



Incorporating E-mail in Teaching Activities of the Nutrition Program at College for Women, Kuwait University: Assessment of a Five-year Experience

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Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

Article Information

DOI:10.9734/BJESBS/2015/11887

Editor(s):

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Complete Peer review History: <http://www.sciencedomain.org/review-history.php?iid=656&id=21&aid=6221>

Original Research Article

Received 9th June 2014
Accepted 8th September 2014
Published 24th September 2014

ABSTRACT

Aims: To categorize messages that were sent by course instructor to e-mail course accounts and those sent by students to instructor, and seek student assessment of e-mail usage in course activities.

Study Design: Data mining and survey research.

Place and Duration of Study: College for Women, Kuwait University, Kuwait, between February 2009 and January 2014

Methodology: The instructor established an e-mail account for each course being taught for the instructor to communicate with students. All messages sent by instructor and those received from students were searched, retrieved, printed, read for purpose, categorized and tabulated as numbers and percentages. A 15-statement questionnaire was devised, pilot-tested and distributed to students for feedback. Data of e-mail messages and of the student survey, collected from 379

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students, were recorded in Microsoft Excel sheets, and expressed as numbers and percentages.

Results: The instructor sent 1660 e-mail messages, with major categories about (%): handouts and syllabi (27), reminders and notices (22), assignment-related (20), materials of interest (17). Students sent 2118 e-mail messages, with two major categories about (%): assignment-related (38) and non-assignment related (62). Assignment-related subcategories were about (%): requesting postponement of deadline (37), sending assignments as attachments to messages (33), apology for late assignment submission (15), and inquiries about assignments (15). Major non-assignment subcategories were about (%): requests for appointments and supporting materials (32) and examination-related (20). Results of the survey showed that 74% of 379 students recommend the use of e-mail as experienced and 21% wrote comments. Students indicated their comfort with e-mail and some suggested the use of blackboard. The instructor's perceived advantages and problems of using e-mail were numerated.

Conclusion: Using e-mail and/or any other available modern technology in university teaching activities and in enhancing student-teacher communication can be of value to education in general and particularly in case of distance learning.

Keywords: Academia; communication; education; e-mail; Kuwait; nutrition; university; women.

1. INTRODUCTION

Use of technology has become a common phenomenon in our daily life. Computer technology is changing very rapidly and its applications are diversified and expanding [1]. All sectors of economy and the society-at-large utilize available technology productively and it is expected that the more advances technology achieves, the wider the magnitude and scope of its utilization. Academic institutions are no exception, as there are many facets of modern technology in use. Such include, but not limited to: use of smart classrooms, PowerPoint presentations, preparation and saving of electronic course and official materials. These manifestations can be considered as an expression of the Theory of the Diffusion of Innovation that was introduced by Everett Rogers [2]. Many tools are utilized to enhance communication among all members of a given college or university, among which is that between teachers and their students. These include, among others, establishing of sites for discussion groups and the use of blackboard. However, one of the most widely used means of communication in academia is the e-mail system – especially for disseminating information to its community and for receiving educational feedback [3]. E-mail has been described to be beneficial to education and promising in promoting cognitive growth pertaining to computer knowledge and skills [4]. It was also reported as a promising tool of instruction, to which teachers could rapidly adopt. A conceptual framework for integrating e-mail in a variety of courses for independent learning situations was illustrated some years ago [5]. More reports on

uses of the e-mail system in academia have emerged ever since [6-9]. It is believed that the use of e-mail can enhance communication between faculty members and their students [10,11] and, thus, enhances the education process [7].

University students are active users of e-mail. A statistic showed that more than 90% of students activated their campus e-mail accounts by the end of the first academic year [12]. University students are also expected to be active-learners and should be encouraged to be such. While educators strive to achieve the set student learning objectives for the courses they teach, they also are expected to play a significant role in the personality and professional development process of their students. Encouragement of students to be active-learners should be practiced by all teachers, for which creative teaching approaches are devised [13]. Among the instruments that are used relative to engaged-learning and as being a promising instructional and learning tool is the use of e-mail. In this study, e-mail was used in student teacher-communication in some course activities of the nutrition program at the College for Women (CFW), Kuwait University, over the past five years. This article relates a quantitative and qualitative assessment of this experience. The objectives of this study are to: relate the unique fashion in which e-mail was implemented, categorize messages that were sent by the course instructor to students and those that were received from students according to purpose, and to test the hypothesis that students may not accept this means of student-instructor communication. Additionally, the perceived

benefits and problems of implemented e-mail from the instructor's view are related.

