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混合教室的劇場分析：發現傳統與 數位學習環境間的綜效

Dramaturgical Analysis of Hybrid Classrooms: Finding Synergies between Traditional and Digital Learning Context

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摘要

大學課室的學習績效是由許多因素彼此互動產生的，因此有研究者以劇場理論描述之。目前大學中混合式教室日益增加，希望能結合數位與面對面傳統教室的優點。本研究利用社群診斷模式中的四個評量：學習呈現、教師呈現、社會呈現及認知呈現；並加入一個新評量：平台呈現，試圖去了解混合式教室可能產生的教學成效。本研究以兩個循環的行動研究來發展及檢驗有效混合教室的教學策略；在第一個循環中以相同的教師及教材，比較線上與面對面兩種教室所產生的滿意或不滿意事件，來評估平台造成的影響；進一步以第一階段發現的原則應用於設計第二階段混合教室的教學策略來驗證其有用性。

關鍵詞：教學設計議題、數位學習、社群診斷模式、劇場理論、學習環境

Abstract

Classroom learning performance in higher education, a complicated process affected by a large number of variables that interact with one another, is examined in this paper based on the framework of dramaturgy theory. Blended classroom settings are increasingly favored in the realm of higher education in order to reap the benefits from both online and traditional face-to-face classrooms. This study utilizes four measurements to explore the possible effects of different pedagogical designs in the blended classroom: learning, teacher, social, and cognitive presences, from the community of inquiry model, and adds a fifth: platform presence. This study uses a two-cycle action research process to develop and test effective strategies of blended classroom pedagogy. In the first cycle, the influence of the platform is studied by evaluating incidences of satisfaction and dissatisfaction between the face-to-face and e-learning classroom, with shared teachers and content.

Guidelines for pedagogical design that emerge from analyzing the first cycle are further applied to the second cycle of action research in order to evaluate their degree of usefulness.

Keywords: Pedagogical issues, Onlined learning, Community of Inquiry model, Dramaturgy theory, Learning environment

1.INTRODUCTION

For years, e-learning has been on the rise in higher education (Wagner et al., 2008), due in part to the advancement of web technologies. Researchers have recognized that there are different advantages for e-learning versus traditional face-to-face (F2F) learning in physical classrooms. Several papers have produced discussions supporting the potential benefits of the asynchronous interactions inherent in e-learning (Marjanovice, 1999; Swan, 2004b; Bates, 2005; Francescato et al., 2006). For example, according to Bates (2005), the constant availability of online materials and the convenience provided by e-learning tools allow students to engage in learning activities at times and places of their own choice. Francescato et al. (2006), Swan (2004b) and Marjanovice (1999) contend that the interactional delays in online communications afford introverted participants the opportunity to collect their thoughts before answering questions, thus reducing embarrassment and pressure, and ultimately facilitating collaborative learning of higher order knowledge. On the other hand, Marjanovice (1999) and Suthers et al. (2003) challenge these claims, arguing that the verbal and nonverbal communication and interactions experienced in F2F classrooms produce important emotional connections which are difficult to duplicate in the e-learning classroom. Currently, the “blended” classroom approach, which applies elements of both F2F and e-learning in a single classroom environment, is popular. However, with this approach there exist management dilemmas related to pedagogical design for

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instructors to take advantage of the strengths of both the F2F and e-learning environments (Osguthorpe & Graham, 2003; Garrison & Kanuka, 2004), while minimizing any situational shortcomings. What we need is a simple and useful framework to guide practitioners.

The key to fully understanding how effective learning may take place in a blended learning environment is an accurate account of learning elements and the interactions that take place between them. The breadth and interrelatedness of the various variables arising from the students' background, learning context, pedagogical design, content, instructor's characteristics, etc., make it difficult to accurately predict learning performance. A research framework that ignores the interactions and chooses some variables as research variable while assuming others are controlled would seem to not be deep enough.

Previous studies on dramaturgy theory in service marketing have proposed a simple framework to illustrate the interactive effects among components of dramaturgy: actors, audience, drama content and physical facilities, all influencing performance, as well as the possible impact of physical facilities on service performance. Much work has been done in the research area of e-learning. For example, analyzing learning performance in on-line conference classrooms, Garrison et al. (2000) developed the Community of Inquiry (CoI) framework to explain the interactive relationship among teaching, collaboration and learning. CoI provided a simplified and useful framework designed to analyze learning experience to increase knowledge, based on the idea of "presences" and their interactive relationships. This creative framework has been admired, verified and extended by many researchers, just as the authors plan to do.

This study seeks to combine the ideas of presences in COI with dramaturgy theory to construct a new framework, which we call the framework of learning dramaturgy. This provides a framework for synthesizing the interactive effects of presences to increase learning performance and lays out the principles for how to synergize different platforms in the F2F-e learning blended classroom. Unlike the CoI, the authors put learning presence, the degree to which a learner perceived personal strategy, as the core value to motivate learning performance. We also added one more variable: platform presence to account for influences of the

environment of blended classrooms.

Qualitative methods: action research and the critical incident technique (CIT), are chosen, instead of surveys or other quantitative research methods for studying the interplay and impact of the classroom (platform) on other learning factors in a blended classroom. Action research is particularly useful for the development of knowledge to study technology in its “natural” context (Baskerville & Wood-Harper, 1996). The CIT procedure sacrifice the least amount of detail and offer the most depth possible for gathering important behavioral data, making is useful for developing broad psychological principles regarding service encounters (Gremler, 2004). Combined methods make the findings more realistic.

2.LITERATURE REVIEW

The theoretical background is based on the CoI framework extensively used in studies on e-learning and dramaturgy theory. The platform (physical setting) presence of the classroom is not accounted for in e-learning within the CoI framework, but can be addressed by drawing on dramaturgical theory as espoused by the sociologist Goffman (1959).

2.1 The Community of Inquiry Framework

For investigative researchers, as well as teaching practitioners, the sheer magnitude of variables identified as influential to learning performance presents a serious challenge to proper analysis of the interactions of learning elements (Freitas & Olive, 2006). Therefore, one aim of the current study is to provide a simple framework, such as the CoI model, which is capable of rendering the interactions of these variables as an integrated whole. First proposed by Garrison et al. (2000), the CoI framework of online conferences succinctly represents the relationship between the learner’s educational experience and the resulting increases in knowledge. The relationships are represented by a Venn-diagram with three

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overlapping components, or CoI ‘presences’: (i) the *cognitive presence*, indicating the degree to which individuals exhibit “sustained reflection and discourse” to learn (Garrison et al., 2000, 2001; Garrison & Kanuka, 2004); (ii) *social presence*, signifying the degree to which individuals adopt modes of communication employed by the larger learning community, to project individual importance and individual roles during the learning process, and (iii) *teaching presence*, which is the degree in designing/presenting course content, facilitating learner activities, and conducting post-activity assessment as perceived by members of the community of inquiry. The teacher is usually the critical person to teaching presence.

