Facebook as an Interaction Platform in Higher Education:

The Case of an Egyptian Private University

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Abstract—**Current research is continuously examining the benefits of using Social Networking Sites, particularly Facebook, in higher education to enhance the learning process. More specifically, a few researchers have tackled the nature of interaction that takes place on social networks between students and educators, outside the learning and teaching setting. This paper aims to classify and investigate the types of interaction that take place on a closed Facebook group between undergraduate students, faculty members and administration staff in the College of Management at a private university in Egypt. A web application was developed to extract the posts and discussions taking place on the group using the Facebook Graph API. The application then helps in classifying and analyzing the extracted data. Results show that the Facebook group acts as an information-sharing hub for news and announcements, as well as a question and answer platform for academic and non-academic topics involving students, faculty, and college administration staff. The study shows interesting results, such as the appearance of implicit types of interaction due to important features like tagging and liking.**

Keywords- Social Networking Sites; Facebook; Online Interaction; Higher Education; Facebook Groups.

I. INTRODUCTION

The role of social networks is increasingly gaining momentum in today's web-oriented society. Social media can be defined as a group of Internet-based applications built on the ideology and technology of Web 2.0 that allow for the creation and exchange of user-generated content [1]. Social media is known to play an essential role in collaboration, community building, participation and sharing.

One vital aspect of social media is that it uses mobile and web-based technologies to create highly interactive platforms through which individuals and communities can share, discuss, and modify user-generated content [2]. This technology exists in different forms, such as Internet forums, web logs, social blogs, micro blogging, wikis, podcasts, ratings, social bookmarking and social networks [3].

According to Facebook statistics, 1.04 billion users on average were active each day in December 2015; 934 million of them were active daily through their mobile devices [4]. With 22.4 million users as of mid-2014, Egypt is ranked 14th worldwide in terms of audience size, and ranked 1st among Arab countries.

Facebook in Egypt is a youthful community, users younger than 35 years old represent about 85% of total users, while users aged 45 years or older only make up about 5% of total users. Eighteen-year-old users are the largest single-year group on Facebook, with about 1.3 million users, alone representing more than 6% of the total Facebook users in Egypt. The age group ranging from 19 to 24 represents 31% of the Facebook users in Egypt; this is the same age group of the youth studied in this research [5].

Students feel the need to get together, collaborate, have discussions, and exchange information with others who share similar interests [6].

This study analyzes the use of the closed Facebook group created for the Student Union of the College of Management (CMT) and Technology at the Arab Academy for Science and Technology (AAST) [7] in Alexandria, Egypt. The research aims to investigate how Social Networking Sites, in this case Facebook, could be used by the college community in the educational context. This Facebook group was initially created in March 2011 by the college administration to notify students of important general announcements. The admins of the group were all college staff members at that time. Currently, the group admins include both staff members and member students of the CMT Student Union. The admins are responsible for approving the addition of new members and monitoring language and content to make sure it's relevant to the purpose of the group.

The students of CMT are middle/upper class youth, with an age range between 18 and 23. All students must pass an admissions test to prove their English language proficiency, unless they are enrolled in the Arabic department, which comprises 27% of the total number of students enrolled in all departments.

On Facebook, users can perform three actions on each post: like, comment, and share [8]. The group studied in this paper is closed only for members participation and did not allow the option of sharing posts, therefore the data collected only includes the post content, with all its details including number of likes, and the comments that it received.

Previous work that tackled the same area of research are discussed in section 2, followed by the detailed research method and steps in section 3. Section 4 presents and discusses the findings of the research after showing the

analysis results. Finally, in section 5 the conclusion, limitations, and future work are presented and reviewed.

II.   PREVIOUS WORK

Many previous studies have focused on exploring the use of social media by as an educational tool [9]. Gafni and Deri have studied the costs and benefits of using social networking in the learning and teaching environment [10].

