo (2013)**	**Beamer and Varner (2008)**	**Jandt (2013)**	**Researcher**
1	Cross-cultural communication: introduction, Approaches, Defining	✓	✓	✓	✓	✓	✓
2	Cross-cultural communication competence	✓		✓		✓	✓
3	Identity	✓	✓	✓		✓	✓
4	cross-cultural communication theories	✓		✓			

Table 3.5 Cross-cultural communication content (continue)

5	Verbal and nonverbal in cross-cultural communication		✓	✓	✓	✓	✓
6	Cross-cultural relationships	✓	✓	✓	✓	✓	✓
7	Another culture overview, Adapting to an unfamiliar culture, Comparative cultural patterns	✓	✓		✓	✓	✓
8	Cross-cultural communication research social scientific approach to culture	✓		✓			
9	Co-cultural group membership			✓	✓	✓	✓
10	Media or messages to other cultures			✓	✓		
11	Culture's influence on perception		✓		✓	✓	✓
12	Dimensions of culture, intercultural dynamics in the international company				✓	✓	
13	Ethical considerations: prospects for the future		✓				
14	Interpretivist approach to culture			✓			
15	Technology and culture			✓			
16	Information, decisions, and solutions			✓			
17	Privilege and culture			✓			
18	Advocacy				✓		
19	Legal and governmental considerations in intercultural business communication				✓		
20	Dominant U.S. Cultural Patterns					✓	
21	Culture and gender					✓	
22	Contact between cultures					✓	
23	Immigration and acculturation					✓	
24	Cultures within cultures					✓	

The cross-cultural communication content was divided into two parts as follows: (1) cross-cultural content and (2) specific content as the main culture content. The specific content that being applied in this study was Thai culture content.

1) Cross-cultural content consisted of eight chapters as follows:

Chapter 1 Introduction to cross-cultural communication
Chapter 2 Cross-cultural communication competence
Chapter 3 Identity
Chapter 4 Verbal and Nonverbal in cross-cultural communication
Chapter 5 Culture’s Influence on Perception
Chapter 6 Co-cultural group membership
Chapter 7 Intercultural Relationships

2) Specific content or Thai culture content consisted of eight chapters as follows:

Chapter 1 Introduction of Thailand
Chapter 2 History of Thailand
Chapter 3 Politic
Chapter 4 Characteristic of Thai
Chapter 5 Thai characteristics for foreign business people
Chapter 6 Thai manners
Chapter 7 Religion and believes

Chapter 8 Thai entertainment/ Performance

Then, three experts in the related fields were asked in order to check the correctness, appropriateness, and comprehensiveness of the cross-cultural communication content by questionnaires. The criterion for selecting the experts was that (1) the experts in the field of cross-cultural or (2) the scholars in the field of cross-cultural. The three experts (see appendix 1) examined the cross-cultural communication content.

The questionnaire was divided into three parts as follows: (1) cross-cultural communication, (2) specific content or Thai culture content, and (3) Additional comments and suggestions. The item-objective congruence (IOC) ranged between 0.60 and 1.00. The item-objective congruence (IOC) above 0.50 was considered acceptable (Kanjanawasee, 2011) see Appendix 4.

The item-objective congruence (IOC) ranged between 0.60 and 1.00. The item-objective congruence (IOC) above 0.50 was considered acceptable (Kanjanawasee, 2011). Thus, all items were kept because item-objective congruence (IOC) was considered to be acceptable

Table 3.6 Description of content validity

Variables/subscales	Weight (%)	IOC
The content should divide into two parts both cross-cultural content and specific content or Thai culture content	100	1
1. cross-cultural content		
1) Introduction to cross-cultural communication	12.50	1
2) Cross-cultural communication competence	12.50	0. 67
3) Identity	12.50	1
4) Verbal and nonverbal in cross-cultural communication	12.50	1
5) Culture's Influence on perception	12.50	0. 67
6) Co-cultural group membership	12.50	0. 67
7) Intercultural relationships	12.50	1
8) Adapting to an unfamiliar culture and comparative cultural patterns	12.50	1
Total	**100.00**	
2. Thai culture content		
1) Introduction of Thailand	12.50	1
2) History of Thailand	12.50	0.67
3) Politic	12.50	0.67
4) Characteristic of Thai	12.50	1
5) Thai characteristics for foreign business people	12.50	0.67
6) Thai manners	12.50	1
7) Religion and believes	12.50	1
8) Thai entertainment/performance	12.50	1
Total	**100.00**	

Afterwards, the cross-cultural communication content was developed based on (1) the experts' opinion about the correctness, appropriateness, and comprehensiveness of the course contents of U-MOOC model and (2) the experts'

suggestion. The development of cross-cultural communication content was completed in this step. This scope of content would use to design and develop a draft of U-MOOC model in the next phase.

Step 3 The researcher designed and developed a draft of U-MOOC model which comprised of three parts as follows:

(1) Principles of U-MOOC model: the researcher used eight principles to design a draft of U-MOOC: (1) systems theory, (2) learner characteristic, (3) learning environment, (4) learning theory, (5) teaching method, (6) communication theory, (7) instructional media, and (8) assessment.

(2) Objectives of U-MOOC model: the objective would describe the purposive of this model.

(3) Components and procedure of U-MOOC model: the researcher used the result of the study of undergraduate students' opinions about ubiquitous MOOC from the first phase and principles of U-MOOC model to design the components and procedure.

Then, seven experts in the related fields checked the correctness, appropriateness, and comprehensiveness of the U-MOOC model by questionnaires. The criterion for selecting the experts was that (1) the experts in educational technology or instructional design or (2) the scholars in educational technology or instructional design. Then, the packed questionnaire with (1) U-MOOC model and (2) U-MOOC instructional model were sent to seven experts by the researcher. The seven experts examined the U-MOOC model were presented (see appendix 1).

The questionnaire was divided to four parts as follows: (1) principles of U-MOOC instructional design model, (2) objectives of U-MOOC model, (3) components and procedure of U-MOOC model, and (4) Additional comments and suggestions. Scale responses are made on a five-point Likert scale; 1 (*strongly disagree*), 2 (*disagree*), 3 (*neutral*), 4(*agree*), and 5 (*strongly agree*) (see Appendix 7).

The levels of experts' opinion about the correctness, appropriateness, and comprehensiveness of the U-MOOC model were assigned the criteria for arranging mean into five levels adapt from on Best's criteria (1977).

A mean of **1.00-1.80** represented	the **strongly disagree level** of experts' opinion about the correctness, appropriateness, and comprehensiveness of the U-MOOC model
A mean of **1.81-2.60** represented	the **disagree level** of experts' opinion about the correctness, appropriateness, and comprehensiveness of the U-MOOC model
A mean of **2.61-3.40** represented	the **neutral level** of experts' opinion about the correctness, appropriateness, and comprehensiveness of the U-MOOC model
A mean of **3.41-4.20** represented	**the agree level** of experts' opinion about the correctness, appropriateness, and comprehensiveness of the U-MOOC model
A mean of **4.21-5.00** represented	**the strongly agree level** of experts' opinion about the correctness, appropriateness, and comprehensiveness of the U-MOOC model

Afterwards, the researcher revised the U-MOOC model based on (1) the experts' opinion about the correctness, appropriateness, and comprehensiveness of the

U-MOOC model and (2) the experts' suggestion. The development of U-MOOC model was completed in this step.

Step 4 The researcher developed the U-MOOC model manual in order to try out the U-MOOC model. The U-MOOC model and U-MOOC model manual were tried out with three lecturers. Then, three lecturers produced their own course outline or U-MOOC instructional models. Afterwards, three lecturers were asked about the problem and suggestion for fulfilling the U-MOOC model such as information about what are the difficulties/obstacles to generated U-MOOC instructional model, the suggestions and recommendations for improving U-MOOC model and U-MOOC model manual.

Step 5 The researcher revised U-MOOC model and U-MOOC model manual again as a completely U-MOOC model and completely U-MOOC model manual.

Phase 3: A Study of the Effects of a U-MOOC Model

This phase examined the effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross–cultural competence (U-MOOC model). This phase is comprised of three parts: *Part 1* A study of the effects of U-MOOC model, *Part 2* A study of the effects of an instructional design from U-MOOC model, and *Part 3* An exploration of the cognitive dissonance for enhancing higher education student's cross–cultural competence in ubiquitous MOOC instructional design model.

Part 1: A study of the effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross–cultural competence.

The quasi-experimental design (V. L. P. Clark & Creswell, 2015) was employed to study the effects of U-MOOC model. This section was divided into five parts, namely; (1) research design, (2) population and sample size, (3) data collection, (4) instrumentation, and (5) data analysis.

(1) Research Design

This part employed a quasi-experimental design, a kind of experimental research design because the researcher did not randomly assign participants to treatments (V. L. P. Clark & Creswell, 2015; Jonassen, Spector, Driscoll, Merrill, & van Merrienboer, 2008).

(2) Population and Sample size

Population

Teachers who teach cross-culture or related and degree in behavioral science or social science.

Sample size

The participant was a teacher who recruited by using purposive selection.

(3) Data Collection

Data collection was carried out in May 2016. The U-MOOC teacher was recruited to participate via personal contacts. The teacher designed an instructional model following the U-MOOC instructional model manual.

(4) Instrumentation

The U-MOOC instructional model manual, which was developed by the researcher. This manual consisted of explanation and example in order to clarify and explain the steps of U-MOOC model.

Part 2 A study of the effects of an instructional model from U-MOOC model

The experimental research was employed to study the effects of an instructional design from U-MOOC model. This section was divided into five parts, namely; (1) research design, (2) population and sample size, (3) data collection, (4) instrumentation, and (5) data analysis.

(1) Research Design

The quasi-experimental design use intent and procedures of pretest-posttest design (one-group design) in order to test whether an instructional model from U-MOOC model causes an effect in a cross-cultural competence for one group of participants (V. L. P. Clark & Creswell, 2015).

O_1 X O_2

O_1 **mean** the measure of cross-cultural competence before learning by U-MOOC instructional model

O_2 **mean** the measure of cross-cultural competence after learning by U-MOOC instructional model

X **mean** learning by U-MOOC instructional model for four weeks

(2) Population and Sample size

Population

The population of this part was undergraduate students in the academic year 2016 who interested in cross-culture.

Sample size

The undergraduate student participants were recruited by using convenience sampling. The researcher selects participants who are available and accessible (V. L. P. Clark & Creswell, 2015). The total participants consisted of 30 undergraduate students (21 Thai students and 9 foreign students).

(3) Data Collection

Data collection was carried in June 2016. The teacher created the U-MOOC course following by instructional design from U-MOOC model which result from Part 1. The participants did the cross-cultural competence scale for the pretest. Then they learnt on U-MOOC course until course finish. Latest, they did the cross-cultural competence scale again for the posttest.

(4) Instrumentation

The instrument of this part was the higher education student's cross–cultural competence scale. The researcher developed cross–cultural competence scale based on cross–cultural competence (Rasmussen, 2013). The development of higher education student's cross–cultural competence scale was divided into two steps as follows:

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4.1) The draft of higher education student's cross–cultural competence scale

The research created the draft of questionnaire using cross-cultural competence factors (Abbe et al., 2007; Chunpen, 2013; Gabrenya Jr et al., 2012; Ross, 2008; Seeberg & Minick, 2012). The cross-cultural competence divided to four factors: (1) cultural awareness (cultural sensitivity, and cultural value), (2) cultural knowledge (knowledge of culture specifics, and knowledge of cultural diversity), (3) cultural affective (attitudes and initiative, and openness to experience and challenge), and (4) personal skills (interpersonal skills, communication skill, and cognitive skill). The scale consisted of two parts:

Part I Background Information

The first part of the scale was used obtain the participants background information (e.g. gender, country, nationality) in order to distinguish contextual of the participants.

Part II Cross-Cultural Competence

The second part of the scale was used to examine undergraduate students' cross-cultural competence. The scale consisted of 27 items, which divided into four parts - cultural awareness, cultural knowledge, cultural affective, and personal skills. Scale responses are made on a five-point Likert scale; 1 (*strongly disagree*), 2 (*disagree*), 3 (*neutral*), 4 (*agree*), and 5 (*strongly agree*).

4.2) The quality of higher education student's cross-cultural competence scale

The quality of the instrument consisted of content validity, reliability, and construct validity, as follows:

(1) Content validity

The researcher created index of item-objective congruence (IOC) questionnaire for study the quality of content validity. Then, the researcher sent the higher education student's cross-cultural competence scale and the questionnaire to examine by five experts. The five experts (two experts in the field of cultural studies and three experts in the field of educational measurement and evaluation) examined instrument were presented (see appendix 1). The item-objective congruence (IOC) ranged between 0.60 and 1.00. The item-objective congruence (IOC) above 0.50 was considered acceptable (Kanjanawasee, 2011). Thus, all items were kept because item-objective congruence (IOC) was considered acceptable.

Table 3.7 Description of content validity

Variables/subscales	Number of items	Weight (%)	Item numbers	IOC
1. Cultural awareness				
1.1. Cultural sensitivity	3	50.00	1-3	0.8, 0.8, 0.6
1.2. Cultural value	3	50.00	4-6	1.0, 1.0, 0.8
Total	**6**	**100.00**		
2. Cultural knowledge				
2.1. Knowledge of culture specifics	3	50.00	7-9	0.8, 1.0, 1.0
2.2. Knowledge of cultural diversity	3	50.00	10-12	0.6, 0.6, 0.8
Total	**6**	**100.00**		

Table 3.7 Description of content validity (continue)

Variables/subscales	Number of items	Weight (%)	Item numbers	IOC
3. Cultural affective				
3.1. Attitudes and initiative	3	50.00	13-15	1.0, 0.8, 0.8
3.2. Openness to experience and challenge	3	50.00	16-18	1.0, 1.0, 1.0
Total	6	**100.00**		
4. Personal skill				
4.1 Interpersonal skills	3	33.33	19-21	0.8, 0.8, 0.6
4.2 Communication skill	3	33.33	22-24	0.8, 1.0, 0.6
4.3 Cognitive skill	3	33.33	25-27	0.6, 1.0, 0.6
Total	**9**	**100.00**		

2) Reliability

The reliability of this scale was piloted with 35 undergraduate students to examine whether the scale was reliable. The Cronbach's alpha coefficient (α) was calculated. As a result, it was found that the alphas of overall were 0.85.

3) Construct validity

The construct validity of this scale was piloted with 183 undergraduate students. The results of the construct validity verification of the higher education student's cross-cultural competence showed that the cross-cultural competence model was in line with the empirical data (Chi-square ($\chi 2$) = 19.72, df = 14, p-value = 0.13922, RMSEA = 0.047, GFI = 0.976, AGFI = 0.924).

Taking into consideration the nine variables of the first-order factor analysis of cross-cultural competence, it was found that the standardized factor loadings were between 0.56 and 0.93 and all had a significance of 0.05. With regard to the cultural awareness (CA) element, the first priority variable was the cultural sensitivity (CA1) element, with a standardized factor loading of 0.76 and an R^2 of 58%. Regarding the cultural knowledge (CK) element, the first priority variable was active knowledge of cultural diversity (CK2), with a standardized factor loading of 0.86 and an R2 of approximately 74%. As for the personal skill (PK) element, the first priority variable was the cognitive skill (PK3) element, with a standardized factor loading of 0.90 and an R2 of approximately 80%.

The results of the second-order factor analysis were that the standardized factor loading of the four aspects of cross–cultural competence was between 0.56 and 0.93. The first priority variable was Personal skill (PK), followed by Cultural affective (CAF), Cultural knowledge (CK), and Cultural awareness (CA), with standardized factor loadings of 0.93, 0.88, 0.76, and 0.56, and R2 s of approximately 87%, 78%, 58%, and 32% respectively, as shown in Table 2 and Figure 1 (below).

Table 3.8 Second-order confirmatory factor analysis of cross–cultural competence

Variables	Standardized factor loading	b	SE	t	R^2
First-order factor analysis					
Cultural awareness (CA)					
Cultural sensitivity (CA1)	0.76	0.54	-	-	0.58
Cultural value (CA2)	0.70	0.47	0.10	5.00	0.48
Cultural knowledge (CK)					
Knowledge of culture specifics (CK1)	0.76	0.55	-	-	0.58
Knowledge of cultural diversity (CK2)	0.86	0.58	0.07	8.73	0.74
Cultural affective (CAF)					
Attitudes and initiative (CAF1)	0.62	0.52	-	-	0.39
Openness to experience and challenge (CAF2)	0.67	0.63	0.10	6.16	0.45
Personal skill (PK)					
Interpersonal skills (PK1)	0.60	0.45	-	-	0.37
Communication skill (PK2)	0.68	0.50	0.08	6.02	0.46
Cognitive skill (PK3)	0.90	0.69	0.10	6.90	0.80
Second-order factor analysis					
Cultural awareness (CA)	0.56	0.56	0.10	5.45	0.32
Cultural knowledge (CK)	0.76	0.76	0.10	7.53	0.58
Cultural affective (CAF)	0.88	0.88	0.13	7.02	0.78
Personal skill (PK)	0.93	0.93	0.13	6.96	0.87

(5) Data Analysis

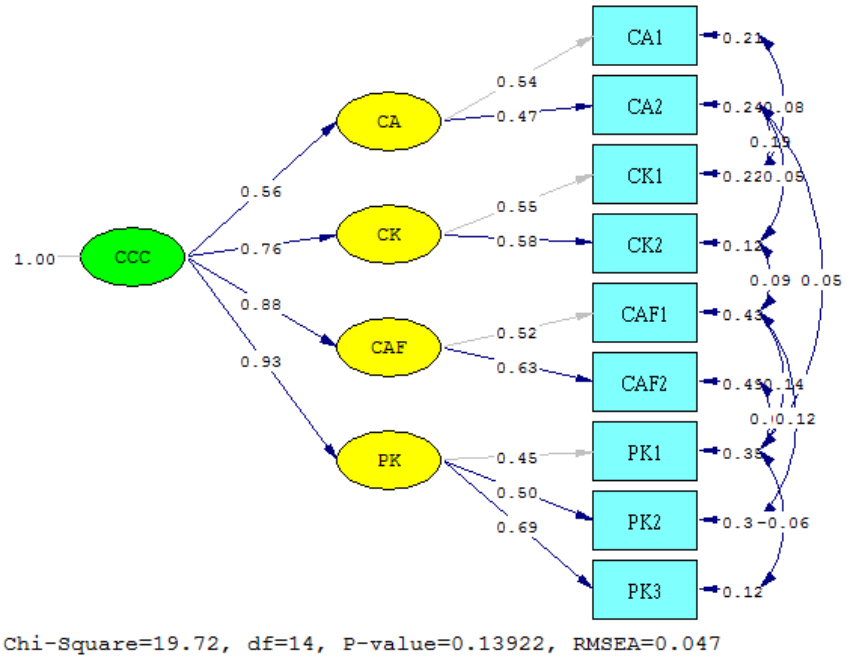

Figure 3.2 Standardized factor loading of cross–cultural competence

The data were analyzed by using the IBM SPSS Statistic version 23 program. The analytical methods in this part were divided into two parts as follows:

Part I: The analysis of undergraduate students' background information

To study the undergraduate students' background information by using frequency and percentage.

Part II The analysis for research question

To compare undergraduate students' cross-cultural competence before learning by U-MOOC instructional model and after learning by U-MOOC instructional model by using a paired t-test.

Part 3 An exploration of the cognitive dissonance for enhancing higher education student's cross-cultural competence in ubiquitous MOOC instructional model

Qualitative research methods were employed to explore the cognitive dissonance for enhancing higher education student's cross-cultural competence in ubiquitous MOOC instructional model. This section was divided into four parts: (1) sampling procedures, (2) instrumentation, (3) data collection, and (4) data analysis.

(1) Sampling Procedures

The researcher conducted an informal interview for collecting data from six participants who were undergraduate students and had experienced in a ubiquitous MOOC instructional model. This number of participants was relevant to Polkinghorne (1989), who recommended that the interviewees should range from 5-25 individuals and have related experience with the phenomenon. The researcher used the unstructured interviews by began with an open-ended question and built interviewee next questions based on what they said (Savenye, 2014). This part used an opportunistic sampling to select participants who have experienced in learning by U-MOOC instructional model.

(2) Instrumentation

The researcher developed the interview protocol by focusing on the cognitive dissonance for enhancing higher education student's cross–cultural competence in ubiquitous MOOC instructional model. The interview protocol was developed based on the instruction of ubiquitous MOOC. Creswell and Plano Clark (2011) that composed with four parts of interview questions; (1) introduction question, (2) ice-breaking question, (3) sub question, and (4) closing question. See interview protocol in Appendix 8.

(3) Data Collection

Interviews occurred at the end of the course - learning by U-MOOC instructional model. The researcher contacted potential participants and asked them if they would be interested in participating. When they agreed, a time and place were arranged for the interviews. Each interview was 20-30 minutes in length. Interviews were audio recorded and transcribed verbatim by the researcher.

(4) Data Analysis

The researcher used a reliability technique in an interview procedure by having multiple coder in the step of intercoder agreement (American Psychological Association, 2010). All transcripts from the individual interviews were loaded into MAXQDA 12, a software for supporting a qualitative data analysis. An inductive coding procedure was implemented as an analytical method in order to explore the cognitive dissonance for enhancing higher education student's cross–cultural competence in ubiquitous MOOC instructional model.

Chapter Summary

There are three phases of this chapter. Phase 1 a study of students' opinions in designing a ubiquitous MOOC in order to find the answer of research question 1. Phase 2 the development of U-MOOC model in order to find the answer of research question 2. Finally, Phase 3 a study of effects of a U-MOOC model in order to find the answer of research question 3 and 4.

The next chapter provides three main results of this study: (1) the result of a study of students' opinions in designing a ubiquitous MOOC, (2) the result of the development of U-MOOC model, and (3) the result of a study of effects of a U-MOOC model.

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CHAPTER IV

RESULTS

These results of the study were described by following the research objective: (1) to study of undergraduate students' opinions about ubiquitous MOOC, (2) to develop a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence, and (3) to study the effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence.

The results were divided into three parts: (1) a study of undergraduate students' opinions in designing a ubiquitous MOOC, (2) the development of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence, and (3) effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence.

4.1 A study of undergraduate students' opinions about ubiquitous MOOC

This part aimed to study undergraduate students' opinions about ubiquitous MOOC. The results were divided into two parts as follows: (4.1.1) demographic characteristics of undergraduate students and (4.1.2) descriptive analysis of undergraduate students' opinions in designing a ubiquitous MOOC

4.1.1 Demographic characteristics of undergraduate students

The demographic data of undergraduate students were collected using variables; gender, level of undergraduate study, major of the study, Affiliation and e-learning experiences. The samples consisted of 410 undergraduate students, which largely comprised of female undergraduate students (77.32%). The undergraduate students were mostly in the fifth-year (33.66%) followed by the fourth-year (23.90%) and the first-year (17.32%). Most of the participants, definitely 39.27% were from the Elementary Education while those of 15.85% were from the Early Childhood and 14.39% were from the Social Studies. The numbers of undergraduate students in all university were almost equal. The findings also showed that the majority of undergraduate students (75.37%) have e-learning experiences while 24.63% of undergraduate students have no e-learning experience. Details are shown in Table 4.1

Table 4.1 Frequency and percentage of demographic characteristics

Variables	Frequency	Percentage
1. Gender		
• Male	93	22.68
• Female	317	77.32
Total	**410**	**100.00**
2. Level of undergraduate study		
• First-year	71	17.32
• Second-year	33	8.05
• Third-year	64	15.61
• Fourth-year	98	23.90
• Fifth-year	138	33.66
• Sixth-year	6	1.46
Total	**410**	**100.000**
3. Major of the study		
• Elementary Education	161	39.27
• Early Childhood	65	15.85
• Social Studies	59	14.39
• Thai	46	11.22
• English	18	4.39
• Physical Education	17	4.15
• Physics	9	2.20
• Biology	7	1.71
• Educational Technology	6	1.46
• Chemistry	6	1.46
• Japanese	5	1.22
• Chinese	4	.98
• Mathematics	3	0.73
• Sciences	2	0.49
• Psychology	2	0.49
Total	**410**	**100.000**
4. Affiliation		
• Silpakorn University	54	13.17
• Ubon Ratchathani Rajabhat University	53	12.93
• Dhonburi Rajabhat University	52	12.68
• Rambhai Barni Rajabhat University	51	12.44
• Srinakharinwirot University	51	12.44
• Suan Dusit University	50	12.20
• Burapha University	50	12.20
• Chulalongkorn University	49	11.95
Total	**410**	**100.000**
5. E-learning experiences		
• Have experiences on e-learning	309	75.37
• No experiences on e-learning	101	24.63
Total	**410**	**100.000**

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According to demographic characteristics of undergraduate students, the learner about 75 percent had e-learning experience. The learners could recognize how to use the online learning tools and might have ability to understand complex online

tools. The U-MOOC model was not thoroughly explained the detail of the online learning tools.

4.1.2 A study of undergraduate students' opinions about ubiquitous MOOC

The aim of this part of the analysis was to study undergraduate students' opinions about ubiquitous MOOC, including (1) u-learning, (2) massive open online course (MOOC), and (3) instructional design of ubiquitous MOOC for enhancing cross-cultural competence. The descriptive statistics included mean (*M*) and standard deviation (*SD*). The researcher has assigned criteria for understanding the mean score into five levels that adapt from Best (1977); *strongly disagree level* represented a mean of 1.00-1.80, *disagree level* represented a mean of 1.81-2.60, *neutral level* represented a mean of 2.61-3.40, *agree level* represented a mean of 3.41-4.20 and *strongly agree level* represented a mean of 4.21-5.00.

The overall score of u-learning was at agree level (*M* = 3.43, *SD* = 0.61). Three components of u-learning were at agree level; accessibility (*M* = 3.74, *SD* = 0.81), immediacy (*M* = 3.59, *SD* = 0.75), and interactivity (*M* = 3.50, *SD* = 0.76). However, there were two components of u-learning were at neutral level; context-awareness (*M* = 3.17, *SD* = 0.89) and permanency (*M* = 3.13, *SD* = 0.81).

The overall score of massive open online course (MOOC) was at neutral level (*M* = 3.35, *SD* = 0.59). Six variables were at agree level; groups (*M* = 3.60, *SD* = 1.71), communication (*M* = 3.46, *SD* = 0.75), course resources (*M* = 3.51, *SD* = 0.83), video lectures (*M* = 3.69, *SD* = 1.02), student support (*M* = 3.67, *SD* = 0.87), and students' feedback (*M* = 3.49, *SD* = 0.87). However, there were six variables of massive open online course (MOOC) were at neutral level; discussion board (*M* = 2.98, *SD* = 1.12), Personal streams (*M* = 3.35, *SD* = 0.88), blogs and portfolios (*M* = 2.86, *SD* = 0.99), online identity (*M* = 3.13, *SD* = 0.91), hashtags (*M* = 3.16, *SD* = 0.96), and course homepages (*M* = 3.34, *SD* = 0.87).

The overall score of instructional design of ubiquitous MOOC for enhancing cross–cultural competence was at agree level (*M* = 3.70, *SD* = 0.70). The mean of cultural values (*M* = 3.77, *SD* = 0.82) was the highest of all variables, followed by communication (*M* = 3.74, *SD* = 0.85) and cognitive skill (*M* = 3.73, *SD* = 0.83).

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Table 4.2 Descriptive analysis of undergraduate students' opinions about U-MOOC

Variables	*M*	*SD*	Level
U-learning			
• Permanency	3.13	0.81	Neutral
• Accessibility	3.74	0.81	Agree
• Immediacy	3.59	0.75	Agree
• Interactivity	3.50	0.76	Agree
• Context-awareness	3.17	0.89	Neutral
Total	**3.43**	**0.61**	**Agree**
Massive open online course (MOOC)			
• Discussion boards	2.98	1.12	Neutral
• Personal streams	3.35	0.88	Neutral
• Groups	3.60	1.07	Agree
• Blogs and portfolios	2.86	0.99	Neutral
• Online identity	3.13	0.91	Neutral
• Hashtags	3.16	0.96	Neutral

Table 4.2 Descriptive analysis of undergraduate students' opinions about U-MOOC (continue)

Variables	*M*	*SD*	Level
• Course homepages	3.34	0.87	Neutral
• Communication	3.46	0.75	Agree
• Course resources	3.51	0.83	Agree
• Video lectures	3.69	1.02	Agree
• Student support	3.67	0.87	Agree
• Students' feedback	3.49	0.87	Agree
Total	**3.35**	**0.59**	**Neutral**
Instructional design of ubiquitous MOOC for enhancing cross-cultural competence			
• Cultural sensitivity	3.61	0.73	Agree
• Cultural values	3.77	0.82	Agree
• Knowledge of culture-specific	3.67	0.85	Agree
• Attitudes	3.67	0.94	Agree
• Openness to experience and challenge	3.70	0.88	Agree
• Interpersonal skills	3.69	0.83	Agree
• Communication	3.74	0.85	Agree
• Cognitive skill	3.73	0.83	Agree
Total	**3.70**	**0.70**	**Agree**

In the finding of undergraduate students' opinions about U-MOOC, the data revealed that the ubiquitous MOOC instructional design model could have u-learning component as accessibility (*M* = 3.74, *SD* = 0.81), immediacy (*M* = 3.59, *SD* = 0.75), and interactivity (*M* = 3.50, *SD* = 0.76). The massive open online course (MOOC) components could have groups (*M* = 3.60, *SD* = 1.71), communication (*M* = 3.46, *SD* = 0.75), course resources (*M* = 3.51, *SD* = 0.83), video lectures (*M* = 3.69, *SD* = 1.02), student support (*M* = 3.67, *SD* = 0.87), and students' feedback (*M* = 3.49, *SD* = 0.87). The instructional design of ubiquitous MOOC could have all component: cultural sensitivity (*M* = 3.61, *SD* = 0.73), cultural values (*M* = 3.77, *SD* = 0.82), knowledge of culture-specific (*M* = 3.67, *SD* = 0.85), attitudes (*M* = 3.67, *SD* = 0.94), openness to experience and challenge (*M* = 3.70, *SD* = 0.88), interpersonal skills (*M* = 3.69, *SD* = 0.83), communication (*M* = 3.74, *SD* = 0.85), and cognitive skill (*M* = 3.73, *SD* = 0.83).

4.2 The development of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence

This part aimed to present the development of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence. The results were divided into two parts as follows: (4.2.1) draft of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence and (4.2.2) a study of experts' opinions about the draft of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence.

4.2.1 The draft of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence

The researcher designed and developed a draft of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence (U-MOOC model). The model is divided into three parts: (1) the principles of U-MOOC instructional design model,

(2) the objectives of U-MOOC model, and (3) the components and procedure of U-MOOC model.

Part 1 Principles of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence

Ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence is based upon eight principles from the conceptual framework: (1) systems theory, (2) learner characteristic, (3) learning environment, (4) learning theory, (5) teaching method, (6) communication theory, (7) instructional media, and (8) assessment.

(1) Systems theory referred to the operational concept, referring to a scientific, systematic, and rational procedure for optimizing outcomes of an organization of structure (Richey et al., 2011). There were four stages in the systems approach (Silvern, 1972 cited in Richey et al., 2011): 1) Analysis 2) Synthesis 3) Modeling 4) Simulation

(2) Learner characteristic referred to learners' background data for analyzing U-MOOC learner in order to design U-MOOC compatible for higher education level. Learner characteristic consisted of 15 factors: age, educational level, reading level, motivation, prerequisite knowledge, prerequisite skills, facility with a computer, familiarity with the web, typing ability, access to computers, access to the web, time availability, dominant culture, and subculture.

(3) Learning environment referred to the contexts around the learners, which bring to design U-MOOC activities for support learning everywhere every time. Learning environment divided into two parts: *part I ubiquitous learning* is a learning paradigm that learner can enhance knowledge in everyday life using a combination of PC, tablet, or smartphone. This paradigm consisted of five factors: 1) permanency, 2) accessibility, 3) immediacy, 4) interactivity, and 5) context-awareness.
Part II MOOC is a paradigm of the online learning environment, which no limit on attendance, learners will interact with each other through digital tools by the interactive web to share and create knowledge in small groups-based approach.