Garrison et al. (2001) viewed the cognitive presence as the core value in COI, and the other two presences as the catalyst that can help increase cognitive presence. According to Garrison et al., in on-line conferences, cognitive presence develops throughout a multi-step, cyclical process, where the social presence and teaching presence join to establish a Community of Inquiry, which in turn furthers develops the learner’s critical cognitive presence. Following this line of thought, a clear understanding of the process of development of cognitive presence would enable teachers and researchers to improve the overall learning experience (Garrison & Arbaugh, 2007), leading to improved learning achievement.

Working under the paradigm that links grades to learning achievement, Shea and Bidjerano found one more learning element: learning presence, which could more accurately predict academic performance in online learning (Shea & Bidjerano, 2010; Shea et al., 2012). Compared to the original model’s construct of cognitive presence, Shea et al.’s findings indicate learning presence, a combination of self-regulation, planning, monitoring, and personal strategizing applied throughout learning to cope with learning requirements and perceived state, to be a superior predictor of learner grades. Based on these findings, Shea et al. suggested adding *learning presence* as an intermediate variable to the original CoI model.

Three creative ideas are included in COI. First, learning experience is useful to illustrate the interactive situation to produce learning performance. Second, useful impact factors are selected: teaching, social, cognitive, and learning presences, to illustrate the factors that impact the learning experience an influence learning performance. Lastly, COI clearly demonstrates clear interactive effects

between the presences of: classroom atmosphere (culture), content selection, and discourse.

2.2 The Dramaturgical Model

In a blended classroom, the “platform” or learning environment encompasses specific physical facilities, technologies, and interfaces that enable students in e-learning/ F2F blended classrooms to interact with teachers, classmates, course content, and learning activities. Goffman’s dramaturgical model explains the influence of the physical facilities on service interactions, and provides a workable connection for extending CoI to F2F-e learning blended classroom research.

Dramaturgy (Goffman, 1959) is a sociological theory that borrows concepts from the field of drama (e.g. dramatic performance, dramatic content, stage settings, actors, audiences). The dramaturgical model is accessible to laymen and researchers alike, and provides an integrated framework that clarifies the cumulative effect of a range of influences on the service recipient’s impression on human service-related experiences. Goffman and other proponents of symbolic interactionism apply the conceptual model of drama to human service-related experiences, to determine the service recipient’s ‘impression of the performance’ (Myers & Newman, 2007). Influences ranging from the interplay between performance elements, to past impressions of dramatic performance, to the actual dramatic elements on display, have been identified (Moisio & Arnould, 2005). In dramaturgy, performance is acted out through the interactions of actors, audiences, drama content, and physical facilities. Dramaturgy theory provides a working model of performance that accounts for the significance of the “stage” element that is lacking in the original CoI framework when applied to blended learning.

In the application of dramaturgy theory in higher education, the classroom is considered as the stage in a theater where the learning activities are conducted. The teacher is the most important actor as he or she initiates and designs learning activities. Normally, students act as the audience. Professionalism is expected of the teacher by the students, therefore lack of professional skills and knowledge will impede student’s trust in the teacher (Halliday et al., 2008). In traditional brick-

and-mortar classrooms, teachers need to be well prepared in advance to ensure a smooth performance and to avoid making mistakes while lecturing in front of a live audience (the students).

According to dramaturgy theory, greater separation of the front of the stage from the backstage can prevent cognitive conflict between the dramatic role and the real personality of an actor (Grove et al., 1992). Internet technology has dramatically changed this concept of the classroom environment as a dramatic stage by separating the front of the stage from the backstage. The virtual classroom, on the other hand, usually involves the use of pre-recorded video lectures and learning content, allowing the backstage to be easily separated from the front stage. Therefore, problematic behavior such as knowledge-related mistakes or performance slip-ups can be removed during the post-production stages of recording, and the risk of student exposure to these problems is avoided. This is especially beneficial to teachers not fluent in oral communication or junior teachers still unfamiliar with the teaching material.

3. FRAMEWORK OF LEARNING DRAMATURY

Although CoI is a simple, effective and creative method for explaining learning experience, there are still two proposals worth mentioning that facilitate understanding of the learning experience in a blended classroom. First, the authors consider learning presence, as proposed by Shea & Bidjerano (2010) and Shea et al. (2012), to be better as a core value to increase learning performance, rather than an intermediate variable for cognitive presence. The learner's personal learning strategy (learning presence) is interactively influenced by the course content and assessment method selected by the teacher (teaching presence), the collaboration with fellow students and the classroom atmosphere (social presence), and reflection stimulated by the learning process (cognitive presences). Second, despite recent developments in CoI theory, this framework lacks an adequate mechanism to

account for differences in environmental learning platforms, making it particularly problematic to use for F2F-online blended classrooms (Swan, 2004a, 2004b; Cho et al., 2009). A more holistic framework is proposed here that will better explain and predict learning performance in blended e-learning/F2F learning environments. The framework of learning dramaturgy, which draws on concepts from both CoI and dramaturgy theory, while maintaining its own distinctive characteristics, provides an intuitive framework for analyzing the interactive learning experience in the learning context without overlooking the importance of platform presence.

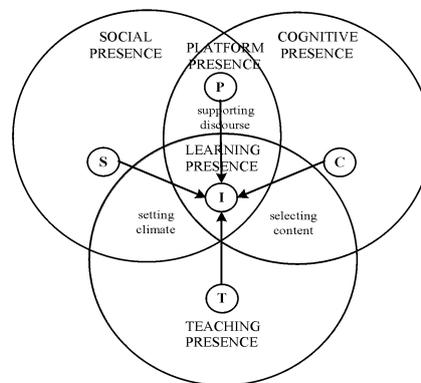


Figure 1. Framework of Learning Dramaturgy

Data source: this research

The learning dramaturgy framework is illustrated in Fig. 1. The interactive relationship between the variables related to learner’s educational experience, that act to help (or impede) knowledge acquisition, are represented are represented by a Venn-diagram with five overlapping components. Four are defined the same as the CoI “presences”: teaching, social, cognitive, and learning presences as discussed in the Literature Review section. *Platform presence* indicates the degree to which the individual’s perception of physical facilities impacts the smoothness of their learning progress.