In a study focused on the Facebook walls of undergraduate students at a UK university [11], Selwyn investigated why and how students communicate on Facebook in relation to their studies. He believes that communication over Social Networking Sites (SNS) corresponds in an electronic way with face-to-face social learning contexts at academic institutions, and further suggests that the conversational and collaborative potential of SNS can be utilized for academic purposes. His study points out how SNS can be used educationally to support communication between students during learning situations, as well as for educator-learner dialogue. SNS provide channels for informal and unstructured forms of learning. On the other hand, Selwyn notes that educators are concerned that social networking may distract learners from their studies.

Selwyn [13] regularly logged in to sites of 909 students, not to participate or interact, but to observe the sites and profiles that were publicly accessible and to systematically archive relevant exchanges. A pattern that emerged was the use of Facebook for practical information, such as schedules and venues. Although this was also available on official channels, some students preferred accessing Facebook for this information. In this paper we decided to explore how SNS can be used to connect a college's community outside the boundaries of a specific course or a specific group. In the case of the group we are studying, the group is considered one of the official college channels of information sharing, as it was created and is moderated by the college administration. Furthermore, Selwyn explored the possibility of merging social and educational environments in order to understand students' purposes for using Facebook and the relationship of their interactions to educational aspects. Five themes emerged from his analysis of over 2000 education-related posts: (1) recounting and reflecting of university experience; (2) exchange of practical information; (3) exchange of academic information; (4) displays of supplication and/or disengagement; and (5) banter (i.e., exchanges of humor and nonsense).

Another study by Pollara [12] explored the use of Facebook to determine if the implementation of social networking in education would strengthen the relationship between mentors and mentees and increase student participation and dialogue outside formal settings. Results indicated that the use of Facebook positively affected the relationships between mentors and mentees. In addition, students believed they learned more by using Facebook and would prefer using it for other educational purposes.

In her study, de Villiers [13] described and discussed a venture in which postgraduate distance-learning students joined an optional group on Facebook for the purpose of discussions on academic, content-related topics, largely initiated by the students themselves. The study revealed that learning and insight were enhanced by these discussions and that the students were benefiting from contact with fellow students.

Most of the studies in the literature have investigated the effect of social networks, especially Facebook, on the learning process and ignored the perspective of exploring what the features and functions, like Facebook groups, could offer to academic institutions and its stakeholders; that is what this paper aims to explore.

III.   RESEARCH METHOD

This study analyzes the use of a closed Facebook group created for the Student Union of the College of Management and Technology at the Arab Academy for Science and Technology in Alexandria, Egypt. This Facebook group was initially created in March 2011 by the college administration to notify students of important general announcements.

Using the classification in Mouton's map of research designs [14], the methods used in the study are a combination of content analysis of the posts and quantitative descriptive statistical analysis of the dataset.

A.   *The Closed Facebook Group*

The purpose of using the Facebook group within the college community has evolved over the four years since it was first created. This study analyzes the posts and interactions that happened within the group during the fall semester of the 2015/2016 academic year. Since the Facebook group is a closed group, the researcher was granted administrator permission to have access to content and advanced controls in the group.

a)   *Group Members*

As of January 2016, the number of members in the group had reached 4500 members. This number includes all the faculty, admin staff members, and students that have joined the group since March 2011. Joining the Facebook group is not mandatory, therefore the active number of students is estimated to be a little below the total number of students that are currently enrolled in the College of Management, which is a total of 1701 students.

b)   *Departments and Courses*

The Facebook group is neither course-specific nor department-specific. The members of the group include students from the seven academic departments of the College of Management who are enrolled in the more than 282 courses offered that semester.

B.   *The Web Application*

A web-based application which uses the public Facebook Graph API was developed to retrieve all the posts and comments that took place on the group page starting at the end of September 2015 and ending in

January 2016. The posts were then saved in a database and later analyzed to reach the research findings.

In addition to the post content itself, information like the number of likes, and the name of the user who posted were also extracted from Facebook and stored in the database. To prepare the dataset for analysis, the application helps add descriptive attributes to each post and each comment. The following attributes were used to describe each post:

- Who made the post?
- A classification of the content of the post.
- The language used in the post.
- What was the feedback on the post?

Additionally, special remarks were added to each post to further describe its content and the feedback it received (see Fig. 1).

