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Students' In-Class Answering Activities on Facebook: Effects on Participation, Learning Satisfaction and Anxiety

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Abstract: The effects of students responding to the teacher's in-class questioning on Facebook on participation, learning satisfaction and learning anxiety were examined. Based on its integration in one undergraduate engineering course for a whole semester, several findings were obtained. First, more than 85% of the participants felt that their learning attitudes, habits and behavior changed at the 'tremendous' and 'a great deal' levels after exposure. Second, 'inviting and equal participation for all' emerged as the one salient theme the designed activities created, leading to positive effects on various aspects of learning. Third, the majority of the participants associated positive emotional feelings (e.g., enjoyment, satisfaction, accomplishment) and did not associate negative feelings (e.g., worry, fear, pressure, nervousness) with the activities. Based on the results of this work, and in view of the need for active and reflective learners in today's society, and the low technological threshold and prevalent use of Facebook by undergraduates, suggestions for instruction are provided.

Keywords: Facebook, in-class answering activities, learning anxiety, learning satisfaction, participation, teacher questioning

1. Introduction

Learners are generally accustomed to holding a passive, receiving learning mode while attending lectures, which is reported to lead to inert knowledge (Renkl, Mandl, & Gruber, 1996). As the 21st century skills deemed core capacities to succeed in colleges, careers and life in today's knowledge-based economic society are better cultivated through active participation and constructivist learning experiences (Pearlman, 2009), ways to change current learning habits warrant serious consideration.

From a constructivist perspectives, the goal of instruction is to provide opportunities and spaces for students to reflect and create their own interpretations of the information received for higher-level cognitive development (von Glasersfeld, 1987). While the potential of teacher questioning for promoting active learning and reflective thinking in classrooms is promising (King, 1995), its effects on ensuring equal participation remain underexplored. In view of this, and the prevalent use of Facebook among college students, issues regarding how Facebook may assist in this context are considered in this study, along with the effects on learning attitudes, habits and behavior. In addition, as students have been reported to show signs of hostility and resistance in response to instructional innovations that require them to take on more responsibilities (Silver 1994), the effects of the designed activities on two affective aspects suggested to have a decisive impact on successful learning—learning satisfaction and anxiety (Krashen, 1987), were examined.

2. Method

Forty-two undergraduates enrolling in a 3-credit hour engineering course participated for a whole semester. A Facebook group was created for the exclusive use of the participants via any personal mobile device. Questions related to the instructional content (a total of 89 question items) were posed in class intermittently to: solicit students' prior knowledge or past related experience on the focal

topic; assess students' understanding of the content presented; provide opportunities for students to apply the concepts and principles introduced; and build relevance regarding the learned material and their lives. At the last instructional session, the participants were asked to write a response to one question—'After exposure to the teacher's in-class questioning on Facebook, the extent of change you felt/observed regarding your own attitudes toward attending lectures, learning habits and behavior was: tremendous, a great deal, not much, almost none, none. Please elaborate on your selection.' In addition, learning satisfaction and anxiety scales were completed individually by the students.

3. Results and Discussion

Thirty-eight students completed the end-of-semester survey (90.48% response rate). All respondents felt/observed some degree of change in their own attitudes toward attending lectures, learning habits and behavior, after exposure to the activities. More specifically, the students' selections ranged from 'tremendous' (10.53%), 'a great deal' (76.32%), 'not much' (10.53%) and 'almost none' (2.63%). Not a single participant marked the 'none' option. Constant comparison method was applied to the students' descriptive explanations regarding their felt/observed change, and the results highlighted one salient theme—'inviting and equal participation for all' as created by the designed activity. Among the 38 responses received, 22 participants indicated that 'answering the teacher's in-class questioning on Facebook' was less intimidating, and this method provided more time and space for all students to participate in such a way that they were more willing to express and share their views in class with their classmates and the instructor. As a consequence, 'becoming more participatory in class,' 'being more attentive to class,' 'reflecting more on materials presented,' 'thinking deeper into issues discussed,' and 'learning more' were felt/observed by many respondents.

With regard to learning satisfaction and anxiety, the respondents generally rated their experience favorably for each of the statements on both scales (Table 1). Overall, 60.53~100% and 57.89~92.11% of them 'agreed' and 'strongly agreed' with the statements on the learning satisfaction and anxiety scales, respectively. Analyses of the summed-up data and each of the statements, using one-group *t*-tests with 3 as the expected mean, showed that all results were statistically significant.