2. LITERATURE REVIEW

Use of modern technology is widespread and involves practically all sectors of any society, thus it would be impossible to numerate. The educational process involves communication, to which modern technology provides effective and fast means that are beneficial to education at all levels. Many tools are utilized to enhance communication among members of a given college or university. These include, among many, the establishing of sites for discussion groups and to the largest extent the use of the e-mail system for disseminating information to the academic community and for receiving feedback [14]. Sound scientific literature, based on well-planned studies and analysis on applications of technology numerated some of the benefits in communication and in aspects of teaching and quality of student work and comprehension [11,15]. A study found that students are early adaptors and heavy users of the internet and students related that the internet has enhanced their education and also changed their social life [15]. Means of integrating technology with teaching and learning are evaluated and applied [16] and reports on the use of technology for communicating scientific research started to appear in the literature [6,17-19]. Educationalists are urging for incorporation of technology to change means of teaching and to empower students with skills [20].

The most common electronic means of communication among individuals in our present day life is the e-mail system. The use of e-mail on campuses is widespread and many colleges and universities provide their students with e-mail accounts. Universities have policies and guidelines for using their e-mail system in general [21], for use by students [22], and for communication with students [23,24]. Different electronic communication means, including e-mail, are taught to students for better and more effective communication [14]. Some academic institutions urge faculty members to encourage their students to use the e-mail system [12]. Reports on uses of the e-mail system in academia started to emerge a few years back and continue to appear in the literature [6,7,8]. It is believed that the use of e-mail can enhance communication between faculty members and their students [10,11]; thus, enhance the education process [7].

As communication via e-mail in academia is multi-directional, its use by all individuals concerned is heavy. As a result, analyzing patterns of communication among students by e-mail on campus caught the interest of business entities [25]. Communication by e-mail in educational activities has been the subject of a few reports [8,26]. The use of e-mail as an educational feedback tool is urged [3]. Faculty members are using the latest technology in communicating better with their students and this enhanced level of communication can be conducive of increased student participation [11]. Specifying hours by teachers to communicate with students by e-mail, in a fashion similar to office hours, is currently being practiced [20]. Teachers can be educated about the etiquette of using the e-mail in communicating with students, for a favorable academic environment that would be encouraging for participation and learning [27]. Recently, the term "netiquette" was introduced for proper communication [28]. As effective communication among students and their teachers can be instrumental in quality education, the e-mail can be viewed as a very useful tool in the education process and institutions of higher learning ought to enhance its utilization.

Studies on the e-mail messages that students write to their teacher explored several aspects. A study identified the main reasons that students use e-mail to interact with their teachers as follows: to clarify course material and procedures, as a means of efficient communication, and for personal and social reasons [29]. Use of e-mail by students was significantly different among students of different cultural backgrounds in the South Pacific [30]. Native English speakers demonstrated greater resources in creating e-polite messages to their professors than non-native speakers [31]. Saudi Arabian female students used politeness strategies in their e-mail requests from their professors [32]. Purposes for students to write e-mail messages to their instructors were mostly for different requests [33]. Differences in the nature of e-mail messages between American and Iranian students were observed. American students demonstrated more personal and social messages, while Iranian students used more greetings and closing protocols in theirs [34].

3. METHODOLOGY

3.1 Place of Study

This study was conducted at the new CFW, which was the latest to be established among all colleges of Kuwait University. It started offering courses in September 2003 [13]. One of the main objectives of CFW is to graduate females who are self-learners and would be independent thinkers to meet their challenges in the future. The curricula being offered at CFW follow the outcome-based learning system, in which continuous evaluation of academic programs are carried out, for any modifications and/or improvements necessary. Such a system is instrumental in approval/accreditation of these academic programs by noted educational and/or professional entities. The annual student intake is between 450 and 500 students. Currently, the student body is about 2000 and the language of instruction at the CFW is English.