C. Ethical Considerations

Ethical clearance was obtained from the college's research ethics committee before starting the study. A disclaimer was posted on the group to notify all members that the content posted during the semester was subject to academic research. All information and identities were to be kept anonymous and any member was given the right to withdraw his participation and actions from the study.

IV. ANALYSIS AND FINDINGS

A total of 1344 posts and 4580 comments on these posts were collected. After classifying the posts according to content, the role of the user who posted, and the feedback and number of likes, the following analysis were conducted.
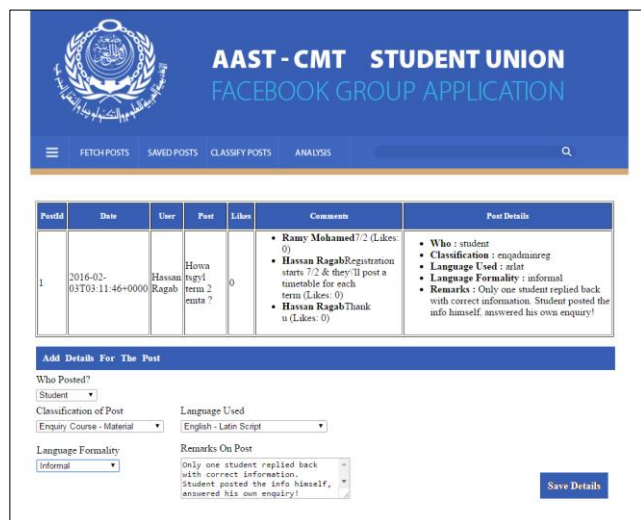

Figure 1. Screenshot of Post Classification Page

A. Who Posts on the Group

As shown in Fig. 2, the largest number of users who posted on the group was students and student union members (SU students), with a total of 69% of the collected posts. This was followed by faculty and instructors, representing 22% of the total posts for the semester. The

admin staff represented only 7% of the total announcements. Some advertisements were also allowed to be posted on the group by approved training centers and AAST institutes outside CMT.
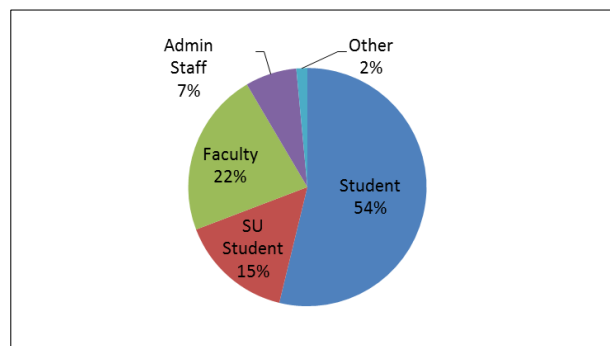

Figure 2. Users Who Posted on the Group

B. Posts Classification

After the posts were reviewed, the following classifications were created to describe the content of the posts. The classification process was semi-automated, as it had to include human intervention at some cases. Two major notification types were classified: enquiries and announcements. These two classifications were further grouped into sub-classifications according to the occurrences found in the post content (see Fig. 3 and Fig. 4).

The third frequently used classification was sharing of academic content by students and faculty. Students shared content to help each other before exam times; and some interesting posts were extracted where students took pictures of their handwritten notes and posted them on the group. Faculty also shared course material files like PDFs, PPTs, and video tutorials.
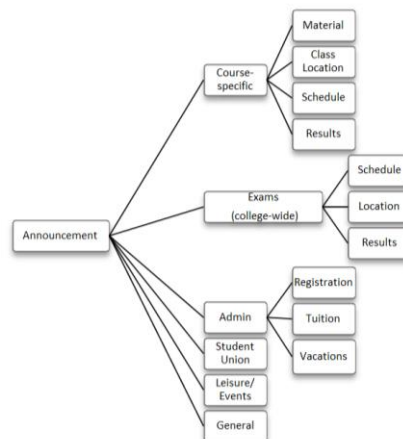

Figure 3. Classification of Posted Announcements

Other types of posts were also identified, such as student complaints, condolences on the occasion of death, and some advertisements posted by entities and other institutes in AAST (e.g., Graduate School of Business, AAST Alumni).