(4) Learning theory referred to apply the cognitive dissonance theory to design a U-MOOC by providing information that contrasting with previous knowledge or experience. Moreover, learners would find the ways to reduce the dissonance until they feel delighted. The cognitive dissonance theory consisted of seven steps: 1) perception of information,, 2) storage in a cognitive schema 3) perception of new information, 4) realisation of dissonance, 5) psychological discomfort, 6) action taken to reduce dissonance, and 7) modification of cognitive.

(5) Teaching method refers to apply learning methods to design a U-MOOC for encourage learners to effectively learn as course objectives. The U-MOOC

consisted of five teaching methods: 1) lecture, 2) role-playing, 3) experiential learning, 4) answering and asking questions, and 5) case studying.

(6) Communication theory referred to apply the Agenda-setting theory to design a U-MOOC. The theory used for motivate learners to have the desired behavior by the instructor planned. Moreover, the instructor also suggested learners to think and aware of instructor's information. The Agenda-setting theory consisted of two steps, the first and the second level Agenda-setting.

(7) Instructional media referred to apply the principles of design, production, and selection to U-MOOC media. The principles supported instructor to transfer knowledge and information to the learner. The instructional media of U-MOOC are text and graphic which consisted of motivation principle (Keller & Burkman, 1993) and perception principle (Winn, 1993). Also, principles of multimedia learning were used for design and organize for multimedia presentations.

(8) Evaluation referred to apply learning evaluation principles to design the evaluation method. The evaluation results would report whether U-MOOC achieve the learning objective or not. The U-MOOC evaluation consisted of formative evaluation and summative evaluation.

Part 2 Objectives of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence

2.1. To provide the instructional design instrument, ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence, which helps instructors to create more efficient ubiquitous MOOC instructional design and meet their requirement.

2.2. To develop higher education instructor ability to designing ubiquitous MOOC instruction based on cognitive dissonance for enhancing cross-cultural competence.

Part 3 Procedure of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence

The researcher drafted a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence based on the principles in part 1, the draft consisted of 13 steps. Details were shown in figure 4.1.

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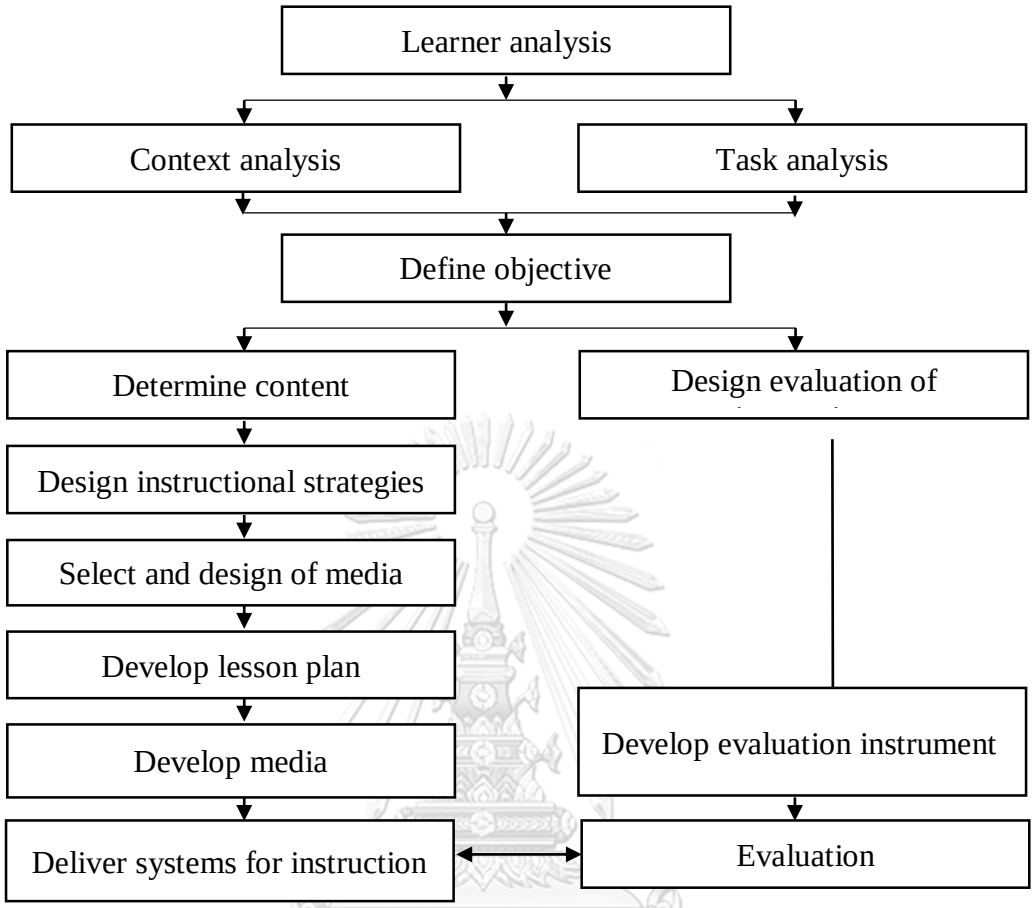

Figure 4.1 Draft of U-MOOC model

1) Learner Analysis is the process of collecting and analyzing data to identify the knowledge skills and attitudes of the learner population prior to the design of instruction (Richey, 2013). Learner analysis consists of three components are (1) cross-cultural competence, (2) prerequisite skill, and (3) culturally diverse learners.

1.1) Cross-cultural competence is knowledge, skill, and behavior to adjust oneself for another culture. Cross-cultural competence consists of four factors are (1) cultural awareness, (2) cultural knowledge, (3) cultural affective, and (4) personal skills.

1.2) Prerequisite skill of U-MOOC learning is an online learning. Thus instructor should understand the prerequisite knowledge or skill in order to design online instruction appropriately. Prerequisite skill consists of three factors are (1) online accessibility and usability (2) information utilization and (3) English skill (listening, reading, speaking, and writing).

1.3) Culturally diverse learner U-MOOC learning is small group learning, which each group has learners from diverse cultures in order to share their experience or viewpoints. If there are many diverse learners, learners will have more sharing.

2) Context analysis is the process of collecting and analyzing data to identify learning environment that effect to U-MOOC learning and culture enhancing. Context analysis has two components both (1) instructional context and (2) transfer context.

2.1) Instructional context is a context of learning accommodation and learning equipment including computer, laptop, tablet, smartphone, and internet.

2.2) Transfer context is "the environment in which the material learned will be applied" (Richey, 2013). In U-MOOC, instructor established the role-playing exercises and learners solve the complex problem in the exercise by using new knowledge.

3) Task analysis is identifying learner's task or mission based on knowledge, ability, and learning objective. Task analysis consists of four components are (1) cultural awareness, (2) cultural knowledge, (3) cultural affective, and (4) personal skills.

3.1) Cultural awareness is a task that identify learners' knowledge or capability of expression in perception, sensitivity, or appreciation about diversity culture. Cultural awareness has two tasks both (1) cultural sensitivity and (2) cultural values.

3.2) Cultural knowledge is a task that capability of perception, communication, explanation, or interpretation about culture or tradition. Cultural knowledge has two tasks both cultural knowledge and knowledge of culture specifics.

3.3) Cultural affective is a task about learners' opinion from culture perception has two tasks both (1) attitudes and initiative and (2) openness to experience and challenge.

3.4) Personal skills are a task about learners' skills in diversity culture, communication skill, interpersonal skill, and adaption in diversity culture skill. Personal skills consist of three tasks are (1) interpersonal skill, (2) communication skill and (3) cognitive skill.

4) Define objective is a statement that describes what learner will do after completing U-MOOC. Objective definition consists of three domains are (1) cognitive domain (2) affective domain and (3) psychomotor domain. Additionally, the objective should cover all cross-cultural competence factor (cultural awareness, cultural knowledge, cultural affective, and personal skills).

4.1) Cognitive domain includes knowledge and the development of intellectual skills.

4.2) Psychomotor domain includes attitudes, emotion, and feelings.

4.3) Affective domain includes physical movement and coordination.

5) Design evaluation of instruction is a process of cross-cultural measurement and assessment. Design evaluation of instruction consists of two components both (1) formative evaluation and (2) summative evaluation.

5.1) Formative evaluation consists of three types.

- Evaluate discussion during the course with instructor's criteria.
- Measure exercise with exercise solution and evaluate with instructor's criteria.
- Evaluated project with instructor's criteria, each project evaluation will be different by project type such as mind map criteria, essay criteria, etc.

5.2) Summative evaluation consists of two types both evaluate knowledge and evaluate learner's cross-cultural competence.

- Evaluate knowledge are about cross-cultural content and specific culture content.
- Evaluate learner's cross-cultural competence: the instructor can use the higher education student's cross-cultural competence scale.

6) Determine content is content defining scope, detail, and difficulty. Furthermore, it is necessary to use learner analysis data to define the content. Determine content consists of two contents both cross-culture and specific content.

6.1) Cross-cultural content has eight topics:

Chapter 1 Introduction to cross-cultural communication
Chapter 2 Cross-cultural communication competence
Chapter 3 Identity
Chapter 4 Verbal and nonverbal in cross-cultural communication
Chapter 5 Culture's influence on Perception
Chapter 6 Co-cultural group membership
Chapter 7 Intercultural relationships

6.2) Specific content is main culture content that the instructor chooses to demonstrate to the learner.

7) Design instructional strategies are "the organization and sequence of learning activities" (Branch, 2009) consist of two components are (1) group setting and (2) determine instructional strategies.

7.1) Group setting U-MOOC learning need to set a group interaction. Therefore instructor should design to divide learner to a small group. Each group should have 6-8 varied culture learners for cultural exchange among the learners.

7.2) Determine instructional strategies there are three theories (Cognitive dissonance, Experiential Learning, and Agenda-setting Theory) support the U-MOOC instructional strategies:

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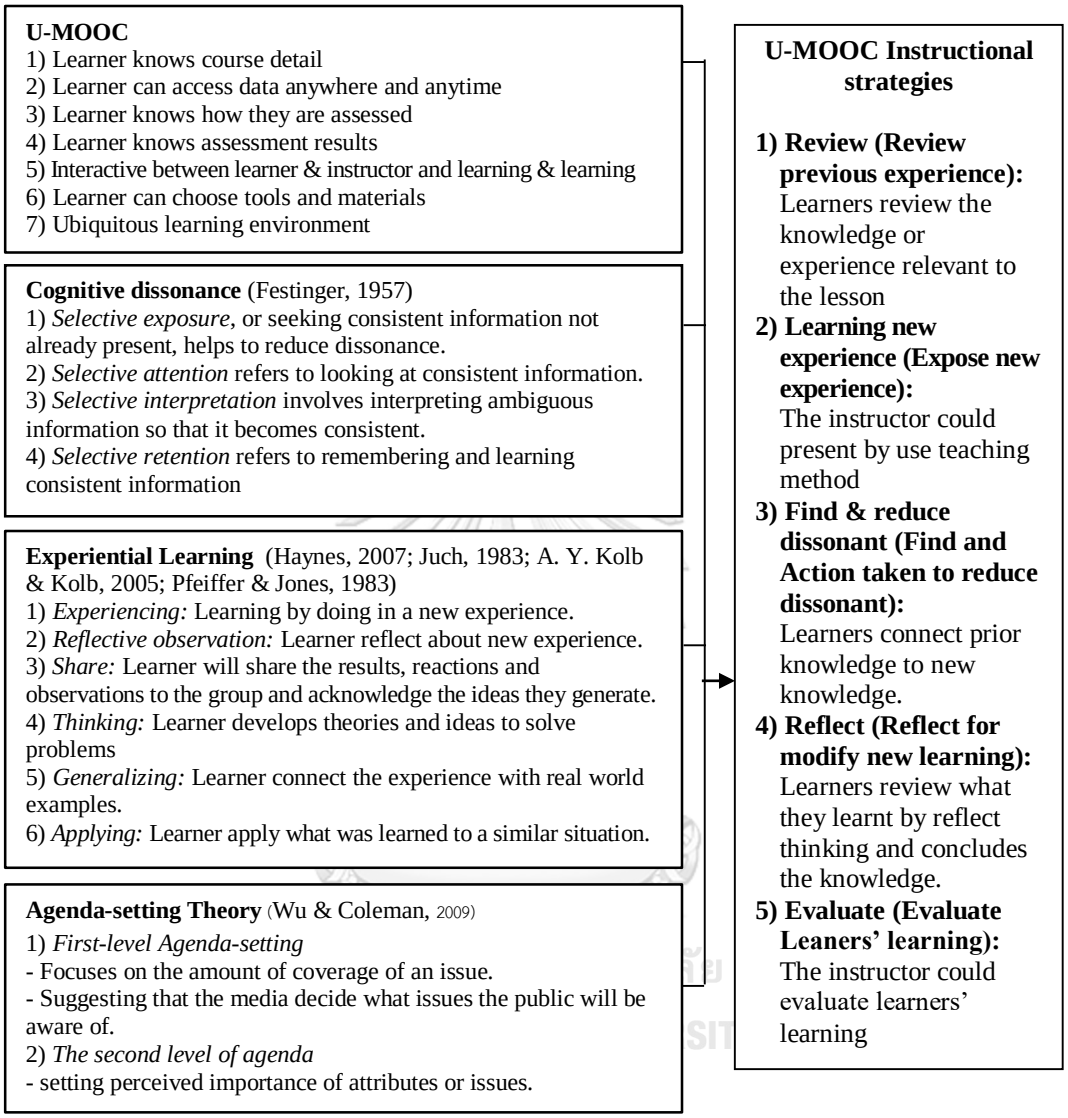

Figure 4.2 U-MOOC instructional strategies

Instructional strategies consisted of five steps: (1) review previous experience (2) learn new experience (3) find & reduce dissonance (4) reflect and (5) evaluate.

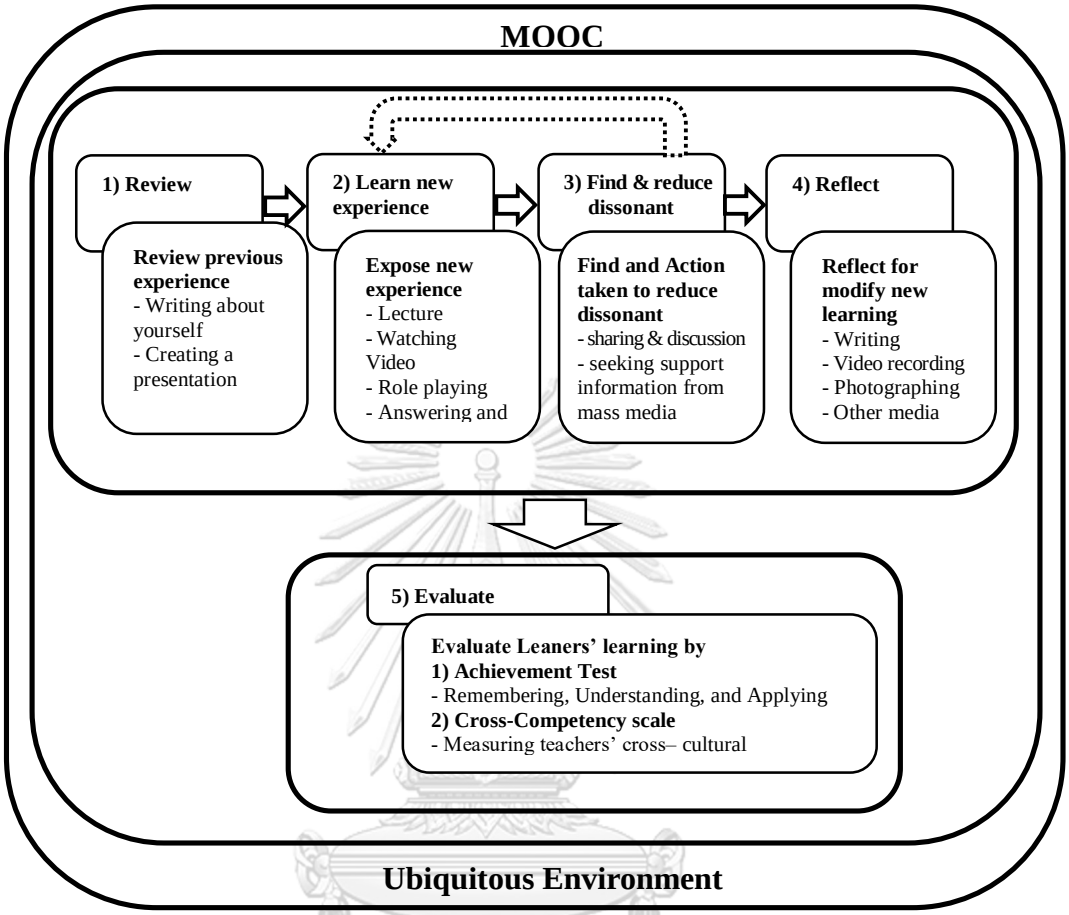

Figure 4.3 Instructional strategies

Step 1 Review previous experience is the step to provide learners review the knowledge or experience relevant to the lesson.

Step 2 Learn new experience is the step to present content or experience, which instructor assumes learners did not know before. The instructor could present by use teaching method as follows:

- Lecture
- Watching video
- Role-playing
- Answering and asking questions

Step 3 Find & reduce dissonance is step to encourage learner to connect prior knowledge to new knowledge. If the new knowledge disputes the prior knowledge or occurs a cognitive dissonance, instructor has to convince the learners to accept new knowledge as follows.

- Sharing and discussing
- Seeking support information

Step 4 Reflect for modify new learning is a step that the learners review what they learn by reflect thinking and concludes the knowledge, as follows:

- Writing
- Video recording
- Photographing
- Other media

Step 5 Evaluate is step of learning evaluation, which consists of two evaluations both achievement and cross-competence.

- Achievement evaluation (remembering, understanding, and applying)
- Cross-competency evaluation

8) Select and design of media instructional media of U-MOOC are online only. Thus media that selecting should be a digital content. Moreover, context analysis data is necessary to make use of select and design the media. Select and design of media consist of four elements as follows:

- Selecting and composing a picture
- Selecting a video
- Selecting and designing an animation
- Designing text

9) Develop lesson plan is an alignment of a lesson plan from the result of objective definition, designing evaluation of instruction, content determination, instructional strategy design, and media selection and design. Lesson plan development in U-MOOC consists of seven component as follows:

9.1) Heading consists of unit, period, instructor name

9.2) Unit explanation

9.3) Learning objective

9.4) Contents

9.5) Learning activities consist of the step of instruction, instructional strategy, instructional methodology, instructor role, and learner role.

9.6) Instructional media and resources

9.7) Measurement and evaluation

10) Develop media is a process of building the U-MOOC website by web development platform that allows the instructor to create a website. The instructor only add content and instructional media, as defined and designed.

11) Develop evaluation instrument is a process of developing tools for evaluation as designed in the fifth step. Evaluation instrument that the instructor develop is discussion evaluation criteria, exercise evaluation criteria, and achievement evaluation criteria. For cross-cultural competence evaluation, the instructor can use the higher education student's cross-cultural competence.

12) Deliver system for instruction is a process of deliver website that developed in the tenth step to instruction. Deliver systems for instruction consists of two instructions both individualized and group instruction.

12.1) Individualized instruction is a self-learning instruction based on individual aptitude.

12.2) Group instruction is a group that grouping diverse learners and discuss the issues defined.

13) Evaluation is a process of learner evaluation both formative evaluation and summative evaluation. Criteria learning outcomes as followed:

80 points and over	mean	the learner has the good cross-cultural competency and has good skill to adapt to other cultures
60-80 points	mean	the learner has the average cross-cultural competency and has enough skill to adapt to other cultures
60 points and below	mean	the learner has the low cross-cultural competency and has not enough skill for adapt to other cultures

4.2.2 Opinion of ubiquitous MOOC instructional design model

The aim of this part of the analysis was to study of experts' opinion about principles of U-MOOC instructional design model. After designed and developed a draft of U-MOOC instructional design model, the researcher asked seven experts about opinions on U-MOOC instructional design model via questionnaires. The descriptive statistics included mean (M) and standard deviation (SD).

The researcher has assigned criteria for understanding the mean score into five levels that adapt from (Best, 1977); strongly disagree level represented a mean of 1.00-1.80, disagree level represented a mean of 1.81-2.60, neutral level represented a mean of 2.61-3.40, agree level represented a mean of 3.41-4.20 and strongly agree level represented a mean of 4.21-5.00.

The results of the opinion divided into four parts as follows:

Part A The experts were asked to check the correctness, appropriateness, and comprehensiveness of **principles of U-MOOC instructional design model**.

Part B The experts were asked to check the correctness, appropriateness, and comprehensiveness of **objectives of U-MOOC instructional design model**.

Part C The experts were asked to check the correctness, appropriateness, and comprehensiveness of **components and procedure of U-MOOC instructional design model**.

Part D The experts were asked to add **additional comments and suggestions**.

Table 4.3 presented a descriptive analysis of the opinion on U-MOOC instructional design model. The data were described with three parts: (A) Principles of U-MOOC instructional design model, (B) Objectives of U-MOOC instructional design model, and (C) Components and procedure of U-MOOC instructional design model. The researcher has assigned part criteria for understanding the mean score into five levels (Best, 1977); *Strongly Disagree* represented a mean of 1.00-1.80, *Disagree* represented a mean of 1.81-2.60, *Undecided* represented a mean of 2.61-3.40, *Agree* represented a mean of 3.41-4.20 and *Strongly Agree* represented a mean of 4.21-5.00.

The overall of opinions of ubiquitous MOOC instructional design model was at a strongly agree level (M = 4.49, SD = 0.35). Among three parts of U-MOOC instructional design model, the highest average opinion was assessed with the part C (components and procedure of U-MOOC instructional design model) with an average mean score at a strongly agree level (M = 4.61, SD = 0.33). The second average was assessed with part A (principles of U-MOOC instructional design model) with an average mean score at a strongly agree level (M = 4.59, SD = 0.43). The lowest average was assessed with part B (objectives of U-MOOC instructional design model) with an average mean score at a strongly agree level (M = 4.29, SD = 0.49).

Table 4.3 Experts' opinion about the overall of U-MOOC model

(n=7)

Experts' opinion	*Mean*	*SD*	Level
A. Principles of U-MOOC instructional design model	4.59	0.43	Strongly Agree
B. Objectives of U-MOOC instructional design model	4.29	0.49	Strongly Agree
C. Components and procedure of U-MOOC instructional design model	4.61	0.33	Strongly Agree
Total	**4.49**	**0.35**	**Strongly Agree**

Part A Opinion on principles of U-MOOC instructional design model

Table 4.4 presented descriptive analysis of the opinion on principles of U-MOOC instructional design model. The data were described with eight principles: systems theory, learner characteristic, learning environment, learning theory, teaching method, communication theory, instructional media, and assessment.

The overall of opinion on principles of U-MOOC instructional design model was at a Strongly Agree level (M = 4.59, SD = 0.43). Among eight principles of U-MOOC instructional design model, the highest average opinion was assessed with the instructional media with an average mean score at a strongly agree (M = 5.00, SD = 0.00). The second average was assessed with both systems theory and learner characteristic with an average mean score at a strongly agree (M = 4.86, SD = 0.38). The lowest average was assessed both teaching method and assessment with an average mean score at a strongly agree (M = 4.29, SD = 0.76 and M = 4.29, SD = 1.50).

Table 4.4 Descriptive analysis of experts' opinion about principles of U-MOOC instructional design model

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(n=7)

Experts' opinion	*Mean*	*SD*	Level
A. Principles of U-MOOC instructional design model			
Systems theory	4.86	0.38	Strongly Agree
Learner characteristic	4.86	0.38	Strongly Agree
Learning environment	4.57	0.54	Strongly Agree
Learning theory	4.43	0.79	Strongly Agree
Teaching method	4.29	0.76	Strongly Agree
Communication theory	4.43	0.79	Strongly Agree
Instructional media	5.00	0.00	Strongly Agree
Assessment	4.29	1.50	Strongly Agree
Total	**4.59**	**0.43**	**Strongly Agree**

Part B Opinion on objectives of U-MOOC instructional design model.

Table 4.5 presented descriptive analysis of the opinion on objectives of U-MOOC instructional design model. The data were described with two objectives: (1) to provide the instructional design instrument, ubiquitous MOOC instructional design model, which helps instructors to create more efficient ubiquitous MOOC instructional design and meet their requirement and (2) to develop higher education instructor ability to designing ubiquitous MOOC instruction based on cognitive dissonance for enhancing cross-cultural competence.

The overall of opinion on objectives of U-MOOC instructional design model was at a Strongly Agree level (*M* = 4.29, *SD* = 0.49). Between two objectives of U-MOOC instructional design model, the highest average opinion was assessed with the first objective with an average mean score at a strongly agree level (*M* = 4.43, *SD* = 0.54). The lower average was assessed with the second objective with an average mean score at a strongly agree level (*M* = 4.14, *SD* = 0.69).

Table 4.5 Descriptive analysis of experts' opinion about objectives of U-MOOC instructional design model

(n=7)

Experts' opinion	*Mean*	*SD*	Level
B. Objectives of U-MOOC instructional design model			
(1) To provide the instructional design instrument, ubiquitous MOOC instructional design model, which helps instructors to create more efficient ubiquitous MOOC instructional design and meet their requirement	4.43	0.54	Strongly Agree
(2) To develop higher education instructor ability to designing ubiquitous MOOC instruction based on cognitive dissonance for enhancing cross-cultural competence	4.14	0.69	Agree
Total	**4.29**	**0.49**	**Agree**

Part C Opinion on components and procedure of U-MOOC instructional design model

Table 4.6 presented descriptive analysis of the opinion on components and procedure of U-MOOC instructional design model. The data were described with thirteen procedures: (1) learner analysis, (2) context analysis, (3) task analysis, (4) define objective, (5) design evaluation of instruction, (6) determine content, (7) design instructional strategies, (8) select and design of media, (9) develop lesson plan, (10) develop media, (11) develop evaluation instrument, (12) deliver system for instruction, and (13) evaluation.

The overall of opinion on components and procedure of U-MOOC instructional design model was at a Strongly Agree level (*M* = 4.61, *SD* = 0.33). Among thirteen procedures of U-MOOC instructional design model, the highest

average opinion was assessed with the develop lesson plan with an average mean score at a strongly agree level (*M* = 5.00, *SD* = 0.00). The second average was assessed with the context analysis with an average mean score at a strongly agree level (*M* = 4.93, *SD* = 0.19). The lowest average was assessed with the deliver system for instruction with an average mean score at a strongly agree level (*M* = 4.29, *SD* = 0.76).

Table 4.6 Descriptive analysis of experts' opinion about components and procedure of U-MOOC instructional design model

(n=7)

Experts' opinion	*Mean*	*SD*	Level
C. Components and procedure of U-MOOC instructional design model			
1. learner analysis	4.86	0.26	Strongly Agree
2. context analysis	4.93	0.19	Strongly Agree
3. task analysis	4.50	0.43	Strongly Agree
4. define objective	4.57	0.46	Strongly Agree
5. design evaluation of instruction	4.57	0.53	Strongly Agree
6. determine the content	4.57	0.53	Strongly Agree
7. design instructional strategies	4.48	0.72	Strongly Agree
8. select and design of media	4.57	0.53	Strongly Agree
9. develop a lesson plan	5.00	0.00	Strongly Agree
10. develop media	4.57	0.79	Strongly Agree
11. develop an evaluation instrument	4.46	0.74	Strongly Agree
12. deliver system for instruction	4.29	0.76	Strongly Agree
13. evaluation	4.50	0.50	Strongly Agree
Total	**4.61**	**0.33**	**Strongly Agree**

Part D Comments and suggestions of U-MOOC instructional design model

Table 4.7 presented experts' comments and suggestions of U-MOOC instructional design model. The experts' give comments and suggestions in three factors of principles of U-MOOC instructional design model, one comment and suggestion for objectives of U-MOOC instructional design model, and seven comments and suggestions for components and procedure of U-MOOC instructional design model.

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Table 4.7 Experts' comments and suggestions of U-MOOC instructional design model

Factor	Experts' opinion
A. Principles of U-MOOC instructional design model	
Systems theory	-
Learner characteristic	-
Learning environment	-
Learning theory	- Interesting theory but the researcher should show how it related to learning results.
Teaching method	- Teaching method should use the e-learning technical term such as role-play to virtual role-play
Communication theory	-
Instructional media	-
Assessment	- Should indicate the component of cross-cultural competence to measure and set the criteria.
The overall principles of ubiquitous MOOC instructional design model	-
B. Objectives of U-MOOC instructional design model	
(1) To provide the instructional design instrument, ubiquitous MOOC instructional design model, which helps instructors to create more efficient ubiquitous MOOC instructional design and meet their requirement (2) To develop higher education instructor ability to designing ubiquitous MOOC instruction based on cognitive dissonance for enhancing cross-cultural competence	- It can use as design tools, maybe not assured whether learning outcome can be accomplished because the word "cross-cultural competency" was not explained in theory part.
C. Components and procedure of U-MOOC instructional design model	
1. learner analysis	- Language skill is essential. - Should add a detail of information skill as information literacy and using information ethically and legally.
2. context analysis	- Should define appropriate software in learning activities such as group communication software.
3. task analysis	-

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Table 4.7 Experts' comments and suggestions of U-MOOC instructional design model (continue)

Factor	Experts' opinion
4. define objective	- Should add a specific scope of cross-culture such as region level or international level. - Some skill cannot do in an online course such as facial expression that cannot be observed all time.
5. design evaluation of instruction	-
6. determine the content	-
7. design instructional strategies	- The number of members should be four to six people. - Should defined role-playing, how to do it in online. - Learning strategies should use word relating to online learning. - In "Find & Reduce dissonant" did not show the process design in case of learner could not find the dissonant.
8. select and design of media	- Should add the design of online communication.
9. develop a lesson plan	-
10. develop media	
11. develop an evaluation instrument	-
12. deliver system for instruction	- Should add more detail.
13. evaluation	- The evaluation process should proceed more clearly.

Part E Additional comments and suggestions

The experts' give five additional comments and suggestions as followed:

- Should emphasize MOOC tools, it will help this design to show MOOC identity.
- Should be aware of communicating about dissonance, it may the cause of learner feel uncomfortable to learn.
- The design should emphasize the media selection, which has to appropriate, and coverage with learner context.
- The learning group should have diverse culture learners.
- The design should emphasize the data accessibility in various ways and easy to access.

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4.2.3 Improvement of U-MOOC instructional design model based on the suggestions from the experts.

Regarding the experts' opinion on U-MOOC model, the researcher summary and improved the U-MOOC instructional design model based on the suggestions from the experts.

Table 4.8 Improvement of U-MOOC instructional design model

Experts' opinion	Researcher's reactions
A. Principles of U-MOOC instructional design model	
Learning theory: - Interesting theory but should show that it related to learning results.	- Clarify the theory to relate the cross-cultural competence.
Teaching method: - Teaching method should use the e-learning technical term such as role-play to virtual role-play	- Revise not words to the appropriate word in all instructional design model.
Assessment: - Should indicate the component of cross-cultural competence for the measure and set the criteria.	- Indicate the component of cross-cultural competence for the measure and set the criteria.
B. Objectives of U-MOOC instructional design model	
Not assured whether learning outcome can be accomplished because the word "cross-cultural competency" was not explained in theory part.	- Explain about cross-cultural competency in theory part.
C. Components and procedure of U-MOOC instructional design model	
Learner analysis: - Language skill is vital, should add a detail of information skill as information literacy and using information ethically and legally.	- Select only students who proficient in English. - Add details of information skill in learning strategy.
Context analysis: - Should define appropriate software in learning activities such as group communication software.	- Add software recommendation in learning activities.
Define objective: Should add a specific scope of cross-culture such as region level or international level. - Some skill cannot do in an online course such as facial expression that cannot be observed all time.	- Add the scope of cross-culture recommendation. - Add the defined objective recommendation of appropriate online skills.