The core of the learning dramaturgy framework is learning presence (“I” in Figure 1) and indicates the degree to which a learner self-regulates, plans, monitors, and strategizes throughout the learning process to cope with learning requirements

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and perceived state. It is critical to learning performance, especially in the e-learning classroom. We assume that a higher degree of learning presence will lead to better learning performance, a conclusion verified by Shea & Bidjerano (2010).

The other three overlapping circles in Figure 1 indicate concepts used in CoI including cognitive presence (labeled “C”), teaching presence (labeled “T”), and social presence (labeled “S”). *Teaching presence* is related to the designing/presenting of course content, facilitating learning activities, and conducting post-activity assessment. Through exposure to the course content, activities, and assessment, learners experience *cognitive presence*, the degree to which individuals exhibit “sustained reflection and discourse” to learn. The classroom atmosphere or culture, interactions between the instructor and students, or between classmates signifies the degree to which learners perceive importance and individual roles on collaboration during the learning process. The discourse support from social presence could encourage cognitive presence, and vice versa.

A scenario of learning presence usually also integrates one or more of the other four learning elements. For example, a learning presence stemming from cognitive presence and teaching presence is surely influenced by design of learning activity and learning content. Challenge and pleasure experienced through learning are important motivators of student’s involvement (Kiili, 2005; Tiger, 2008; Fu et al., 2009). Learning presence usually exists when the learning content or activity is recognized to be interesting, practical, effective or important (Baylor & Ritchie, 2002).

The central, shaded circle portrays how the newly added platform presence impacts the teaching, social, and cognitive presences to produce learning presence. The presence of the platform itself may highlight or subdue the other three elements: cognitive, teaching, and social presences. The concept of the platform presence reflects how the learner views the overall physical learning environment.

4. RESEARCH METHODOLOGY

This study probes the tenability of using learning dramaturgy framework to evaluate the impact of platform presence to increase learning presence and improve performance, using both the action research method and critical incident technique. The action research method is used because it is useful to integrate the variables of presence into different “natural” teaching contexts for observation, analysis, and comparison. As indicated in the literature although there are other methodologies that can be used to study technology in its “natural” context, action research is particularly useful for the development of knowledge useful in both research and practice (Baskerville & Wood-Harper, 1996). Evered’s canonical action research method, the most widely adopted action research framework in social science, is used (Lindgren et al., 2004). The method is discussed in detail in section, 4.1.

Rather than exclusively applying a grade-based metric, this study uses the dramaturgical approach (scenario-based analysis, the critical incident technique) to evaluate service recipients’ impressions. Grade assignment can vary from classroom to classroom and is often influenced by a number of factors, including differences in course content, in the assessment metric, and in student backgrounds, and can also be affected by differences in learning platforms. Thus, this study systematically analyzes platform presence in various instructional settings using the dramaturgy of learning framework. Satisfactory/dissatisfactory learner experience is as only one means of determining learning effectiveness.

4.1 Project Setting and Evaluation of Action Research

The instructor followed Susman & Evered’s (1978) cyclical action research design to conduct two cycles of action research. The purpose of the first cycle was to understand possible differences in performance produced by face-to-face versus traditional classroom platforms. In the first cycle, the course is taught by the same instructor, who uses the same content and homework, but different learning environments for a period of six weeks. In the second cycle of action research, a complete pedagogical design was taught in a blended classroom setting for a whole semester.

It is important to specify the criteria by which an action research project

should be evaluated. We argue that the criteria used in this study are valid because they match the five evaluation criteria of Davison et al. (2004) and Lindgren et al. (2004): researcher-client agreement, fit with cyclical process model, fit with theory, changes made through action, and learning through reflection. The principle of researcher-client agreement is met when the researcher (also the instructor) was assigned to improve the course as a project for Business Administration Education Improvement for the E Generation. The principle of the cyclical process model mandates that all five action research phases progress in a sequential and systematic manner. The theory highlights the importance of not only using its principles to guide or refocus the research activity, but also relates the findings to past studies. The principle of change through action stipulates that appropriate intervention should be designed and implemented in the action research. The principle of learning through reflection calls for drawing insights from the research and identifying implications for other situations and research contexts.

4.2 Critical Incident Technique (CIT)

Originally developed by Flanagan (1954) as a form of content analysis, the set of CIT procedures for gathering specific observations and important behavioral facts has grown in popularity with service-related research over the last three decades, in a large part due to its usefulness in solving practical problems and developing broad psychological principles regarding service encounters (Gremler, 2004). CIT was used to collect satisfactory and unsatisfactory learning presences in order to evaluate the advantages and disadvantages of different learning contexts.

Satisfaction and dissatisfaction operate on more than an exclusive “either-or” model. In Herzberg’s (2003) two-factor theory, satisfaction and dissatisfaction act independently of each other. Herzberg found that lack of dissatisfaction did not lead to long-term task motivation, which is associated with satisfaction. Likewise, an absence of satisfaction did not invariably induce negative effects associated with dissatisfaction. Rather, the findings demonstrate that an accurate understanding of the relationship between satisfaction and motivation requires proper examination of the factors influencing satisfaction and dissatisfaction. CIT provides a useful way to collect data on incidents of (dis)satisfaction. The data are categorized into different themes to find the root source of (dis)satisfaction.

4.2.1 Procedures of CIT

The purpose of CIT is to make data collected in the field useful for answering research questions, while sacrificing the least possible amount of detail and depth (Bitner et al., 1990). CIT accomplishes this goal through a two stage process -- collection and classification. The first step, collection of behavioral observations, involves accumulation of self-reports from research participants. In the second stage, these collected events, phenomena or occurrences are classified so that they become useful for addressing practical problems (Flanagan, 1954).

Classified respondent data are referred to as “incidents.” Incidents in the present study are comprised of learning presences that involve teaching presence, social presence, and cognitive presence, in combination with platform presence. A *critical* incident of learning presence indicates a special incident produced from a combination of teaching presence, social presence, platform presence, and/or cognitive presence that creates strong feelings of satisfaction or dissatisfaction in the student towards their assigned course.

There are many classes in learning presences and the researcher needs to classify them to correspond to the theory. The four-stage CIT procedures used in the study can be summarized as follows: 1) collect learning incident reports of dissatisfaction and satisfaction in the target classroom; 2) categorize incidents into themes, first at the subcategory level, and then the category level; 3) develop categories based on the dramaturgy of learning framework; 4) examine the distribution of categories to determine how incidents of satisfaction versus dissatisfaction vary in different classrooms and with different pedagogical designs.