The highest post type used on the group was enquiries (51% of total posts), followed by announcements (36%) see Fig. 5.
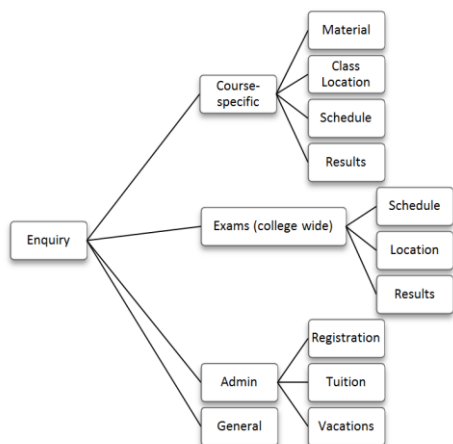

Figure 4. Classification of Posted Enquiries

Students posted 97% of the total enquiries, whereas the announcements were posted by faculty members, student union members and administration staff.

The term "Good Luck" occurred in a total of 37 faculty posts before exam times, to encourage them, and received a high number of likes relative to the average of the total posts by faculty members.

It was detected that the rate of new posts being added to the group increased during specific time periods. After further investigation, Fig. 6 shows how that academic calendar highlights were the reason behind the high rate of posting.
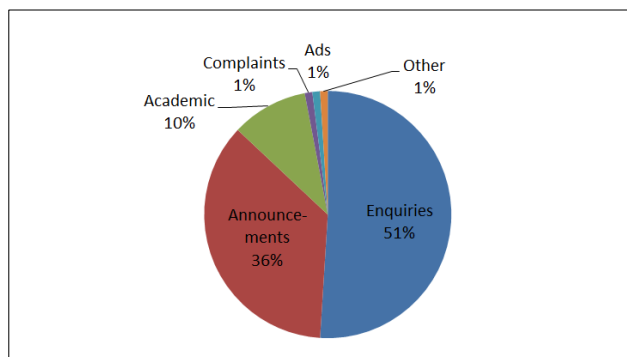

Figure 5. Post Types

Posts were grouped according to the time span of the academic calendar highlights. The highest percentage of post types consisted of enquiries, followed by announcements, and shared academic material during exam times. Example of student enquiries during exam times are asking about exam schedule, chapters included in exams, and asking about grades. Announcements during exam times were made by faculty, Student Union members and

admin staff regarding schedules, exam rooms, and course content covered in exams. Furthermore, course material was shared by faculty and students. During registration time, the enquiries were all posted by students to ask about course availability, tuition payment and semester starting dates.
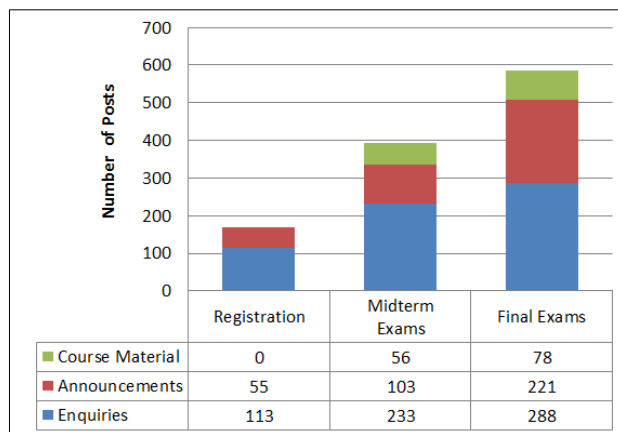

Figure 6. Post Types During Academic Calendar Highlights

C. Language Used

Out of the total number of students enrolled in CMT at the time of the study, 99% were native Arabic speakers, which was reflected in the language of the discussions on the group page. The language was classified into English and Arabic, and then further classified according to the script used for writing. The language was classified as shown in Fig. 7.