3.2 Subjects of Study

All students at CFW are females, most of them are high school graduates and those who are admitted must have a background in sciences. The language of instruction in the governmental pre-college educational system in the State of Kuwait is Arabic, but some students may have had previous exposure to instruction in English. Upon admission, students must pass a number of English language courses before they begin to enroll in courses of the available academic programs. The average age of students at the start of their university education is 18 years, based upon the number of years of study in governmental pre-university education. Students can choose a major field of study after completion of a specified number of credits. Students who were the subjects of this study had a major in nutrition and aged between 20-22 years.

3.3 Offered Courses

A wide spectrum of courses is offered by the different departments at CFW. Some courses are of what is known as the General College Education Domain, usually introductory and diverse. Others are offered to those students who have chosen a certain major of study, for which they complete courses of that certain academic program towards the B.Sc. degree. Teachers at CFW may teach courses that are of

college-wide nature and in their respective disciplines. Class size normally ranges between 15 and 20 students, but some classes have up to 30 students in courses that the majority of students have to take to satisfy certain program requirements. The number of students whose major is in nutrition ranges from 8-15 per each course.

3.4 Courses of Study

E-mail was used in courses that were taught in the undergraduate nutrition curriculum. Some of these courses were science-oriented that included: Biology (CFW 104), Anatomy and Physiology (FSC 303), Public Health Nutrition (FSC 320) and Capstone Project (FSC 499). Other courses involved were those that are designed for personality and professional development as future nutritionists, namely: Ethics and Practices (CFW 130) and Career Perspectives (CFW 260).

3.5 Implementation of E-mail

The course instructor established an e-mail account specifically for each course. Students were provided with the name of the e-mail account and with an easy password that all enrolled students can remember. The main purpose of this course-specific e-mail account was for the instructor to communicate all relevant information, announcements and send document files containing handouts and other teaching materials. Students were informed of this e-mail and its main purpose as they begin the semester. They were clearly advised not to use this e-mail for communicating with the course instructor or to use it to communicate with each other. For a student who wishes to communicate with the course instructor, the advice was to use her own personal e-mail account and to send any messages to any of the instructor's professional and/or personal e-mail accounts provided in the course syllabus. The course instructor responded to each message received from any student or from student representatives. This was by design, so that the course-specific e-mail account would not be cluttered with many intersecting messages by students that may be confusing or crowding to students in the long-run. However, students were permitted only to forward any of the messages in the inbox compartment to their respective e-mail accounts for individual utilization. Students were also advised not to delete any of the inbox messages,

so that all messages from the course instructor would always be available to all and would constitute an accumulated set for a particular course. Students were reminded constantly to check the course e-mail for any incoming messages. Even though this was practiced, the course instructor alerted students to messages of significant information in the classroom.

3.6 Categorizing E-mail Messages

E-mail messages that were sent by the course instructor to the accounts of taught courses and those that were received from students during the period between February 2009 and January 2014 were retrieved from various accounts. All messages were printed, reviewed and then categorized for purpose. Complete sets of e-mail messages sent by the course instructor were kept as records and were categorized according to the well-defined purpose in the subject section of each message. A sum of 1660 messages was counted: 748 for science courses and 912 for non-science courses. The number of retrieved messages from students to the course instructor was 2118. These messages were reviewed according to content, as students may not be accurate in writing the purpose of the message in the subject section or just leave it blank, then were categorized according to purpose. It should be noted that because of two e-hacking mishaps of the instructor's e-mail accounts in 2010, an estimated number of 600-700 messages from students were lost. However, it is felt that the number of retrieved messages is sufficient for analysis.

3.7 Student Assessment of E-mail

For the purpose of testing the hypothesis regarding acceptance of students to the fashion that e-mail was implemented in this study, a simple 15-statement questionnaire was devised. For each statement, students would check a response out of three possibilities: agree, disagree, and no opinion. This design was pilot-tested on the first 30 responses and was found to be satisfactory as an index for acceptance or non-acceptance of the fashion in which e-mail was implemented, thus it was adopted for the rest of the study. At the end of each course being taught, the questionnaire was distributed to all students enrolled to respond. Also, students were given the opportunity to make any comments they have on the fashion in which e-mail was used. Students were informed that

responding to the questionnaire was optional and were asked not to reveal their identities on questionnaire sheets. As numbers of students in each course was low, responses to the questionnaire were added to previously collected ones; i.e., in an accumulative fashion. Out of a total number of students of 446, responses were obtained from 379 students – accounting to a response rate of 85%.