4.2.2 Interview Questions for CIT

This study probed for critical incidents by asking respondents to recollect especially satisfying or dissatisfying learning presences related to the version of the target class they participated in, including the time of incident occurrence and what had happened, what the instructor had said or done, and what the outcome was. Most participants reported one incident per interview, but in some cases, two or three incidents were recalled, producing a total of 631 valid incidents from a sample of 320 students, surpassing the 433 incident average obtained in previous CIT studies (Gremler, 2004). Critical incidents of satisfaction in the face-to-face, e-

learning, and blended versions of the target course were 100/104/155, respectively, and incidents of dissatisfaction were 101/87/84, respectively, meeting the CIT analysis standard of 50 to 100 incidents for unambiguous activities (Flanagan, 1954).

4.2.3 Reliability of CIT

In CIT studies, the ability of an individual judge, or incident coder, to reliably classify similar incidents into the same categories over time (intrajudge agreement) and demonstration of common consent among judges (interjudge agreement) are necessary for research validity (Gremler, 2004). To code each collected incident, the researcher and two other highly trained coders applied an iterative analytical induction process to sort critical incidents “into groups and categories according to similarities in the reported experiences” (Bitner et al., 1990), based on the learning elements mentioned in the literature review. Holsti’s coefficient for coder agreement of satisfactory and unsatisfactory incident categorizations was calculated according to Smith & Houston’s (1985) methodology. Intrajudge agreement was measured after the first week, producing Holsti’s coefficient values of 0.89/ 0.96 for the F2F class, 0.88 / 0.93 for the e-learning environment, and 0.90 / 0.93 for the blended classroom. Holsti’s coefficient values for interjudge agreement were 0.91/0.89 for the F2F classroom, 0.85/0.80 for the e-learning environment, and 0.89/0.86 for the blended classroom. All coefficient values exceeded the acceptable Holsti’s standard of 0.8 needed to be considered statistically reliable (Smith & Houston, 1985).

4.3 Targeted Course and Subjects

The target course, “Introduction to Software”, is an information literacy course offered for non-MIS students, traditionally taught as several classes by different instructors. This course was selected based on its compatibility with e-learning enhancement. Instructors are often unwilling to teach this course, because the frequency of software upgrades prevents familiarity with the material. Learning effectiveness, which would be indicated by at least a C+ grade average and an average student evaluation of 2.75 or more on the 5-point Likert scale, was also perceived to be inadequate.

The subjects were students who took the course. 320 students were recruited for interviews with 115 from the face-to-face classroom environment, 110 from the e-learning environment, and 95 from the blended classroom. The participant sample included slightly more females (60%) than males (40%) and was 100% Asian. Participants were all quite young (age 18 to 22) and were also undergraduate students at a Taiwanese university. All were non-MIS undergraduate students, majoring in social science fields such as business, law, economics, education, literature, etc.

5. FIRST ACTION RESEARCH CYCLE

With the intent to identify principles of effective platform usage, the researcher started the first action research cycle to experiment with developing an e-learning class. A cycle contains the following five phases as suggested by Lindgren et al. (2004). The summary of the action research project is shown in Table 1.

Table 1. Summary of action research project

Cycle 1	Cycle 2
Platform (classroom)	
F2F vs. e-learning	Blended class
Phase 1. Diagnosis	
From a series of expert meetings, teacher frustration is identified as a key problem. The following working hypothesis is formulated: The problem of professional difficulty can be solved and learning performance will be increased by using the e-learning system.	Based on the barriers and benefits of learning performance in the e-learning classroom identified in the first action research cycle, two problems associated with learning presence are identified: <ul style="list-style-type: none"> ● lack of challenge and motivation for involvement ● lack of self-efficacy to conduct self-regulated learning

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<p>Data sources</p> <ul style="list-style-type: none"> ● Expert review ● Interviews 	<p>The following working hypotheses are formulated:</p> <ul style="list-style-type: none"> ● timely help from the teacher through the F2F classroom is suitable for novice users ● collaboration and challenge can provide motivation to pursue more advanced knowledge
<p>Phase 2. Action Planning</p>	
<p>Two design principles are utilized for developing the e-learning class based on the dramaturgy of learning framework:</p> <ul style="list-style-type: none"> ● the principle of classroom atmosphere: insufficient professionalism of instructors ● the principle of cognitive presence: created by effective content 	<p>To improve learning presence by proper use of the characteristics of the platform, three principles were recommended:</p> <ul style="list-style-type: none"> ● self-efficacy developed by F2F class demo and individual home work ● motivation enhanced by collaboration ● project-oriented assignment for developing advanced knowledge
<p>Phase 3. Action Taken</p>	
<p>The two design principles were implemented in two kinds of classes for six weeks:</p> <ul style="list-style-type: none"> ● taught by the same instructor and similar content ● developed useful learning content 	<p>The redesigned course contents and assessments based on the above principles were implemented in a blended class for an eighteen-week semester.</p>
<p>Phase 4. Evaluation</p>	
<p>The learning performance showed:</p> <ul style="list-style-type: none"> ● student grades (not improved) ● course evaluations (not improved) ● critical incidents (learning presence differed in the two classrooms) 	<p>The learning performance showed:</p> <ul style="list-style-type: none"> ● student grades (improved) ● course evaluations (improved) ● critical incidents (satisfactory experience was increased and students concentrated more on

	learning presence and collaboration compared to the first research cycle.)
Phase 5. Specifying Learning	
The working hypothesis was not supported. Students did not show enough self-efficacy and motivation to conduct self-regulated learning in e-learning classroom. These disappointing outcomes encouraged us to initiate a second action research cycle.	The working hypothesis was supported. Properly integration of the characteristics of teacher, student, content, and platform can get better learning presence and learning performance.

Data source: this research

5.1 Phase One: Diagnosis

The interviews of instructors. It was a challenge for the instructor to maintain their level of professionalism having to cope with ever changing versions of the software. Faced with the learning objective, the instructors concluded that the content should focus more on task or problem solving with the software instead of operation skills. They argued that task-oriented training is more appropriate for this course. Even though the rapid software upgrades may result in differences in operating steps for minor functions or interface management, the major functions of the software remain the same.

5.2 Phase Two: Action Planning

In an attempt to address the problem of learning content, the researcher developed two principles based on the framework of learning dramaturgy. The first principle is that platform presence in the e-learning classroom would be helpful to solve the problem derived from teaching presence. Students' complaints would be decreased because of lack of professionalism of the instructor would be masked by using videos in the e-learning class. The second principle is related to the development of effective learning content to motivate learning presence or cognitive presence. Without good application examples, the learning goals of

classes like computer literacy courses will be hard to realize, as students will find computer functions difficult to remember. The researchers decided to incorporate more task-oriented application examples into course content to improve the students' information literacy skills. Lectures thus included introduction to the task, introduction to computer functions relevant to the task, and hands-on demonstration of the computer functions.