Table 4.8 Improvement of U-MOOC instructional design model

Experts' opinion	Researcher's reactions
Design instructional strategies:	
- The number of members should be four to six people.	- Add recommendation which the learners in should be four to six people per group.
- Should defined role-playing, how to do it in online.	- Explain the online role-playing.
- Learning strategies should use word relating to online learning.	- Adapt words in learning strategies relating to online learning strategies.
- In "Find & Reduce dissonant" did not show the process design in case of learner could not find the dissonant.	- Explain "Find & Reduce dissonant" in case of learner could not find the dissonant.
Select and design of media:	
- Should add the design of online communication.	- Explain how to design communications in online.
Deliver system for instruction:	
- Should add more detail.	- Explain more details of the deliver system for instruction.
Evaluation:	
- Should clearly define the evaluation process	- Explain more information on evaluation process
D. Additional comments and suggestions	
- Should emphasize MOOC tools, it will help this design to show MOOC identity.	- Adapt tools and media to show MOOC identity.
- Should be aware of communicating about dissonance, it may the cause of learner feel uncomfortable to learn.	- Add a caution about dissonance, which may the cause of learner feel uncomfortable to learn.
- The design should emphasize the media selection, which has to appropriate, and coverage with learner context.	- Add the recommendation about media selection should be appropriate, and coverage with learner context.
- The learning group should have diverse culture learners.	- Add the suggestion of selecting learner should have diverse culture learners per group.
- The design should emphasize the data accessibility in various ways and easy to access.	- Add the recommendation of the data accessibility should have various ways and easy to access.

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4.2.4 The results of U-MOOC instructional design model pilot

After the U-MOOC instructional design model was revised following the experts' comments. The researcher piloted the U-MOOC instructional design model with three lecturers who teach cross-culture or related and a degree in behavioral science or social science to participate in this study. There were results from the pilot as followed:

- The lecturer should analyze learners before the course start because a general instruction was designed before learners enroll.
- Lecturers should use the cross-cultural competence scale, which the researcher developed because they do not have expertise in scale development.
- The cultural content should be aware of a reason to action rather than what learner could do.
- U-MOOC course has two kinds of lecturer (Thais and foreigners) thus the activities should design for two groups.
- The activities to design an instruction should be on one page because the instructor can see the overall activities.

4.2.5 Improvement of U-MOOC instructional design model based on the results from tried out.

After the three lecturers tried-out the U-MOOC instructional design model. The researcher brought feedbacks to improve the U-MOOC model again, as followed:

Table 4.9 Improvement of U-MOOC instructional design model based on tried out

Instructors' opinion	Researcher's reactions
- The lecturer should analyze learners before the course start.	- Add recommendation about lecturer could create the pre-course in order to collect the learners' data before starting the course.
- Lecturers should use the cross-cultural competence scale, which the researcher developed.	- Add an option for the cross-cultural competence scale, the researcher developed, if lecturer not to create the cross-cultural evaluation.
The cultural content should be aware of a reason for action rather than what learner could do.	- Add recommendation that lecturer should realize the reason for action in the cultural content.
- U-MOOC course activities should design for two groups.	- Separate some learner activities into two groups such as share the culture information.
- The activities to design an instruction should be on one page.	- Create overall design activities and precise activities for an instructor.

4.3 Effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence

This part aimed to study the effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence. The results were divided into three parts as follows: (4.3.1)

effect of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence, (4.3.2) effects of instruction using a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence, and (4.3.3) an exploration of the cognitive dissonance for enhancing higher education student's cross-cultural competence in ubiquitous MOOC.

4.3.1 Effect of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence

This part aimed to study the effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence. This part showed the course outline designing from a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence. The course outline consists of seven components (Inoue & Bell, 2006; Piskurich & Piskurich, 2006; Vai & Sosulski, 2011): (1) Heading consists of unit, period, (2) Course explanation, (3) Learning objective, (4) Course contents, (5) Learning activities, (6) Instructional media and resources, and (7) Measurement and evaluation.

1) Heading consists of unit, period

Course name: Cross-culture course

Duration: 4 weeks

2) Course explanation

The Cross-culture course is a free course for anybody who wants to improve cross-cultural competent; now it opens for undergraduate students. The course features are structured and easy to understand the content. This course uses the experiential-based learning where learners share their cultural experience.

3) Learning objective

(1) Learner can learn and adapt to traditions and cultures.

(2) Learner respect people from different cultures.

(3) Learner can propose proper behavior in another culture.

(4) Learner can compare between her/his culture and another culture.

(5) Learner can communicate with people from another culture.

(6) Learner is interested in learning manners traditions and cultures.

4) Course contents consist of nine contents for four weeks

Week one: Introduction

- Introduction to cross-cultural communication
- Introduction of Thailand

Week two: Cross-cultural communication competence & History of Thailand

- Introduction to cross-cultural competence
- History of Thailand

Week three: Identity & Characteristics of Thai

- Identity
- Characteristics of Thai
- Proper Thai Etiquette

Week four: Verbal and nonverbal communication & Thai manners

- Verbal and nonverbal in cross-cultural communication
- Thai manners

5) Learning activities consist of steps of instruction, instructional strategies, instructional methodologies, instructor roles, learner roles, and instrument.

Table 4.10 Learning activities

Steps of instructional strategy	Learning activities	Learner roles	Instructor roles	Instrument
Pre-learning				
Course introduction	- Course Register - Course overview - Course FAQ	- Register to the course - Read course overview - Read course FAQ	- Answer question	- Picture - Text
Week One: Introduction				
1) Review previous experience	- Write about previous experience	- Share about your experience - Read and/or give a comment at friends' experience article.	- Read the learner writing - Give a feedback	- Discussion board
2) Learn new experience	- Watch and read "Introduction to cross-cultural communication"	- Watch and read "Introduction to cross-cultural communication"	- Check activity progressing	- Text - Picture - Video clip
	- Watch and read "Introduction of Thailand"	- Watch and read "Introduction of Thailand"	- Check activity progressing	- Text - Picture - Video clip
	- Share about your country	- Write about your country	- Read the classmate writing - Give a feedback	- Text - Picture
3) Find & reduce dissonance	Discussion about the country	- Ask the classmate about confusion or conflict experience in "country" topic - discuss the dispute - seek out information to support the opinion	- Read the learners writing - Select the dispute to discussion - Find the information to support the idea.	- Discussion board - Link - Picture
4) Reflect thinking	Writing blog	- Write the knowledge that the learners have learned to their blog	- Read the learners' blog - Give a positive feedback	- Text - Picture - Blog

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Table 4.10 Learning activities (continue)

Steps of instructional strategy	Learning activities	Learner roles	Instructor roles	Instrument
5) Evaluate	Quiz	- Do the assignment	- Evaluate learner answer	- Quiz
Week Two: Cross-cultural communication competence & History of Thailand				
1) Review previous experience	- Introduce identity or outstanding in your country	- Write about identity or outstanding in your country	- Read the learner writing - Give a feedback	- Discussion board
2) Learn new experience	- Watch and read "Cross-cultural communication competence"	- Watch and read "Cross-cultural communication competence"	- Check activity progressing	- Text - Picture - Video clip
	- Watch and read "History of Thailand"	- Watch and read "History of Thailand"	- Check activity progressing	- Text - Picture - Video clip
	- Watch "Thailand"	- Watch "Thailand"	- Check activity progressing	- Video clip
	Share about history or culture of your local	- Write about history or culture of your local	- Read the classmate writing - Give a feedback	- Text - Picture
3) Find & reduce dissonance	Discussion about history or culture of your local	- Ask the classmate about confusion or conflict experience in "history or culture of your local" topic - discuss the dispute - seek out information to support the opinion	- Read the learners writing - Select the dispute to discussion - Find the information to support the idea.	- Discussion board - Link - Picture
4) Reflect thinking	Writing blog	- Write the knowledge that the learners have learned to their blog	- Read the learners' blog - Give a positive feedback	- Text - Picture - Blog
5) Evaluate	Quiz	- Do the assignment	- Evaluate learner answer	- Quiz

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Table 4.10 Learning activities (continue)

Steps of instructional strategy	Learning activities	Learner roles	Instructor roles	Instrument
Week Three: Identity & Characteristics of Thai				
1) Review previous experience	- Explain about characteristics of people in your country	- Write about characteristics of people in your country	- Read the learner writing - Give a feedback	- Discussion board
2) Learn new experience	- Watch and read “Identity”	- Watch and read “Identity”	- Check activity progressing	- Text - Picture - Video clip
	- Watch and read “Characteristics of Thai”	- Watch and read “Characteristics of Thai”	- Check activity progressing	- Text - Picture - Video clip
	- Watch “Proper Thai Etiquette”	- Watch and read “Proper Thai Etiquette”	- Check activity progressing	- Video clip
	- Watch “How to Eat Thai Food”	- Watch “How to Eat Thai Food”	- Check activity progressing	- Video clip
	Share about characteristic of people in the country	- Write about characteristic of people in the country	- Read the classmate writing - Give a feedback	- Text - Picture
	Role play in culture	- Play role in foreigner for the culture situation	- Check activity progressing - Give a feedback	- Role-play board - Picture - Text
3) Find & reduce dissonance	Sharing and discussion about characteristic of people in the country	- Ask the classmate about confusion or conflict experience in “characteristic of people in country” topic - discuss the dispute - seek out information to support the opinion	- Read the learners writing - Select the dispute to discussion - Find the information to support the idea.	- Discussion board - Link - Picture
4) Reflect thinking	Writing blog	- Write the knowledge that the learners have learned to their blog	- Read the learners’ blog - Give a positive feedback	- Text - Picture - Blog
5) Evaluate	Quiz	- Do the assignment	- Evaluate learner answer	- Quiz

Table 4.10 Learning activities

Steps of instructional strategy	Learning activities	Learner roles	Instructor roles	Instrument
Week Four: Verbal and nonverbal communication & Thai manners				
1) Review previous experience	- Tell in an inappropriate manner that cannot accept in your country	- Write about an inappropriate manner that cannot accept in your country	- Read the learner writing - Give a feedback	- Discussion board
2) Learn new experience	- Watch and read "Verbal and nonverbal cross-cultural communication"	- Watch and read "Verbal and nonverbal cross-cultural communication"	- Check activity progressing	- Text - Picture - Video clip
	- Watch and read "Thai manners"	- Watch and read "Thai manners"	- Check activity progressing	- Text - Picture - Video clip
	- Watch "25 Amazing Things To Do in Bangkok"	- Watch and read "25 Amazing Things To Do in Bangkok"	- Check activity progressing	- Video clip
	- Watch "CNN iReporters enjoy Thailand"	- Watch and read "CNN iReporters enjoy Thailand"	- Check activity progressing	- Video clip
3) Find & reduce dissonance	Sharing and discussion about Share manners of people in country	- Ask the classmate about confusion or conflict experience in "Share manners of people in the country" topic - discuss the dispute - seek out information to support the opinion	- Read the learners writing - Select the dispute to discussion - Find the information to support the idea.	- Discussion board - Link - Picture
4) Reflect thinking	Writing blog	- Write the knowledge that the learners have learned to their blog	- Read the learners' blog - Give a positive feedback	- Text - Picture - Blog
5) Evaluate	Quiz	- Do the assignment	- Evaluate learner answer	- Quiz

6) Instructional media and resources consist of seven learning resources: picture, text, quiz, blog, discussion board, link, and video clip.

7) Measurement and evaluation consist of both formative assessment and summative assessment**,** as followed

Formative assessment uses four assessments in this course: activity progress, learners' writing on the blog, role-play activity, and quiz.

Summative assessment use cross-cultural competence scale for assessment

4.3.2 Effects of instruction using a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence

This part aimed to study the effects of instruction using a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence. The analysis of this part used paired t-test to test whether student's cross-cultural competence different between pre-test and post-test scores of learning by using a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence.

Table 4.11 presents the overall of a comparison of the pre-test and post-test scores. The average scores of students' cross-cultural competence when doing the pretest (M = 3.75) was lower than scores of students' cross-cultural competence when doing the post-test (M = 4.18). As determined by paired-samples t-test, the result revealed that there was statistically significant difference between pre-test (M = 3.75, SD = 0.45) and post-test (M = 4.18, SD = 0.25); $t(29) = 4.89$, $p = 0.00$.

Table 4.11 Effects of instruction using a ubiquitous MOOC instructional design

(n=30)

Test	Student's cross-cultural competence		t	p
	M	*SD*		
Pre-test	3.75	0.45	4.89	0.00*
Post-test	4.18	0.25		

*$p < 0.05$

Table 4.11 presents the comparison of the pre-test and post-test scores. The data was compared by four components: cultural awareness, cultural knowledge, cultural affective, and personal skills. As determined by paired-samples t-test, the result revealed that there was all statistically significant difference in student's cross–cultural competence. The Cultural awareness for pre-test (M = 3.83, SD = 0.58) and post-test (M = 4.21, SD = 0.28); t(29) = 3.55, p = 0.01. The cultural knowledge for pre-test (M = 3.74, SD = 0.52) and post-test (M = 4.34, SD = 0.31); $t(29) = 5.31$, p = 0.00. The cultural affective for pre-test (M = 3.58, SD = 0.67) and post-test (M = 3.39, SD = 0.42); t(29) = 2.43, p = 0.22. The personal skills for pre-test (M = 3.82, SD = 0.54) and post-test (M = 4.21, SD = 0.34); t(29) = 3.39, p = 0.02.

Table 4.12 T-test student's cross–cultural competence component

(n=30)

Student's cross–cultural competence	Test	*M*	*SD*	t	*p*
1. Cultural awareness	Pre-test	3.83	0.58	3.55	.001*
	Post-test	4.21	0.28		
2. Cultural knowledge	Pre-test	3.74	0.52	5.31	.000*
	Post-test	4.34	0.31		
3. Cultural affective	Pre-test	3.58	0.67	2.43	.022*
	Post-test	3.93	0.42		
4. Personal skills	Pre-test	3.82	0.54	3.39	.002*
	Post-test	4.21	0.34		

*$p < 0.05$

Table 4.13 presents the comparison of the pre-test and post-test scores. The data were compared by nine components: cultural sensitivity, cultural values, knowledge of culture-specific, knowledge of cultural diversity, attitudes and initiative, openness to experience and challenge, interpersonal skill, communication skill, and cognitive skill. As determined by paired-samples t-test, the result revealed that there was only one not statistically significant difference in the openness to experience and challenge for pre-test (M = 3.57, SD = 0.92) and post-test (M = 3.93, SD = 0.45); t(29) = 1.97, p = .058.

Table 4.13 T-test student's cross–cultural competence component

(n=30)

Student's cross–cultural competence		Test	*M*	*SD*	t	P
1. Cultural awareness	Cultural sensitivity	Pre-test	3.64	0.76	2.44	.021*
		Post-test	4.00	0.36		
	Cultural values	Pre-test	4.01	0.51	4.31	.000*
		Post-test	4.42	0.33		
2. Cultural knowledge	Knowledge of culture-specific	Pre-test	3.93	0.57	4.76	000*
		Post-test	4.57	0.36		
	Knowledge of cultural diversity	Pre-test	3.54	0.65	4.15	.000*
		Post-test	4.12	0.36		
3. Cultural affective	Attitudes and initiative	Pre-test	3.60	0.65	2.24	.033*
		Post-test	3.93	0.49		
	Openness to experience and challenge	Pre-test	3.57	0.92	1.97	.058
		Post-test	3.93	0.45		
4. Personal skills	Interpersonal skill	Pre-test	4.08	0.62	2.78	.009*
		Post-test	4.43	0.37		
	Communication skill	Pre-test	3.78	0.61	3.38	.002*
		Post-test	4.24	0.40		
	Cognitive skill	Pre-test	3.60	0.77	2.41	.022*
		Post-test	3.97	0.51		

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4.3.3 An exploration of the cognitive dissonance for enhancing higher education student's cross-cultural competence in ubiquitous MOOC

This part aimed to explore the cognitive dissonance for enhancing higher education student's cross-cultural competence in ubiquitous MOOC. The results were divided into three parts as follows: (1) U-MOOC learning, (2) cognitive dissonance, and (3) recommendations for U-MOOC. The details of three parts were provided as follows.

1) U-MOOC learning

The respondents' opinions on U-MOOC learning were detailed as follows:

Learning device

• I always use a mobile phone and the IPad.

• Just used a smartphone on the bus. Only for checking.

• I think it depends on the thinking at that time. When I have both mobile and the idea, I use mobile a for typing. I will use a computer if I want to.

• During I go to tutor by bus, I use this time to learn

• Either mobile or computer is similar. If typing with a laptop, it is comfortable to put the idea and correct typing. Nonetheless, typing with mobile not easy to correct.

Learning motivation

• I would like to communicate with a foreigner, but I have no chance and dare to. However, I would try learning this course.

• If I have free time, I always learn the culture on YouTube.

• I like talking to a foreigner in order to know other cultures.

• I have learned English. I think it free and not waste of time, so I make a decision to determine this course.

• I think it is very comfortable because I also learn by phone while I am on the bus to go tutoring. I agree that learning website is suitable for a student who has not much time.

Learning tools

• Just answer the discussion and overview.

• Lecturer's sound in the video is very clear, but I have to use subtitle because some words are hard to understand.

• I try using chat, but I do not know what to talk because we are a friend already.

• I watched the lecture and sometimes review it again.

• I always use the Line to chat about the problem with my friend before learning.

E-learning Experience

• One time in China. It is about Psychology.

• I never learn the full course e-learning, just learn in English sound lab.

• I have gained e-learning before, but I never learn the discussion style. The e-learning I learned was talk style and did not type or discuss.

• I never learn an online course.

Learning outcome

• Before learning, I have a view of Chinese people are not good. Now I open my mind for the Chinese.

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• I have changed my viewpoint, but someone who did not like before may have a few changes.

• I think I use the attitude such as I turn my viewpoint to view the Chinese do.

• My opinion or perspective has changed since I did the second discussion.

• I got the cultural knowledge in video lecture and discussion.

Communication skill

• When I was typing the English, I felt it wrong grammar.

• After I read his answer, I think I do not want to say anything. Everyone has loved his own country. Something I cannot tell.

• I have worried about grammar. I usually ask my friend the sentence I type is ok or not. I check my typing for a long time.

• When I type English, I do not care about grammar. I always think how clearly to communicate.

• I have to analyze the message before I type because I worry about the grammar. I focus on how to sort clearly.

Learning place

• I learn at home in the night

• In the night, I learn at home, and I almost learn outside in the day.

• At home. Normally at home. I only did that at home.

• I usually learn at home.

• When I check something, may be on the bus.

Learning time

• About 10-20 minutes per period.

• I almost use free time. I usually check my phone when I have time.

• I often learn at home in the night because I am a tutor at the end of a semester.

• I use free time to finish my home business to learn.

• I also learn while I am on the bus to go tutoring.

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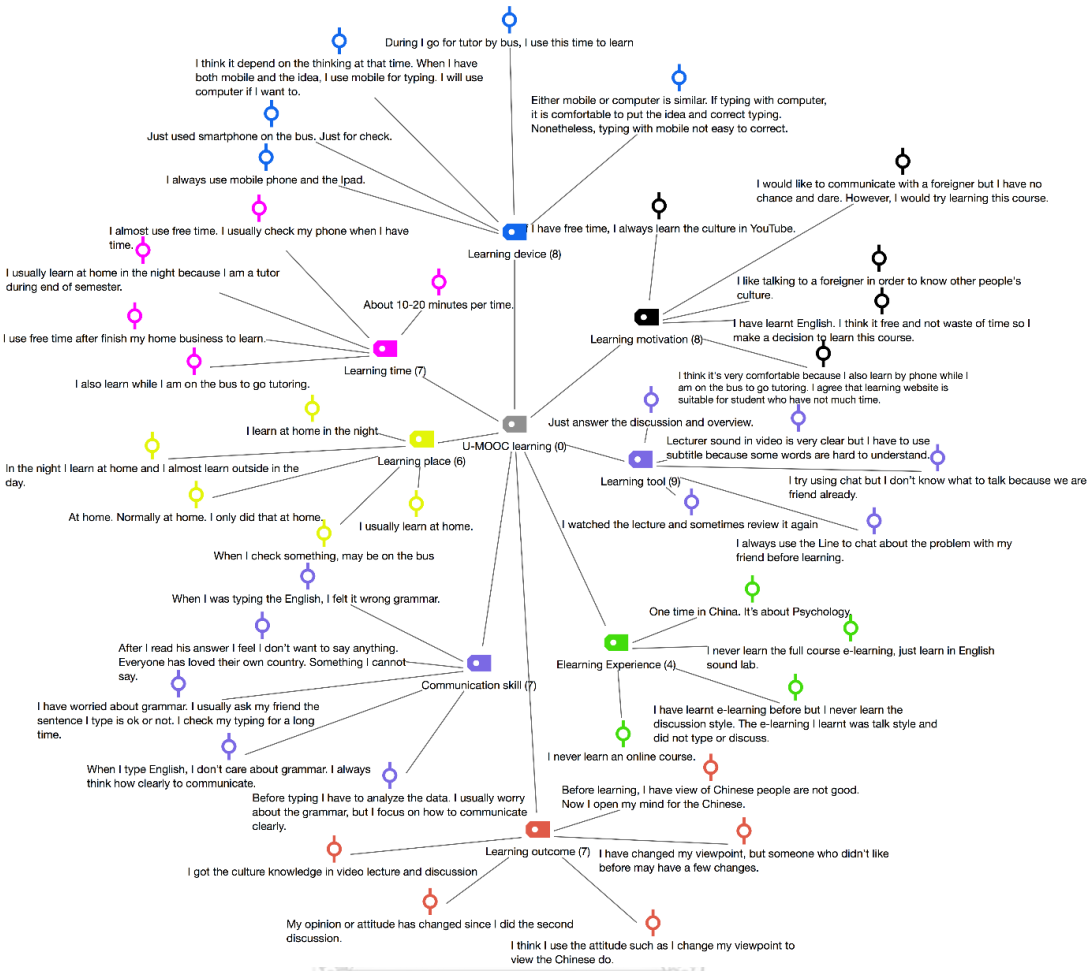

Figure 4.4 Exploration of U-MOOC learning

2) Cognitive dissonance

The respondents' opinions on cognitive dissonance were detailed as follows:

• I read Chinese information on websites seriously, and they inform that Chinese people have many rules and regulation. Later I ask a Chinese classmate, they told nowadays is not serious anymore.

• About culture, I already change my opinion such as Chinese talk loudly: in the past, I wonder why they do, and I understand after Chinese explain to me.

• I have known about the manner before because some Chinese live in my village. Then I search the internet for proving data, and I post to the discussion board.

• Data from website showed those are Chinese culture. I still think that they can whisper, but they did not do.

• Some information on the internet does not update. If we interact with people from another culture, we would know their culture before.

Figure 4.5 Exploration of cognitive dissonance

3) Recommendations for U-MOOC

The respondents' opinions on recommendations for U-MOOC were detailed as follows:

Learning system

• When I register on some websites, they will send you an email. If there is new information, the system should send email to us.

• For the chat button, I think it hard to see so the learners may ignore it.

• I usually read subtitle on lecture video, but sometimes it has a wrong word.

• The chat button should be a big pop up for easy to notice.

• I recommend the chat system should like the Facebook chat that has a pop up because some learners cannot see.

Learning strategies

• I skip learning the overview because the course already has the step to follow.

• I would like to see the real lecturer in a classroom, but online is a good choice. I want both.

• We can have an online meeting but sometime should have actual discussions at the school.

• I like various media not only lecturer's media.

• Learners were not diversity just have Chinese.

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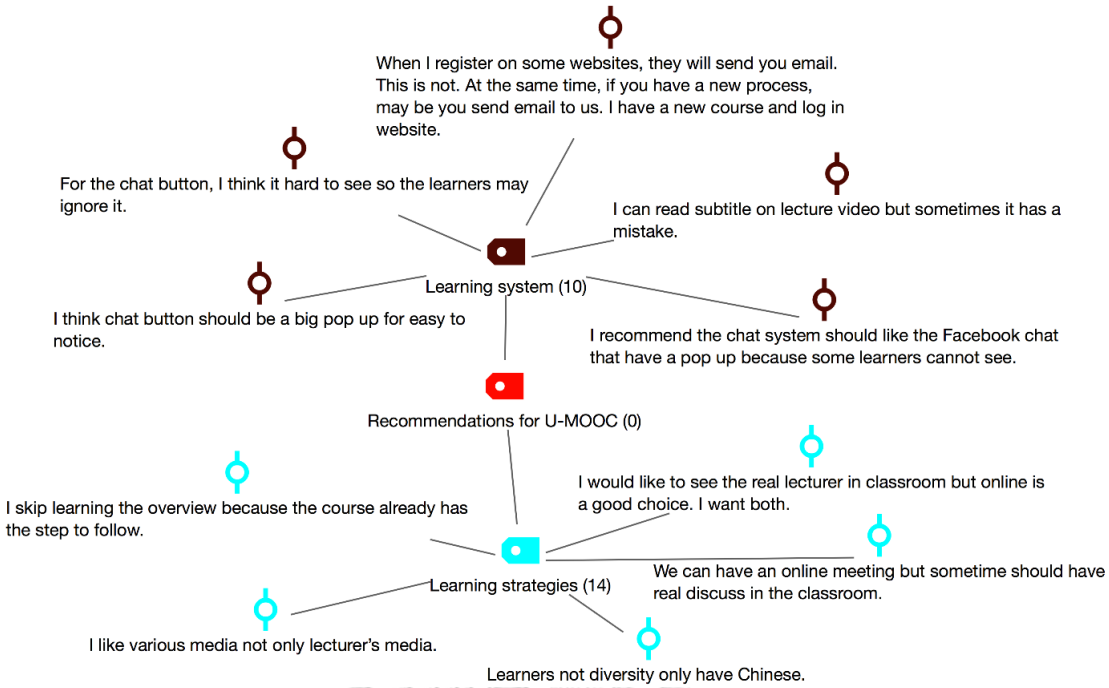

Figure 4.6 Exploration of recommendations for U-MOOC

These results of the study were described by following the research objective: (1) to study of undergraduate students' opinions about ubiquitous MOOC, (2) to develop a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence, and (3) to study the effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence.

The results were divided into three parts: (1) a study of undergraduate students' opinions in designing a ubiquitous MOOC, (2) the development of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence, and (3) effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence.

Chapter Summary

The conclusion of the result was divided into three parts:

1) The most student had e-learning experience. The undergraduate students' opinions showed that the U-MOOC model as u-learning part should comprise of accessibility (M = 3.74, SD = 0.81), immediacy (M = 3.59, SD = 0.75), and interactivity (M = 3.50, SD = 0.76). The U-MOOC model as massive open online course (MOOC) should comprise of groups (M = 3.60, SD = 1.71), communication (M = 3.46, SD = 0.75), course resources (M = 3.51, SD = 0.83), video lectures (M = 3.69, SD = 1.02), student support (M = 3.67, SD = 0.87), and students' feedback (M = 3.49, SD = 0.87). The U-MOOC model as instructional design of ubiquitous MOOC for enhancing cross–cultural competence should comprise of cultural values (M = 3.77, SD = 0.82), knowledge of culture-specific (M = 3.67, SD = 0.85), attitudes (M = 3.67, SD = 0.94), openness to experience and challenge (M = 3.70, SD = 0.88),

interpersonal skills (*M* = 3.69, *SD* = 0.83), communication (*M* = 3.74, *SD* = 0.85), and cognitive skill (*M* = 3.73, *SD* = 0.83).

2) The result of experts' opinion about the overall of opinions of U-MOOC model was strongly agree level (*M* = 4.49, *SD* = 0.35). Then the researcher improved the U-MOOC instructional design model based on the suggestions from the experts such as revise not clearly words to appropriate word in all instructional design model. After that researcher piloted the U-MOOC instructional design model and revised the model based on the suggestions from the participants such as separate some learner activities into two groups such as share the culture information.

3) The effects of instruction using a ubiquitous MOOC instructional design, there was statistically significant difference between pre-test (*M* = 3.75, *SD* = 0.45) and post-test (*M* = 4.18, *SD* = 0.25); *t*(29) = 4.89, *p* = 0.00.

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CHAPTER V

PROPOSED INSTRUCTIONAL DESIGN MODEL

The Ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence (U-MOOC model) have the linear steps and details of the model including examples.

The U-MOOC model was conducted base on literature reviews (systems theory, learner characteristic, learning environment, learning theory, teaching method, communication theory, instructional media, and assessment), results of the study of undergraduate students' opinions about ubiquitous MOOC, the experts' opinion about the U-MOOC model, and the result of the U-MOOC model pilot.

Details of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence

Details of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross–cultural competence consist of three parts (1) Principles of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross–cultural competence, (2) Objectives of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross–cultural competence, and (3) Procedure of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross–cultural competence, as following:

Part 1 Principles of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence

Ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence is based upon eight principles: (1) systems theory, (2) learner characteristic, (3) learning environment, (4) learning theory, (5) teaching method, (6) communication theory, (7) instructional media, and (8) assessment.

(1) Systems theory refers to the operational concept, referring to a scientific, systematic, and rational procedure for optimizing outcomes of an organization of structure (Richey et al., 2011). There are four stages in the systems approach (Silvern, 1972 cited in Richey et al., 2011): 1) Analysis 2) Synthesis 3) Modeling 4) Simulation

(2) Learner characteristic refers to learners' background data for analyzing U-MOOC learner in order to design U-MOOC compatible for higher education level. Learner characteristic consists of 15 factors: age, educational level, reading level, motivation, prerequisite knowledge, prerequisite skills, facility with a computer, familiarity with the web, typing ability, access to computers, access to the web, time availability, dominant culture, and subculture.

(3) Learning environment refers to the contexts around the learners, which bring to design U-MOOC activities for support learning everywhere every time. Learning environment divided into two parts: *part I ubiquitous learning* is a learning paradigm that learner can enhance knowledge in everyday life using a combination of

PC, tablet, or smartphone. This paradigm consists of five factors: 1) permanency 2) accessibility 3) immediacy 4) interactivity 5) context-awareness. *Part II MOOC* is a paradigm of the online learning environment, which no limit on attendance, learners will interact with each other through digital tools through the interactive web to share and create knowledge in small groups-based approach.

(4) Learning theory refers to apply the cognitive dissonance theory to design A U-MOOC by providing information that contrasting with previous knowledge or experience. Moreover, learners will find the ways to reduce the dissonance until they feel delighted. The cognitive dissonance theory consists of seven steps: 1) perception of information 2) storage in a cognitive schema 3) perception of new information 4) realisation of dissonance 5) psychological discomfort 6) action taken to reduce dissonance and 7) modification of cognitive.

(5) Teaching method refers to apply learning methods to design a U-MOOC for encouraging learners to effectively learn as course objectives. The U-MOOC consists of five teaching methods: 1) lecture 2) role-playing 3) experiential learning 4) answering and asking questions and 5) case studies.

(6) Communication theory refers to apply the Agenda-setting theory to design a U-MOOC. The theory uses for motivate learners to have the desired behavior by the instructor planned. Moreover, the instructor also suggests learners think and aware of instructor's information. The Agenda-setting theory consists of two steps, the first and the second level Agenda-setting.

(7) Instructional media refers to apply the principles of design, production, and selection to U-MOOC media. The principles support instructor to transfer knowledge and information to the learner. The instructional media of U-MOOC are text and graphic which consist of motivation principle (Keller & Burkman, 1993) and perception principle (Winn, 1993). Also, using principles of multimedia learning for design and organize of multimedia presentations.

(8) Evaluation refers to apply learning evaluation principles to design the evaluation method. The evaluation results will report whether U-MOOC achieve the learning objective or not. The U-MOOC evaluation consists of formative evaluation and summative evaluation.

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Part 2 Objectives of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence

2.1. To provide the instructional design instrument, ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence, which helps instructors to meet their requirement and create more efficient ubiquitous MOOC instructional design.

2.2. To develop higher education instructor ability to design ubiquitous MOOC instruction based on cognitive dissonance for enhancing cross-cultural competence.

Part 3 Procedure of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence

The ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence consists of six steps: (1) define online learning objectives, (2) analyze U-MOOC environment needs, (3) develop U-MOOC learning activity plan, (4) develop U-MOOC, (5) deliver to multi-cultural learners, and (6) assess learners' learning. Details are shown in Figure 5.1.

