Emotion, Emotional Intelligence, and e-Learning

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ABSTRACT
In spite of its importance in learning and behaviors of individuals, there have been relatively few efforts on identifying the effects of emotion and emotional strategies, especially in e-learning environment. This study examined the research trends on emotion, emotional intelligence, and emotionally sensitive instructional design in learning online. A comprehensive literature review identified that we are beginning to address issues in affective domain of e-learning but focusing on mostly learner aspects. Emotional intelligence can help to enhance learners’ positive attitude so that there is a need to support or educate learners to develop emotional competencies and intelligences. Considering the value of positive emotional experiences to reduce ambiguity in communication and enhance the learning experience, design strategies for emotionally sensitive e-learning have gotten increasing attention among researchers.

Keywords: Emotionally Sensitive Design, Emotion, Emotional Intelligence, e-Learning, Instructional Strategy and Design

Introduction: e-Learning, Emotion, and Emotional Intelligence
Learning online nowadays has been growing as a mainstream educational approach ‘maximizing access to and interactions with various knowledge sources’ (Lee, 2002) including contents and human resources using the Internet. It has a range of new opportunities for learners and teachers. Most of research emphasizes its potential and advantages; however, we are faced with challenges and problems at the same time. Due to its heavy dependence on text communication, asynchronicity, and a multiplicity of interaction (Lee, 2002), learners easily feel unprepared to deal with the social and communication skills online learning required (Ng, 2001), and experience feeling of ‘impersonal and unfriendly, less emotional and more task-oriented or businesslike’ (Kreijns and Gerrissen, 1999) and various other negative emotions such as ‘ambiguity’, ‘frustration’, ‘alienation’, ‘confusion’, and ‘uneasiness’ in learning process.

There is various literature discussing the critical roles and effects of emotion on learning (Goleman, 1977; Dirks, 2001; Merriam & Caffarella, 1999; Reeve, 2001). Emotion in learning process impedes or motivates learning, facilitates self-regulated processes, or produces different problem solving processes. In short, emotion plays a critical role in understanding educational interactions. Emotional intelligence has been widely recognized within the general public and education sector as a critical variable in learning process and achievement along with cognitive intelligence. Emotional intelligence helps to acquire new information (Graziano, Reavis, Keane & Calkins, 2007) and has direct relationship with learning achievement (Hill & Craft, 2003; Howse, Calkins, Anastopoulos, Keane & Shelton, 2003; Eisenberg, Sadovsky & Spinrad, 2005). Pekrun (2006) also introduces the need for emotional control for enhancing the positive impact of emotion in learning. This study examined the research trends on emotion and emotional intelligences within e-learning and design implications for emotionally sensitive e-learning. For accomplishing the purposes, a comprehensive literature review related to both offline and online learning context were conducted.

Emotion in e-Learning
Learners in online environment experience various emotions. Park, Jung, Lee, and Song (2006) analyzed elementary students’ facial expressions appearing in learning online and categorized sixteen significant facial expressions from collected pictures. Lee & Song (2007) developed an e-learning system integrating emotional feedback messages and delivery method in order to examine the effects of emotional feedback for emotional state of learners in elementary schools. Self-reporting button for recognizing learners’ emotional state was used while learning. The test results proved affective feedback responding to specific emotions of learners positively influence to learning achievement. Park, Kim, Jung, Song, & Kim (2008) developed an e-learning system recognizing facial expressions into specific emotional states and providing appropriate feedback to learners. The test results demonstrated significant improvement in interest and learning achievement.
Rha & Sung (2007) identified six domains of emotional expressions elements (pleasure, concern, disappointment, anger, pride and delightfulness) frequently experienced in online learning community using an electronic bulletin board where one hundred and twenty elementary students were exchanging messages, writing opinions, and reading others’ ones. Among the six domains, in general, pleasure and pride were identified as the most frequently experienced in order. They also found certain emotion factors are rather frequently used by certain dimensions of messages. ‘Pleasure’ appeared evenly in all the message dimensions, however, ‘pride’ appeared strongly only in the cognitive and metacognitive dimensions which are strongly related to ‘learning’. This research results suggest: Communication tools such as emoticon enabling learners to deliver their emotion effectively should be considered in online learning community; Online learning space should be designed to facilitate ‘pleasure’ through an environment that learners perceive familiarized and comfortable; Online learning community should contain learning motivation factors that can stimulate emotional elements of pleasure and pride. Kim (2009) reported various emotions including frustration, resistance, pride, relief, expectation, fear, anxiety, hopelessness, confidence, envy, and complex experienced in online discussion process; and confirmed that emotion functions with the integration of cognition, motivation, and action.