Fig. *8* shows that the highest number of posts were written in a mix between English and Arabic text written in Latin script; this dual language was used in 92% of the enquiry posts made by students. 31% of the posts were written in English using Latin script, mostly by faculty and SU students in official announcements. 14% of the posts were written in the Latin transliteration of the Arabic language with no English words included.
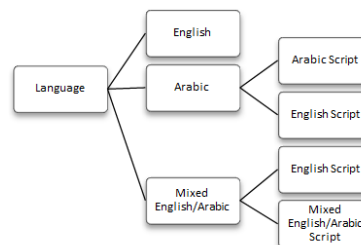

Figure 7. Classification of Language and Script Used

7% of the posts were fully written in Arabic using the Arabic script and were almost all announcements posted by faculty or staff members in the Arabic department of the CMT that were directed to the enrolled students.

D. Discussions and Feedback on Posts

A total of 4580 comments was extracted and added to the database to represent the feedback on the posts, along with the number of likes, which could also be extracted using the Facebook API.
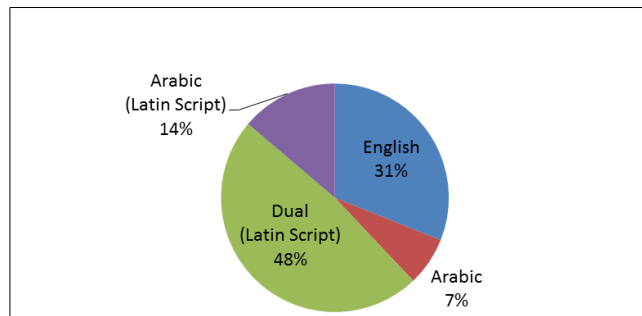

Figure 8. Languages and Scripts Used in Posts

a) Comments

The average number of comments on all the posts in the dataset was 3.4 per post, but not all posts had users comment on them. The posts were classified into seed and non-seed posts [15], the seed posts being those that have developed a thread of comments and discussions, and the non-seed posts being those who have failed to attract engagement from the group members. Posts that received likes but no comments were not counted as seed posts. Interestingly, only 41% of all posts were seed posts, while the rest were non-seed posts. An example of a seed post that gathered a relatively high number of comments is when the campus had to close due to bad weather conditions and the responsible faculty member posted that the following day's classes were cancelled. The post was written in both English and Arabic, and the Arabic language had some humor in it, because the professor who posted knew that students would like taking a day off from college.

Post exclusivity has also been found to have an effect on the post feedback; the post with the highest number of comments was posted by a student who had an exclusive announcement. The same content was posted later three times but did not receive the same amount of feedback.

The comments on enquiry posts were analyzed and classified into positive and neutral feedback. Where positive feedback included helpful information that answers the enquiry and neutral feedback didn't really help with answering the enquiry. Interestingly 83% of the comments on enquiries were positive feedback comments that helped the students by giving them either the solution or answer to their enquiries or helped leading them to it (e.g., tagging friends who had answers).

b) Likes

The like feature on Facebook allows users to press the like button, either on a post or a picture or a comment, which signifies that a user liked that particular content. In the dataset, the average number of likes on posts was 2.5 and the average number of likes on comments was 0.7. The

types of posts with the highest average number of likes were announcements, such as exam schedules or exam results. Fig. 9 shows a scatter chart of the number of likes and the number of comments each post in the dataset received. The correlation coefficient $r=0.552$ which indicates a low positive correlation between the number of likes and the number of comments on each post. The post with the highest number of likes, 239 likes, was a video shared by a student after the graduation projects presentations. The student shot a video including all his friends and all students of the marketing department who were presenting that day. The post received the highest number of likes because everyone could see themselves in the video and the students were proud of their work. The same post received a total of 43 comments, of which 40 comments were students tagging their friends.
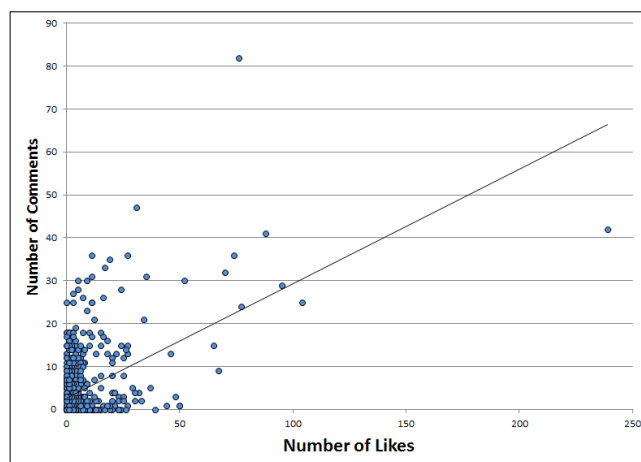