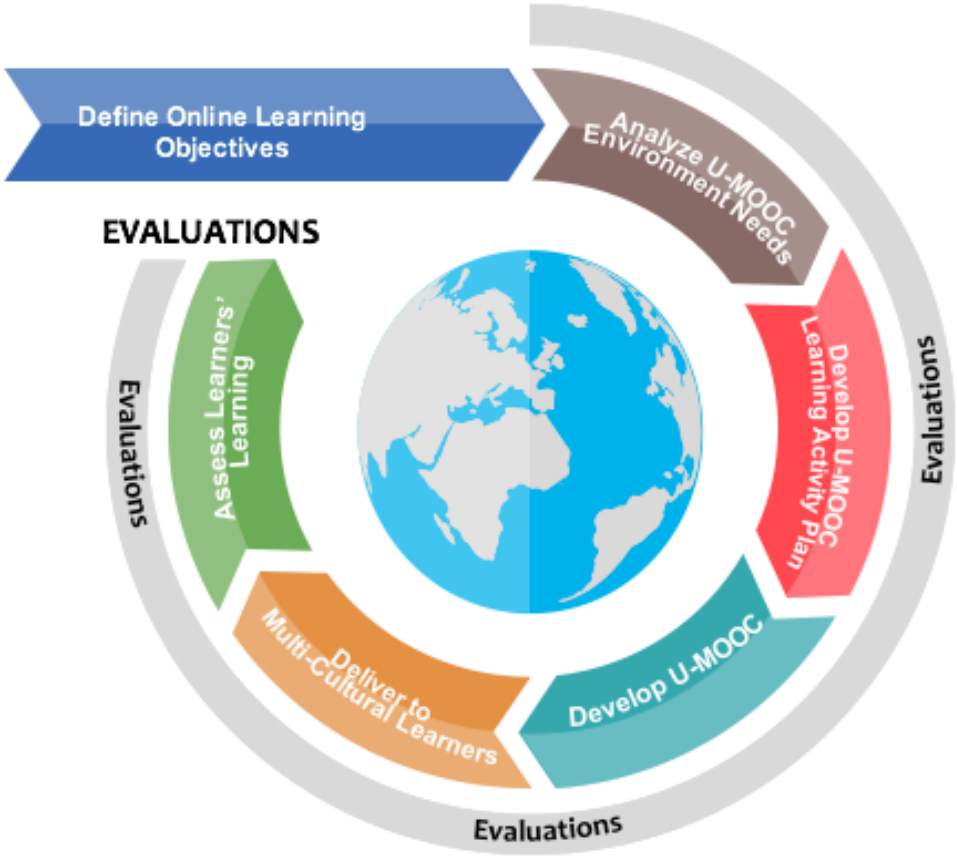

Figure 5.1 U-MOOC model

1. Define online learning objectives

Define learning objectives are specific statements defining what students will be able to do when they complete a unit of instruction (Dick et al., 2014). The learning objectives should describe the action taken by the learner that could be measured by an observer (Brown & Green, 2015). Define online learning objectives has three procedures (1) Cultural analysis (2) Cross-cultural task analysis and (3) State online learning objectives, as follows:

1.1) Cultural analysis

Cultural analysis is the process of collecting and analyzing cultural data to identify the cultural knowledge, cultural skills, and cultural attitudes of the learners prior to the design U-MOOC instruction.

According to a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence is an online learning, using the online questionnaire is the appropriate cultural analysis for collecting cultural data and makes use of the information to instructional design.

The cultural analysis consists of three components are (1) cross-cultural competence, (2) prerequisite skill, and (3) culturally diverse learners. The process of cultural analysis as follows:

(1) Cross-cultural competence analysis

This component can use Higher education student's cross-cultural competence scale, see appendix 6. Otherwise, created by four steps of learner analysis approach (Brown & Green, 2015) as follows:

Step A: Study the component of cross-cultural competence as follows:

Cross-cultural competence is knowledge, skill, and behavior to adjust oneself to another culture. Cross-cultural competence consists of four factors are (1) cultural awareness, (2) cultural knowledge, (3) cultural affective, and (4) personal skills.

(1) Cultural awareness

Cultural awareness is the expression feelings, awareness, and benefits of value and importance of cultural diversity, accept differences between individual ability and modify their own behavior and thoughts to the cultural differences. Cultural awareness has two indicators both cultural sensitivity and cultural values.

Cultural sensitivity is the sensitive expression of the perceptions of individuals when faced with a where a cultural difference can be recognized or noticed the change of the person, society and culture around quickly.

Cultural values are proud in their own culture from appreciating the importance and benefit of learning about different cultures, show interest in learning, understanding about manners, customs and traditions practiced in their own culture and other cultures.

(2) Cultural knowledge

Cultural knowledge is the ability to recognize meaningful interpretation or translation elaborating on culture, language, traditions, values desired of their own nation and other nations. Cultural knowledge has two indicators both knowledge of culture-specific and knowledge of cultural diversity.

Knowledge of culture-specific is the ability to recognize meaningful interpretation or translation elaborating on national culture and local culture as well as a knowledge of the traditions, national languages, dialects, and desirable values in society.

Knowledge of cultural diversity is the ability to recognize the interpretive translation or interpretation extends to different cultures, traditions and values desirable, understand the similarities and differences between cultures.

(3) Cultural affective

Cultural affective is thoughts or emotions about different cultures, resulting from the perception of the environment. Cultural affective has two tasks both attitudes and initiative and openness to experience and challenge.

Attitudes and initiative are interests to find ways to interact with people of different cultures.

Openness to experience and challenge needs to know and do something new to gain experience.

(4) Personal skills

Personal skills are the expertise of the individual to live a normal life in a multicultural society, ability to establish good relationships with others, accept and adapt to the circumstances or conditions which are cultural differences appropriately. Personal skills consist of three tasks are interpersonal skill, communication skill, and cognitive skill.

Interpersonal skill is the ability to build relationships with other people and to interact better, respect and honor every individual culture. Including the ability to work with people with different cultures effectively.

Communication skill is the ability to adjust the style of communication, both verbal and non-verbal expression, including the use of gestures to communicate to a person with the cultural differences properly with regard to the meaning, communication behavior and the impact that may cause arise from a misunderstanding and lead to a cultural conflict.

Cognitive skill is the ability to analyze situations and use of knowledge to understanding solutions.

Step B: Create the draft self-assessment list followed the indicator of cross-culture competencies as Table 5.1.

Table 5.1 Example of self-assessment list of cross-culture competencies

Indicator of cross-culture competencies	**Example of self-assessment list**
Cultural awareness	
Cultural sensitivity is the sensitive expression of the perceptions of individuals when faced with a where a cultural difference can be recognized or noticed the change of the person, society, and culture around quickly.	• You immediately perceive if your friends have expressed dissatisfaction while commenting on issues related to cultural differences. • You feel the difference immediately if you are in a group of people from different cultures.

Table 5.1 Example of self-assessment list of cross-culture competencies (continue)

Indicator of cross-culture competencies	Example of self-assessment list
Cultural values are Proud in their own culture from appreciating the importance and benefit of learning about different cultures, show interest in learning, understanding about manners, customs, and traditions practiced in their own culture and other cultures.	• You take pride in your national culture. • You appreciate another culture as your own culture.
Cultural knowledge	
Knowledge of culture-specific is the ability to recognize meaningful interpretation or translation elaborating on national culture and local culture as well as a knowledge of the traditions, national languages, dialects, and desirable values in society.	• You can give an example of you culture identity. • You can explain proper custom in your local culture.
Knowledge of cultural diversity is the ability to recognize the interpretive translation or interpretation extends to different cultures, traditions, and values desirable, understand the similarities and differences between cultures.	• You can give an example of values of different cultures. • You can interpret the behavior of people in different cultures.
Cultural affective	
Attitudes and initiative are interests to find ways to interact with people of different cultures.	• You always greet and talk with friends from different cultures. • You always join an activity with friends from different cultures.
Openness to experience and challenge needs to know and do something new to gain experience.	• If you have free time, you often read books about different cultures. • If you have any chances, you tend to learn culture abroad.
Personal skills	
Interpersonal skill is the ability to build relationships with other people and to interact better, respect and honor every individual culture. Including the ability to work with people with different cultures effectively.	• You can learn/work with friends from different cultures. • You fun to learn from friends who come from have different cultures.
Communication skill is the ability to adjust the style of communication, both verbal and non-verbal expression, including the use of gestures to communicate to a person with the cultural differences properly with regard to the meaning, the communication behavior and the impact that may cause arise from a misunderstanding and lead to a cultural conflict.	• You can communicate in other languages, in addition to your own national language. • You can communicate with foreign friends from different cultures.

Table 5.1 Example of self-assessment list of cross-culture competencies (continue)

Indicator of cross-culture competencies	Example of self-assessment list
Cognitive skill is the ability to analyze situations and use of knowledge to understanding solutions.	• You can use your knowledge to solve the cultural conflict.
	• You can analyze the causes of the cultural conflict.

Step C: Develop the draft self-assessment to an online questionnaire, which the learners would answer after finishing registration.

Step D: Analyze the data into percentages, aligning by the component of cross-cultural competence, and fill in the table as follows.

Table 5.2 Example of cross-cultural competence analysis

Component of cross-cultural competence	Percent	Indicator	Percent
Cultural awareness		Cultural sensitivity	
		Cultural values	
Cultural knowledge		Knowledge of culture-specific	
		Knowledge of cultural diversity	
Cultural affective		Attitudes and initiative	
		Openness to experience and challenge	
Personal skills		Interpersonal skill	
		Communication skill	
		Cognitive skill	
Total	**100**	**Total**	**100**

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(2) Prerequisite skill analysis of U-MOOC learning

This component has four steps as follows:

Step A: Study the prerequisite skill of U-MOOC learning as follows:

The U-MOOC learning is an online learning; thus, the instructor should understand the prerequisite knowledge or skill in order to identify a variety of factors that will influence the course design. Prerequisite skill consists of three factors as follows: (1) online accessibility and usability (2) information utilization and (3) English skills.

1) Online accessibility and usability

Online accessibility and usability is a skill of perceiving, understanding, navigating, and interacting with websites and tools.

- The knowledge and skills used in digital devices including smartphones, tablets, laptops, and desktop PCs.
- The knowledge and skills used in audio or visual software.
- The skill used in online publication reading.

- The typing skill used in smartphones, tablets, laptops, and desktop PCs.

(2) Information utilization

- The ability used in search engines to the search information effectively.
- The ability used in sends online data such as pictures, files, and links.
- The ability used in online communication such as email, Facebook, and Twitter.

(3) English skills

- The skill used in listening, speaking, reading, and writing.

Step B: Create the draft self-assessment list followed the factor of prerequisite skill.

Table 5.3 Example of self-assessment list of prerequisite skill

Factor of Prerequisite skill	**Example**
Online accessibility and usability	• You can connect your computer to the internet. • You can type a message on your smartphone.
Information utilization	• You can find the picture you want from the internet. • You often make a communication via the internet.
English skills	• You can read English publication. • You can listen English in others accents.

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Step C: Develop the draft self-assessment to an online questionnaire, which the learners would answer after finishing registration.

Step D: Analyze the data into average, aligning by the prerequisite skill, and fill in the table as follows.

Table 5.4 Example of average of the prerequisite skill

Name	**Prerequisite skill**		
	Online accessibility and usability	Information utilization	English skills
Mr. Mike	High	Medium	Medium
Miss Lee	Medium	High	High
Miss Liu	Low	Low	High

(3) Culturally diverse learner analysis of U-MOOC learning

This component has four steps as follows:

Step A: Study the Culturally diverse learner of U-MOOC learning as follows:

Culturally diverse learner U-MOOC learning is small group learning, which each group has learners from diverse cultures in order to share their experience or viewpoints. If there are many diverse learners, learners will have more sharing.

Step B: Create the draft self-assessment list followed the culturally diverse learner. Additionally, the questions in the draft self-assessment could be multiple choices or short message as follows.

Table 5.5 Example of self-assessment list

Name ……	**Country** ……..	**Nationality** ……..
Religion □ Buddha □ Christ □ Islam □ Hinduism □ Sixers □ Others please specify.....		
Have you ever been abroad?	□ Never □ Yes total.....country The longest stay country is …….. I stayed for…….years……...months……..days	

Step C: Develop the draft self-assessment to an online questionnaire, which the learners would answer after finishing registration.

Step D: Collect the data and fill in the table as follows.

Table 5.6 Culturally diverse learner example data

Name	**Item**						
				Go aboard			
	Country	**Nationality**	**Religion**	Experience	Number of countries	Longest stay country	Periods
Mr. Mike	Thai	Thai	Buddha	Never	-	-	-
Miss Lee	Canada	Canada	Christ	Yes	2	USA	5 years
Miss Liu	China	China	Christ	Yes	5	Thailand	1 Month

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1.2) Cross-cultural task analysis

Cross-cultural task analysis is identifying learner's task or mission based on knowledge, ability, and learning objective. There are two steps both review cross-cultural tasks and analyze task to enhance cross-cultural competence, as follows:

Step A: Review cross-cultural tasks

The objective of U-MOOC is to enhancing student's cross-cultural competence, thus the instructor should review the task of cross-cultural competence. The cross-cultural task analysis consists of four tasks are (1) cultural awareness, (2) cultural knowledge, (3) cultural affective, and (4) personal skills.

(1) Cultural awareness task is a task identifying learners' knowledge or capability of expression in perception, sensitivity, or appreciation of diversity culture. Cultural awareness has two tasks both cultural sensitivity and cultural values.

(1.1) Cultural sensitivity task is identifying learners' knowledge or appropriate ability expression when faced with a situation with cultural differences including the task which perceived or noticed of changing person, society, and culture.

(1.2) Cultural values task is proud in their own culture from appreciating the importance and benefit of learning about different cultures, show interest in learning, understanding about manners, customs and traditions practiced in their own culture and other cultures.

(2) Cultural knowledge task is a task that capability of perception, communication, explanation, or interpretation of culture or tradition. Cultural knowledge has two tasks both knowledge of culture-specific and knowledge of cultural diversity.

(2.1) Knowledge of culture specifics task is the ability to recognize meaningful interpretation or translation elaborating on national culture and local culture as well as a knowledge of the traditions, national languages, dialects, and desirable values in society.

(2.2) Knowledge of cultural diversity task is the ability to recognize the interpretive translation or interpretation extends to different cultures, traditions, and values desirable, understand the similarities and differences between cultures.

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(3) Cultural affective task is a task about learners' opinion from culture perception has two tasks both attitudes and initiative and openness to experience and challenge.

(3.1) Attitudes and initiative task is interests to find ways to interact with people of different cultures.

(3.2) Openness to experience and challenge task needs to know and do something new to gain experience.

(4) Personal skills task is a task about learners' skills in diverse culture, communication skill, interpersonal skill, and adaption in diversity culture skill. Personal skills consist of three tasks are interpersonal skill, communication skill, and cognitive skill.

(4.1) Interpersonal task is the ability to build relationships with other people and to interact better, respect and honor every individual culture. Including the ability to work with people with different cultures effectively.

(4.2) Communication task is the ability to adjust the style of communication, both verbal and non-verbal expression, including the use of gestures to communicate to a person with the cultural differences properly with regard to the

meaning, communication behavior and the impact that may cause arise from a misunderstanding and lead to a cultural conflict.

(4.3) Cognitive task the ability to analyze situations and use of knowledge to understanding solutions.

Step B: Analysis tasks to enhance learners' cross-cultural competence and put in diagram or table, as follows.

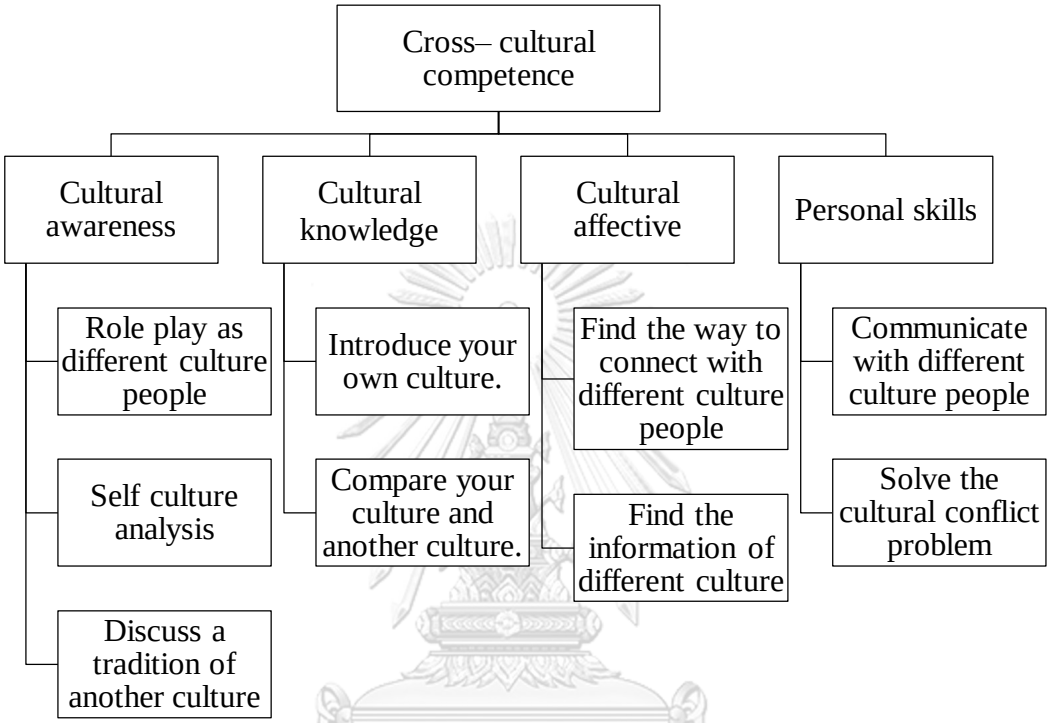

Figure 5.2 Task analysis diagram

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Table 5.7 Example of task analysis

Cross-cultural competence	Task
Cultural awareness	Role play as different culture people
	Self-culture analysis
	Discuss a tradition of another culture
Cultural knowledge	Introduce your own culture.
	Compare your culture and another culture.
Cultural affective	Find the way to connect with different culture people
	Find the information on different culture
Personal skills	Communicate with different culture people
	Solve the cultural conflict problem

Guideline for task analysis writing (Branch, 2009)

- Should start with an action verb such as analyze a case study, do practice, etc.
- Should write only measurable and evaluable
- Avoid the abstract word such as learn, know, or understand.

1.3) State online learning objectives

State online learning objectives are statements that describe what learner will do after completing lesson and the statements in ubiquitous MOOC should be the behavioral objectives. There are two steps of stating objectives, as follows:

Step A: Considering the result of cross-cultural task analysis from 1.2 and fill in the table.

Step B: Determine the statement of objective, which appropriates task analysis as follows**:**

Table 5.8 Example of stating online learning objectives

Cross-cultural competence	Task	Objective
Cultural awareness	Role play as different culture people	1) Learner can explain the behavior of different culture people. 2) Learner can play a role in a different culture people.
	Self-culture analysis	1) Learner can analyze his/her own culture.
	Discuss a tradition of another culture	1) Learner can state a tradition of another culture 2) Learner can comment about a tradition of another culture.
Cultural knowledge	Introduce your own culture.	1) Learner can state his/her own culture. 2) Learner can propose his/her own culture in in various formats.
	Compare your culture and another culture.	1) Learner can compare his/her own culture and another culture.
Cultural affective	Find the connection with different culture people	1) Learner can state the connection with different culture people 2) Learner can choose the appropriately connection to communicate with different culture people.
	Find the information of different culture	1) Learner can search the information about culture.
Personal skills	Communicate with different culture people	1) Learner can communicate with different culture people
	Solve the cultural conflict problem	1) Learner can analyze the cultural conflict problem. 2) Learner can state the solution of cultural conflict problem. 3) Learner can solve the cultural conflict problem.

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Guideline for state objectives

The Objective statement should consider three domains: (1) cognitive domain (2) affective domain and (3) psychomotor domain. Additionally, the objective statement should cover all cross-cultural competence's factor (cultural awareness, cultural knowledge, cultural affective, and personal skills).

- Cognitive domain includes knowledge and the development of intellectual skills. For example;

- Learner can explain the meaning of cross-culture.
- Learner can compare between her/his culture and another culture.
- Learner can propose proper behavior in another culture.
- Learner can tell an important and benefit of diverse cultural learning.

- Psychomotor domain includes attitudes, emotion, and feelings. For example;

- Learner can exchange the opinion about her/his culture.
- Learner can interact with people from another culture.
- Learner can learn and conform to traditions and cultures.
- Learner can work with people from another culture.

- Affective domain includes physical movement and coordination. For example;

- Learner attaches importance to diversity of cultures.
- Learner respects people from different cultures.
- Learner is interested in learning manners traditions and cultures.
- Learner enthusiastically perceives culture experience.

2. Analyze U-MOOC environment needs

Analyze U-MOOC environment needs is the process of collecting and analyzing data to identify learning environment, which effect to U-MOOC learning. The U-MOOC environment needs analysis has two procedures both (1) instructional environment needs and (2) transfer environment needs.

2.1) Instructional environment needs

There are four steps of instructional environment needs, as follows:

Step A: Study the instructional environment as follows:

Instructional environment needs are an environment of learning accommodation and learning equipment including computer, laptop, tablet, smartphone, and internet.

Instructional environment is included accommodation and equipment, as follows:

1) Computer software and accommodation

- Internet browser: an application software for viewing web page from the internet such as Safari, Google Chrome, Mozilla Firefox, Internet Explorer, etc.
- Electronic document reader: an application software for viewing electronic document file or Portable Document Format (PDF) such as Acrobat Reader, Preview, Microsoft word, etc.
- Media player: an application software for playing audio, video and viewing images such as Windows media player, iTunes, VLC, etc.
- The high-speed internet for access the activities on the website.

2) Tablet or smartphone software and accommodation

- Internet browser: an application for viewing a web page from the internet such as Safari, Google Chrome, Mozilla Firefox, Internet Explorer, etc.
- Electronic document reader: an application software for viewing electronic document file or Portable Document Format (PDF) such as Acrobat reader, DC mobile, Foxit Mobile PDF reader, etc.
- Media player: an application software for playing audio, video and viewing images such as YouTube, iTunes, VLC, etc.
- The wireless mobile internet or wireless local area networking (WIFI) for access the activities on the website.
- Instant messaging application: an application for communicating in the group such as WhatsApp, Line, WeChat, etc.
- Social network application: an application to build social networks with other people who share personal knowledge, interests, or activities.
- Camera functions for taking a picture or video.

Step B: Create learner's instructional environment survey as follows:

Table 5.9 Example of instructional environment survey

Instructional environment	**Result**	
	Yes	No
• Computer software and accommodation		
• Internet browser (Safari, Google Chrome, Mozilla Firefox, Internet Explorer, etc.)		
• Electronic document reader (Acrobat reader, DC mobile, Foxit Mobile PDF reader, etc.)		
• Tablet or smartphone software and accommodation		
• Internet browser (Safari, Google Chrome, Mozilla Firefox, Internet Explorer, etc.)		
• Instant messaging application (WhatsApp, Line, WeChat, etc.)		

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Step C: Develop the online questionnaire from step B questions and send it to learners who enroll the course.

Step D: After collecting the responded questionnaire, put the data on the table as follows.

Table 5.10 Learner's Instructional environment needs analysis

Name	Instructional environment					
	Computer			Tablet or smartphone		
	Internet browser	Document reader	Media player	Internet browser	Document reader	Instant messenger
Mr. Mike						
Miss Lee						
Miss Liu						

The major outputs of the instructional environment needs (Dick et al., 2014) are (1) a description of the instructional environment, which the course requirements in order to deliver contents or learning activities to learners, and (2) a list of any limitations that may have severe implications for designing the course.

2.2) Transfer environment

There are two steps of transfer environment needs, as follows:

Step A: Study the transfer environment as follows:

Transfer environment is "the environment in which the material learned will be applied" (Richey, 2013). In U-MOOC, a learner who did not have a real environment to transfer, the instructor should establish the role-playing exercises and encourage learners to solve the complex problem in the exercise by using new knowledge.

Step B: Create the survey of learner's transfer environment need from step A, the instructor should check redundancy questions with 1.1 (Cultural analysis) before creating the survey, as an example:

Table 5.11 Learner's transfer environment need

Currently, you live in (country)…… for ……years	
Religion of your local □ Buddha □ Christ □ Islam □ Hinduism □ Sixers □ others please specify……	
You are interested in (country) ……culture	
Are there foreigners in your local area?	□ No □ Yes, about……percent

The major outputs of the transfer environment are (1) a description of the learners' environment, which the instructor require in order to design activities to learners' environment, and (2) a list of any limitations that may have serious implications for designing the course.

3. Develop U-MOOC learning activity plan

Develop U-MOOC learning activity plan has five procedures: (1) determine content, (2) design U-MOOC strategies, (3) select & design online media, (4) design learner assessment, and (5) create U-MOOC learning activity plan, as follows:

3.1) Determine content

Determine Content is content defining about scope, detail, and difficulty. There are two steps to determine Content as follows.

Step A: Study two content both cross-culture and specific content as follows:

- **Cross-cultural content** has eight topics:

Chapter 1 Introduction to cross-cultural communication
Chapter 2 Cross-cultural communication competence
Chapter 3 Identity
Chapter 4 Verbal and Nonverbal in cross-cultural communication
Chapter 5 Culture's Influence on Perception
Chapter 6 Co-cultural group membership
Chapter 7 Intercultural Relationships

- **Specific content** is main culture content that the instructor chooses to demonstrate to the learner, for example:

Thai culture content has eight contents:
Chapter 1 Introduction of Thailand
Chapter 2 History of Thailand
Chapter 3 Politic
Chapter 4 Characteristic of Thai
Chapter 5 Thai characteristics for foreign business people
Chapter 6 Thai manners
Chapter 7 Religion and believes
Chapter 8 Thai entertainment/ Performance

Step B: Review the online learning objectives (1.3) and put on the table. Furthermore, determine content following the online learning objectives and put into the table as follows:

Online learning objective	**Content**
1) Learner can explain the behavior of different culture people.	- Verbal and Nonverbal in cross-cultural communication
2) Learner can play a role in a different culture people.	- Verbal and Nonverbal in cross-cultural communication - Cross-cultural communication competence
3) Learner can analyze his/her own culture.	- Identity
4) Learner can propose his/her own culture in in various formats.	- Identity
5) Learner can choose the appropriate connection to communicate with different culture people.	- Intercultural Relationships

3.2) Design U-MOOC strategies

There are three steps of design U-MOOC strategies as follows:

Step A: Study the guideline for U-MOOC strategy design as follows:

U-MOOC strategies design are “the organization and sequence of learning activities” (Branch, 2009) consist of two components are (1) group Setting and (2) determine instructional strategies.

Group Setting

U-MOOC learning should set a group interaction to exchange the culture. Therefore instructor should design to divide learner to a small group. Each group should have six-eight diverse culture learners for cultural exchange among the learners. The instructor should specify the scope of culture level (regional level, international level, etc.) for diversity culture exchange by using information from 1.1 (culturally diverse learner analysis).

Determine instructional strategies

The instructor should follow instructional strategy model in order to create learning activities based on the output of the instructional environment needs and transfer environment. The instructional strategy model into five stages, see figure 5.3, are (1) review previous experience (2) learn new experience (3) find & reduce dissonance (4) reflect and (5) evaluate.

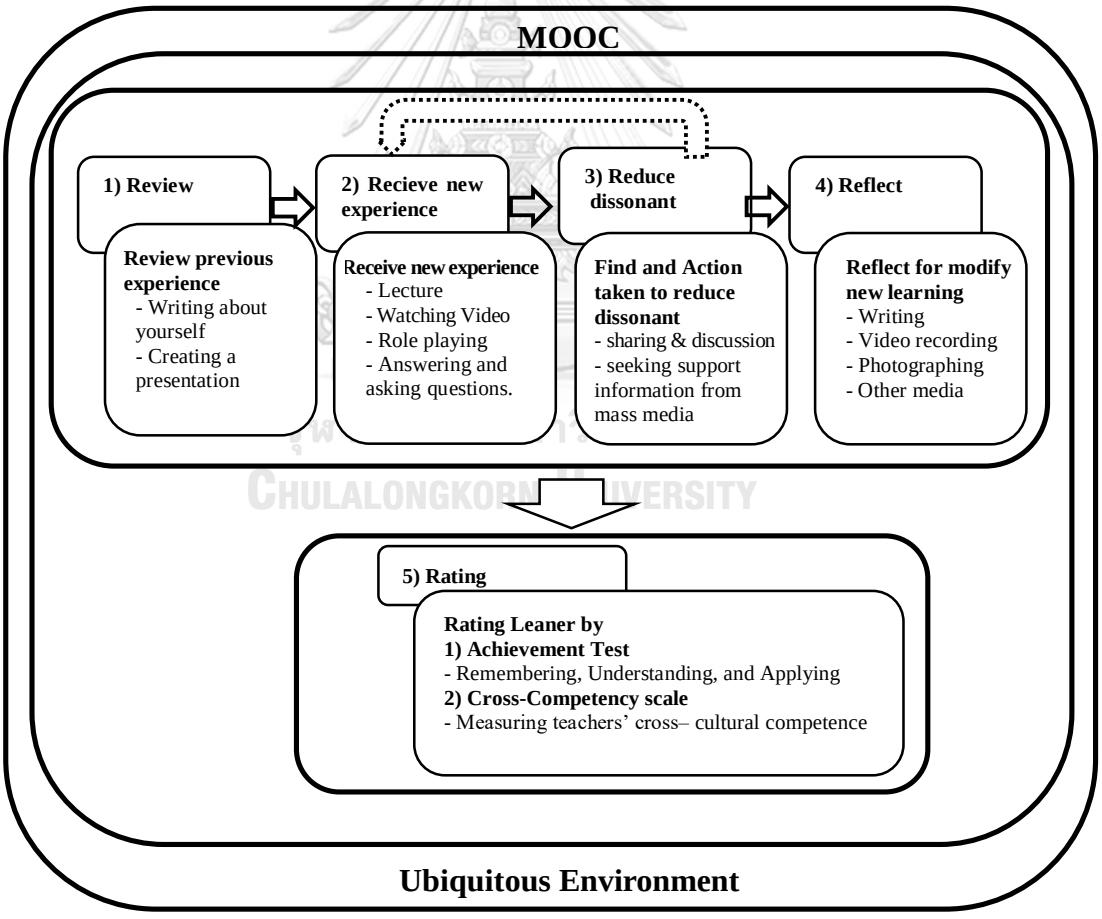

Figure 5.3 Instructional strategy process

1) Review previous experience is the step to provide learners review the knowledge or experience relevant to the lesson. For example,

- *Writing about yourself* is a strategy, which learners self-introduce about homeland, culture, tradition. Then, learners send the information through weblog, web board, social media, etc.

- *Creating a presentation* is a strategy, which learners create their presentations, which present their culture through the video clip, infographic, Prezi, etc.

2) Learn new experience is the stage to present content or experience, which instructor assumes learners did not know before. The instructor can present by use teaching method as follows:

- *Lecture* is the learners learn new experience by lecturing video clip.

- *Watching* video is a strategy, which instructor select the video clip which relating content and assigns learner to study.

- *Role-playing* is a strategy, which learners play a role in the person whom instructor assigned to various situations.

- *Answering and asking questions* is a strategy, which instructor asks the questions, which encourage learner participation and problem-solving.

3) Find & Reduce dissonance is a strategy, which encourages learner to connect prior knowledge to new knowledge. If the new knowledge disputes the prior knowledge or occurs a cognitive dissonance, the instructor has to convince the learners to accept new knowledge as follows.

- *Sharing and discussing* is a strategy, which learners compare their prior knowledge or experience and the new one. Then they share and discuss argument which they do not understand the reason.

- *Seeking support information* is a strategy which learners seek the information to support their opinion. For seeking the information, the instructor could suggest the learning sources in the course.

4) Reflect thinking is a step of the learners' review what they learn by reflect thinking and concludes the knowledge, as follows:

- Writing is a strategy, which learners write the self-reflection what they have learned including idea into their weblog.

- Video recording is a strategy, which records their reflection video instead of writing.

- Other media is strategies, which learners create, reflect themselves by using other media such as a presentation, photographing, etc.

5) Evaluate is a step of learning evaluation, which consists of two evaluations both achievement and cross-competence.

- Achievement evaluation (remembering, understanding, and applying)

- Cross-competency evaluation

Step B: Group the learners by result of 1.1 (culturally diverse learner analysis)

For example The result of culturally diverse learner analysis founded that there are thirteen learners: six Thai, one Japanese, four American, and two Chinese.

Table 5.12 Example of learner grouping

Group	Country				Group total
	Thailand	China	Japan	America	
1	2	-	1	2	5
2	2	1	-	1	4
3	2	1	-	1	4
Total	**6**	**2**	**1**	**4**	

Step C: Define learning activities followed the content in 3.1. Also, the content should consist all stages of instructional strategy, but learning activities would change based on the contents.