5.3 Phase Three: Action Taken

The two design principles were implemented in four six week classes. Two of the four classes were taught in a face-to-face classroom setting, and the other two were taught in e-learning classrooms. In the face-to-face classrooms, instructors led demonstrations to showcase different computer software applications, and students were required to practice operating the software following each demonstration. The e-learning classrooms featured polished pre-recorded, demonstration videos that students could browse online at their own pace. Interactions among classmates and instructor took place only through online discussion boards. Assuming that students might have more difficulty concentrating on a video lecture, the e-learning system provided two types of visual presentation: illustration through Web pages of texts and graphs, or by video lectures, so that students could enjoy a richer variety of information. In both classrooms, students were required to watch and replicate demonstrations made by instructors.

5.4 Phase Four: Evaluation

For each classroom, learning performance was evaluated based on student grades, course evaluations, and reports of critical incidents related to learning experience. Unlike our expectations, students received slightly higher grades in the face-to-face classes (B) than in the e-learning classroom (B-to-B). Course evaluation was 2.9 with no significant difference in course evaluation between the two kinds of classrooms. Furthermore there was no significant difference in the ratio of satisfactory incidents/unsatisfactory incidents between the F2F and e-learning classrooms (.5 / .5 vs. .54/.46, respectively). However, interestingly there was a significant difference between satisfactory and dissatisfactory incidents reported, as will be detailed in the following section.

There were similar amounts of reported critical incidents of satisfaction in the face-to-face and e-learning versions of the target course, 100/104, respectively, but a difference in the incidents of dissatisfaction, 101/87, respectively. In a discussion of learning presence in the F2F classroom, the role of the teacher comes to the forefront. An examination of the data in Appendix Table A1 shows that the majority of satisfactory incidents in the F2F class derived from teaching presence (31%), while the majority of incidents of dissatisfaction were also related to teaching (29%). In other words, teaching presence, influenced by the teacher's level of professionalism, had a significant influence in the F2F classroom. Three aspects of teaching presence were cited in F2F critical satisfaction incidents: earnest teacher attitude (20%), good student interaction (6%), and spontaneity (5%). Critical dissatisfaction incidents consisted of cases where teacher performance was perceived as being unprofessional (19%), showed an inability to attract or maintain student attention (4%), or poor handling of unexpected situations (3%), all of which marred the participant's learning presence.

One representative satisfying incident of teaching presence from teacher's earnest efforts to develop useful content is cited below:

'The instructor was very concerned with student learning and provided clear examples to help the students understand. The instructor usually demonstrated an example and then asked us to follow her demonstration individually. She would come quickly to help us if we raised a hand'

One representative dissatisfying incident with teacher's professionalism is:

'Once when the instructor demonstrated [a particular program function], she seemed unfamiliar with the operation because she tried and failed several times. I was confused over how to do it and wished she had been better prepared for class.'

Reports of critical incidents in our e-learning variant of the target course emphasized critical dis/satisfaction with the effect of the e-learning platform on learning presence. The greatest contribution to participant reports of critical satisfactory incidents came from platform presence (22%), and most dissatisfying incidents (26%) were caused by negative perceptions regarding the platform presence. This was centered on the increased schedule flexibility and physical mobility provided by the online system (13%) and proper functions (7%). Complaints regarding the e-learning system focused on system performance, such as unavailability of help (13%) and internet transmission speed (10%). Incident

data collected for this particular e-learning classroom showed that platform presence played an important role (either positive or negative) in satisfaction and dissatisfaction.

One representative satisfying incident of platform presence arose from the more flexible learning strategy for progress or scheduling as follows:

'Sometimes the demo was too fast to follow the sample application. In those situations, I paused the video, practiced the content, and continued after I had practiced.'

'I got up at 11 o'clock, had my breakfast, and was able to browse the e-learning content from my dorm. I felt very relaxed because it was Wednesday and I didn't need go to a classroom like my other roommates.'

One representative dissatisfying incident of platform presence arising from unavailability of assistance using the e-learning system is:

'Once when I was browsing content in the e learning system, I felt frustrated because when I copied what the instructor was doing, I couldn't get the same result. I tried several times and then gave up.'

5.5 Phase Five: Specifying Learning

The working hypothesis was not supported. It can be seen that even though there was no criticism of instructors' professionalism in the e-learning class, it did not result in significant improvement in grades and student evaluation, indicating it is difficult to improve learning performance only through modifying the learning content and changing platforms. Students did not seem to have enough self-efficacy and motivation to use the e-learning classroom effectively in the target course.

Learning presence was achieved through teaching presence in the F2F classroom. The teacher is not only responsible for course design and content selection, but also needs to deliver a presentation component similar to that of an actor in a drama. In other words, the class instructor has to apply his/her professional and expressional skills to teach the course content in a professional manner so as to satisfy audience members, in this case the students.

Learning presence was achieved through teaching presence plus platform presence (available and functional) in the e-learning classroom. The example of the

critical incidents in the e-learning classroom showed that students who lacked self-efficacy to solve problems in the e-learning environment, they would become frustrated. Separating the front stage from the back stage made a difference in the perception of teaching presence, such as the teacher's communication (e.g., humor), real-time interactive capabilities, and enthusiasm. For the teacher, it could sometimes be difficult to debug the system or quickly resolve a student's problem simply through textual exchange. If they experienced no problem with e-learning, they preferred the flexible strategy it offers. Consistent with previous studies on e-learning, students were happy when their self-learning progressed successfully and when they had more flexibility in choosing their own learning strategy (Yang & Liu, 2007; Sun et al., 2008).

However, students might perceive negative platform presence if they found it difficult to resolve learning problems due to lack of timely support from the teacher and classmates. This could happen when students were faced with insufficient technological support or when transmission speed crashed the e-learning systems. The high levels of such dissatisfying learning experience reported in the e-learning system could explain why the learning performance (grade) and student evaluation did not improve even though our latest course reform eliminated incidents of teachers' "unprofessional" demonstrations of the latest software upgrades.

These disappointing outcomes encouraged us to initiate a second action research cycle.

6. SECOND ACTION RESEARCH CYCLE

In the second action research, the goal was to investigate the pedagogical design to synergize satisfactory learning experiences in an F2F and e-learning in a blended classroom using the learning dramaturgy framework.

6.1 Phase One: Diagnosis

Diagnosis of the results of the first action research cycle showed that: learning

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performance was not good in both the F2F and e-learning classrooms. We hypothesized that the reason for unsatisfactory performance was insufficient learning presence. Based on the dramaturgy of learning framework, we proposed the following working hypothesis: the principle of pedagogical design in blended classes should focus on the advantages of each platform to get the synergy effect and improve learning presence.