3.8 Handling of Data

Data of retrieved e-mail messages that were sent by the course instructor to respective course e-mail accounts, those that were sent by students to the course instructor, and the results of the student survey were recorded in Microsoft Excel sheets. Secured data were expressed as numbers and percentages using the features of the program, as shown in tables.

4. RESULTS AND DISCUSSION

This study evaluates the experience of using e-mail in teaching activities of some courses of the nutrition program at CFW over a five-year span. Obtained data on messages sent by the course instructor for both science and non-science courses, as well as for the overall messages, are expressed as numbers and percentages and shown in Table 1. Overall, most of the instructor e-mail messages (95%) centered about course work and 5% involved greetings to students – a gesture of cordiality and courtesy. The small differences in percentages of some categories between science and non-science courses are basically because of the nature of each. On a relative basis and percentage-wise, non-science courses required sending more messages about handout materials on assignments – but, less messages involving materials of interest and about field trips. In a study, content analysis of e-mail exchanges revealed that 98% of messages revolved around course teaching matters and 2% were of administrative-type [35]. Thus, overall percentages of listed categories provide information on their relative weights in course activities.

This study showed that students wrote 2118 e-mail messages to their course instructor for many purposes. As the instructor responded to each of the student messages, it can be safely assumed that the instructor wrote the same number of messages directly to students. The course instructor's response to each message

never exceeded a maximum duration of 12 hours. As shown in Table 2, messages received from students were categorized as: assignment-related (accounted for 37.8% of total) and non-assignment related (62.3%). Requesting extensions of assignment deadlines and submission of assignments as attachments to e-mail messages accounted for 70% of the assignment-related category and for 26% of the overall messages from students. As for the non-assignment related category, sub-categories for requesting appointments beyond scheduled office hours and for supporting materials and that of examination-related accounted for 52% of the category and for 33% of the overall messages from students. In contrast to the categories and sub-categories presented herein, sending projects by e-mail generated 20.8% of total messages [35], while examination-related messages were close to the percentage of this study (11.5 vs 12.7%). In a distance learning setting, a study found that 78% of students always send their assignments as attachments to e-mail messages [36].

Gestures of courtesy and politeness exhibited by students were evident, as they apologized for late submission of assignments (6%), apologized for being absent from class (6%) and sent greetings and thank you notes (9%) of their total messages. Additionally, 26% of students who commented on the use of e-mail survey expressed their thanks to the instructor Table 4. This aspect can be viewed as similar to the politeness exhibited by Saudi Arabian female students, which characterizes the culture of this region [32]. A recent study showed that students in Germany, Saudi Arabia, and Japan exhibited both politeness and impoliteness in their messages to their teachers [37]. It emphasized

the significance of netiquette in student-faculty communication. Another study stated that caring e-mail messages sent to students provided them with psychological support thereby forgo a bond with their lecturer [38]. It also stated that such messages provided students with the emotional strength to persist with their studies.

Results of the student survey are shown in Table 3 and the comments made by students on questionnaire sheets are presented in Table 4. As noted in Table 3, students revealed a satisfactory level of acceptance for the use of e-mail in teaching activities as being implemented. This was expressed by the majority of students by their favorable responses to statements numbered: 1-4 (average agreement of 85%), 6-9 (average agreement of 88%), 13-15 (average agreement of 66%). Student assessment of e-mail showed that the majority of students felt that it was a convenient and fast means of communication, its use saves time, felt informed and provided, and were satisfied with the instructor's responses to their messages. Also, the majority of students felt encouraged to communicate with instructors by e-mail and would recommend this means of communication in future courses. A total of 79 students made comments, accounting to 20.8% of all respondents Table 4. Comments on the use of e-mail amounted to 36.7% and the remainder were varied. Favorable comments on e-mail use accounted for 93%. Other comments expressed preference for face-to-face communication and conveyed the wish that use of blackboard to be implemented. Collectively, these results indicate that students accepted the use of e-mail in course activities and communication. Thus, this nullifies the hypothesis that students will not accept the use of e-mail in teaching activities.