Table 5.13 Example of defining activities

Content	Instructional strategy	Learning activity
History	Stage 1 Review previous experience	Write the introduction about the history of your country and history of Thailand as far as you know in your blog.
	Stage 2 Learn new experience	Watch Thai history video
	Stage 3 Find & Reduce dissonance	Discuss about different between prior history you know and history you watch. Also, discuss about the differences of the history of Thailand and your country.
	Stage 4 Reflect thinking	After learning, write the conclusion of the knowledge or the finding on your blog.
	Stage 5 Evaluate	Complete the quiz.

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3.3) Select & design online media

Select & design online media, instructional media in U-MOOC would increase the quality of learning. The instructor should produce self-instructional media in your first attempt at instructional design (Dick et al., 2014). The online media should allow the students to learn the new information without any intervention from an instructor or fellow students (Dick et al., 2014). Online discussion and presentation tools offer hybrid opportunities to assist course designers to move from a contemporary face to face model toward an online offering (Parker & Masri, 2015). Instructional media of U-MOOC are online only, thus media that selecting should be a digital content. There are two steps of select and design of media as follows:

Step A: Study the guideline for select & design online media as follows:

- **Selecting and composing an image**
  - ○ Should select cartoon and virtual image in 2D animation or 3D animation, one to three images per screen, and background (if any) should select light color image similar to all lessons.

○ Should select images, which relate to the objective and content, clear, simple, and interpretive. Also, avoid images, which are irrelevant, even leading to a decorative image that may cause the learner confuse.

○ One image one concept, avoid using too many images or images with too many details or few details.

○ Images should compatible for the screen or other context.

○ Select images, which related to real life or experience of learner in order to achieve understand.

○ Use image appropriate to learner age.

- **Selecting a video**

○ Should check video file format, whether appropriate for general computer or not because some video should use specific applications.

○ Should split video into parts for not to be too boring.

○ The video player functions (play, pause, forward, backward) should be control by learner.

- **Selecting and designing an animation**

○ Animation should have related to objective and content.

○ Animation should have adaptable speed function because slow speed makes learner boring or fast speed make learner cannot catch up the lesson.

- **Designing text**

○ Use the normal font such as Arial, Time New Roman, and Calibri etc. and font size about10-20 point all the lessons.

○ Not to use font more than three colors, use lighter font color with the dark background or use darker font color with light background.

○ Use appropriate font size, and not to use capital letter all words.

○ Should not use text in all screen because it hard to read and make learner bored, put image, or split the message into the parts. Besides, use appropriate text spacing will make learner read effectively.

○ Heading subheading and content that is important to highlight by making it appear larger because the letters which different from the other characters will appeal to learners, use different styles (bold, italic, underlined), use a different color, spacing buttons and so on.

○ Avoid match too contrast text color and background such as red and green, blue and green. It will be difficult to read.

Step B: Determine online media resulting U-MOOC strategies as follows:

Table 5.14 Example of determining online media

Content	Learning activity	Media
History	• Write the introduction about the history of your country and history of Thailand as far as you know in your blog.	Blog
	• Watch Thai history video	Video
	• Discuss different between prior history you know and history you watch. Also, discuss the differences of the history of Thailand and your country.	Discussion board
	• After learning, write the conclusion of the knowledge or the finding on your blog.	Blog
	• Complete the quiz.	Online quiz

3.4) Design learner assessment

Design learner assessment is a process of design assessment and identifies criteria for learner evaluation consists of two components both (1) formative evaluation and (2) summative evaluation as follows:

Step A: Study the guideline for design learner assessment as follows:

• **Formative evaluation** to help create and improve instructional processes and products (Dick et al., 2014), consists of three types.

- Evaluate discussion during the course with instructor's criteria.
- Exercise assessment with exercise solution and evaluate with instructor's criteria.
- Evaluated project with instructor's criteria, each project evaluation will be different by project type such as mind map criteria, essay criteria, etc.

• **Summative evaluation** to make decisions concerning whether the instruction actually works as intended in the performance context (Dick et al., 2014), consist of two types both evaluate knowledge and evaluate learner's cross-cultural competence.

- Evaluate knowledge are about cross-culture content and specific culture content.
- Evaluate learner's cross-cultural competence: the instructor can use the higher education student's cross-cultural competence scale (see appendix 6).

Step B: Review resulting 1.3 (online learning objectives) and fill in learner assessment table as follows:

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Table 5.15 Example of learner assessment table

Online learning objectives	Assessment		Methods and tools
	Formative	Summative	
1) Learner can explain the behavior of different culture people.			
2) Learner can play a role in a different culture people.			
3) Learner can analyze his/her own culture.			
4) Learner can propose his/her own culture in in various formats.			
5) Learner can choose the appropriate connection to communicate with different culture people.			

Step C: Considering how to evaluate each learning objectives by selecting formative assessment, summative assessment. Additionally, determine methods and tools in order to evaluate learner and a tool or a method can evaluate more than one objective, for example:

Table 5.16 Example of considering evaluation methods and tools

Online learning objectives	Assessment		Methods and tools
	Formative	Summative	
1) Learner can explain the behavior of different culture people.	✓	✓	- Exercise assessment by exercise solution. - Evaluate knowledge by an online quiz.
2) Learner can play a role in a different culture people.	✓		- Role-play assessment by Role-play observation.
3) Learner can analyze his/her own culture.		✓	- Exercise assessment by exercise solution. - Cross-culture evaluation by cross–cultural competence scale.
4) Learner can propose his/her own culture in in various formats.	✓		- Evaluate project by project evaluation
5) Learner can choose the appropriate connection to communicate with different culture people.	✓		- Evaluate discussion by discussion evaluation

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3.5) Create U-MOOC learning activity plan

Create U-MOOC learning activity plan is an alignment of a lesson plan from the result of objective definition, designing evaluation of instruction, content

determination, instructional strategy design, and media selection and design. Lesson plan development in U-MOOC consists of seven components (Inoue & Bell, 2006; Piskurich & Piskurich, 2006; Vai & Sosulski, 2011): as follows:

- Heading consists of unit, period, and instructor name
- Unit explanation
- Learning objective
- Contents
- Learning activities consist of the step of instruction, instructional strategy, instructional methodology, instructor role, and learner role.
- Instructional media and resources
- Measurement and evaluation

4. Develop U-MOOC

Develop U-MOOC has two procedures both (1) develop evaluation instrument and (2) develop media, as follows:

4.1) Develop evaluation instrument

Develop evaluation instrument is a process of developing tools for evaluation as designed in the fifth step. Evaluation instrument that the instructor develop is discussion evaluation criteria, exercise evaluation criteria, and achievement evaluation criteria. For cross-cultural competence evaluation, the instructor can use the higher education student's cross-cultural competence scale (see appendix 6). Develop evaluation instrument has two steps, as follows.

Step A: Study the guideline for developing evaluation instrument, as follows:

1) Develop evaluation criteria

1.1) Determine issues in assessment from resulting in 1.2 (task analysis).

1.2) Determine the quantity of levels, maybe use three or five level. Otherwise, determine quantity similar to the grade given is four levels (from one-four and set zero if that wrong answer or no activity).

1.3) Level 3 is considered to an acceptable level. Equivalent to practice on their own without assistance.

1.4) Level 2 is poor level and should be revised to be available.

2) Develop academic achievement evaluation form

2.1) Determine issues in assessment from resulting in 1.3 (define online learning objectives.

2.2) Develop test mapping which shows details of the test and scores weight rating or the proportion of the number of questions that will be created as a test.

2.3) Develop the test by draft the test, approve language and organize the test.

Step B: Develop evaluation instrument, as follows:

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Table 5.17 Example of evaluation instrument

Issue	Excellent (4)	Good (3)	Fair (2)	Poor (1)
Content	• Correct • Complete issue • Each issue is related. • Comment reasonable basis	• Correct • Complete issue • Each issue is not related. • Comment not reasonable basis.	• Correct • Not complete issue • Each issue is not related. • Comment not reasonable basis	• Not correct • Not complete issue • Each issue is not related. • Comment not reasonable basis
Format	• Conducted a diagram systematically • Using picture text and color symmetrically	• Conducted a diagram systematically • Using picture text and color symmetrically	• Conducted a diagram systematically • Using picture text and color not symmetrically	• Conducted a diagram not systematically • Using picture text and color not symmetrically

4.2) Develop media

Develop media is a process of building the U-MOOC website by learning management system (LMS) that allows the instructor to create a website. The instructor only adds content and instructional media as defining and designing. The researcher uses http://culturemooc.com as media, as follows:

Step A: Instructor register

1) Go to "http://culturemooc.com" and sign up for instructor register. After finish the register, the administrator will approve instructor to develop U-MOOC.

2) The instructor can log in at "http://culturemooc.com" by using username and password which created by the instructor.

Step B: Course developing

1) After login, instructor selects the course on the top of the screen and select "add a new course" to developing the course (see figure 5.4).

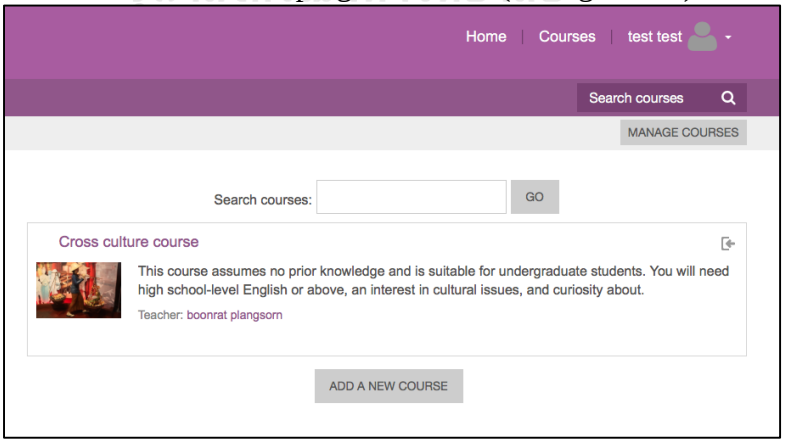

Figure 5.4 Adding a new course

2) Fill detail in the full course name, course short name, and course start date (see figure 5.5).

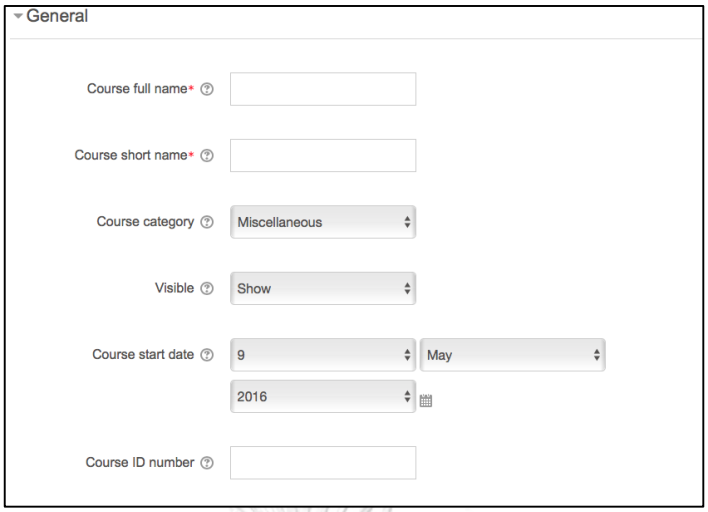

Figure 5.5 Filling course detail

3) Determine course format by select format to weekly format and select the number of sections following the learning activity plan (see figure 5.6).

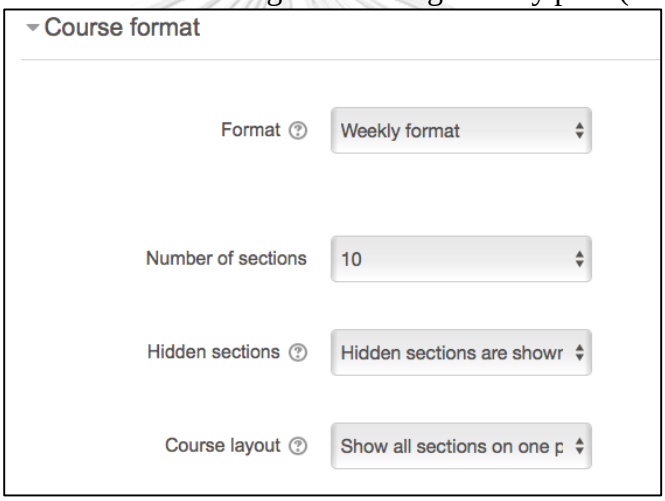

Figure 5.6 Course format

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4) Select the group by change group mode to separate groups and change force group mode to yes (see figure 5.7).

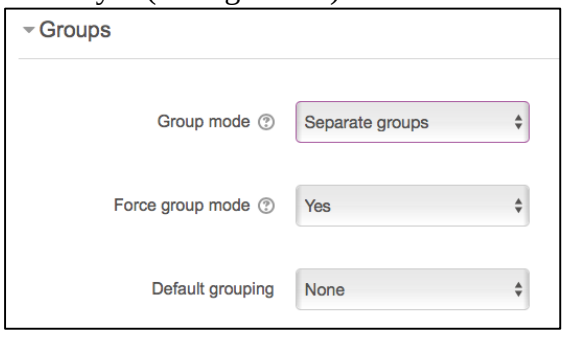


Figure 5.7 Group selecting

5) After finish the detail, select save and return to the main menu.

Step C: Select content to the course

1) In the main menu, select “turn editing on” on the left of the screen for edit the lesson (see figure 5.8).

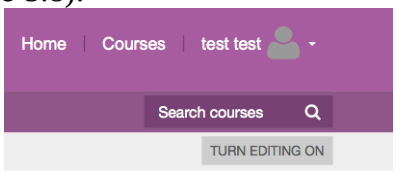
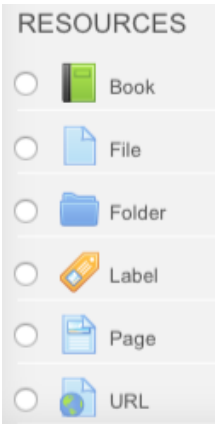


Figure 5.8 Turn editing on

2) Select “add an activity or resources” to choose the learning activities or learning resources.

- Assignment used for assign learner to send the file to the instructor.
- Chat used for communication as synchronous communication with a classmate.
- Choice used for creating question during the learning activity
- An external tool used for insert others learning resources and learning activities.
- Forum used for creating discussion topic
- Quiz used for creat quiz to learning evaluation
- Survey used for creating survey questionnaire
- Book used for creating e-book with multimedia
- File used for upload file to course
- Folder used for create folder to contain the file
- Label used for creating label to show message to inform learners
- Page used for create webpage for present data or multimedia
- URL used for creating external link



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5. Deliver to multi-cultural learners

Deliver to multi-cultural learners is a process of a deliver website that developed in all step to instruction. Deliver systems for instruction consist of two instructions both (1) individualized and (2) group instruction, as follows:

5.1) Individualized instruction

Individualized instruction is a self-learning instruction based on individual aptitude.

5.2) Group Instruction

Group Instruction is a group that grouping diverse learners and discusses the issues defined.

6. Assess learners’ learning

MOOC should be structured as a course that includes assessments to test the learning level of the knowledge taught (Plasencia & Navas, 2014). Bring the learner assessment that designed in **step 3.4** (design learner assessment) to assess the

learners' learning. Assess learners' learning is a process of learner evaluation: (1) formative evaluation, (2) summative evaluation, and (3) self-reflection, as follows:

6.1) Formative evaluation

Formative evaluation is generally evaluation which in during a learning with the aim of improving the course's design and performance. Formative evaluation complements summative evaluation and is essential for trying to understand why a course successful or not.

6.2) Summative evaluation

Summative evaluation impact of an intervention on the learners' group. This type of evaluation is arguably what is considered most often as evaluation. Summative evaluation can also be referred to as post evaluation and often associated with more objective, quantitative methods of data collection.

6.3) Self-reflection

Self-reflection is the evaluation which uses for learners reflect on their learning; they gain important assessment information about how they perceive the efficacy of their thinking.

Chapter Summary

The Ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence (U-MOOC model) is a way to plan a U-MOOC from the beginning until the complete evaluations. The purpose of this model is to give instructors for designing a U-MOOC for enhancing cross-cultural competence by following the model steps. Each step of the U-MOOC model begins with its own goals, but for the designing, the researcher would recommend the instructor to be flexible design based on the learning objectives. It is a working model that instructors can use to manage the concepts and tasks that are part of a effective MOOC process. The U-MOOC model comprises of six steps: (1) Define online learning objectives, (2) Analyze U-MOOC environment needs, (3) Develop U-MOOC learning activity plan, (4) Develop U-MOOC, (5) Deliver to multi-cultural learners, and (6) Assess learners' learning.

CHAPTER VI

SUMMARY, DISCUSSION, AND RECOMMENDATIONS

This chapter summarized the results from chapter four and the instructional design model from chapter five to make discussions and recommendations. This chapter was divided into four parts as follows: (1) summary of this study, including objectives, research design, and the research findings, (2) research findings of the study, (3) discussion, implications, and recommendations for further researches.

6.1 Summary of the Study

This research aimed to study students' opinions in designing a ubiquitous MOOC, develop a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence, and study the effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence. The findings of this study can be used as part of the supportive evidence in order to enhance higher education student's cross-cultural competence using experiential learning and Agenda-setting communication approach by the instructional design model of a ubiquitous MOOC. In the present study, research and development research design (R&D) were employed, divided into three phases: (1) a study of students' opinions in designing a ubiquitous MOOC, (2) the development of U-MOOC model, and (3) a study of effects of a U-MOOC model.

In phase 1, a study of students' opinions in designing a ubiquitous MOOC, the data were collected by using questionnaire with undergraduate students in four universities and four Rajabhat universities. The number of undergraduate students needed to be collected 400. Consequently, there were 410 undergraduate students participated in answering which was more than the actual requirement. Questionnaires developed based on principles of u-learning, Massive open online course (MOOC), and instructional design in order to study students' opinions in designing a ubiquitous MOOC. The first part of the questionnaire was used to obtain the participants' background information (e.g., gender, major of the study, affiliation). The second part of the questionnaire was used to study undergraduate students' opinions in designing a ubiquitous MOOC. The analytical methods in this study were the analysis for levels of undergraduate students' opinions in designing a ubiquitous MOOC was mean (M) and standard deviation (SD).

In phase 2, the development of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence, the data were collected by seven experts. The draft of Ubiquitous MOOC instructional design model based on using results from phase 1 (undergraduate students' opinions in a design of a ubiquitous MOOC) and eight principles: (1) systems theory, (2) learner characteristic, (3) learning environment, (4) learning theory, (5) teaching method, (6) communication theory, (7) instructional media, and (8) assessment. Additionally, the draft of U-MOOC model comprised of three parts: (1) Principles of U-MOOC model, (2) Objectives of U-MOOC model, and (3) Components and procedure of U-MOOC model.

In phase 3, a study of the effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence, the data was collected by using the higher education student's cross-cultural competence scale. The U-MOOC course, which the teacher design was studied for four weeks. The experimental research was employed to study the effects of an instructional design from U-MOOC model. The numbers of U-MOOC students have collected thirty students in quantitative data. For qualitative data in order to explore the cognitive dissonance for enhancing higher education student's cross-cultural competence in ubiquitous MOOC was collected four students after the course finished.

6.2 Summary of the Findings

The findings of this research were divided into three parts: (1) a study of undergraduate students' opinions in designing a ubiquitous MOOC, (2) the development of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence, and (3) effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence.

6.2.1 The finding of study of undergraduate students' opinions in designing a ubiquitous MOOC

The samples consisted of 410 undergraduate students. The findings showed that the majority of undergraduate students had e-learning experiences while 24.63% of undergraduate students had no e-learning experience. This result relevant to Teo, Luan, Thammetar, and Chattiwat (2011) found that Thai students had a high level of e-learning acceptance and the visible official should endorse e-learning in the higher education sector. Therefore, the almost learners had the ability to use the online learning tools.

The overall score of u-learning was at high level. Three components of u-learning were at a high level; accessibility, immediacy, and interactivity. This result relevant to Kinshuk (2015) stated that the mobile devices and wireless technology were increasing high bandwidth network infrastructures, this is an opportunity for education to opened new accessibility. Besides, Ebner and Schiefner (2010) stated that the development of mobile devices which would satisfy more the essential criterion of immediacy in the sense of availability for mobile learning. However, there were two components of u-learning were at a moderate level; context-awareness and permanency.

The overall score of massive open online course (MOOC) was at a moderate level. Six variables were at a high level: groups, communication, course resources, video lectures, student support, and students' feedback. This result relevant to McKay and Lenarcic (2015) stated that the MOOC provided an excellent vehicle for the project's significant store of digital resources, reports, and videos. However, there were six variables of massive open online course (MOOC) were at a moderate level: discussion board, personal streams, blogs and portfolios, online identity, hashtags, and course homepages.

The overall score of instructional design of ubiquitous MOOC for enhancing cross-cultural competence was at high level. All variables were evaluated at the

highest level. The mean of cultural values was the highest of all variables, followed by communication and cognitive skill.

In the finding of undergraduate students' opinions about U-MOOC, the data revealed that the ubiquitous MOOC instructional design model could have u-learning component as accessibility immediacy and interactivity. The massive open online course (MOOC) components could have communication, course resources, video lectures, student support, and students' feedback. The instructional design of ubiquitous MOOC could have all component: cultural sensitivity, cultural values, knowledge of culture-specific, attitudes, openness to experience and challenge, interpersonal skills, communication, and cognitive skill.

6.2.2 The finding of development of ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence

The ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence consists of six steps.

1. Define online learning objectives are specific statements defining what students will be able to do when they complete a unit of instruction. Define online learning objectives have three procedures (1) Cultural analysis (2) Cross-cultural task analysis and (3) Define online learning objectives.

2. Analyze U-MOOC environment needs is the process of collecting and analyzing data to identify learning environment, which effect to U-MOOC learning. The U-MOOC environment needs analysis has two procedures both (1) instructional environment needs and (2) transfer environment needs.

3. Develop U-MOOC learning activity plan has five procedures: (1) determine content, (2) design U-MOOC strategies, (3) select & design online media, (4) design learner assessment, and (5) develop U-MOOC learning activity plan.

4. Develop U-MOOC has two procedures both (1) develop evaluation instrument and (2) develop media.

5. Deliver to multi-cultural learners is a process of a deliver website that developed in all step to instruction. Deliver systems for instruction consist of two instructions both (1) individualized and (2) group instruction.

6. Assess learners' learning is a process of learner evaluation: (1) formative evaluation, (2) summative evaluation, and (3) self-reflection.

6.2.3 Effects of a ubiquitous MOOC instructional design model based on cognitive dissonance for enhancing higher education student's cross-cultural competence.

The results were divided into three parts as follows:

Part I Effect of U-MOOC model

The participant was a teacher who recruited by using purposive selection. The instrumentation was the U-MOOC instructional model manual. The participant designed the course outline following the U-MOOC instructional model manual.

The course outline consists of seven components:

1. Course name was cross-culture course, and duration was four weeks,

2. Course explanation was the Cross-culture course was a free course for anybody who wanted to improve cross-cultural competent, it opened for

undergraduate students. The course features are structured and easy to understand the content. This course used the experiential-based learning where learners share their cultural experience,

3. Learning objectives were (1) learner can learn and adapt to traditions and cultures, (2) learner respect people from different cultures, (3) learner can propose proper behavior in another culture, (4) learner can compare between her/his culture and another culture, (5) learner can communicate with people from another culture, (6) learner is interested in learning manners traditions and cultures.

4. Course contents consisted of nine contents for four weeks: the first week was introduction; the second week was cross-cultural communication competence & history of Thailand; the third week was identity & characteristics of Thai, and the fourth week was verbal and nonverbal communication & Thai manners.

5. Learning activities consisted of steps of instruction, instructional strategies, instructional methodologies, instructor roles, learner roles, and instrument.

6. Instructional media and resources consisted of seven resources: picture, text, quiz, blog, discussion board, link, and video clip.

7. Measurement and evaluation consisted of both formative assessment and summative assessment.

Part II Effects of instruction using U-MOOC model

The average scores of student's cross-cultural competence when doing the pretest were lower than scores of student's cross-cultural competence when doing the post-test. As determined by paired-samples t-test, the result revealed that there was statistically significant difference between pre-test (M = 3.75, SD = 0.45) and post-test (M = 4.18, SD = 0.25); t(9) = 4.89, p = 0.00.

The data were compared by four components: cultural awareness, cultural knowledge, cultural affective, and personal skills. As determined by paired-samples t-test, the result revealed that there was all statistically significant difference in student's cross-cultural competence.

Part III an exploration of the cognitive dissonance for enhancing higher education students' cross-cultural competence in U-MOOC

The findings were divided into three parts: (1) U-MOOC learning consisted of learning device, learning motivation, learning tools, e-learning experience, learning outcome, communication skill, and learning place; (2) cognitive dissonance; and (3) recommendations for U-MOOC consisted of both learning system and learning strategies.

6.3 Discussion

The discussion is presented according to four parts the instructional design by U-MOOC model, the instruction using U-MOOC model enhance higher education student's cross-cultural competence, the ubiquity of learning in MOOC, and the dissonant of culture in MOOC, as following:

6.3.1 The instructional design by U-MOOC model

The overall result of undergraduate students' opinions about the massive open online course (MOOC) was at a moderate level (M = 3.35, SD = 0.59). There are many variables at high levels such as groups, video lectures, student support, and students' feedback. The results related to Dron and Anderson (2015) explained that groups were powerful for collaboration, the development of trust and shared support

with clear directions and goals. Bates (2015) explained that video was a better media than text or audio, its ability to offer text, sound, it can even provide dynamic or moving pictures. Likewise, Brown and Green (2015) stated that feedbacks allow an instructor to make improvements to the instruction and they help ensure that high-quality instruction is developed.

The result of undergraduate students' opinions about video lectures was also high level, Jasnani (2013) stated that MOOCs in the recent day typically begins with a video introduction by the professor and the learners are expected to progress through the material in the form of lecture videos, and so on. The instructors who used video in MOOC should have experienced in video production or should know enough to make appropriate recommendations and assess the other work (Brown & Green, 2015). Nevertheless, many researchers such as Dick et al. (2014) suggested that it was common for an instructional designer to be an instructional media developer, or at least know a variety of media formats. Even though instructional designers or teachers have unskillful of media production, they maybe find supporter as a team. Related to Brown and Green (2015) proposed that it was rare for an instructional designer to work alone, many instructional design projects require that instructional designers work in teams.

Cross-cultural implies a comparison across cultures (Young, 2009). The U-MOOC model is to enhance higher education student's cross-cultural competence. Thus the influential learning cultures in the U-MOOC relied on the several of cultures.

The U-MOOC model was design based on well-known theories and technologies for an instructor in any cultures. Related to Merill (2007)The technology of instructional design involved the use of verified theory to the development of instructional products designed to assist students to gain desired instructional outcomes. Young (2009) stated that internationalization sought to create a standardized technological product that can be used across cultures.

One thing that the U-MOOC did very successfully was to ensure that a teacher was able to carefully design following the manual of U-MOOC model in all steps.

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6.3.2 The instruction using U-MOOC model enhance higher education student's cross-cultural competence

The findings report in chapter four indicated that four components: cultural awareness, cultural knowledge, cultural affective, and personal skills, as determined by paired-samples t-test, the result revealed that there was all statistically significant difference between posttest and pretest in student's cross-cultural competence. It was not surprising that many students understood and made use of the course functions resourcefully, maybe not need to explain how to use the basic of e-learning. For example, they used the discussion board to exchange knowledge proficiently. The results of the undergraduate students' opinions about ubiquitous MOOC showed that almost undergraduate students (75.37%) have experienced on e-learning. The research results consistent with the report (Miniwatts Marketing Group, 2016), the statistics showed Thailand internet penetration was 60.10 % and growth 1,682.6 % from 2010.

This study found that even though most of the students reported seeing the value in the culture for inspiring learning, they often reported feeling discomfort in the course. Because most of the students who learn in this course were studying in the

university, they had to do their homework or their part job after that they would have free time to learn. Moreover, Thai students worried about their communication English language. The research results consistent with research (Wongsothorn, Hiranburana, & Chinnawongs, 2002) Thai graduate students were very weak English skill and needing improvement, especially their writing skills.

During the instruction, each week began with everyone shared the experience. There were passive learning students who did not share or engage the activities. After the teacher brought techniques to maintain attention by adding relevant culture videos, they began writing more comments relevant to R. C. Clark and Mayer (2008) recommended that adding related graphics was a powerful way to help learners engage in active learning and Mehlenbacher (2010) proposed to use pictorial models with prior knowledge.

6.3.3 The ubiquity of learning in MOOC

Both mobile distributed technologies (e.g., laptops, mobile phones, and production handhelds) and wireless, connected technology (e.g., networks, Internet-enabled interaction systems) will be required in openness instruction (Mehlenbacher, 2010). Students can adopt everyday technology learning during the course. They used a personal computer (PC) when they were home because it was proper typing in the course. The students used the tablet in occasionally and used a mobile phone when they did not feel at home.

Many students would rather use a mobile device in everywhere to learn in this course. Not only the course was designed by using Moodle with responsive design, but also uses mobile functions such as to take a photo and upload to the course instantly.

The time was not a barrier to learn in the course. The U-MOOC model was designed to flexible learning in every time. As the interview of students in chapter four was shown that, some students learned in free time and the others learned at night.

The results indicated that three components of u-learning were at a high level; accessibility, immediacy, and interactivity. The research results were consistent with variation influence students in deciding to use everyday life technology. The student cited primarily two reasons for their using device decisions both the internet speed and the size of the device. The internet hi-speed in Thailand was stable and compatible with PC and the other devices. On the other hand, Mobile internet in Thailand was not stable enough to use for watching the video. In sum, most students preferred using hi-speed internet and mobile internet.

6.3.4 The cognitive dissonant of culture in U-MOOC

“Dissonant cognitions exist when one follows from the opposite of the other” (Schunk, 2012)

The cognitive dissonant which found in the exploration of the cognitive dissonance for enhancing higher education student’s cross-cultural competence in ubiquitous MOOC can divide into two types. One was dissonant that occur during the course, and another dissonant was the students already have before learning in this course. For example,

"I read information on websites seriously, they inform that have many rules and regulation. Thus, I ask the Chinese, they told nowadays is not serious about the rule anymore."

Related to Schunk (2012) stated that dissonance should increase as the discrepancy between cognitions increases. Jonassen et al. (2008) proposed that dissonant situations must be carefully selected experiences that are real to the learner so that the learner cannot easily dismiss the situation as untrue. The prior learning dissonant occurred because they did not have a chance to communicate with foreigner student to reduce the dissonant.

"I already change my opinion such as Chinese talk loudly: in the past, I wonder why they do and I understand after Chinese explain to me."

Some learners have changed their thought to new information. Related to Cooper (2007) learners could cope with dissonance by changing their beliefs to eliminate the dissonance. Moreover, Schunk (2012) stated that cognitive dissonance could be reduced by change a discrepant cognition.

6.4 Limitation

The population of the study of undergraduate students' opinions about ubiquitous MOOC was Thai students. Consequently, the researcher used this result to design the U-MOOC model, it may not refer to others country environment.

The sample of the study in a Thai group was Thai undergraduate students in the faculty of education. Therefore, careful consideration should be made when generalizing the study findings to other faculties in the populations.

In part of a study of the effects of an instructional model from U-MOOC model, have only thirty participants in a quasi-experimental design. The drop rate in this study was zero because the participants have an informal connection with the instructor. On the other hand, many MOOCs learners in others have high drop-out rates (Krause & Lowe, 2014).

The foreigner students in a study of the effects of an instructional model from U-MOOC model, it would be better if the course has students were diverse students, but the experimental course was mostly Chinese and Thai student. It may not refer to the other culture.

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6.5 Recommendations

The recommendation in this research was proposed in two parts: first recommendations of applying this research to practice, and the second recommendations for future research.

6.5.1 Recommendations of applying this research to practice

1) For selecting online tools should select the tools which learners usually use in daily life. Although the tools may not appear in the manual, there are new online tools created nowadays. Some tools have used popularity in each area. Therefore, the instructional designer should select the appropriate tools for learners.

2) Students in the U-MOOC should have a various culture in the group in order to exchange their culture opinions. Moreover, it would be more cognitive dissonant about the different culture, and it may lead to discuss for reducing the dissonant.

3) The researcher used the MAXQDA 12, software for supporting a qualitative data analysis, to analyze the qualitative data. There is others qualitative data analysis program to use, such as NVIVO, Atlas.Ti, HyperRESEARCH, Coding Analysis Toolkit (CAT), etc.