O’Regan (2003) also reports the centrality of emotion to attention, memory and decision making, all of which are of critical importance in the learning process. Particular emotions experienced online include frustration, fear, anxiety, apprehension, shame/embarrassment, enthusiasm/excitement and pride. The effect of these emotions was variable, either more negative or positive, depending on the strength and nature of the emotion involved as well as its associated learning context. As Sujo de Montes and Gonzales (2000) asserted, it is important to understand emotions experienced by learners in the contexts as much as the contents and assignments. Rowe (2005) identified various emotions experienced by learners and teachers from the beginning to the end of learning online. She introduced those emotions under three metaphors: connection, balance, and movement. Those emotions should be understood in not only an individual aspect but also the sociocultural aspect where the meanings of emotions are developed, ‘discourses’ so to speak. There are three discourses of emotion either shaping or constraining the felt and expressed emotion: emotion negation, social uptake, and caring police. Astleitner (2001) conducted an empirical study testing the applicability and consistency of the FEASP approach proposed by Astleitner (2000). Results indicate that teachers and students find emotions and their consideration really necessary in daily instruction because the development of human character depends on and emotions are as important as cognitive and motivational processes. Using the FEASP-definitions (Astleitner, 2000), most of the mentioned emotions by teachers were related to anger, then fear, sympathy, envy, and pleasure. Teachers nominated anger, fear and sympathy in order as the most important types of emotions in instruction. Students nominated fear, pleasure, and anger in order as the most important types of emotions in instruction.

**Emotional intelligence in e-learning**

Kang & Ku (2007) demonstrated ‘emotional facilitation of thinking’ out of five sub types of emotional intelligence significantly predicts achievement in online team learning. This finding implicates that emotional facilitation of thinking would affect those abilities necessary for online team learning and draw high academic achievement in a blended learning environment. Vuorela & Nummenmaa (2004) examined what events cause emotional reactions in students and how the emotions experienced while using a web-based collaborative learning environment called WorkMates, emotion regulation strategies (cognitive reappraisal and expressive suppression by Gross(2002)), and computer self-efficacy are related to students collaborative activity intensiveness. They suggest that the lability of emotional reactions and their effective regulation affect learner participation in collaborative activity intensiveness. Using ‘reappraisal’ affects increased discussion activities in a web environment. However, expressive ‘suppression’ in a web environment, where expression of emotions can only be mediated through text-based commenting, was not negatively associated with collaborative activity, maybe due to the fact that expressive suppression is not used as much as in face-to-face situations. Computer self-efficacy/computer anxiety might be a sufficient predictor of collaborative activity maybe because generally university students have very high computer self-efficacy. However, the result indicates that high efficacy ‘a calming feature’, is related to the self-regulation of affective state in the Web. They also found that a wide range of emotions were experienced while using the Web. The course as a whole and especially the interaction in the environment were causes of emotions more often than the technical environment. This suggests that the presence of others in a virtual environment is an important antecedent of students’ affective reactions in the Web as in face-to-face learning situations. However, the number of reported external factors was remarkably higher than the number of those relating to technical aspects. Further, there were significant changes in students’ affective reactivity during the different periods of the course. There are at least two possible explanations to this. Firstly, negative emotions occur often in situations in which people experience events that conflict with their goals and needs Secondly, negative emotions are likely to result in social conflicts (Frijda, 1986).
Emotionally Sensitive Instructional Strategies and Design

Ability of learners to disclose themselves socially and emotionally into a community of inquiry, so to speak, ‘social presence’ is ‘key to promoting collaborative and knowledge building’ (Rowe, 2005). One aspect of social presence is learners’ affective interactions including ‘the expression of emotions’. Rowe (2005) presents ten suggestions for ‘creating a positive emotional e-learning environment to facilitate deep connection between learners and teacher to foster deep learning’. For ‘connection’, teacher biography, to humanize, synchronous option, personalized feedback, weekly update, and learner-to-learner connection; for balance, life/school balance and flexibility within boundaries; for movement, feedback expectation and learner progress. Use of emoticons, humor, and self-disclosure is suggested to have the potential for positive emotional environment in computer conferencing (Rourke, Anderson, Garrison, & Archer, 2001). Kim & Kim (2003) suggested emotional bulletin board design focusing on emoticon, color, and sound to support learning motivation of community of practice in web-based learning environment. The suggested bulletin board allows learners to add emoticon and background color showing their emotion below the title of messages. This function is expected to ease readers to apprehend writers’ feelings and meanings in the message more accurately. Moreover, writers’ perception of social presence and learning motivation are increased through readily expressing their own feelings and emotions housed in their messages.