Figure 9. Likes and Comments on Posts

c) Tagging

The tagging feature in Facebook allows users to add the name of another user in a post or a comment, so that the tagged user understands that the posting user wants him involved in that specific topic. Tagging was used in 87% of the comments, where students tagged their friends, or tagged certain faculty members, when they needed them to either answer an enquiry or felt that they needed to notify them with the information being shared in a specific post.

Faculty members explicitly asked the students to tag their classmates in 21 occurrences, when they posted important and urgent announcements. Two posts by students also included a request to tag the teaching assistants, in urgent enquiry posts. On Facebook you can only tag someone who is already on your friend list, hence the need for the tagging request in the posts.

V.   CONCLUSION AND DISCUSSION

After analyzing the content of the posts and comments and discussions, as well as all the descriptive data and classification, we concluded that a group on a SNS can act as a variety of interesting platforms for interaction in higher

education institutions. A study by Mbodila et al. [16] on the effect of social media on students engagement recommended that in order to communicate effectively with students, higher education professionals must embrace new technologies and explore opportunities to implement a social media presence; this is what was taking place on the CMT closed Facebook group. The interaction between the members of the group allows us to conclude that SNS can help the higher education communities, outside interact by acting as a (1) notification center; (2) question and answer platform; (3) student affairs portal; (4) learning management system.

A. Notification Center

The group acted as a notification center where announcements were made about all activities that can happen on a college campus. It was used for information sharing between students, as well as between students and faculty and college admin staff.

B. Question and Answer Platform

The group acted as a question and answer platform where students could enquire about anything related to their studies, courses and exams. They were either answered by other students or by faculty and staff members. This created engaging collaboration between students, outside the boundary of a specific course or educational setting.

C. Student Affairs Portal

The student affairs administration staff used the group to share information and announcements; students also used it for their student affairs-related enquiries.

D. Learning Management System

10% of the total collected posts were shared academic content of different courses, either by students or by faculty members. Moodle [17] is being used by CMT as a learning management system since 2009 for all courses in course material sharing, assigning submissions etc. Despite this fact, it was interesting to observe that both faculty and students also used the Facebook group as a mean of material sharing.

E. Implicit Interaction

Interesting implicit interaction was detected when students used the Facebook tagging feature to tag their friends on important notification posts. After seeing the tag, the friends often liked the comment that included the tag, as confirmation that they were aware of the announcement of the post. This was possible due to the tag and like features provided by the Facebook, and occurred in 81% of the total posts announced by faculty and staff members.

Although the frequency of their appearance was relatively low, emojis [18] found in posts and comments did sometimes hide implicit meanings like sarcastic smiles, or conveying a message without actually typing it in text. The use of emojis could be further investigated in future work.

F. Limitations

It is inevitable that interaction on the group continues after the dataset was collected, more likes and comments are added by the users. This results in extended discussions that could not be included in the dataset because they did not exist at data collection time. In March 2013, Facebook announced a new feature [19] that enables the users to directly reply to specific comments left on any post instead of generally replying to the post. This feature makes it easy to keep relevant conversations connected, but when the comments in our study were collected, there was not differentiation between comments on a specific post, and comments replied to a specific comment on that post. All comments were treated equally in our study.

A further limitation that hindered the study from having more elaborate statistical results of the students interacting on the group, is that the total number of students enrolled in the Facebook group includes students that have already graduated. Furthermore, not all the students registered at the college during the semester have Facebook accounts or are members of the group.

G. Future Work

As a result of the study, we observed that some important posts were not found interesting and were neglected by students. As future work, the reasons behind this could be explored and we could help recommend how to create more interesting content for students with which they will be willing to interact.