Table 1. Categories of messages sent by instructor to course e-mail accounts

Category	Science (N)	Science (%)	Non-science (N)	Non-science (%)	Overall (N)	Overall (%)
Handouts & syllabi	177	23.7	275	30.2	452	27.2
Notices/reminders	172	23.0	192	21.1	364	21.9
Assignment-related	112	15.0	215	23.6	327	19.7
Materials of interest	162	21.7	115	12.6	277	16.6
Examination-related	53	7.0	63	6.9	116	7.0
Greetings	41	5.5	37	4.0	78	4.7
Visit/field trip-related	31	4.1	15	1.6	46	2.9
Total	748	100	912	100	1660	100

Table 2. Categories and sub-categories of e-mail messages received from students

Category/Sub-category	(N)	(%) in category	(%) of total
Assignment-related (37.8%)			
Request postponement of deadline	296	37.0	13.9
Sending assignments as attachments	265	33.1	12.5
Apology for late submission of assignments	122	15.2	5.8
Inquiry about assignments	118	14.7	5.6
Total for this category	801	100	37.8
Non-assignment related (62.2%)			
Requesting appointments/supporting materials	421	32.0	19.9
Examination-related	269	20.4	12.7
Sharing of information	180	13.7	8.5
Greetings/thank you	175	13.3	8.3
From class representatives/about field trips	149	11.3	7.0
Apology for being absent	123	9.3	5.8
Total for this category	1317	100	62.2
Total of all messages	2118		100

Table 3. Student evaluation of communication via e-mail (N = 379)

Statement	Agree N (%)	No opinion N (%)	Disagree N (%)
1- E-mail is a convenient method of communication for the course	353 (93.2)	7 (1.8)	19 (5.0)
2- I prefer to use the e-mail to communicate with my instructor	314 (82.8)	18 (4.8)	45 (12.4)
3- This method made me feel fully-informed and provided	316 (83.4)	36 (9.5)	27 (7.1)
4- My instructor always responded back to my e-mails	312 (82.3)	51 (13.5)	16 (4.2)
5- I feel that e-mail is as efficient as face-to-face communication	147 (38.8)	70 (18.5)	162(42.7)
6- I feel that communicating by e-mail saves me time	352 (92.9)	13 (3.4)	14 (3.7)
7- I use the e-mail because it is faster to reach my instructor	316 (83.4)	27 (7.1)	36 (9.5)
8- I like the idea that I can communicate with my instructor at any time and place	346 (91.3)	23 (6.1)	10 (2.6)
9- I feel satisfied about my instructor's responses to my e-mails	305 (80.5)	59 (15.5)	15 (4.0)
10- I like e-mailing more than talking to my instructor face-to-face	103 (27.2)	88 (23.2)	188(49.6)
11- I feel that my instructor is more accessible by e-mail	178 (47.0)	136 (35.9)	65 (17.1)
12- I prefer to talk to my instructor rather than e-mailing him/her	208 (54.9)	90 (23.7)	81 (21.4)
13- I like communicating with my instructor because he/she always answers me back	241 (63.6)	95 (25.1)	43 (11.3)
14- I will always use the e-mail to communicate with my instructors	227 (59.9)	79 (20.8)	71 (19.3)
15- I would recommend communication by e-mail for all my courses in the future	280 (73.9)	57 (15.0)	38 (11.1)

Table 4. Summary of student comments on questionnaire sheets

Category	N	% in category	% of total
Comments on e-mail use			
E-mail made work much faster and easier	11	37.9	13.9
E-mail is good, but not sorted to follow easily	7	24.1	8.9
I prefer e-mail for better communication	5	17.3	6.3
E-mail is good because I re-read instructor response	4	13.8	5.1
I use e-mail for quick questions	2	6.9	2.5
Total for this category	29	100.0	36.7
Other comments			
Thank you	21	42.0	26.6
I prefer face-to-face	17	34.0	21.5
Blackboard is also convenient	9	18.0	11.4
I prefer online chat	3	6.0	3.8
Total for this category	50	100.0	63.3
Total comments	79		100
% of total responses $[(79/379)*100]$	20.8		