Astleitner (2000) and Astleitner & Leutner (2000) present a more systemic view of instructional design for making instruction more emotionally sound. The framework of Emotional Design of Instruction identified five major dimensions of instructionally relevant emotions including fear, envy, anger, sympathy, and pleasure (FEASP). Instructional designers have to analyze emotional problems before and during instruction, together with audience and situation analysis and the evaluation of instructional results. Primary emotions, instructional strategies and examples are introduced. For fear reduction: (1) Ensure success in learning: Use well-proven motivational and cognitive instructional strategies, (2) Accept mistakes as opportunities for learning: Let student talk about their failures, their expectations, the reasons for errors, etc., (3) Induce relaxation: Apply muscle relaxation, visual imagery, autogenics, or meditation, (4) Be critical, but sustain a positive perspective: Train students in critical thinking, but also point out the beauty of things. For envy reduction: (1) Encourage comparison with autobiographical and criterion reference points instead of social standards: Show students their individual learning history, (2) Install consistent and transparent evaluating and grading: Inform students in detail about guidelines for grading, (3) Inspire a sense of authenticity and openness: Install “personal information boards” telling others who you are, (4) Avoid unequal distributed privileges among students: Grant all students or no student access to private matters; For anger reduction: (1) Stimulate the control of anger Show students how to reduce anger through counting backward, (2) Show multiple views of things Demonstrate how one problem can be solved through different operations, (3) Let anger be expressed in a constructive way: Do not accept escaping when interpersonal problem solving is necessary, (4) Do not show and accept any form of violence: Avoid threatening gestures. And for sympathy increase: (1) Intensify relationships: Get students to know other students’ friends and families, (2) Install sensitive interactions: Reduce students’ sulking and increase their asking for help, (3) Establish cooperative learning structures: Use group investigations for cooperation, (4) Implement peer helping programs Let students adopt children in need. And for pleasure increase: (1) Enhance well-being: Illustrate students a probabilistic view of the future, (2) Establish open learning opportunities: Use self-instructional learning materials, (3) Use humor: Produce funny comics with students, (4) install play-like activities: Use simulation-based instructional games.

Glaser-Zikuda et al (2005) presented five educational guidelines (self-regulated, competence, social interaction, structure, and value) differentiated in ten teaching strategies (student-centered instruction, activation of students, differentiation and transparency of demands, individual feedback, cooperative activities, play-like activities, clearly structured instruction and instructional material, authentic tasks, transfer to everyday life) called the ECOLE-approach (Emotional and Cognitive Aspects of Learning). The combination of specific teaching strategies constructed with both student-centered and direct instructional methods is expected to have a positive impact on emotions and achievement (enhanced well-being, enjoyment, and satisfaction; enhanced interest, reduced anxiety and boredom, and enhanced achievement).

Discussion

Despite the majority research focus on technical or cognitive characteristics, it is identified that we are beginning to address issues in affective domain of learning online. Research on emotion in e-learning deals with mostly learners aspects, neither teachers nor ‘multiple and dynamic interaction between learners and teachers. The most frequently appearing issues include emotions experienced and factors influencing
emotional experiences; effects of emotions, and emotional strategies in learning process and outcome; and instructional factors or instructional design model facilitating positive emotions experienced during learning.

The findings support that emotional intelligent can help to enhance learners’ positive attitude. This implicates a need to support or educate learners to develop emotional competencies and intelligences. In addition, learning experiences through individual learning and discussions in e-learning environment can promote positive attitude and sensitivity, and cognitive process, eventually knowing. However, there is still a high need for examining what kinds of emotions appear in different e-learning process, how specific emotions affect learning processes and results, and how e-learning program should be designed to support learners’ positive emotion and to develop EI through the learning processes.

There is still very little emotionally sensitive instructional design research (Astleitner, 2004) in learning online. Furthermore, emotion instructional design still lacks the validation through empirical study. Considering the value of positive emotional experiences to reduce ambiguity in communication and enhance the learning experience, design strategies for emotionally sensitive e-learning should need more attention in research and practice. According to O’Regan (2003):

“The importance of emotions is being acknowledged in many aspects of human endeavor and emotions are claiming an increasingly respectable place in the theory and research of a diverse range of academic disciplines. It is clear that emotions play a critical role in the teaching/learning process and that this role must be addressed in both the theory and practice of teaching and learning. Exactly what this role is and how it can best be dealt with is an area still requiring much exploration, particularly as new technologies become an integral part of that process” (p. 90)

Selected References