Two phenomena impeded students' learning presence: lack of challenge to motivate involvement and not enough immediate help available. Students should continuously face challenges that are not too easy and not too difficult. This is most critical to ensure continued involvement as proposed by Kiili (2005). Lack of timely help would interrupt the flow of learning. On the other hand, face-to-face and e-learning classrooms each boast unique advantages in terms of learning presence. There are some potential improvements for the target course in a blended class if appropriate pedagogical design is used.

The face-to-face classroom spotlights teaching presence and the e-learning classroom spotlights strong cognitive presence. The instructor, like an actor on a theater stage, exploits his/her charm, enthusiasm and professionalism in the face-to-face classroom. Human interaction in the face-to-face classroom produces a certain degree of learning presence and timely help facilitating the acquisition of low level knowledge (memory and comprehension) and self-efficacy for successful self-regulated learning. On the other hand, any lack of professionalism in the instructor's performance is not easily concealed in the F2F classroom, hence students' distrust is more easily aroused when unprofessionalism is detected.

In the e-learning classroom, students have more *autonomy* in creating their learning strategies, but little learning presence is found in that students have little patience and motivation to browse the course content thoroughly. They would usually look at the homework section first and then try to complete the homework as quickly as possible. Homework seems to be critical in influencing learning strategy. As they did the homework without going through basic lecture and guidance, students often encountered unpredicted problems in their homework completion. These students became frustrated if they could not get timely help.

Another potential improvement is social presence which did not appear in the first action research cycle. Collaborative learning is significantly related to learning performance and satisfaction in e-learning (So & Brush, 2008). To improve

knowledge to move from the lower level of memory and comprehension to the advanced level of application and analysis, to provide greater learning challenge, and to take advantage of the effect of social presence on learning presence, the researchers proposed the following working hypothesis: that the individual assignments in the first action research cycle may not be as effective in motivating collaboration learning as group projects.

6.2 Phase Two: Action Planning

Based on the diagnosis, the researchers decided to use face-to-face demonstrations of lesson content and individual assignments for novice users to learn basic skills, and then followed up by e-learning classes and team worked projects for collaborative advanced knowledge. Learning presence is largely dependent on the design of learning activity and assignment (Shea et al., 2012). Face-to-face demos are better for novice users to pick up basic comprehension of the software. However, when it comes to acquisition of advanced knowledge, it is better to give students more autonomy in selecting their own learning strategy. E-learning classes are suitable for reviewing skills and self-regulated learning, provided that it concludes with a team project that enhances student engagement and collaboration. Utilizing team projects that create a product offers three benefits: increasing social presence (So & Brush, 2008); improving students' knowledge level from low level (i.e., capable of "understanding") to advanced level (i.e., capable of "application") (Bloom, 1984); and raising the knowledge retention rate from 5% for lecture-based classes to the 75% for application-based classes, according to the learning pyramid¹ (see <http://www.acu.edu/cte/activelearning/whyuseal2.htm>).

6.3 Phase Three: Action Taking

In action planning, the learning content of the target course is categorized into either concepts/theories or skill applications. All course contents and assignments were redesigned for a whole semester course. The learning content was presented

¹ National Training Laboratories (no date) Learning Pyramid, Bethel, Maine.

through lectures, case demos, and flash games. All scripts for the case demos were task-oriented. One basic case demo was developed to illustrate the basic functions of the software. The basic case demo would be taught in the F2F classroom. Extra demo cases would be put on the e-learning platform for students to incorporate into their self-regulated learning. The team project format was utilized to cultivate more opportunities for collaborative learning.

6. 4 Phase Four: Evaluation

There was a significant improvement in the average grade to B+ or A-. Similarly, there was significant improvement observed in student evaluations of the course, to 4.2 on the 5-point Likert scale, and the ratio of satisfactory incidents/dissatisfactory incidents was increased to .65/.35. The results of analysis of critical (dis)satisfactory incidents in the blended version of the target course are summarized below.

Consistent with the increase in the students' average grade and their evaluation of the blended classroom, the proportion of critical incidents of satisfaction with learning presence (18%) was higher with the blended approach than with the F2F or e-learning implementations of the target course. Many incidents were related to good pedagogical design (5%), good learning experience (8%), and active learning (3%). Furthermore, the percentage of satisfactory presences with teaching presence was greater in the blended classroom (28%) than in the e-learning variants (Appendix Table A1).

In the blended classroom, many satisfactory (12%) and dissatisfactory incidents (18%) concerned matters of social presence: up to 6% of the reports mentioned good collaborative learning and 6% praised the performance of their team members. However, 6% documented team members not doing their jobs, and 13% complained about the difficulty of locating team members online (Appendix Table A1).

The representative of satisfying incidents of collaborative learning is as follows:

'It was convenient that members could share data and discuss issues through the Facebook learning community. We finally got a good grade in our team project.'

While the representatives of dissatisfying incidents of collaborative learning are

'I was team leader; but I found it hard to schedule team meetings. There was even a time when only my account would show up on the meeting invitation.'

'One member of my team was not very responsible. He often disappeared during meetings and we could not trust him to complete the jobs he promised to do. Unfortunately, he did not do his part well when he turned in his results. But by that time it was almost due and we, the other members, had to cover for his mistakes in a very rushed time.'

6.5 Phase Five: Specifying Learning

Results of the second action cycle, namely the improvements in grades, student evaluation, and satisfied experiences indicated that the proper combining of platform strengths provided an effective means to enhance learning performance and learning presence. The teacher had choices of platform to better hide his/her “unprofessional” aspect (skills or attitude), to express his/her “professional” aspect, while enjoying more resources for teaching. Integrated with assessment and content design, the pedagogical design would help students to harness capability for collaboration.

7. CONCLUSIONS

An attempt was made to find principles for synergizing the platform advantage of F2F and e learning, particularly for the blended classroom. The researchers developed a Learning Dramaturgy framework, as shown in Figure 1, integrating the dramaturgical model and the community of inquiry framework. The dramaturgical model pinpointed the idea that learning performance comes from the interactive effects of teacher, students, content, and physical facilities. The community of inquiry framework identifies the leading factor of learning performance as related to learning presence, and its relationship to other presences:

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teaching, social, and cognitive presence and the interrelationships among themselves. The framework of Learning Dramaturgy was aimed to guide instructors in their pedagogical design by strengthening learning presence through effective use of teaching, social, and cognitive presence with platform presence.

Synthesizing the insights gained from a two semester action research study, the researchers propose three principles for creating learning presence by synergizing platform, teaching, social, and cognitive presences. They are known as the principles of two-sided platform usage, continued forward to advanced knowledge, and collaboration. The findings support these three principles as explained below.