Prior to implementing the use of e-mail as described, means of communication with students was carried out in a traditional fashion; which included: face-to-face, at class time and during specified office hours, as well as by telephone. Incorporating e-mail in course activities added an extra means for student-teacher communication. In interpreting student responses to the remainder of statements of the questionnaire, it does not seem that they favor communication by e-mail over face-to-face with their instructor. This is because: agreement and disagreement with statement number 5 were almost equal (39 vs 43%) and a higher disagreement with statement number 10 than agreement (50 vs 27%), and a higher agreement with statement number 12 than disagreement (55 vs 21%). Agreement with statement number 11 was not that definitive, as only 47% felt that the instructor is more accessible by e-mail. Thus, it can be concluded that while this computer-mediated means of communication was accepted by the majority of students, face-to-face communication was still most preferred and desired.

Taking the view of the course instructor into account, the following can be perceived as advantages of use of e-mail in teaching activities: 1) flexibility in time of opening the e-mail for any time access, 2) messages remain permanent for future and frequent accessing, 3) students receive information while being away from the classroom, 4) students read messages and be aware of important announcements - a matter that helps them to be active learners, 5) handouts and other course materials contained

in attachments to messages can be printed as appropriate, 6) students can become familiar with sent information and course materials ahead of their coverage in class when sent earlier, 7) the copying of course materials and handouts by instructors can be spared - with attained economic benefits, 8) communicating with the course instructor about any sent information or materials and at any time, 9) enhancement of use of technology by instructors and students, 10) e-mail messages and responses can be faster with the development of the latest mobile electronic devices, 11) the e-mail system can be the best alternative to the person-to-person communication, which can be of help to shy students, and 12) cordial and encouraging messages from the instructor can be motivating to students. With these advantages, there can be some inconveniencing situations such as infective viruses and hacking of e-mail accounts. Also, replying to every message from students can be cumbersome at times. However, the advantages outweigh any adverse or unfavorable circumstances.

With fast developments and innovations in technology, the e-mail is considered as low-technology. However, it is still the most common means of communication among technology users. At the initiation of this study, e-mail was the only means to implement at the university, then blackboard and other course management systems were developed and became available. E-mail can also be of value in distance learning and to universities in some geographical areas of the world that may not have the latest in course management systems. Student assessment of e-

mail usage in this study indicated their acceptance of this means of communication and provided useful feedback. Students demonstrated their ability to handle the technology used in this study and that they would be willing to use more of the modern type. This information, and coupled with the instructor's input, can provide a basis for improvement. It would have been desired to learn about the impact of this experience on the educational outcome; however, such can be a sound idea for a forthcoming study.

5. LIMITATIONS OF STUDY

The experience of using e-mail in teaching activities reported herein involves one instructor, the author of this paper. If more instructors who used e-mail at different departments of the College for Women of Kuwait University were involved, extensive information could have been collected and more detailed analysis and comparisons could be made. Larger numbers of students enrolled in the nutrition program would have allowed such a study to be shorter in duration and the choices for student responses to the survey would be wider.

6. CONCLUSION

This study evaluated the experience of using e-mail in teaching activities at the College for Women of Kuwait University over a span of a five 5 years. It described the unique and uniform fashion of implementing e-mail, which adds to the variety of e-mail uses reported in other studies. It revealed the categories and sub-categories of use of e-mail by course instructor and by students. The reported break down of messages generated by the instructor and of those received from students provides analytical information of patterns and contrast of use, thus enriching the literature further. Use of all available modern technology ought to be prevalent in academia, and with emphasis on instructor-student communication. It is recommended that e-mail and/or any other computer-mediated means of communication be used, for the overall benefits to education that can be attained.

ACKNOWLEDGEMENTS

This work was supported by Kuwait University Research Grant No. [WF 02/12].

COMPETING INTERESTS

Author has declared that no competing interests exist.

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