4) The components of lesson plan in the U-MOOC can be more than seven components because there were many formats of the lesson plan. The instructor should be carefully selected for another lesson plan.

5) The U-MOOC was an online course; it needed to use the domain name and web hosting. The domain name should select the outstanding and interesting name. The web hosting should be reliable provider and performance solutions.

6.5.2 Recommendations for further research

1) The data was collected only of a faculty of education, which is weak toward generalizing to all discipline. Consequently, future research might be collected from various students in order to learn how another discipline might be.

2) U-MOOC model could be used in another content in the field of social science. Thus future research may be used the various content.

3) U-MOOC was designed for undergraduate students, the future research might be trying to use open to participants who want to learn.

4) Should try in-depth study how students learn in the U-MOOC and reduce their cognitive dissonant.

Chapter Summary

To end the discussion of this research, the U-MOOC model was designed from the result of undergraduate students' opinions and theories, for example, U-MOOC should have video lecture because it could offer text, sound, and moving pictures, though the instructor should have the skill to produce or select the production. The cognitive dissonance theory was explained that the dissonance should increase while the cognitions increases and the students would reduce their dissonant. The recommendation in this research would be helpful to the reader who interested in U-MOOC for the future research, comprised of two parts both recommendations of applying this research to practice, and recommendations for future research.

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APPENDIX

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

Appendix 1

Expert Name List

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

The questionnaire of students' opinions in designing a ubiquitous MOOC

Lect. Chattrawan Lanchwathanakorn, Ph.D.	Faculty of Education, Chulalonkorn University
Lect. Jaemjan Sriarunrasmee, Ph.D.	Faculty of Education, Srinakharinwirot University
Lect. Kamontip Srihaset, Ph.D.	Faculty of Education, Ramkhamhaeng University
Lect. Tatsirin Sawangboon, Ph.D.	Faculty of Education, Mahasarakham University
Lect. Waraporn Sinthaworn, Ph.D.	Faculty of Education, Rajabhat Rajanagarindra University

Higher education student's cross–cultural competence scale

Lect. Kamontip Srihaset, Ph.D.	Faculty of Education, Ramkhamhaeng University
Lect. Pacharin Buranakorn, Ph.D.	Faculty of Liberal Arts, Huachiew Chalermprakiet University
Asst. Parinya Meesuk, Ph.D.	Faculty of Technical Education, Rajamangala University of Technology Thanyaburi

The questionnaire of students' opinions in designing a ubiquitous MOOC

Lect. Chattrawan Lanchwathanakorn, Ph.D.	Faculty of Education, Chulalonkorn University
Lect. Jaemjan Sriarunrasmee, Ph.D.	Faculty of Education, Srinakharinwirot University
Lect. Kamontip Srihaset, Ph.D.	Faculty of Education, Ramkhamhaeng University
Lect. Tatsirin Sawangboon, Ph.D.	Faculty of Education, Mahasarakham University
Lect. Waraporn Sinthaworn, Ph.D.	Faculty of Education, Rajabhat Rajanagarindra University

Instructional system design

Asst. Eknarin Bangthamai, Ph.D.	Faculty of Education, Silpakorn University
Asst. Suchin, Nithichaiyo	Faculty of Education, Rajabhat Rajanagarindra University
Lect. Danucha Saleewong, Ph.D.	Faculty of Education, Valaya Alongkorn Rajabhat University
Lect. Jenjob Suksangprasit, Ph.D.	Faculty of Education, Rambhai Barni Rajabhat University
Lect. Prapat Pharacheewa, Ph.D.	Faculty of Education, Valaya Alongkorn Rajabhat University
Lect. Somchai Suriyakrai, Ph.D.	Faculty of Pharmaceutical Sciences, KhonKaen University
Lect. Wichit Thepprasit, Ph.D.	Faculty of Education, Chiangrai Rajabhat University

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

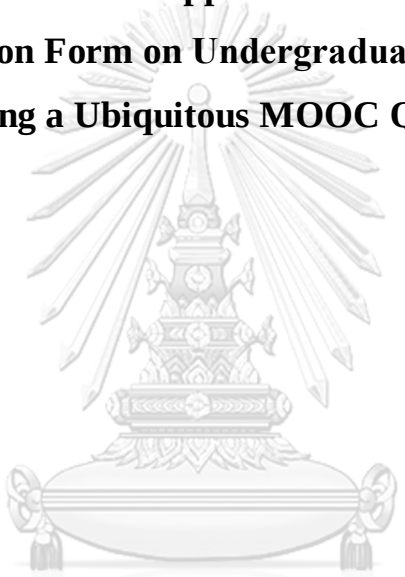
Cross-cultural content

Assoc. Pattawee Wijob	Faculty of Education, Rajabhat Rajanagarindra University
Lect. Manassanan Namsomboon, Ph.D.	Faculty of Education, Silpakorn University
Asst. Pattareeya Kitcharoen, Ph.D.	Faculty of Social Sciences and Humanities, Mahidol University

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

Appendix 2

Experts' Evaluation Form on Undergraduate Students' opinions in Designing a Ubiquitous MOOC Questionnaire



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แบบตรวจสอบเครื่องมือวิจัยโดยผู้ทรงคุณวุฒิ
สำหรับงานวิจัยวิทยานิพนธ์เรื่อง
รูปแบบการออกแบบยูบิควิตัสมูคโดยใช้วิธีทำให้เกิดความขัดแย้งทางความคิดเพื่อส่งเสริม
สมรรถนะข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต
A UBIQUITOUS MOOC INSTRUCTIONAL DESIGN MODEL BASED ON COGNITIVE DISSONANCE FOR ENHANCING HIGHER EDUCATION STUDENT'S CROSS–CULTURAL COMPETENCE

เรียน

การวิจัยนี้มุ่งพัฒนารูปแบบการออกแบบยูบิควิตัสโดยใช้วิธีทำให้เกิดความขัดแย้งทางความคิดเพื่อส่งเสริมสมรรถนะข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต โดยมีวัตถุประสงค์การวิจัย คือ เพื่อศึกษาความคิดเห็นของนักศึกษาเกี่ยวกับการออกแบบ U-MOOC ในการดำเนินการวิจัย มีการสร้างเครื่องมือที่ใช้ในการวิจัย คือ แบบสอบถามนักศึกษา ซึ่งแบ่งข้อคำถามออกเป็น 2 ตอน จำนวน 52 ข้อ

คณะกรรมการบริหารหลักสูตรครุศาสตร์ดุษฎีบัณฑิต สาขาวิชาเทคโนโลยีและสื่อสารการศึกษา ภาควิชาเทคโนโลยีและสื่อสารการศึกษา พิจารณาเห็นว่า ท่านอาจารย์เป็นผู้ทรงความรู้ และมีประสบการณ์เหมาะสมที่จะช่วยตรวจสอบคุณภาพเครื่องมือวิจัยได้ จึงขอเรียนเชิญเป็นผู้ทรงคุณวุฒิตรวจสอบคุณภาพเครื่องมือวิจัย และขอความกรุณาท่านอาจารย์ ได้โปรดตรวจสอบคุณภาพของเครื่องมือแต่ละตอนตามคำชี้แจง หากมีข้อเสนอแนะหรือเมื่อข้อคำถามไม่สอดคล้องกับสิ่งที่มุ่งวัดหรือวัตถุประสงค์ของการวัด ได้โปรดเขียนข้อแนะนำในการปรับปรุงลงในช่องที่กำหนดของแต่ละข้อ และหากท่านอาจารย์มีข้อสงสัยต้องการสอบถามกรุณาติดต่อกระผมได้ทั้งทางโทรศัพท์และทางอีเมล์ตามที่อยู่ข้างล่างนี้ได้ตลอดเวลา
จึงเรียนมาเพื่อโปรดพิจารณา ดิฉันหวังเป็นอย่างยิ่งว่าจะได้รับความอนุเคราะห์จากท่าน และขอขอบพระคุณเป็นอย่างสูงมา ณ โอกาสนี้

ขอแสดงความนับถือ
นายบุญรัตน์ แผลงศร
นิสิตดุษฎีบัณฑิตสาขาวิชาเทคโนโลยีและสื่อสารการศึกษา

ภาควิชาเทคโนโลยีและสื่อสารการศึกษา คณะครุศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
โทร.
E-mail:

โครงสร้างของแบบสอบถามความคิดเห็นของนักศึกษาเกี่ยวกับการออกแบบ U-MOOC

แบบสอบถามความคิดเห็นของนักศึกษาเกี่ยวกับการออกแบบ U-MOOC เป็นเครื่องมือที่ใช้ในการเก็บรวบรวมข้อมูลในระยะการวิจัยเชิงปริมาณ โดยมีวัตถุประสงค์เพื่อศึกษาความคิดเห็นของนักศึกษาเกี่ยวกับการออกแบบ U-MOOC

โครงสร้างของ แบบสอบถามสภาพแวดล้อมการเรียนรู้แบบออนไลน์ ประกอบด้วย ยูเลิร์นนิ่ง และสภาพแวดล้อมแบบมูค โดยตารางกำหนดพฤติกรรมที่ต้องการวัดและจำนวนข้อคำถาม มีรายละเอียดดังต่อไปนี้

ตารางที่ 1 ตารางกำหนดพฤติกรรมที่ต้องการวัดและจำนวนข้อคำถาม (table of specification) ของเครื่องมือวิจัย

องค์ประกอบที่วัด	มิติที่วัด	น้ำหนักความสำคัญ (ร้อยละ)	จำนวนข้อ	คำถามข้อที่	ที่มาของเครื่องมือ
สภาพแวดล้อมการเรียนรู้แบบออนไลน์	**1) ยูเลิร์นนิ่ง**				
	1.1) ความคงอยู่	11.76	2	1-2	
	1.2) การเข้าถึง	23.53	4	3-6	
	1.3) ความรวดเร็ว	23.53	4	7-10	
	1.4) ความสามารถในการโต้ตอบกับผู้ใช้	23.53	4	11-14	
	1.5) การรับรู้บริบท	17.65	3	15-17	
	รวม	**100.00**	**17**		
	2) มูค				
	2.1) กระดานอภิปราย	4.17	1	18	
	2.2) สตรีมส่วนบุคคล	12.50	3	19-21	
	2.3) กลุ่ม	4.17	1	22	
	2.4) บล็อกและแฟ้มผลงาน	8.33	2	23-24	
	2.5) การระบุตัวตนออนไลน์	8.33	2	25-26	
	2.6) แฮชแทค	8.33	2	27-28	
	2.7) โฮมเพจ	8.33	2	29-30	
	2.8) การสื่อสาร	16.67	4	31-34	
	2.9) ทรัพยากร	8.33	2	35-36	
	2.10) วิดีโอการสอน	4.17	1	37	
	2.11) ระบบช่วยเหลือผู้เรียน	8.33	2	38-39	
	2.12) การตอบกลับของผู้เรียน	8.33	2	40-41	
	รวม	100.00	24		
การออกแบบการเรียนการสอนออนไลน์	**3) การออกแบบยูบิควิตัสมูคเพื่อพัฒนาสมรรถนะข้ามวัฒนธรรม**				
	1) ความไวทางวัฒนธรรม	26.32	5	42-46	

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องค์ประกอบที่วัด	มิติที่วัด	น้ำหนักความสำคัญ (ร้อยละ)	จำนวนข้อ	คำถามข้อที่	ที่มาของเครื่องมือ
	2) การเห็นคุณค่าทางวัฒนธรรม	15.79	3	47-49	
	3) ความรู้ในวัฒนธรรมเฉพาะ	10.53	2	50-51	
	4) ทัศนคติ	5.26	1	52	
	5) การเปิดรับประสบการณ์ใหม่	10.53	2	53-54	
	6) ทักษะความสัมพันธ์ระหว่างบุคคล	10.53	2	55-56	
	7) การติดต่อสื่อสาร	10.53	2	57-58	
	8) ทักษะทางปัญญา	10.53	2	59-60	
	รวม	100	19		

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การพิจารณาความเหมาะสมของข้อคำถามในแบบสอบถาม

การพิจารณาความเหมาะสมของข้อคำถามความคิดเห็นของนักศึกษาเกี่ยวกับการออกแบบ U-MOOC มีรายละเอียดของแบบตรวจสอบเครื่องมือวิจัย ดังนี้

รายละเอียดของแบบตรวจสอบเครื่องมือวิจัย

แบบตรวจสอบเครื่องมือวิจัยฉบับนี้ประกอบด้วย 3 ส่วน ดังนี้

ส่วนที่ 1 เป็นการพิจารณาความสมบูรณ์ ความครอบคลุม และความสอดคล้องระหว่างข้อคำถามในแบบสอบถาม เพื่อให้ข้อเสนอแนะสำหรับการปรับปรุงแก้ไขแบบสอบถามให้มีความถูกต้อง สมบูรณ์ยิ่งขึ้น

ส่วนที่ 2 เป็นการพิจารณาความสมบูรณ์ ความครอบคลุมของเนื้อหาและความเหมาะสมของแบบสอบถามในภาพรวมทั้งฉบับพร้อมให้ข้อเสนอแนะสำหรับการปรับปรุง

ส่วนที่ 3 เป็นการให้ข้อเสนอแนะในประเด็นอื่นเพิ่มเติมจากการตรวจสอบทั้ง 2 ส่วนข้างต้น

เกณฑ์การให้คะแนน

ค่าคะแนน	+1	หมายถึง ข้อความนั้นมีความ**สอดคล้องกับนิยาม**ที่กำหนดไว้
	0	หมายถึง **ไม่แน่ใจ**ว่าข้อความนั้นสอดคล้องกับนิยามที่กำหนดไว้
	-1	หมายถึง ข้อความนั้น**ไม่สอดคล้องกับนิยาม**ที่กำหนดไว้

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ส่วนที่ 1 การพิจารณาความสมบูรณ์ ความครอบคลุม และความสอดคล้องระหว่างข้อคำถามในแบบสอบถาม

สภาพแวดล้อมการเรียนรู้ข้ามวัฒนธรรมแบบออนไลน์ หมายถึง เครื่องมือที่ใช้ในการเรียนการสอนข้ามวัฒนธรรมผ่านเว็บซึ่งมีการบริหารจัดการอย่างเป็นระบบ สามารถวัดได้จากตัวแปรสังเกตได้ 3 ตัว คือ 1) ยูเลิร์นนิ่ง 2) มูค และ 3) สมรรถนะข้ามวัฒนธรรม

1) ยูเลิร์นนิ่ง (U-learning) หมายถึง แนวคิดการเรียนรู้ที่ผู้เรียนสามารถเพิ่มพูนความรู้ในชีวิตประจำวันโดยใช้คอมพิวเตอร์ แท็บเล็ต หรือ สมาร์ทโฟน ผสมผสานกัน ซึ่งมีคุณลักษณะ 5 ประการ คือ 1) ความคงอยู่ 2) การเข้าถึง 3) ความรวดเร็ว 4) ความสามารถในการโต้ตอบกับผู้ใช้ และ 5) การรับรู้บริบท

นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็น			ข้อเสนอแนะ
		สอดคล้อง	ไม่แน่ใจ	ไม่สอดคล้อง	
1) ความคงอยู่ (Permanency) หมายถึง สารสนเทศจะยังคงอยู่ยกเว้นผู้เรียนเจตนาลบสารสนเทศนั้น Information is remains unless the learners purposely remove it (Yahya et al., 2010). All the learning processes are recorded continuously every day (Bomsdorf, 2005).	1. เมื่อเรียนออนไลน์จบคอร์ส นักศึกษาเลือกที่จะเก็บข้อมูลและผลงานให้อยู่ในฐานข้อมูลออนไลน์				
	2. นักศึกษาบันทึกกระบวนการเรียนรู้ไว้อย่างต่อเนื่อง				
2) การเข้าถึง (Accessibility) หมายถึง เมื่อผู้เรียนจำเป็นต้องใช้สารสนเทศ ผู้เรียนสามารถเข้าถึงได้ตลอดเวลา Information is always available whenever the learners need to use it.	3. นักศึกษาใช้คอมพิวเตอร์ในการค้นหาความรู้อย่างสะดวก ได้ตลอดเวลา				
	4. นักศึกษาใช้แท็บเล็ต ในการค้นหาความรู้อย่างสะดวก ได้ตลอดเวลา				
	5. นักศึกษาใช้สมาร์ทโฟน ในการค้นหาความรู้อย่างสะดวก ได้ตลอดเวลา				
	6. เพื่อนๆ สามารถติดต่อนักศึกษาโดยใช้สื่อสังคมออนไลน์ได้ตลอดเวลา				

นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็น			ข้อเสนอแนะ
		สอดคล้อง	ไม่แน่ใจ	ไม่สอดคล้อง	
3) ความรวดเร็ว (Immediacy) หมายถึง ผู้เรียนสามารถเรียกดูสารสนเทศมาใช้ได้อย่างรวดเร็ว The information can be retrieved immediately by the learners.	7. นักศึกษาใช้คอมพิวเตอร์ที่มีความเร็วเพียงพอต่อการเข้าชมเว็บไซต์				
	8. นักศึกษาใช้แท็บเล็ตที่มีความเร็วเพียงพอต่อการเข้าชมเว็บไซต์				
	9. นักศึกษาใช้สมาร์ทโฟนที่มีความเร็วเพียงพอต่อการเข้าชมเว็บไซต์				
	10. นักศึกษาใช้อินเทอร์เน็ตที่มีความเร็วเพียงพอต่อการเข้าชมเว็บไซต์				
4) ความสามารถในการโต้ตอบกับผู้ใช้ (Interactivity) หมายถึง ผู้เรียนสามารถโต้ตอบกับเพื่อนร่วมชั้นเรียน ผู้สอน และผู้เชี่ยวชาญได้หลายช่องทางได้อย่างมีประสิทธิภาพและประสิทธิผล The learners can interact with peers, teachers, and experts efficiently and effectively through different media.	11. นักศึกษาสื่อสารโต้ตอบกับเพื่อนร่วมชั้นเรียน ผู้สอน และผู้เชี่ยวชาญ ได้อย่างถูกต้อง รวดเร็ว และบรรลุเป้าหมาย				
	12. นักศึกษาติดต่อสื่อสารกับอาจารย์หรือเพื่อนๆ โดยใช้โปรแกรมแชทหรือเฟสบุ๊ค				
	13. นักศึกษาโทรศัพท์ผ่านอินเทอร์เน็ต เพื่อพูดคุยกับอาจารย์หรือเพื่อนๆ				
	14. นักศึกษาสนทนาโต้ตอบกับอาจารย์หรือเพื่อนๆ โดยใช้กล้องเว็บแคม				
5) การรับรู้บริบท (Context-awareness) หมายถึง สภาพแวดล้อมที่สามารถปรับให้เหมาะสมกับสถานการณ์การจริงของผู้เรียน เพื่อให้ได้สารสนเทศที่เพียงพอแก่ผู้เรียน The environment can adapt to the learners real situation to provide adequate information for the learners.	15. เมื่อพบสิ่งที่น่าสนใจ นักศึกษามักจะใช้แท็บเล็ตหรือสมาร์ทโฟนถ่ายภาพและส่งต่อให้ผู้อื่นทันที				
	16. เมื่อพบสถานที่ที่น่าสนใจ นักศึกษาใช้แท็บเล็ตหรือสมาร์ทโฟน ส่งพิกัดของสถานที่ดังกล่าวให้เพื่อนหรืออาจารย์				
	17. นักศึกษาใช้บลูทูธหรือเครื่องมืออื่นๆ ส่งข้อมูลในรูปแบบต่างๆ โดยไม่ผ่านอินเทอร์เน็ต				

2) มูค (Massive open online course: MOOC) หมายถึง การเรียนการสอนออนไลน์ที่ไม่จำกัดการเข้าเรียน โดยผู้เรียนจะมีปฏิสัมพันธ์กับผู้อื่นผ่านเครื่องมือดิจิทัลโดยใช้เว็บปฏิสัมพันธ์ (interactive web) เพื่อแลกเปลี่ยนและสร้างองค์ความรู้ในกลุ่มย่อย ซึ่งประกอบด้วย 1) discussion boards 2) สตรีมส่วนบุคคล (personal streams) 3) กลุ่ม groups 4) บล็อกและแฟ้มผลงาน blogs and portfolios 5) การระบุตัวตนออนไลน์ online identity 6) แฮชแทค hashtags 7) โฮมเพจ course homepages 8) การสื่อสาร communication 9) ทรัพยากร course resources 10) วิดีโอการสอน video lectures 11) ระบบช่วยเหลือผู้เรียน student support และ 12) การตอบกลับของผู้เรียน Students' feedback

นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็น			ข้อเสนอแนะ
		สอดคล้อง	ไม่แน่ใจ	ไม่สอดคล้อง	
1) กระดานอภิปราย (discussion boards) กระดานออนไลน์สำหรับผู้เรียนที่มีความสนใจในเรื่องเดียวกันสามารถอภิปรายโต้แย้งในหัวเรื่องนั้น online bulletin boards where people with similar interests can discuss and debate various topics	18. นักศึกษาแลกเปลี่ยนความคิดเห็นหรืออธิบายข้อโต้แย้งในประเด็นที่สนใจผ่านเว็บบอร์ด				
2) สตรีมส่วนบุคคล (personal streams) สตรีมส่วนบุคคลจะช่วยติดตามและส่งต่อข้อมูล เช่น การส่งต่อข้อความ (retweeting) จาก twitter, การส่งต่อข้อมูล (repinning) จาก Pinterest เป็นต้น เป็นการแบ่งปันข้อมูลและการส่งต่อข้อมูลที่ได้รับจากผู้อื่น Personal streams facilitate both following and sharing (retweeting at Twitter, repinning at Pinterest, etc.) as Share and re-share posts.	19. เมื่อนักศึกษาพบข้อมูลที่เป็นประโยชน์จากเว็บต่างๆ นักศึกษาจะแชร์ให้เพื่อน				
	20. เมื่อมีคนแชร์ข้อมูลที่น่าสนใจมาให้ นักศึกษาจะแชร์ต่อให้เพื่อน				
	21. นักศึกษาพิมพ์ข้อความหรือข้อมูลที่น่าสนใจลงในไทม์ไลน์ (timeline) เป็นประจำ				

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		สอดคล้อง	ไม่แน่ใจ	ไม่สอดคล้อง	
3) กลุ่ม (groups) โปรแกรมต้องช่วยผู้เรียนในกลุ่มใหญ่หาช่องทางติดต่อกันภายในกลุ่มเล็ก MOOC software is to help students in massive classes find ways to connect in smaller groups.	22. นักศึกษามีการติดต่อสื่อสารในกลุ่มเล็กๆ–เพื่อแลกเปลี่ยนความคิดเห็นในประเด็นเฉพาะ				
4) บล็อกและแฟ้มผลงาน (blogs and portfolios) บล็อกและแฟ้มสะสมงานเป็นองค์ประกอบที่สำคัญที่ช่วยให้ผู้เรียนเรียนได้ดีและพัฒนาเครือข่ายการเรียนรู้ Blogs and portfolios are essential elements for student learning as well as for the development of a learning network.	23. นักศึกษาแสดงความคิดเห็น ภายหลังจากอ่านบทความหรือผลงานในบล็อกของนักศึกษาคนอื่นๆ				
	24. นักศึกษาเขียนสรุปสิ่งที่ได้เรียนรู้ลงในบล็อก				
5) การระบุตัวตนออนไลน์ (online identity) ผู้เรียนควรระบุตัวตน(หรือไม่) ในการติดต่อผ่านเครือข่าย How people identify themselves (or not) in the network demands careful scrutiny.	25. นักศึกษาแสดงความคิดเห็น โดยไม่ลงชื่อตนเอง				
	26. นักศึกษามีความลำบากใจ หากต้องแสดงความคิดเห็นโดยระบุชื่อ				
6) แฮชแทค (hashtags) แฮชแทคจะช่วยพัฒนาประสิทธิภาพของเครือข่ายและช่วยให้ผู้เรียนใช้เครือข่ายสังคมออนไลน์ได้อย่างมีประสิทธิภาพ	27. เมื่อใช้สื่อสังคมออนไลน์ นักศึกษามักจะใส่แฮชแทค (คำหรือวลีที่มีสัญลักษณ์ # นำหน้า) เพื่อสะดวกในการจัดหมวดหมู่				
The power of hashtags would improve the efficiency of own network as well as helping students to use other social networks effectively	28. นักศึกษาใช้แฮชแทคในการแสดงความคิดเห็นในsocial medial เสมอ				

นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็น			ข้อเสนอแนะ
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6) แฮชแทค (hashtags) แฮชแทคจะช่วยพัฒนาประสิทธิภาพของเครือข่ายและช่วยให้ผู้เรียนใช้เครือข่ายสังคมออนไลน์ได้อย่างมีประสิทธิภาพ	27. เมื่อใช้สื่อสังคมออนไลน์ นักศึกษามักจะใส่แฮชแทค (คำหรือวลีที่มีสัญลักษณ์ # นำหน้า) เพื่อสะดวกในการจัดหมวดหมู่				
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นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็น			ข้อเสนอแนะ
		สอดคล้อง	ไม่แน่ใจ	ไม่สอดคล้อง	
7) โฮมเพจ (course homepages) โฮมเพจสำหรับห้องเรียนช่วยเพิ่มโอกาสให้ผู้เรียนมีส่วนร่วม แม้ว่าไม่สูงมากนัก The homepage for a class provides a great opportunity for student engagement, but homepages are not highly engaging.	29. นักศึกษาติดตามข้อมูลข่าวสารจากหน้าโฮมเพจ				
	30. นักศึกษาเลือกเข้าชมเว็บที่มีตัวเลขผู้เข้าชมเยอะจากหน้าโฮมเพจ				
8) การสื่อสาร (communication) ประสิทธิผลของการสื่อสารจากผู้สอนเป็นองค์ประกอบที่สำคัญ Effective broadcast communication from the professor is essential.	31. นักศึกษาคิดว่าควรมีช่องทางในการติดต่อกับผู้สอนหลายช่องทาง				
	32. นักศึกษาเลือกใช้ social media เพื่อส่งงานหรือสอบถามปัญหาต่างๆ กับผู้สอน				
	33. นักศึกษาเลือกใช้เว็บบอร์ดและจดหมายอิเล็กทรอนิกส์ เพื่อส่งงานหรือสอบถามปัญหาต่างๆ กับผู้สอน				
	34. นักศึกษาเลือกวิธีสื่อสารกับเพื่อนหรืออาจารย์แบบตัวต่อตัว				
9) ทรัพยากร (course resources) ความต้องการสื่อในการเรียน ควรมีทรัพยากรที่เปิดกว้างสำหรับผู้เรียนใช้ค้นคว้าIn addition to the required course materials (videos, readings, etc.), there should also be a wide array of course resources for students to explore.	35. นักศึกษาศึกษาเพิ่มเติมจากแหล่งข้อมูลอื่นๆ เช่น e-book คลิปวิดีโอ รูปภาพ เป็นต้น				
	36. นักศึกษาศึกษาเพิ่มเติมจากแหล่งข้อมูลอื่นๆ รวมถึงเว็บไซต์ที่อาจารย์แนะนำ				

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็น			ข้อเสนอแนะ
		สอดคล้อง	ไม่แน่ใจ	ไม่สอดคล้อง	
10) วิดีโอการสอน (video lectures) วิดีโอจัดว่าเป็นสื่อหลักในการส่งข้อมูลในห้องเรียน ดังนั้นจึงควรมีการจัดเรียงลำดับคุณภาพของแต่ละวิดีโอ Videos are the primary mode of content delivery in classes, so maximizing the value of those videos should be a top priority	37. นักศึกษาคิดว่าคลิปวิดีโอควรมีระดับความละเอียดหลายระดับ เพื่อเลือกให้เหมาะสมกับอุปกรณ์ที่ใช้				
11) ระบบช่วยเหลือผู้เรียน (student support)การมีระบบช่วยเหลือผู้เรียนจะทำให้ผู้เรียนเรียนได้อย่างมีคุณภาพ Without the usual level of instructor or institutional support that college students normally receive	38. นักศึกษาคิดว่าควรมีหน้าเว็บแนะนำวิธีแก้ปัญหาในการเรียนเบื้องต้น				
	39. นักศึกษาคิดว่าควรมีช่องทางการติดต่อกับผู้ดูแลระบบโดยตรง เพื่อตอบคำถามเกี่ยวกับการใช้งาน				
12) การตอบกลับของผู้เรียน (Students' feedback) โปรแกรมต้องการการปรับปรุงอย่างต่อเนื่องจากการตอบกลับของผู้ใช้งาน ทั้งด้านการปรับปรุงเว็บไซต์และการพัฒนาการเรียนรู้ Software needs to continuously collect user feedback, both to improve the classes and also for the development of learning analytics.	40. หากมีข้อแนะนำเพิ่มเติม นักศึกษาจะส่งข้อเสนอแนะไปยังผู้พัฒนาระบบ				
	41. นักศึกษาคิดว่าควรมีลิงค์เพื่อส่งข้อความแจ้งข้อผิดพลาดให้กับผู้ดูแลระบบในทุกหน้าเว็บ				

3) การออกแบบยูบิควิตัสมูคเพื่อพัฒนาสมรรถนะข้ามวัฒนธรรม (Instructional design of ubiquitous MOOC for enhancing cross–cultural competence) หมายถึง การนำตัวแปรข้ามวัฒนธรรมมาผสมผสานในออกแบบยูบิควิตัสมูคเพื่อพัฒนาสมรรถนะข้ามวัฒนธรรม ซึ่งประกอบด้วย 1) ความไวทางวัฒนธรรม (Cultural sensitivity) 2) การเห็นคุณค่าทางวัฒนธรรม (Cultural values) 3) ความรู้ในวัฒนธรรมเฉพาะ (Knowledge of culture-specific) 4) ทัศนคติ (Attitudes) 5) การเปิดรับประสบการณ์ใหม่ (Openness to experience and challenge) 6) ทักษะความสัมพันธ์ระหว่างบุคคล (Interpersonal skills) 7) การติดต่อสื่อสาร (communication) และ 8) ทักษะทางปัญญา (cognitive skill)

นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็น			ข้อเสนอแนะ
		สอดคล้อง	ไม่แน่ใจ	ไม่สอดคล้อง	
1) ความไวทางวัฒนธรรม (Cultural sensitivity) คือ การแสดงออกที่ไวต่อการรับรู้ของบุคคลเมื่อต้องเผชิญกับสถานการณ์ทางวัฒนธรรมที่มีความแตกต่าง สามารถรับรู้หรือสังเกตเห็นถึงการเปลี่ยนแปลงของบุคคล สังคมและวัฒนธรรมรอบข้างได้อย่างรวดเร็ว (Chunpen, 2013)	42. นักศึกษาตระหนักถึงความแตกต่างเมื่อเรียนกับเพื่อนที่เป็นชาวต่างชาติ				
	43. ก่อนเริ่มการเรียนการสอนควรมีการแนะนำตนเองว่ามาจากประเทศหรือวัฒนธรรมใด เพื่อสามารถติดต่อกับคนต่างวัฒนธรรมได้อย่างเหมาะสม				
	44. ก่อนเริ่มการเรียนการสอนอาจารย์ควรมอบหมายให้ทุกคนอ่านเนื้อหาเกี่ยวกับข้อห้ามหรือวิธีการปฏิบัติต่อเพื่อนต่างวัฒนธรรม				
	45. เมื่อนักศึกษาเข้าร่วมสนทนากลุ่มออนไลน์ นักศึกษาควรเตรียมตัวในการคุยกับเพื่อนต่างวัฒนธรรม				
	46 ควรมีระบบการกลั่นกรองการแสดงความคิดเห็นบนกระดานสนทนาหรือห้องสนทนา เพื่อป้องกันความเข้าใจผิดระหว่างวัฒนธรรม				

นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็น			ข้อเสนอแนะ
		สอดคล้อง	ไม่แน่ใจ	ไม่สอดคล้อง	
2) การเห็นคุณค่าทางวัฒนธรรม (Cultural values) หมายถึง ระดับความภาคภูมิใจในวัฒนธรรมของตนเองชื่นชม เห็นคุณค่าความสำคัญและประโยชน์ในการเรียนรู้เกี่ยวกับวัฒนธรรม ที่หลากหลาย แสดงความสนใจที่จะเรียนรู้ และเข้าใจมารยาท ขนบธรรมเนียม และประเพณีปฏิบัติในวัฒนธรรมของตนเองและวัฒนธรรมอื่น(Chunpen, 2013; Seeberg & Minick, 2012)	47. การเรียนออนไลน์ควรส่งเสริมให้มีการแลกเปลี่ยนความรู้เกี่ยวกับวัฒนธรรมในการเรียนออนไลน์ ควรส่งเสริมให้มีการแลกเปลี่ยนความรู้เกี่ยวกับวัฒนธรรม				
	48. ควรให้อิสระในการเลือกสื่อหรือช่องการเรียนด้วยตนเอง เพื่อศึกษาเกี่ยวกับวัฒนธรรมที่สนใจ				
	49. ควรมีสื่อที่หลากหลาย เช่น คลิปวิดีโอ หนังสืออิเล็กทรอนิกส์ มัลติมีเดีย เป็นต้น เพื่อให้สอดคล้องกับความต้องการของผู้เรียน				
3) ความรู้ในวัฒนธรรมเฉพาะ (Knowledge of culture-specific) หมายถึง ความสามารถในการรับรู้ สื่อความหมาย แปลความ ตีความ หรือขยายความเกี่ยวกับวัฒนธรรมประจำชาติและวัฒนธรรมท้องถิ่น (Chunpen, 2013; Gabrenya Jr et al., 2012)	50. อาจารย์ควรเปิดโอกาสให้นักศึกษาส่งรูปภาพหรือคลิปวิดีโอเกี่ยวกับวัฒนธรรมของตนเองผ่านแท็บเล็ตหรือสมาร์ทโฟน				
	51. อาจารย์ควรเปิดโอกาสให้นักศึกษาโพสเรื่องราวเกี่ยวกับวัฒนธรรมที่พบในชีวิตประจำวัน				

นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็น			ข้อเสนอแนะ
		สอดคล้อง	ไม่แน่ใจ	ไม่สอดคล้อง	
4) ทัศนคติ (Attitudes) ทัศนคติต่อวัฒนธรรมจะทำให้เกิดแรงจูงใจในการมีปฏิสัมพันธ์ระหว่างวัฒนธรรม Attitudes toward other cultures and motivation to engage in intercultural interactions. (Abbe, Gulick, & Herman, 2007; Gabrenya Jr et al., 2012)	52. หากนักศึกษาได้รับประสบการณ์ตรงจากคนต่างวัฒนธรรม จะทำให้นักศึกษามีปฏิสัมพันธ์หรือความผูกพันในวัฒนธรรมดังกล่าว				
5) การเปิดรับประสบการณ์ใหม่ (Openness to experience and challenge) การค้นหาประสบการณ์ใหม่เพื่อนำไปสู่การมีปฏิสัมพันธ์กับบุคคลที่มีความแตกต่างทางวัฒนธรรม Tendency to actively search and explore new situations and to regard them as a challenge, as well as to engage in interaction with members of another culture. (Ross, 2008; Seeberg & Minick, 2012)	53. การสื่อสารกับเพื่อนต่างวัฒนธรรมบ่อยครั้ง ทำให้ท่านมีความเชื่อมั่นในการสื่อสารกับเพื่อนต่างวัฒนธรรมคนอื่น				
	54. อาจารย์ควรส่งเสริมให้มีการสื่อสารกับเพื่อนต่างทางวัฒนธรรมนอกห้องเรียน เพื่อค้นหาประสบการณ์ใหม่ๆ				
6) ทักษะความสัมพันธ์ระหว่างบุคคล(Interpersonal skills) ความสามารถในการสร้างสัมพันธ์กับบุคคลอื่น และคงความสัมพันธ์ในระยะยาว the ability to initiate conversation and the ability to establish and maintain relationships (Abbe et al., 2007; Chunpen, 2013; Ross, 2008; Seeberg & Minick, 2012)	55. นักศึกษาคิดว่าควรมีช่องทางการสื่อสารหลายทาง เพื่อสานต่อความสัมพันธ์กับเพื่อนต่างวัฒนธรรมในระยะยาว				
	56. ในการเรียนออนไลน์อาจารย์ควรมอบหมายงานกลุ่ม เพื่อเสริมสร้างความสัมพันธ์ระหว่างผู้เรียน				

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นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็น			ข้อเสนอแนะ
		สอดคล้อง	ไม่แน่ใจ	ไม่สอดคล้อง	
7) การติดต่อสื่อสาร (communication) ความสามารถในการปรับรูปแบบการติดต่อสื่อสารกับบุคคลที่มีความแตกต่างทางวัฒนธรรมอย่างถูกต้องเหมาะสม (Chunpen, 2013; Gabrenya Jr, Griffith, Moukarzel, Pomerance, & Reid, 2012)	57. ควรเลือกใช้รูปแบบการติดต่อสื่อสาร ทั้งแบบทางการและไม่เป็นทางการ				
	58. ภาษาที่ใช้ในการติดต่อสื่อสาร ควรเป็นภาษากลางที่เพื่อนต่างวัฒนธรรมมีความเข้าใจ				
8) ทักษะทางปัญญา (cognitive skill) ความสามารถที่จะเข้าใจวัฒนธรรมและมองในมุมของบุคคลต่างวัฒนธรรมเพื่อคาดเดาพฤติกรรมและทัศนคติ The ability to understand of the culture in a manner that allows them to take the perspective of a member of that culture and use it to predict behavior and attitudes (Gabrenya Jr et al., 2012; Ross, 2008)	59. หากมีข้อขัดแย้งหรือข้อสงสัยเกี่ยวกับวัฒนธรรม นักศึกษามีความพยายามค้นหาคำตอบจนกว่าจะพบ				
	60. ควรมีกิจกรรมบทบาทสมมติเป็นคนต่างวัฒนธรรม เพื่อจะได้เข้าใจในมุมมองของเพื่อนต่างวัฒนธรรม				

ส่วนที่ 2 ขอให้ผู้เชี่ยวชาญพิจารณาแบบสอบถามทั้งฉบับในประเด็นความสมบูรณ์ ความครอบคลุมของเนื้อหาทั้งฉบับ โดยเขียนข้อเสนอแนะเพื่อการปรับปรุงลงในช่องว่างข้างล่างนี้

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ส่วนที่ 3 ข้อเสนอแนะเพิ่มเติม

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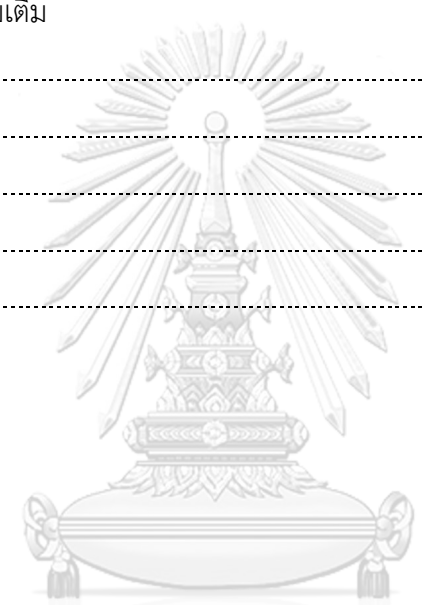

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY

Appendix 3

Undergraduate Students' opinions in Designing a Ubiquitous MOOC Questionnaire

จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

แบบสอบถามการวิจัย

คำชี้แจง

แบบสอบถามฉบับนี้ เป็นแบบสอบถามสำหรับนิสิตนักศึกษาคณะครุศาสตร์/ศึกษาศาสตร์ โดยแบ่งออกเป็น 2 ตอน คือ ตอนที่ 1 ข้อมูลทั่วไป และ ตอนที่ 2 แบบสอบถามสภาพแวดล้อมการเรียนรู้ข้ามวัฒนธรรมแบบออนไลน์ของนักศึกษาคณะครุศาสตร์/ศึกษาศาสตร์

ตอนที่ 1 ข้อมูลทั่วไป

โปรดทำเครื่องหมาย ✓ หน้าข้อที่ตรงกับสภาพความเป็นจริงของท่าน พร้อมทั้งกรอกข้อมูลตามสภาพความเป็นจริงลงในช่องว่างที่เว้นไว้

1) เพศ ☐ 1) ชาย ☐ 2) หญิง

2) ชั้นปีที่ ☐ 1) ชั้นปีที่ 1 ☐ 2) ชั้นปีที่ 2 ☐ 3) ชั้นปีที่ 3 ☐ 4) ชั้นปีที่ 4 ☐ 5) ชั้นปีที่ 5

3) สาขาวิชา .....

4) สถาบัน .....

5) ท่านมีประสบการณ์การเรียนแบบออนไลน์ (อีเลิร์นนิ่ง การเรียนบนเว็บ การเรียนโดยใช้สื่อสังคมออนไลน์ เป็นต้น) หรือไม่

☐ 1) เคย ☐ 2) ไม่เคย

ตอนที่ 2 แบบสอบถามสภาพแวดล้อมการเรียนรู้ข้ามวัฒนธรรมแบบออนไลน์ของนักศึกษาคณะครุศาสตร์/ศึกษาศาสตร์

โปรดทำเครื่องหมาย ✓ ในช่องที่ตรงกับสภาพความเป็นจริงของท่าน โดยใช้เกณฑ์ดังต่อไปนี้

1 หมายถึง ท่านรับรู้ว่าข้อความตรงกับความเป็นจริงในระดับ**น้อยที่สุด(ร้อยละ 0 – 20)**

2 หมายถึง ท่านรับรู้ว่าข้อความตรงกับความเป็นจริงในระดับ**น้อย(ร้อยละ 21 – 40)**

3 หมายถึง ท่านรับรู้ว่าข้อความตรงกับความเป็นจริงในระดับ**ปานกลาง(ร้อยละ 41 – 60)**

4 หมายถึง ท่านรับรู้ว่าข้อความตรงกับความเป็นจริงในระดับ**มาก(ร้อยละ 61 – 80)**

5 หมายถึง ท่านรับรู้ว่าข้อความตรงกับความเป็นจริงในระดับ**มากที่สุด(ร้อยละ 81 – 100)**

ข้อ	ข้อความ	น้อย ⟶ มาก				
		1	2	3	4	5
ท่านมีพฤติกรรมหรือลักษณะดังต่อไปนี้ในระดับใด						
1	เมื่อเรียนออนไลน์จบคอร์ส นักศึกษาเลือกที่จะเก็บข้อมูลและผลงานให้อยู่ในฐานข้อมูลออนไลน์					
2	บันทึกข้อมูล เนื้อหาความรู้ไว้อย่างต่อเนื่อง					
3	ใช้คอมพิวเตอร์ในการค้นหาความรู้อย่างสะดวก ได้ตลอดเวลา					

ข้อ	ข้อความ	น้อย ⟶ มาก				
		1	2	3	4	5
4	ใช้แท็บเล็ต ในการค้นหาความรู้อย่างสะดวก ได้ตลอดเวลา					
5	ใช้สมาร์ทโฟน ในการค้นหาความรู้อย่างสะดวก ได้ตลอดเวลา					
6	เพื่อนๆ สามารถติดต่อนักศึกษาโดยใช้สื่อสังคมออนไลน์ได้ตลอดเวลา					
7	ใช้คอมพิวเตอร์ที่มีความเร็วเพียงพอต่อการเข้าชมเว็บไซต์					
8	ใช้แท็บเล็ตที่มีความเร็วเพียงพอต่อการเข้าชมเว็บไซต์					
ท่านมีพฤติกรรมหรือลักษณะดังต่อไปนี้ในระดับใด						
9	ใช้สมาร์ทโฟนที่มีความเร็วเพียงพอต่อการเข้าชมเว็บไซต์					
10	ใช้อินเทอร์เน็ตที่มีความเร็วเพียงพอต่อการเข้าชมเว็บไซต์					
11	สื่อสารโต้ตอบกับเพื่อนร่วมชั้นเรียน ผู้สอน และผู้เชี่ยวชาญ ได้อย่างถูกต้อง รวดเร็ว และบรรลุเป้าหมาย					
12	ติดต่อสื่อสารกับอาจารย์หรือเพื่อนๆ โดยใช้โปรแกรมแชท หรือเฟสบุ๊ค					
13	ใช้โทรศัพท์ผ่านอินเทอร์เน็ต เพื่อพูดคุยวิชาการกับอาจารย์หรือเพื่อนๆ					
14	สนทนาโต้ตอบกับอาจารย์หรือเพื่อนๆ โดยใช้โปรแกรมวิดีโอแชท เช่น facetime skype เป็นต้น					
15	เมื่อพบสิ่งที่น่าสนใจ นักศึกษามักจะใช้แท็บเล็ตหรือสมาร์ทโฟนถ่ายภาพและส่งต่อให้ผู้อื่นทันที					
16	เมื่อพบสถานที่ที่น่าสนใจ นักศึกษาใช้แท็บเล็ตหรือสมาร์ทโฟนส่งพิกัดของสถานที่ดังกล่าวให้เพื่อนหรืออาจารย์					
17	ใช้บลูทูธหรือเครื่องมืออื่นๆ ส่งข้อมูลในรูปแบบต่างๆ โดยไม่ผ่านอินเทอร์เน็ต					
18	แลกเปลี่ยนความคิดเห็นหรืออธิบายข้อโต้แย้งในประเด็นที่สนใจผ่านเว็บบอร์ด					
19	เมื่อนักศึกษาพบข้อมูลที่เป็นประโยชน์จากเว็บต่างๆ นักศึกษาจะแชร์ให้เพื่อน					
20	เมื่อมีคนแชร์ข้อมูลที่น่าสนใจมาให้ นักศึกษาจะแชร์ต่อให้เพื่อน					
21	พิมพ์ข้อความหรือข้อมูลที่น่าสนใจลงในไทม์ไลน์ (timeline) เป็นประจำ					

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ข้อ	ข้อความ	น้อย ⟶ มาก				
		1	2	3	4	5
22	ติดต่อสื่อสารในกลุ่มเล็กๆ-เพื่อแลกเปลี่ยนความคิดเห็นในประเด็นเฉพาะ					
23	แสดงความคิดเห็น ภายหลังจากอ่านบทความหรือผลงานในบล็อกของนักศึกษาคนอื่นๆ					
24	เขียนสรุปสิ่งที่ได้เรียนรู้ลงในบล็อก					
25	แสดงความคิดเห็น โดยไม่ลงชื่อตนเอง					
26	นักศึกษามีความลำบากใจ หากต้องแสดงความคิดเห็นโดยระบุชื่อ					
27	เมื่อใช้สื่อสังคมออนไลน์ นักศึกษามักจะใส่แฮชแทค (คำหรือวลีที่มีสัญลักษณ์ # นำหน้า) เพื่อสะดวกในการจัดหมวดหมู่					
28	ใช้แฮชแทคในการแสดงความคิดเห็นใน social medial เสมอ					
29	ติดตามข้อมูลข่าวสารจากหน้าโฮมเพจ					
30	เลือกเข้าชมเว็บที่มีตัวเลขผู้เข้าชมจำนวนมากจากหน้าโฮมเพจ					
31	นักศึกษาคิดว่าควรมีช่องทางในการติดต่อกับผู้สอนมากกว่า 1 ช่องทาง					
32	เลือกใช้ social media เพื่อส่งงานหรือสอบถามปัญหาต่างๆ กับผู้สอน					
33	เลือกใช้เว็บบอร์ดและจดหมายอิเล็กทรอนิกส์ เพื่อส่งงานหรือสอบถามปัญหาต่างๆ กับผู้สอน					
34	เลือกวิธีสื่อสารออนไลน์กับเพื่อนหรืออาจารย์แบบตัวต่อตัว					
35	ศึกษาค้นคว้าความรู้เพิ่มเติมจากแหล่งข้อมูลอื่นๆ เช่น e-book คลิปวิดีโอ รูปภาพ เป็นต้น					
36	ศึกษาค้นคว้าความรู้เพิ่มเติมจากแหล่งข้อมูลอื่นๆ รวมถึง เว็บไซต์ที่อาจารย์แนะนำ					
ท่านคิดว่าการเรียนออนไลน์ควรมีลักษณะดังต่อไปนี้ ในระดับใด						
37	นักศึกษาคิดว่าคลิปวิดีโอควรมีระดับความละเอียดหลายระดับเพื่อเลือกให้เหมาะสมกับอุปกรณ์ที่ใช้					
38	ควรมีหน้าเว็บแนะนำวิธีแก้ปัญหาในการเรียนเบื้องต้น					
39	ควรมีช่องทางการติดต่อกับผู้ดูแลระบบโดยตรง เพื่อตอบคำถามเกี่ยวกับการใช้งาน					
40	หากมีข้อแนะนำเพิ่มเติม นักศึกษาจะส่งข้อเสนอแนะไปยัง					

ข้อ	ข้อความ	น้อย ⟶ มาก				
		1	2	3	4	5
	ผู้พัฒนาระบบ					
41	ควรมีลิงค์เพื่อส่งข้อความแจ้งข้อผิดพลาดให้กับผู้ดูแลระบบในทุกหน้าเว็บ					
42	นักศึกษาตระหนักถึงความแตกต่างเมื่อเรียนกับเพื่อนที่เป็นชาวต่างชาติ					
43	ก่อนเริ่มการเรียนการสอนควรมีการแนะนำตนเองว่ามาจากประเทศหรือวัฒนธรรมใด เพื่อสามารถติดต่อกับคนต่างวัฒนธรรมได้อย่างเหมาะสม					
44	ก่อนเริ่มการเรียนการสอนอาจารย์ควรมอบหมายให้ทุกคนอ่านเนื้อหาเกี่ยวกับข้อห้ามหรือวิธีการปฏิบัติต่อเพื่อนต่างวัฒนธรรม					
45	เมื่อนักศึกษาเข้าร่วมสนทนากลุ่มออนไลน์ นักศึกษาควรเตรียมตัวในการคุยกับเพื่อนต่างวัฒนธรรม					
46	ควรมีระบบการกลั่นกรองการแสดงความคิดเห็นบนกระดานสนทนาหรือห้องสนทนา เพื่อป้องกันความเข้าใจผิดระหว่างวัฒนธรรม					
47	ควรส่งเสริมให้มีการแลกเปลี่ยนความรู้เกี่ยวกับวัฒนธรรมในการเรียนออนไลน์ ควรส่งเสริมให้มีการแลกเปลี่ยนความรู้เกี่ยวกับวัฒนธรรม					
48	ควรให้อิสระในการเลือกสื่อหรือช่องทางการเรียนด้วยตนเอง เพื่อศึกษาเกี่ยวกับวัฒนธรรมที่สนใจ					
49	ควรมีสื่อที่หลากหลาย เช่น คลิปวิดีโอ หนังสืออิเล็กทรอนิกส์ มัลติมีเดีย เป็นต้น เพื่อให้สอดคล้องกับความต้องการของผู้เรียน					
50	อาจารย์ควรเปิดโอกาสให้นักศึกษาส่งรูปภาพหรือคลิปวิดีโอเกี่ยวกับวัฒนธรรมของตนเองผ่านแท็บเล็ตหรือสมาร์ทโฟน					
51	อาจารย์ควรเปิดโอกาสให้นักศึกษาโพสเรื่องราวเกี่ยวกับวัฒนธรรมที่พบในชีวิตประจำวัน					
52	หากนักศึกษาได้รับประสบการณ์ตรงจากคนต่างวัฒนธรรม จะทำให้นักศึกษามีปฏิสัมพันธ์หรือความผูกพันในวัฒนธรรมดังกล่าว					
53	การสื่อสารกับเพื่อนต่างวัฒนธรรมบ่อยครั้ง ทำให้ท่านมีความเชื่อมั่นในการสื่อสารกับเพื่อนต่างวัฒนธรรมคนอื่น					

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ข้อ	ข้อความ	น้อย ⟶ มาก				
		1	2	3	4	5
54	อาจารย์ควรส่งเสริมให้มีการสื่อสารกับเพื่อนต่างทางวัฒนธรรมนอกห้องเรียน เพื่อค้นหาประสบการณ์ใหม่ๆ					
55	ควรมีช่องทางการสื่อสารหลายทาง เพื่อสานต่อความสัมพันธ์กับเพื่อนต่างวัฒนธรรมในระยะยาว					
56	อาจารย์ควรมอบหมายงานกลุ่ม เพื่อเสริมสร้างความสัมพันธ์ระหว่างผู้เรียน					
57	ควรเลือกใช้รูปแบบการติดต่อสื่อสาร ทั้งแบบทางการและไม่เป็นทางการ					
58	ภาษาที่ใช้ในการติดต่อสื่อสาร ควรเป็นภาษากลางที่เพื่อนต่างวัฒนธรรมสามารถเข้าใจได้					
59	หากมีข้อขัดแย้งหรือข้อสงสัยเกี่ยวกับวัฒนธรรม นักศึกษามีความพยายามค้นหาคำตอบจนกว่าจะพบ					
60	ควรมีกิจกรรมบทบาทสมมติเป็นคนต่างวัฒนธรรม เพื่อจะได้เข้าใจในมุมมองของเพื่อนต่างวัฒนธรรม					

ผู้วิจัยขอขอบพระคุณเป็นอย่างสูงที่ท่านเสียสละเวลาในการตอบแบบสอบถาม
ข้อมูลทีท่านให้ จะเป็นประโยชน์อย่างมากต่อการวิจัยในครั้งนี้

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Appendix 4

Questionnaire of Experts' Opinions on Cross-Cultural Content

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แบบตรวจสอบเครื่องมือวิจัยโดยผู้ทรงคุณวุฒิ
สำหรับงานวิจัยวิทยานิพนธ์เรื่อง
รูปแบบการออกแบบยูบิควิตัสมูคโดยใช้วิธีทำให้เกิดความขัดแย้งทางความคิดเพื่อส่งเสริมสมรรถนะข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต
A UBIQUITOUS MOOC INSTRUCTIONAL DESIGN MODEL BASED ON COGNITIVE DISSONANCE FOR ENHANCING HIGHER EDUCATION STUDENT'S CROSS–CULTURAL COMPETENCE

เรียน

การวิจัยนี้มุ่งพัฒนารูปแบบการออกแบบยูบิควิตัสโดยใช้วิธีทำให้เกิดความขัดแย้งทางความคิดเพื่อส่งเสริมสมรรถนะข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต สำหรับเนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรมนี้ จะนำไปใช้ประกอบการพัฒนารูปแบบการออกแบบยูบิควิตัสมูคโดยใช้วิธีทำให้เกิดความขัดแย้งทางความคิดเพื่อส่งเสริมสมรรถนะข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต

เนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม แบ่งออกเป็น 2 ส่วน คือ เนื้อหาการสื่อสารข้ามวัฒนธรรม และเนื้อหาวัฒนธรรมไทย

คณะกรรมการบริหารหลักสูตรครุศาสตร์ดุษฎีบัณฑิต สาขาวิชาเทคโนโลยีและสื่อสารการศึกษา ภาควิชาเทคโนโลยีและสื่อสารการศึกษา พิจารณาเห็นว่า ท่านอาจารย์เป็นผู้ทรงความรู้ และมีประสบการณ์เหมาะสมที่จะช่วยตรวจสอบคุณภาพเนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรมได้ จึงขอเรียนเชิญเป็นผู้ทรงคุณวุฒิตรวจสอบคุณภาพเนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม และขอความกรุณาท่านอาจารย์ได้โปรดตรวจสอบคุณภาพของเนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรมแต่ละตอนตามคำชี้แจง หากมีข้อเสนอแนะ หรือเมื่อเนื้อหาการเรียนการสอนไม่สอดคล้องกับสิ่งที่มุ่งวัดหรือวัตถุประสงค์ของการวัด ได้โปรดเขียนข้อแนะนำในการปรับปรุงลงในช่องที่กำหนดของแต่ละข้อ และหากท่านอาจารย์มีข้อสงสัยต้องการสอบถามกรุณาติดต่อกระผมได้ทั้งทางโทรศัพท์และทางอีเมล์ตามที่อยู่ข้างล่างนี้ได้ตลอดเวลา

จึงเรียนมาเพื่อโปรดพิจารณา กระผมหวังเป็นอย่างยิ่งว่าจะได้รับความอนุเคราะห์จากท่าน และขอขอบพระคุณเป็นอย่างสูงมา ณ โอกาสนี้

ขอแสดงความนับถือ

นายบุญรัตน์ แผลงศร
นิสิตดุษฎีบัณฑิต สาขาวิชาเทคโนโลยีและสื่อสารการศึกษา

ภาควิชาเทคโนโลยีและสื่อสารการศึกษา คณะครุศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
โทร.
E-mail:

การพิจารณาความเหมาะสมของเนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม

การพิจารณาความเหมาะสมของเนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม มีรายละเอียดของแบบตรวจสอบเครื่องมือวิจัย ดังนี้

รายละเอียดของแบบตรวจสอบเครื่องมือวิจัย

แบบตรวจสอบเครื่องมือวิจัยฉบับนี้ประกอบด้วย 3 ส่วน ดังนี้

ส่วนที่ 1 เป็นการพิจารณาความสมบูรณ์ ความครอบคลุม และความสอดคล้องระหว่างเนื้อหาหลัก เพื่อให้ข้อเสนอแนะสำหรับการปรับปรุงแก้ไขเนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรมให้มีความถูกต้อง สมบูรณ์ยิ่งขึ้น

ส่วนที่ 2 เป็นการพิจารณาความสมบูรณ์ ความครอบคลุมของเนื้อหา และความเหมาะสมของเนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรมในภาพรวมทั้งฉบับพร้อมให้ข้อเสนอแนะสำหรับการปรับปรุง

ส่วนที่ 3 เป็นการให้ข้อเสนอแนะในประเด็นอื่นเพิ่มเติมจากการตรวจสอบทั้ง 2 ส่วนข้างต้น

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ส่วนที่ 1 การพิจารณาความสมบูรณ์ ความครอบคลุม และความสอดคล้องระหว่างเนื้อหา

เกณฑ์การให้คะแนน

ค่าคะแนน **+1** หมายถึง เมื่อ**แน่ใจ**ว่าเนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม **มีผลต่อ**การพัฒนาสมรรถนะข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต
ค่าคะแนน **0** หมายถึง **ไม่แน่ใจ**ว่าเนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม มีผลต่อการพัฒนาสมรรถนะข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต
ค่าคะแนน **1** หมายถึง เมื่อ**แน่ใจ**ว่าเนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม **ไม่มีผลต่อ**การพัฒนาสมรรถนะข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต

เนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม หมายถึง เนื้อหาการเรียนการสอนที่ช่วยให้นิสิตนักศึกษาสามารถศึกษาเรียนรู้ และดำเนินกิจกรรมต่างๆ ในสภาพแวดล้อมที่มีความแตกต่างหรือมีความหลากหลายทางวัฒนธรรมได้อย่างมีประสิทธิภาพ ประกอบด้วยเนื้อหา 2 ส่วน ได้แก่ เนื้อหาการสื่อสารข้ามวัฒนธรรม และเนื้อหาวัฒนธรรมไทย

ข้อคำถาม	ความคิดเห็น			ข้อเสนอแนะ
	สอดคล้อง	ไม่แน่ใจ	ไม่สอดคล้อง	
1. เนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม ควรแบ่งเนื้อหาออกเป็น 2 หลักๆ คือ เนื้อหาการสื่อสารข้ามวัฒนธรรม และเนื้อหาวัฒนธรรมไทย				
ท่านคิดว่าควร**แบ่งเนื้อหา**การเรียนการสอนแบบข้ามวัฒนธรรมอย่างไร จึงจะ**ส่งผลต่อการพัฒนาสมรรถนะข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต**				
2. เนื้อหาการสื่อสารข้ามวัฒนธรรม ประกอบด้วยหัวข้อย่อย จำนวน 8 หัวข้อ คือ				
2.1 Introduction to cross-cultural communication				
2.1 Cross-cultural communication competence				
2.3 Identity				
2.4 Verbal and nonverbal in cross-cultural communication				
2.5 Culture's Influence on perception				

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ข้อคำถาม	ความคิดเห็น			ข้อเสนอแนะ
	สอดคล้อง	ไม่แน่ใจ	ไม่สอดคล้อง	
2.6 Co-cultural group membership				
2.7 Intercultural relationships				
2.8 Adapting to an unfamiliar culture and comparative cultural patterns				
ท่านคิดว่า**เนื้อหาการสื่อสารข้ามวัฒนธรรม**ควรมีหัวข้อย่อยอย่างไร จึงจะ**ส่งผลต่อการพัฒนาสมรรถนะข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต**				
3. เนื้อหาวัฒนธรรมไทย ประกอบด้วย หัวข้อย่อย จำนวน 8 หัวข้อ คือ				
3.1 Introduction of Thailand				
3.2 History of Thailand				
3.3 Politic				
3.4 Characteristic of Thai				
3.5 Thai characteristics for foreign business people				
3.6 Thai manners				
3.7 Religion and believes				
3.8 Thai entertainment/performance				
ท่านคิดว่า**เนื้อหาวัฒนธรรมไทย**ควรมีหัวข้อย่อยอย่างไร จึงจะ**ส่งผลต่อการพัฒนาสมรรถนะข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต**				
4. เนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม สามารถทำให้นิสิตนักศึกษาระดับปริญญาบัณฑิตมีความเข้าใจเกี่ยวกับ cross-culture				
5. เนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม สามารถทำให้นิสิตนักศึกษาระดับปริญญาบัณฑิตมีทัศนคติเชิงบวกต่อ cross-culture				

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ข้อคำถาม	ความคิดเห็น			ข้อเสนอแนะ
	สอดคล้อง	ไม่แน่ใจ	ไม่สอดคล้อง	
6. เนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม สามารถพัฒนาทักษะการสื่อสารข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต				
7. เนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม สามารถทำให้นิสิตนักศึกษาระดับปริญญาบัณฑิตเข้าใจความแตกต่างระหว่างวัฒนธรรมตะวันตกและวัฒนธรรมตะวันออก				
8. เนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม สามารถทำให้นิสิตนักศึกษาระดับปริญญาบัณฑิต มีความเข้าใจในมุมมองต่างวัฒนธรรม				

ส่วนที่ 2 ขอให้ท่านพิจารณาเนื้อหาการเรียนการสอนแบบข้ามวัฒนธรรม ในประเด็นความสมบูรณ์ ความครอบคลุมของเนื้อหา โดยเขียนข้อเสนอแนะเพื่อการปรับปรุงลงในช่องว่างข้างล่างนี้

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ส่วนที่ 3 ข้อเสนอแนะเพิ่มเติม

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Appendix 5

Cross-Cultural Content

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Cross-cultural content

Vázquez-Cognet and Mock (2014) proposed course length in a MOOC, learners in four and eight week courses were scored better, watched more videos, attempted quizzes more often, participated in the forums more often, and were more likely to pass the class. Even though about 1.5x more than a student who registered for 16 weeks. The conclusion was course duration prefer four or eight weeks are good options and 16 weeks is not.

This research used cross-cultural communication for teacher and Thai manners for experimental research, as follows:

The content of cross-cultural for teacher divided into two phases. For the first phase the researcher synthesis cross-cultural content and the second phase the researcher develops teacher's cross-cultural content.

Part 1 The content of cross-cultural communication

This phase, the researcher synthesis cross-cultural communication content from Cross-cultural and intercultural communication books these are Gudykunst (2003), Samovar et al. (2009), Kurylo (2013), Beamer and Varner (2008), and Jandt (2013).

The content of cross-cultural communication consists nine chapters as follows (Beamer & Varner, 2008; Gudykunst, 2003; Jandt, 2013; Kurylo, 2013; Samovar et al., 2009)

Chapter 1 Introduction to cross-cultural communication

Introduce and explain the basic elements of cross-cultural communication, definition and structure of communication, definition and function of culture, integration of communication and culture.

Chapter 2 Cross-cultural communication competence

Explore of the issues involved in theorizing and researching intercultural communication competence (ICC). A number of decisions about the choice of a topic, its conceptualization, metatheoretical orientation, substantive theories explaining the concept, and methodological decision regarding the actual investigation of the concept.

Chapter 3 Identity

Introduce and detail the transactional relationship between communication and identity. The theories reviewed provide an extensive view of different levels and dimensions of identity

Chapter 4 Verbal and Nonverbal in cross-cultural communication

Understanding how discourse is performed, unique way of moving and behaviors that display emotion. The dimensions of cross-cultural nonverbal communication.

Chapter 5 Culture's Influence on Perception

Demonstrate the crucial relationship between context, culture, and communication. Realize to understand communication in another culture and respect the rules that culture's communicative behavior in specific setting.