The principles of two-sided platform usage originated from the action research findings, showing that despite exposure to the same course content and instructor, in the e-learning variant of the target course, students classified critical incidents differently from their F2F counterpart. In the F2F classroom, teacher performance had a high impact on learning presence. Various characteristics of the teacher, such as positive attitude (e.g., enthusiasm), expressive skills, and professionalism, were not only critical to student satisfaction with the learning presence, but also deemed necessary for the instructor to appropriately respond to the students. Therefore F2F provided a better platform for novice students to attain a basic level of efficacy and timely support and for charismatic teachers to attract students to follow their guidance.

Platform presence had a critical impact on student satisfaction or dissatisfaction with learning presence in the e-learning classroom. Availability or flexibility that came with utilizing the e-learning system was the main source of a satisfaction for e-learning students. Yet problems encountered using the e-learning system, including lack of timely help or low transmission speed, served as a source of dissatisfaction.

Opportunities for active learning were assumed to increase in the e-learning environment but the findings did not support this. Students had more autonomy in planning their study schedule, deciding for themselves when to browse the online content or do the homework. This also meant it became more difficult to encourage students to follow the content structure in the order designed by the teacher. Most students preferred to just complete the assignment and spend as little time as possible on the course content itself.

Learning presence and performance would be drawn from the integrated effects produced by the platform and other factors: teacher, students, and content. The researchers tried to combine teaching, cognitive, and platform presence to realize the principle of continuing forward to obtaining higher order knowledge. Novice students acquired the lower level knowledge (comprehension and memory) in the F2F class simply completing individual homework assignments and through the guidance, demos, and timely help in the classroom. While extending their knowledge to application and analysis was achieved through reflections in the e-learning classroom through the completion of team projects. The challenge should not frustrate students but help them to accumulate efficacy and skills for pursuing higher level knowledge.

The principle of collaboration was implemented by working on team projects. This acted to create a good classroom atmosphere of cooperation with members and competition with other groups. The platform allows learning presence to be cultivated strongly when students negotiate and find better, more convenient channels to maintain contact with each other. Critical incidents reported for the blended version of the target course indicated that the students tended to experience positive social interaction with their team members, which is in accordance with one of the goals of higher education – encourage students to work in collaboration. While teamwork increased, the teacher's lack of experience in regulating student participation resulted in making social presence one of the students' most important dissatisfactory presences. Results of the study showed that most students in team projects still relied on face-to-face and synchronous discussion to complete the project goals.

To guide pedagogical design so as to improve learning performance is challenging because it is the product of a set of complicated and complex interactions between content, peers, teacher, and the learning platform environment. This study proposes a parsimonious framework of learning dramaturgy that can be used both for analysis of the above interactions and their impacts on learning presence. The learning dramaturgy is used to discover how platform presence can be synergized in the blended classroom, to develop principles for pedagogical design and platform selection, and to verify the usage of both the principles developed and the framework of learning dramaturgy itself. The results described in this paper demonstrate how this framework can potentially be used to understand

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learning presence – not only across different platforms but also across pedagogic designs. Utilizing the dramaturgy of learning framework may ease the complex process of developing an appropriate pedagogical design for the teachers. Further studies can look into other pedagogical designs in the F2F/e-learning blended classrooms and help improve their learning presences and overall performance.

REFERENCES

- Baskerville, R. L. and Wood-Harper, A. T., 1996, "A Critical Perspective on Action Research as a Method for Information System Research," **Journal of Information Technology**, Vol. 11, No. 3, 235-246.
- Bates, A. W., 2005, **Technology, E-Learning and Distance Education**, 1st, New York: Rutledge Flamer.
- Baylor, A. L. and Ritchie, D., 2002, "What Factors Facilitate Teacher Skill, Teacher Morale, and Perceived Student Learning in Technology-using Classrooms?" **Computers & Education**, Vol. 39, No. 4, 395-414.
- Bitner, M. J., Booms, B. H., and Tetreault, M. S., 1990, "The Service Encounter: Diagnosing Favorable and Unfavorable Incidents," **Journal of Marketing**, Vol. 54, No. 1, 71-84.
- Bloom, B. S., 1984, **Bloom Taxonomy of Educational Objectives**, 1st, Boston: Pearson Education.
- Cho, V., Cheng, T. E., and Lai, W. J., 2009, "The Role of Perceived User-interface Design in Continued Usage Intention of Self-paced E-learning Tools," **Computers & Education**, Vol. 53, No. 2, 216-227.
- Davison, R. M., Martinson, M. G., and Kock, N., 2004, "Principle of Canonical Action Research," **Information Systems Journal**, Vol. 14, No. 1, 65-86.
- Flanagan, J. C., 1954, "The Critical Incident Technique," **Psychological Bulletin**, Vol. 51, No. 4, 327-358.
- Francescato, D., Porcelli, R., Mebane, M., Cuddetta, M., Klobas, J., and Renzi, P., 2006, "Evaluation of Efficacy of Collaborative Learning in Face-to-face and Computer-supported University Contexts," **Computers in Human Behavior**, Vol. 22, No. 2, 163-176.
- Freitas, S. D. and Olive, M., 2006, "How Can Exploratory Learning With Games And Simulations within the Curriculum Be Most Effectively Evaluated?" **Computer &**