This paper is not intended to prove that Facebook is better than learning management systems that are originally designed for educational purposes, but a comparison between the two could be further explored in future investigations.

Furthermore, the degree of formality of the used language and the sentiments detected from the comments were also observed and could be explored in future work.

REFERENCES

[1] A. M. Kaplan and M. Haenlein, "Users of the world, unite! The challenges and opportunities of Social Media," Bus. Horiz., vol. 53, no. 1, pp. 59–68, 2010.

[2] J. H. Kietzmann, K. Hermkens, I. P. McCarthy, and B. S. Silvestre, "Social media? Get serious! Understanding the functional building blocks of social media," Bus. Horiz., vol. 54, no. 3, pp. 241–251, May 2011.

[3] J. P. Mazer, R. E. Murphy, and C. J. Simonds, "I'll See You on," Commun. Educ., vol. 56, no. 1, pp. 1–17, Dec. 2006.

[4] Facebook Newsroom, "Facebook Statistics," 2016. [Online]. Available: http://newsroom.fb.com/company-info/. [Accessed: 10-Aug-2016].

[5] E-Marketing Egypt, "Facebook In Egypt - Online Competitive Intelligence Report," 2014.

[6]   N. Eteokleous, D. Ktoridou, I. Stavrides, and M. Michaelidis, "Facebook -a Social Networking Tool for Educational Purposes: Developing Special Interest Groups," ICICTE Proc., no. 2008, pp. 363–375, 2012.

[7]   "AAST Website." [Online]. Available: http://www.aast.edu/en/. [Accessed: 10-Aug-2016].

[8]   K. Taylor and O. Alonso, "Insights From Brands in Facebook," Proc. 2014 ACM Conf. Web Sci., 2014.

[9]   F. Tiryakioglu, "Use of Social Networks as an Education Tool," Contrmporary Ecucational Technol., vol. 2, no. 2, pp. 135–150, 2011.

[10] R. Gafni and M. Deri, "Costs and benefits of Facebook for undergraduate students," Interdiscip. J. Information, Knowledge, Manag., vol. 7, pp. 45–61, 2012.

[11] N. Selwyn, "Faceworking: exploring students' education related use of Facebook," Learn. Media Technol., vol. 34, no. 2, pp. 157–174, 2009.

[12] P. Pollara and J. Zhu, "Social Networking and Education: Using Facebook as an edusocial space," Proc. Soc. Inf. Technol. Teach. Educ. Int. 2011, pp. 3330–3338, 2011.

[13] M. R. R. De Villiers, "Academic Use of a Group on Facebook : Initial Findings and Perceptions Literature Study General Use by University Students," Informing Sci. IT Educ. Conf., pp. 173–190, 2010.

[14] "Mouton, J. (2001) How to Succeed in Your Master's and Doctoral Studies: A South African Guide and Resource Book. Van Schaik, Pretoria. - Open Access Library." [Online]. Available: http://www.oalib.com/references/15496255. [Accessed: 24-Jan-2016].

[15] M. Rowe and H. Alani, "Mining and comparing engagement dynamics across multiple social media platforms," Proc. 2014 ACM Conf. Web Sci. - WebSci '14, pp. 229–238, 2014.

[16] M. Mbodila, B. Isong, and K. Muhandji, "The Effect of Social Media on Student ' s Engagement and Collaboration : a case study of University of Venda using Facebook," J Commun., vol. 5, no. 2, pp. 115–125, 2014.

[17] L. Deng and N. J. Tavares, "From Moodle to Facebook: Exploring students' motivation and experiences in online communities," Comput. Educ., vol. 68, no. January 2016, pp. 167–176, 2013.

[18] L. Stark and K. Crawford, "The Conservatism of Emoji: Work, Affect, and Communication," Soc. Media + Soc., vol. 1, no. 2, p. 2056305115604853, 2015.

[19] "Facebook comment replies feature." [Online]. Available: https://www.facebook.com/notes/journalists-on-facebook/improving-conversations-on-facebook-with-replies/578890718789613/. [Accessed: 10-Aug-2016].