Chapter 6 Co-Cultural Group Membership

Understand how co-cultural group membership is construct. The co-cultural group theory.

Chapter 7 Intercultural Relationships

Understand the interface between the individual and the relationship, the relationship and the culture. Relation process in cross-cultural communication and dialectical approach.

Chapter 8 Another culture overview, Adapting to an Unfamiliar Culture, Comparative Cultural Patterns.

The various disciplinary and ideological perspectives between long-term and short term adaption, between adaption as problem and adaption as learning, between ideological perspective of assimilationism and pluralism.

Part 2 The content of Thai manners

The content of Thai manners consists 8 Chapter based on Kiengsiri et al. (2007)

Chapter 1 Manners in greeting

Thais always keep a good-mannered Wai when they meet an older people, families, or colleagues. They set the tributes of their hands together and raise them up, at chest level for equals, nose level for elder people or forehead level for persons they highly respect. When doing this, they should bend their head down to the raised hands.

Younger people should give the Wai to older people first, and the older people will return the Wai, at chest level.

Chapter 2 Manners in eating

There should not be any sound in food eating or soup drinking. When they want something such as sugar or fish sauce, they would ask people near them to pass it instead reach out in front or over people near them.

Chapter 3 Manners in visiting

Meet the host with a Wai as they see him/her and say goodbye with Wai again when they are leaving. They should not make their visitors wait for a long time, and when they arrive, they will not look at him/her from head to foot.

Chapter 4 Manners in public places

There should not use cosmetics, pick their teeth in front of people, let the toothpick stuck in their mouth for a long time. They also should not pick their nose, their eye, or their ear in public.

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Chapter 5 Manners when in company

There should not scratch, flap their shirt or their skirt. They should not joke disproportionately or touch other personal properties.

Chapter 6 Manners in clothes wearing

There should not wear pajamas when someone visits their home. They should not wear T-shirts, shorts, or slippers to go to a government office or a temple.

Chapter 7 Manners in conversation

There should not ask about personal questions such as weight, age, or salary. They do not interrupt while people are talking.

Chapter 8 Manners when in standing, walking, and sitting

There should not stand with keeping their hands in their pocket, with keeping both arms are folded together across the chest, with keeping hands on hips, and with keeping hands together at the back

There should not walk while an older person is going oppositely. They will stand sideways and let an older person go first when they met narrowly.

There should not sit and point their foot to any person, put their foot on a table, or shake the foot. The will not seat higher than an older person.

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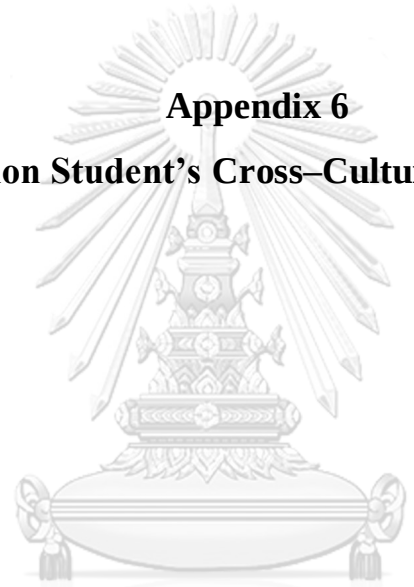
Appendix 6

Higher Education Student's Cross–Cultural Competence Scale



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Higher education student's cross–cultural competence scale

Instruction

This questionnaire is a cross–cultural competence questionnaire for higher education student, which is divided into two parts: background Information and cross–cultural competence questions. All of the questions will not have any effects to the respondents, thus please answer the truth for the academic advantage.

Part 1: Background Information

Please tick (✓) in the boxes where you appropriate and fill information in the blanks.

1. Gender ☐ 1) Male ☐ 2) Female
2. Country .....
3. Nationality .....

Part 2 Cross–Cultural Competence

Please rate the following statements in your opinion by ticking (✓) the appropriate box.
1= *strongly disagree,* **2**= *disagree,* **3**= *neither agree nor disagree,* **4**= *agree, and* **5**= *strongly agree*

Items	Rating Min → Max				
	1	2	3	4	5
Cultural sensitivity					
1. You immediately perceive if your friends have expressed dissatisfaction, while commenting on issues related to cultural differences.					
2. You feel the difference immediately if you are in a group of people from different cultures.					
3. When you join a group of people who have different religions, you will be carefully discuss issues related to religious beliefs.					
Cultural value					
4. You take pride in your national culture.					
5. You appreciate another culture as your own culture.					
6. You agree that learning proper manners in the society's culture is important.					
Knowledge of culture specifics					
7. You can give an example of you culture identity.					
8. You can explain proper custom in your local culture.					
9. You can explain a knowledge of your local and national languages.					
Knowledge of cultural diversity					
10. You can give an example of values of difference cultures.					

Items	Rating Min ⟶ Max				
	1	2	3	4	5
11. You can interpret the behavior of people in different cultures.					
12. You can give an example of proper nature of people in different cultures.					
Attitudes and initiative					
13. You always greet and talk with friends from different cultures.					
14. You always join activity with friends from different cultures.					
15. You know how to deal with friends from different cultures.					
Openness to experience and challenge					
16. If you have free time, you often read books about different cultures.					
17. If you have any chances, you tend to learn culture abroad.					
18. If you have free time, you often watch documentaries about different cultures.					
Interpersonal skills					
19. You can learn/work with friends from different cultures.					
20. You fun to learn from friends who have different cultures.					
21. You happy to learn/work with friends from different cultures.					
Communication skill					
22. You can communicate in other languages, in addition to your own national language.					
23. You can communicate with foreign friends from different cultures.					
24. You aware your facial expressions, gestures, and words to communicate with friends from different cultures.					
Cognitive skill					
25. You can use your knowledge to solve the cultural conflict.					
26. You can analyze the causes of the cultural conflict.					
27. You can analyze the similarities and differences of your culture with other cultures.					

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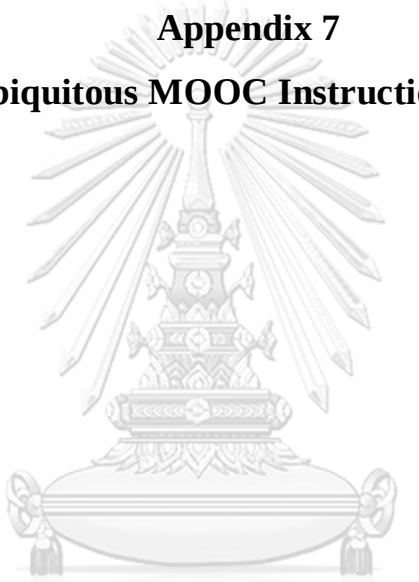
Appendix 7

Opinion of Ubiquitous MOOC Instructional Design Model



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Opinion of ubiquitous MOOC instructional design model

Item	N	Mean	Std. Deviation
Principle_1.1	5	5.00	.000
Principle _1.2	5	4.80	.447
Principle _1.3	5	4.80	.447
Principle _1.4	5	4.40	.894
Principle _1.5	5	4.20	.837
Principle _1.6	5	4.40	.894
Principle _1.7	5	5.00	.000
Principle _1.8	5	4.00	1.732
Overall principle	5	4.60	.894
Objective_1	5	4.40	.548
Objective_2	5	4.00	.707
Learner1	5	4.80	.447
Learner2	5	5.00	.000
Learner3	5	5.00	.000
Context1	5	4.80	.447
Context2	5	5.000	.0000
Task1	5	4.60	.548
Task2	5	4.60	.548
Task3	5	4.60	.548
Task4	5	5.00	.000
Define1	5	5.00	.000
Define2	5	4.60	.548
Define3	5	4.40	.894
Eva1	5	4.40	.894
Eva2	5	4.80	.447
Content1	5	4.80	.447
Inst1	5	4.20	1.095
Inst2	5	4.60	.894
Inst3	5	4.20	1.304
Select1	5	4.40	.548
Develop1	5	5.00	.000
Develop2	5	4.60	.894
Develop3_1	5	4.60	.894
Develop3_2	5	4.500	.8660
Deliver1	5	4.40	.894
Item	N	Mean	Std. Deviation
E1	5	4.40	.894
E2	5	4.80	.447
N	5		

Appendix 8
The Interview Protocol

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INTERVIEW PROTOCOL (For Undergraduate Students)

An Exploration of the Cognitive Dissonance for Enhancing Higher Education Student's Cross–cultural Competence in Ubiquitous MOOC Instructional Model

Description

These questions relevant to the exploration of the cognitive dissonance for enhancing higher education student's cross–cultural competence in ubiquitous MOOC instructional model

Date ..... Time ..... Place .....
Interviewee's name .....
Tel ..... E-mail .....
U-MOOC username .....

Interview questions

1. Please tell me about your learning at U-MOOC course (e.g., time, equipment)

.....

2. To what do you think about the U-MOOC course? (e.g., motivation, feeling).

.....

3. Please specify your viewpoint about pros and cons of U-MOOC course. (e.g., online tools, system consistency)

.....

4. To what did you learn from the U-MOOC course? (e.g., cultural awareness, cultural knowledge, cultural affective, personal skills)

.....

5. Please explain why you change your attitude or your viewpoint. (e.g., behavior, belief)

.....

6. Are there any other thoughts you have about the U-MOOC course that you would like to share?

.....

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Appendix 9

The Item-Objective Congruence of Cross-Cultural Competence Scale

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ตารางกำหนดพฤติกรรมที่ต้องการวัดและจำนวนข้อคำถาม (table of specification) ของเครื่องมือวิจัย

องค์ประกอบที่วัด	มิติที่วัด	น้ำหนัก (ร้อยละ)	จำนวนข้อ	IOC > 0.50	การแก้ไข	α
1) ความตระหนักทางวัฒนธรรม	1.1) ความไวทางวัฒนธรรม	50.00	5	3	ตัดข้อ 3	.693
	1.2) การเห็นคุณค่าทางวัฒนธรรม	50.00	5	4	ตัดข้อ 2	0.648
	รวม	**100.00**	**10**			
2) ความรู้ในวัฒนธรรม	2.1) ความรู้ในวัฒนธรรมเฉพาะ	50.00	5	3		.846
	2.2) ความรู้ในวัฒนธรรมที่หลากหลาย	50.00	5	5		.716
	รวม	**100.00**	**10**			
3) ความรู้สึกในด้านวัฒนธรรม	1) ทัศนะคติและความมุ่งมั่น	50.00	5	5		.868
	2) การเปิดรับประสบการณ์ใหม่	50.00	5	3		.729
	รวม	**100**	**10**			
4) ทักษะส่วนบุคคล	1) การสร้างความสัมพันธ์ระหว่างบุคคล	33.33	5	5		.621
	2) การสื่อสาร	33.33	5	5		.695
	3) ทักษะทางปัญญา	33.33	5	2		.680
	รวม	**100**	**15**			

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ส่วนที่ 1 การพิจารณาความสมบูรณ์ ความครอบคลุม และความสอดคล้องระหว่างข้อคำถามในแบบสอบถาม

สมรรถนะข้ามวัฒนธรรมของนิสิตนักศึกษาระดับปริญญาบัณฑิต หมายถึง ความรู้ ความสามารถ ทักษะ และทัศนคติที่จะช่วยให้นิสิตนักศึกษาสามารถศึกษาเรียนรู้ และดำเนินกิจกรรมต่างๆ ในสภาพแวดล้อมที่มีความแตกต่างหรือมีความหลากหลายทางวัฒนธรรมได้อย่างมีประสิทธิภาพ ซึ่งสามารถวัดได้จากตัวแปรสังเกตได้ 4 ตัว คือ (1) ความตระหนักทางวัฒนธรรม (2) ความรู้ในวัฒนธรรม (3) ความรู้สึกในด้านวัฒนธรรม และ (4) ทักษะส่วนบุคคล

1) ความตระหนักทางวัฒนธรรม หมายถึง การแสดงออกทางความรู้สึก รับรู้ มองเห็นประโยชน์ คุณค่าและความสำคัญของความหลากหลายทางวัฒนธรรม ความแตกต่างระหว่างบุคคล สามารถยอมรับและปรับเปลี่ยนความคิดและพฤติกรรมของตนเองให้เข้ากับวัฒนธรรมที่แตกต่างได้ ซึ่งวัดได้จากตัวบ่งชี้ 2 ตัว บ่งชี้ คือ ความไวทางวัฒนธรรม (cultural sensitivity) และการเห็นคุณค่าทางวัฒนธรรม (cultural values)

นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็นของผู้เชี่ยวชาญ					IOC	การแก้ไข
		E1	E2	E3	E4	E5		
ความไวทางวัฒนธรรม (cultural sensitivity) หมายถึง ระดับการแสดงออกที่ไวต่อการรับรู้ของบุคคล เมื่อต้องเผชิญกับสถานการณ์ทางวัฒนธรรมที่มีความแตกต่าง สามารถรับรู้หรือสังเกตเห็นถึงการเปลี่ยนแปลงของบุคคล สังคมและวัฒนธรรมรอบข้างได้อย่างรวดเร็ว	1. ท่านรับรู้ได้ทันที หากเพื่อนของท่านแสดงความไม่พอใจในขณะที่มีการแสดงความคิดเห็นในประเด็นที่เกี่ยวกับความแตกต่างทางวัฒนธรรม	1	1	1	1	0	0.80	
	2. ท่านรู้สึกถึงความแตกต่างได้ทันที หากเข้าไปอยู่ในกลุ่มคนที่มีวัฒนธรรมต่างจากท่าน	1	1	1	1	0	0.80	
	3. เมื่อท่านต้องอยู่ในกลุ่มคนที่นับถือศาสนาต่างกัน ท่านจะหลีกเลี่ยงประเด็นสนทนาที่เกี่ยวกับความเชื่อทางศาสนา	1	**-1**	1	1	0	0.60	

นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็นของผู้เชี่ยวชาญ					IOC	การแก้ไข
		E1	E2	E3	E4	E5		
	4. หากท่านได้เข้าร่วมกลุ่มที่กำลังมีการสนทนา ท่านจะสังเกตประเด็นหรือหัวข้อที่เพื่อนในกลุ่มสนใจ ก่อนจะเข้าร่วมสนทนาในกลุ่มนั้น	**-1**	**-1**	1	1	0	**0.00**	หากท่านได้เข้าร่วมกลุ่มที่กำลังมีการสนทนา ท่านจะสังเกตประเด็นหรือหัวข้อที่เพื่อนในกลุ่มสนใจ ก่อนจะ**เข้า**ร่วมสนทนาในกลุ่มนั้น
	5. ท่านจะปรับพฤติกรรมของตนเองทันทีหากรู้สึกว่าการกระทำของตนอาจจะก่อให้เกิดความขัดแย้งระหว่างวัฒนธรรม	**-1**	**-1**	1	1	0	**0.00**	
การเห็นคุณค่าทางวัฒนธรรม (cultural values) หมายถึง ระดับความภาคภูมิใจในวัฒนธรรมของตนเอง ชื่นชม เห็นคุณค่าความสำคัญและประโยชน์ในการเรียนรู้เกี่ยวกับวัฒนธรรมที่หลากหลาย แสดงความสนใจที่จะเรียนรู้ และเข้าใจมารยาทขนบธรรมเนียม และประเพณีปฏิบัติในวัฒนธรรมของตนเองและวัฒนธรรมอื่น	6. ท่านภาคภูมิใจในวัฒนธรรมประจำชาติของตนเอง	1	1	1	1	1	1.00	
	7. ท่านเห็นคุณค่าในวัฒนธรรมอื่นเช่นเดียวกับวัฒนธรรมของตนเอง	1	1	1	1	1	1.00	ท่านเห็นคุณค่าในวัฒนธรรม**ของชาติอื่น**เช่นเดียวกับวัฒนธรรมของ**ชาติ**ตนเอง
	8. ท่านเห็นว่าการดำรงรักษาไว้ซึ่งวัฒนธรรมอันดีงามของทุกชนชาติเป็นสิ่งสำคัญ	1	1	1	1	0	0.80	
	9. ท่านเห็นว่าการเรียนรู้มารยาทที่ดีในทุกสังคมวัฒนธรรมเป็นสิ่งสำคัญ	1	1	1	1	1	1.00	ท่านเห็นว่าการเรียนรู้มารยาท**อันดีในการเข้าสังคมของแต่ละวัฒนธรรม**เป็นสิ่งสำคัญ
	10. ท่านคิดว่าไม่มีความจำเป็นที่จะเรียนรู้และเข้าใจในวัฒนธรรมอื่นๆ	**-1**	1	1	-1	1	**0.20**	

2) ความรู้ในวัฒนธรรม (Cultural knowledge) หมายถึง ความสามารถในการรับรู้ สื่อความหมาย แปลความ ตีความ หรือขยายความเกี่ยวกับวัฒนธรรม ขนบธรรมเนียมประเพณี ภาษา ค่านิยมอันพึงประสงค์ของชาติตนเองและชาติอื่น ซึ่งวัดได้จากตัวบ่งชี้ 2 ตัวบ่งชี้ ประกอบด้วย ความรู้ในวัฒนธรรมเฉพาะ (knowledge of culture-specific) และความรู้ในวัฒนธรรมที่หลากหลาย (knowledge of cultural diversity)

นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็นของผู้เชี่ยวชาญ					IOC	ข้อเสนอแนะ
		E1	E2	E3	E4	E5		
ความรู้ในวัฒนธรรมเฉพาะ (knowledge of culture-specific) หมายถึง ระดับความสามารถในการรับรู้ สื่อความหมาย แปลความ ตีความ หรือขยายความ เกี่ยวกับวัฒนธรรมประจำชาติและวัฒนธรรมท้องถิ่น ตลอดจนมีความรู้ในขนบธรรมเนียมประเพณี ภาษาประจำชาติ ภาษาท้องถิ่น และค่านิยมที่พึงประสงค์ในสังคม	11. ท่านสามารถยกตัวอย่างเอกลักษณ์ทางวัฒนธรรมประจำชาติของตน	1	1	1	1	0	0.80	ท่านสามารถยกตัวอย่างเอกลักษณ์ทางวัฒนธรรมประจำชาติของตน**ได้**
	12. ท่านสามารถอธิบายขนบธรรมเนียมที่ควรปฏิบัติในวัฒนธรรมท้องถิ่นของตน	1	1	1	1	1	1.00	ท่านสามารถอธิบายขนบธรรมเนียมที่ควรปฏิบัติในวัฒนธรรมท้องถิ่นของตน**ได้**
	13. ท่านสามารถอธิบายลักษณะเฉพาะของวัฒนธรรมในท้องถิ่นของตน	**-1**	1	1	1	0	**0.40**	ท่านสามารถอธิบายลักษณะเฉพาะของวัฒนธรรมในท้องถิ่นของตน**ได้**
	14. ท่านสามารถยกตัวอย่างอาหารประจำท้องถิ่น และอาหารประจำชาติของตน	**-1**	1	1	-1	0	**0.00**	ท่านสามารถยกตัวอย่างอาหารประจำท้องถิ่นและอาหารประจำชาติของตน**ได้** ท่านสามารถยกตัวอย่างค่านิยมประจำชาติของตน**ได้**
	15. ท่านมีความรู้เกี่ยวกับภาษาท้องถิ่นและภาษาประจำชาติของตน	1	1	1	1	1	1.00	ท่าน**สามารถอธิบาย**ความรู้เกี่ยวกับภาษาท้องถิ่นและภาษาประจำชาติของตน**ได้**

ความรู้ในวัฒนธรรมที่หลากหลาย (knowledge of cultural diversity) หมายถึง ระดับความสามารถในการรับรู้ สื่อความหมาย แปลความ ตีความ หรือขยายความเกี่ยวกับวัฒนธรรมต่างๆ ขนบธรรมเนียมประเพณี ภาษา และ ค่านิยมที่พึงประสงค์ เข้าใจในความคล้ายและความแตกต่างระหว่างวัฒนธรรม	16. ท่านสามารถยกตัวอย่างค่านิยมหรือความเชื่อ ที่มีความคล้ายคลึงกันของวัฒนธรรมต่างๆ ได้	**-1**	1	1	1	1	0.60	ท่านสามารถยกตัวอย่างค่านิยม~~หรือความเชื่อ~~ ที่มีความคล้ายคลึงกันของวัฒนธรรมต่างๆ ได้
	17. ท่านสามารถยกตัวอย่างค่านิยมหรือความเชื่อ ที่มีความแตกต่างกันของวัฒนธรรมต่างๆ ได้	**-1**	1	1	1	1	0.60	ท่านสามารถยกตัวอย่างค่านิยม**~~หรือความเชื่อ~~** ที่มีความแตกต่างกันของวัฒนธรรมต่างๆ ได้
	18. ท่านสามารถแปลความหมายพฤติกรรมการแสดงออกของคนในวัฒนธรรมอื่นได้	**-1**	1	1	1	1	0.60	ท่านสามารถแปลความหมายพฤติกรรมการแสดงออกของคนในวัฒนธรรม**ต่างๆ** ได้
	19. ท่านสามารถอธิบายการแสดงบทบาทและหน้าที่ชายหญิงของวัฒนธรรมต่างๆ ได้	1	1	1	1	1	1.00	
	20. ท่านสามารถยกตัวอย่างลักษณะนิสัยของคนในวัฒนธรรมต่างๆ ได้	1	1	1	1	0	0.80	ท่านสามารถยกตัวอย่าง**~~ลักษณะนิสัย~~ ลักษณะที่เด่นชัด**ของคนในวัฒนธรรมต่างๆ ได้

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3) ความรู้สึกในด้านวัฒนธรรม (cultural affective) หมายถึง คิดเห็น ซึ่งเป็นพฤติกรรมทางด้านจิตใจ ซึ่งเกิดจากการรับรู้จากสภาพแวดล้อม ซึ่งวัดได้จากตัวบ่งชี้ 2 ตัวบ่งชี้ ประกอบด้วย ทัศนะคติและความคิดริเริ่ม (attitudes and initiative) และการเปิดรับประสบการณ์ใหม่ (openness to new experience)

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		E1	E2	E3	E4	E5		
ทัศนะคติและความคิดริเริ่ม (attitudes and initiative) หมายถึง ความรู้สึกสนใจ และความสนใจหาวิธีที่จะมีปฏิสัมพันธ์กับคนต่างวัฒนธรรม	21. ท่านมักจะทักทายและพูดคุยกับเพื่อนต่างวัฒนธรรม	1	1	1	1	1	1.00	
	22. ท่านมักจะช่วยเหลือเพื่อนต่างวัฒนธรรม	1	1	1	1	0	0.80	
	23. ท่านมักจะเข้าร่วมกิจกรรมกับเพื่อนต่างวัฒนธรรม	1	1	1	1	1	1.00	
	24. ท่านมีวิธีติดต่อกับเพื่อนต่างวัฒนธรรมได้อย่างรวดเร็ว	1	1	1	1	0	0.80	
	25. ท่านหลีกเลี่ยงที่จะสนทนากับเพื่อนต่างชาติ	1	1	1	-1	1	0.60	
การเปิดรับประสบการณ์ใหม่ (openness to new experience) หมายถึงความรู้สึกความต้องการรับรู้และกระทำสิ่งใหม่ๆ เพื่อเพิ่มพูนประสบการณ์	26. ท่านพยายามเข้าใจวัฒนธรรมอื่นๆ	**-1**	0	1	1	0	**0.20**	การเข้าไปอยู่ในวัฒนธรรมอื่น/การรับประทานอาหารที่มาจากวัฒนธรรมอื่น เป็นเรื่องง่ายสำหรับท่าน
	27. ท่านอ่านหนังสือหรือเรื่องราวเกี่ยวกับวัฒนธรรม	1	1	1	1	1	1.00	
	28. ท่านมักจะชวนเพื่อนพูดคุยเกี่ยวกับประสบการณ์ต่างวัฒนธรรม	1	0	1	-1	1	**0.40**	
	29. หากท่านมีโอกาส ท่านมักจะเดินทางไปศึกษาเรียนรู้วัฒนธรรมในต่างแดน	1	1	1	1	1	1.00	
	30. หากท่านมีเวลาว่าง ท่านมักจะเปิดชมสารคดีเกี่ยวกับการท่องเที่ยวไปในต่างแดน/ ต่างวัฒนธรรม	1	1	1	1	1	1.00	หากท่านมีเวลาว่าง ท่านมักจะเปิดชมสารคดีเกี่ยวกับ~~**การท่องเที่ยวไปในต่างแดน/ ต่างวัฒนธรรม**~~ **การเรียนรู้วัฒนธรรมในต่างแดน**

4) ทักษะส่วนบุคคล (personal skill) หมายถึง ความชำนาญของบุคคลในการดำเนินชีวิตให้เป็นปกติสุขในสังคมที่มีความหลากหลายทางวัฒนธรรม สามารถสร้างความสัมพันธ์อันดีกับบุคคลอื่น ยอมรับและปรับตัวเมื่ออยู่ในสถานการณ์หรือสภาพที่มีความแตกต่างทางวัฒนธรรมได้อย่างเหมาะสม ซึ่งวัดได้จากตัวบ่งชี้ 3 ตัวบ่งชี้ ประกอบด้วย การสร้างความสัมพันธ์ระหว่างบุคคล ความสามารถในการสื่อสาร และทักษะทางปัญญา

นิยามเชิงปฏิบัติการ	ข้อคำถาม	ความคิดเห็น					IOC	ข้อเสนอแนะ
		E1	E2	E3	E4	E5		
การสร้างความสัมพันธ์ระหว่างบุคคล หมายถึง ระดับทักษะความสามารถในการสร้างสัมพันธ์กับบุคคลอื่น พร้อมทั้งการมีปฏิสัมพันธ์ที่ดี เคารพและให้เกียรติบุคคลทุกวัฒนธรรม ตลอดจนสามารถทำงานร่วมกับบุคคลที่มีวัฒนธรรมที่แตกต่างกันได้อย่างมีประสิทธิภาพ	31. ท่านเคารพและให้เกียรติเพื่อนทุกชนชาติ	**-1**	1	1	1	1	0.60	
	32. ท่านยินดีเรียนรู้/ทำงานร่วมกับเพื่อนต่างวัฒนธรรม	**-1**	1	1	1	1	0.60	
	33. ท่านทักทายและมีปฏิสัมพันธ์ได้กับเพื่อนทุกวัฒนธรรม	**-1**	1	1	1	1	0.60	
	34. ท่านรู้สึกอึดอัดเมื่อต้องเรียนเรียนรู้/ทำงานอยู่ในกลุ่มเพื่อนต่างวัฒนธรรมที่ไม่คุ้นเคย	1	1	1	1	0	0.80	ท่านสามารถเรียนรู้/ทำงานร่วมกับเพื่อนต่างวัฒนธรรม
	35. ท่านรู้สึกสนุกกับการได้เรียนรู้จากเพื่อนที่มาจากต่างวัฒนธรรม	1	1	1	1	0	0.80	
ความสามารถในการสื่อสาร หมายถึง ระดับทักษะในการติดต่อสื่อสาร และความสามารถในการปรับรูปแบบการติดต่อสื่อสารทั้งทางวาจา และที่ไม่ใช่วาจา รวมถึงการใช้สีหน้า	36. ท่านสามารถสื่อสารด้วยภาษาอื่นที่ไม่ใช่ภาษาประจำชาติของตนเอง	1	1	1	1	0	0.80	
	37. ท่านสื่อสารกับเพื่อนในท้องถิ่นที่มีวัฒนธรรมแตกต่างกันได้	1	1	1	1	1	1.00	

ท่าทางประกอบการสื่อสาร กับบุคคลที่มีความแตกต่างทางวัฒนธรรมอย่างถูกต้องเหมาะสม โดยคำนึงถึงความหมายของพฤติกรรมการสื่อสาร และผลกระทบที่อาจจะเกิดขึ้นจากความเข้าใจผิด อันนาไปสู่ความขัดแย้งทางวัฒนธรรม	39. ท่านคำนึงถึงการแสดงสีหน้า ท่าทาง ในขณะสนทนาที่อาจก่อให้เกิดความขัดแย้งหรือเข้าใจผิดในการสื่อสารกับเพื่อนต่างวัฒนธรรม	**-1**	1	1	1	1	0.60	
	40. ท่านคำนึงถึงการเลือกใช้ถ้อยคำในการสนทนาและการสื่อสารกับเพื่อนที่มีความเชื่อหรือวัฒนธรรมต่างจากท่าน	1	1	1	1	1	1.00	
ทักษะทางปัญญา หมายถึง ความสามารถในการวิเคราะห์สถานการณ์ และใช้ความรู้ ความเข้าใจในการแก้ปัญหา	41. ท่านใช้ความรู้ของท่านแก้หาเกี่ยวกับวัฒนธรรมได้	**-1**	1	1	1	1	0.60	ท่านใช้ความรู้ของท่านแก้**ปัญ**หาเกี่ยวกับวัฒนธรรมได้
	42. ท่านวิเคราะห์สาเหตุของการขัดแย้งเกี่ยวกับวัฒนธรรมได้	1	1	1	1	1	1.00	
	43. ท่านสามารถอธิบายเรื่องราวเกี่ยวกับวัฒนธรรมอื่นได้	**-1**	1	1	1	0	**0.40**	ท่านสามารถอธิบายเรื่องราวเกี่ยวกับวัฒนธรรม**อื่นๆ** ได้
	44. ท่านสามารถเปรียบเทียบความเหมือนและความแตกต่างของวัฒนธรรมตนเองกับวัฒนธรรมอื่นๆ ได้	0	1	1	1	0	**0.60**	ท่าน~~**สามารถเปรียบเทียบ**~~**วิเคราะห์**ความเหมือนและความแตกต่างของวัฒนธรรมตนเองกับวัฒนธรรมอื่นๆ ได้
	45. ท่านสามารถค้นคว้าหาคำตอบ หากท่านต้องการทำความเข้าใจเกี่ยวกับความแตกต่างทางวัฒนธรรม	**-1**	1	1	1	0	**0.40**	

Appendix 10
Syntax for a Confirmatory Factor Analysis of Cross-Cultural Competence

จุฬาลงกรณ์มหาวิทยาลัย
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Syntax for a Confirmatory Factor Analysis of Cross-Cultural Competence

```
TI SECOND ORDER CCC
DA NI=9 NO=183 MA=CM
LA
CA1 CA2 CK1 CK2 CAF1 CAF2 PK1 PK2 PK3
KM
1.00
0.55 1.00
0.46 0.63 1.00
0.37 0.41 0.68 1.00
0.21 0.24 0.36 0.53 1.00
0.21 0.15 0.23 0.35 0.44 1.00
0.27 0.33 0.33 0.35 0.53 0.47 1.00
0.28 0.21 0.32 0.37 0.54 0.44 0.41 1.00
0.32 0.32 0.49 0.54 0.45 0.51 0.43 0.61 1.00
ME
3.83 4.28 3.86 3.45 3.03 2.60 3.58 2.91 3.25
SD
0.71 0.69 0.73 0.68 0.83 0.94 0.74 0.74 0.77
MO NY=9 NE=4 NK=1 LY=FU,FI GA=FU,FI TE=SY
FR LY(1,1) LY(2,1) LY(3,2) LY(4,2) LY(5,3) LY(6,3) LY (7,4) LY(8,4) LY(9,4)
FR TE(1,1) TE(2,2) TE(3,3) TE(4,4) TE(5,5) TE(6,6) TE(7,7) TE(8,8) TE(9,9)
FR GA(1,1) GA(2,1) GA(3,1) GA(4,1)
FR TE(3,2) TE(9,7) TE(8,5) TE(3,1) TE(5,4) TE(7,5) TE(7,6) TE(7,2) TE(4,2)
LE
CA CK CAF PK
LK
CCC
PD
OU SE TV FS SC RS MI AD=OFF ND=3
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จุฬาลงกรณ์มหาวิทยาลัย
Chulalongkorn University

VITA

Mr.Boonrat Plangsorn is a lecturer majoring in educational technology, faculty of education, Rajabhat Rajanagarindra University, Chachoengsao province. He received a bachelor's degree majoring in Educational technology. Another bachelor's degree was majoring in government from faculty of political science, Ramkhamhaeng University. He received a master's degree in Audio-Visual Education, Faculty of Education, Chulalongkorn university. In 2011, He entered the doctoral program in Educational communication and technology Faculty of Education, Chulalongkorn university. During his doctoral program study, he was awarded a scholarship from royal golden jubilee (RGJ) Ph.D. programme in the Thailand research fund (TRF).

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