- Education**, Vol. 46, No. 3, 249-264.
- Fu, F., Su, R., and Yu, Y., 2009, "EGameFlow: A Scale to Measure Learners' Enjoyment of E-learning Games," **Computers & Education**, Vol. 52, No. 1, 101-112.
- Garrison, D. R. and Arbaugh, J. B., 2007, "Researching the Community of Inquiry Framework: Review, Issues, and Future Direction," **The Internet and Higher Education**, Vol. 10, No. 3, 157-172.
- Garrison, D. R. and Kanuka, H., 2004, "Blended Learning: Uncovering Its Transformative Potential in Higher Education," **Internet and Higher Education**, Vol. 7, No. 2, 95-105.
- Garrison, D. R., Anderson, T., and Archer, W., 2000, "Critical Inquiry in a Text-Based Environment: Computer Conferencing in Higher Education," **The Internet and Higher Education**, Vol. 2, No. 2-3, 87-105.
- Garrison, D. R., Anderson, T., and Archer, W., 2001, "Critical Thinking, Cognitive Presence, and Computer Conferencing in Distance Education," **American Journal of Distance Education**, Vol. 15, No. 1, 7-23.
- Goffman, E., 1959, **The Presentation of Self in Everyday Life**, 1st, London: Penguin.
- Gremler, D. D., 2004, "The critical incident technique in Service Research," **Journal of Service Research**, Vol. 7, No. 1, 65-89.
- Grove, S. J., Fisk, R. P., and Bitner, M. J., 1992, "Dramatizing the Service Experience: A Managerial Approach," **Advances in Services Marketing and Management**, Vol. 1, No. 1, 91-121.
- Halliday, S. V., Davis, B. J., Ward, P., and Lim, M., 2008, "A Dramaturgical Analysis of the Service Encounter in Higher Education," **Journal of Marketing Management**, Vol. 24, No. 1, 47-68.
- Herzberg, F., 2003, "One More Time: How Do You Motivate Employees?" **Harvard Business Review**, Vol. 81, No. 1, 87-96.
- Kiili, K., 2005, "Digital Games-based Learning: Towards an Experiential Gaming Model," **The Internet and Higher Education**, Vol. 8, No. 3, 13-24.
- Lindgren, R., Henfridsson, O., and Schultze, U., 2004, "Design Principles for Competence Management Systems-A Synthesis of an Action Research Study," **MIS Quarterly**, Vol. 28, No. 3, 435-472.
- Marjanovice, O., 1999, "Learning and Teaching in a Synchronous Collaborative Learning Environment," **Journal of Computer Assistance Learning**, Vol. 15, No. 2, 129-148.
- Moisio, R. and Arnould, E. J., 2005, "Extending the Dramaturgical Framework in Marketing: Drama Structure, Drama Interaction and Drama Content in Shopping Experience," **Journal of Consumer Behaviour**, Vol. 4, No. 4, 246-256.
- Myers, M. D. and Newman, M., 2007, "The Qualitative Interview in IS Research: Examining the Craft," **Information and Organization**, Vol. 17, No. 1, 2-26.

Dramaturgical Analysis of Hybrid Classrooms: Finding Synergies between Traditional and Digital Learning Context

- Osguthorpe, R. T. and Graham, C. R., 2003, "Blended Learning Environments: Definitions and Directions," **Quarterly Review of Distance Education**, Vol. 4, No. 3, 227-233.
- Shea, P. and Bidjerano, T., 2010, "Learning Presence: Towards a Theory of Self-efficacy, Self-regulation, and the Development of a Community of Inquiry in Online and Blended Learning Environments," **Computers & Education**, Vol. 55, No. 4, 1721-1731.
- Shea, P., Hayes, S., Smith, S. U., Vickers, J., Biderano, T., Pickett, A., Gozza-Cohen, M., Wiide, J., and Jian, S., 2012, "Learning Presence: Additional Research on a New Conceptual Element Within the Community of Inquiry (CoI) Framework," **The Internet and Higher Education**, Vol. 15, No. 2, 89-95.
- Smith, R. A. and Houston, M. J., 1985, "A Psychometric Assessment of Measures of Scripts in Consumer Memory," **Journal of Consumer Research**, Vol. 12, No. 2, 214-224.
- So, H. and Brush, T. A., 2008, "Student Perceptions of Collaborative Learning, Social Presence and Satisfaction in a Blended Learning Environment: Relationships and Critical Factors," **Computer & Educations**, Vol. 51, No. 1, 318-336.
- Sun, P., Tsai, R. J., Finger, C., Chen, Y., and Yeh, D., 2008, "What Drives a Successful E-Learning? An Empirical Investigation of the Critical Factors Influencing Learner Satisfaction," **Computers & Education**, Vol. 50, No. 4, 1183-1202.
- Susman, G. and Evered, R., 1978, "An Assessment of the Scientific Merits of Action Research," **Administrative Science Quarterly**, Vol. 23, No. 4, 582-603.
- Suthers, D. D., Hundhausen, C. D., and Girardeau, L. E., 2003, "Comparing the Roles of Representations in Face-to-face and Online Computer Supported Collaborative Learning," **Computers & Education**, Vol. 41, No. 4, 335-351.
- Swan, K., 2004a, "Relationships between Interactions and Learning in Online Environments," <http://www.sloan-c.org/publications/books/interactions.pdf>, accessed on May 10, 2011.
- Swan, K., 2004b, "Learning Online: Current Research on Issues of Interface, Teaching Presence and Learner Characteristics" in Bourne, J. and Moore, J. C. (eds.), **Elements of Quality Online Education, Into the Mainstream**, First Edition, Needham, MA: Sloan Center for Online Education, 63-79.
- Tiger, L., 2008, **The Pursuit of Pleasure**, 4th, Fredericton, CA: Transaction Publishers.
- Wagner, N., Hassanein, K., and Head, M., 2008, "Who Is Responsible for E-learning Success in Higher Education? A Stakeholders' Analysis," **Educational Technology & Society**, Vol. 11, No. 3, 26-36.
- Yang, Z. and Liu, Q., 2007, "Research and Development of Web-based Virtual Online Classroom," **Computers & Education**, Vol. 48, No. 2, 171-184.

Appendix: Table A1 Classification of Satisfactory and Dissatisfactory Incidents

Classification	Sub-classification	F2F (%) N = 201		E-learning (%) N = 191		Blended (%) N = 239	
		Satisfied (%) N = 100	Dissatisfied (%) N = 101	Satisfied (%) N = 104	Dissatisfied (%) N = 87	Satisfied (%) N = 155	Dissatisfied (%) N = 84
Platform presence	Classroom setting	1	1	0	0	0	0
	Physical facilities	0	12	0	0	1	1
	Proper function	1	0	7	1	0	1
	Ease to use	0	0	2	2	0	1
	Availability of help	0	2	0	13	0	0
	Speed of net	0	0	0	10	0	0
	Flexibility	0	0	13	0	0	0
	Subtotal	2	15	22	26	1	4
Teaching presence	(Un)professional skills	0	19	0	0	0	1
	Communication skill	0	4	0	1	1	2
	Attitude	20	0	3	0	7	0
	Spontaneous service	5	3	4	0	3	1
	Interaction interface quality	6	1	4	9	10	1
	Response time	0	2	8	2	7	0
	Subtotal	31	29	20	11	28	6
Social presence	Collaborative learning	6	0	3	1	6	13
	Performance of team members	1	1	0	1	6	5
	Subtotal	7	1	3	2	12	18
Cognitive presence	Practical content	2	1	4	0	1	0
	Abundant content	0	0	2	0	0	0
	Difficult content	2	1	0	2	2	1
	Interest content	1	3	0	0	2	0
	Subtotal	5	5	6	2	5	2
Learning presence	Pedagogical design	2	0	2	3	5	3
	Raise knowledge	3	0	1	1	1	0
	Learning performance	0	3	0	0	2	0
	Learning experience	0	0	0	0	8	0
	Active learning	0	0	0	0	3	0
	Evaluation method	0	0	0	1	0	0
	Subtotal	5	3	3	5	18	4

Data source: this research

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