Table 1: Descriptive statistics (*f*, %, mean) and *t*-value of learning satisfaction and anxiety scales

Learning satisfaction	1*	2*	3*	4*	5*	4+5 (%)	Mean	*t*-value
1. Being able to participate in 'in-class answering activities on Facebook' in this course is enjoyable.	0	0	1	15	22	37 (97.37)	4.55	17.47
2. I like the way Facebook was used for in-class answering activities in this course.	0	0	0	16	22	38 (100)	4.58	19.71
3. I dislike using Facebook as a platform for in-class answering activities in this course.+	1	0	7	19	11	30 (78.95)	4.03	7.51
4. 'In-class answering activities on Facebook' increases my chances of interacting with the instructional materials.	0	0	2	21	15	36 (94.74)	4.34	14.39
5. Learning through 'in-class answering activities on Facebook' is interesting and novel.	0	0	0	14	24	38 (100)	4.63	20.84
6. I hope other courses can adopt this type of teaching approach for learning.	0	1	6	16	15	31 (81.58)	4.18	9.24
7. I feel participating in 'in-class answering activities on Facebook' is easy and convenient for information-sharing and interaction in this course.	0	1	0	18	19	37 (97.37)	4.45	14.01
8. Learning via 'in-class answering activities on Facebook' satisfies my needs.	0	1	3	23	11	34 (89.47)	4.16	10.65
9. I am satisfied with my performance in 'in-class answering activities on Facebook.'	1	1	5	19	12	31 (81.58)	4.05	7.31
10. Participating in 'in-class answering activities on Facebook' gives me a sense of achievement.	0	2	13	15	8	23 (60.53)	3.76	5.59
Learning anxiety								

1. I felt nervous when I could not answer questions during 'in-class answering activities on Facebook.'+	2	5	9	16	6	22 (57.89)	3.5	2.88
2. I was comfortable and did not feel pressure participating in 'in-class answering activities on Facebook' in this course.	1	0	6	15	16	31 (81.58)	4.18	8.25
3. 'In-class answering activities on Facebook' did not worry me at all.	0	2	8	16	12	28 (73.68)	4	7.18
4. Participating in 'in-class answering activities on Facebook' did not frighten me.	0	1	4	20	13	33 (86.84)	4.18	10.13
5. It was very stressful to learn through 'in-class answering activities on Facebook' as used in this course.+	2	2	2	23	9	32 (84.21)	3.92	5.77
6. Learning through 'in-class answering activities on Facebook' gave me a sense of dread when I attended classes.+	1	1	2	19	15	34 (89.47)	4.21	8.64
7. I often had an uneasy feeling when learning through 'in-class answering activities on Facebook.'+	0	2	3	20	13	33 (86.84)	4.16	9.16
8. It saddened me when I found out that I would participate in 'in-class answering activities on Facebook' in the future.+	0	2	3	14	19	33 (86.84)	4.32	9.76
9. I felt confident and was at ease learning through 'in-class answering activities on Facebook.'	1	0	3	26	8	34 (89.47)	4.05	8.96
10. I was not nervous participating in 'in-class answering activities on Facebook.'	0	1	2	22	13	35 (92.11)	4.24	11.44

[+] Negative statement. Scoring on the negative statements was reversed, with higher scores reflecting more satisfied and less anxious.

[*]1: Strongly disagree; 2: Disagree; 3: No opinion; 4: Agree; 5: Strongly agree

In sum, the facilitating effects of the designed activities on learning were well supported in this study. These included: positively changing students' attitudes, learning habits and behavior; promoting equal participation among the participants; and leading to constructive learning. Moreover, the participants associated positive emotional feelings (e.g., enjoyment, satisfaction, accomplishment) and did not associate negative feelings (e.g., worry, fear, pressure, nervousness) with the activities. Based on the results of this work, and in view of the need for active and reflective learners in today's society, and the low technological threshold and prevalent use of Facebook by undergraduates, university instructors are encouraged to consider adopting Facebook to support in-class questioning for active, deep, interactive, and constructive learning in their entire class.

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References

King, A. (1995). Inquiring minds really do want to know: Using questioning to teach critical thinking. *Teaching of Psychology, 22*, 13-17.

Krashen, S. D. (1987). *Principles and practice in second language acquisition*. England: Prentice Hall Ltd.

Pearlman, B. (2009). Making 21st century schools: Creating learner-centered schoolplaces/workplaces for a new culture of students at work. *Educational Technology, 49*(5), 14-19.

Renkl, A., Mandl, H., & Gruber, H. (1996). Inert knowledge: Analyses and remedies. *Educational Psychologist, 31*, 115-121.

Silver, E. A. (1994). On mathematical problem posing. *For the Learning of Mathematics, 14*(1), 19-28.

von Glasersfeld, E. (1987). *The construction of knowledge: Contributions to conceptual semantics*. Seaside, CA: Intersystems Publications.