The use of Social Networks
by Higher-Education Institutes in Israel

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Abstract

The study described in this paper examines the use of social networking sites (SNS) by higher-education institutes in Israel. It identifies activity patterns, content patterns, and interactivity in these institutes' Facebook and Twitter accounts. 47 Facebook accounts and 26 Twitter accounts of Israeli universities or colleges and/or sub-divisions within these institutes were examined. Analysis of tweets within Twitter accounts and their classification to categories by content was followed by descriptive statistics. Findings propose that the activity pattern of academic institutes in SNS accounts preserves a pattern according to which many accounts were active to a minor degree, while a minority of them was relatively active. Also, use of special SNS features was low, suggesting that these accounts were used in an assimilation mode. Many of the academic accounts were frequently active for long periods of time. Results show usage and content patterns of SNS accounts resemble patterns in the Israeli higher-education community in the physical life. The study implies that the potential of SNS in higher education institutes in Israel has not been actualized to its fullest.

Keywords: Higher Education; Facebook; Twitter; Social Network Sites (SNS).

Introduction

Internet integration in higher education has stimulated high expectations, especially regarding accessibility, interactivity and opportunities for improved instruction (Bonk & Graham, 2006; Garrison & Vaughan, 2008). However, it has not reached its full potential. Faculty members use the web as a content supplier rather than a facilitator of educational novelty (Shemla & Nachmias, 2007). Additionally, despite web-supported environments' potential for providing flexibility in time and space (Collis & Moonen, 2001), usage patterns reflects an enrichment model rather than an innovative one, concurrent with the continuous innovation mode mentioned by Rogers in his Diffusion of Innovations theory (Rogers, 2003). Hence, when examining diffusion of information technology as a novelty in diverse settings, we may conclude that: (a) for most innovations, adoption is a gradual process, in which different participants advance at a different pace; and (b) some discontinuous innovations may take the course of a continuous innovation, thereby not demonstrating the novelty to its fullest (for examples, see Schultz & Sheffer, 2007; Thrall, 1982).

The Internet as a technological innovation has changed our lives in unimaginable ways. Nevertheless, the majority of Internet users use the Internet as content consumers, while only a minority function as random contributors. Still a minority of the latter actually supplies content, ideas and opinions on a regular basis. This complies with the Nielsen 90/9/1 Principle, according to which in most online communities, 90% of the users are lurkers who never

contribute to the community, mainly consuming information, 9% of Internet users contribute minor amounts of knowledge occasionally, and only 1% of the users account for almost all activities in online communities (Nielsen, 2006). This is evident also evident in online social networks that depend on users to contribute content to the community and to enrich its contents thereby creating participation inequality (Gibs & Bruich, 2010).

When applying the Pareto Law to users' behavior on the Internet, one can assert that 20% of the users are accountable for 80% of the flow of information and activity, while the remaining 80%, which are most Internet users, are responsible for 20% of information and activity (Persky, 1992). With regards to learning, the more it becomes Internet-based, a similar pattern arises: A large share of students log-on to online environments without actively participating in them (Dennen, 2008; Beaudoin, 2002).

The Long Tail phenomenon illustrates another Internet usage pattern. Typically, in the real-world economy, 20% of any type of product generates 80% of all sales. In e-commerce, however, websites preserve inventories of products in low demand; hence, inventory is huge compared to conventional stores and massive sales are derived from less-popular products. From the customers' standpoint, an online enterprise that suggests extraordinary choices of merchandise is able to adapt better to individual tastes and interests than traditional shops, thereby enlarging their sales leaning on unique transactions (Brown & Adler, 2008). Similarly, while traditional schools offer a fixed and limited curriculum, subjects that may be learned online are infinite (Nachmias, Mioduser and Forkosh Baruch, 2008; Brown & Adler, 2008). However, in online learning student retention is relatively high. Dropout rate in online learning is higher, often by 10–20% compared to traditional learning (Carr, 2000). In blended learning, i.e. face-to-face and online learning, a similar pattern arises (Hershkovitz & Nachmias, in press; Lovatt, Finlayson, & James, 2007).

Social Network Sites
The attractiveness of social networking in educational settings is growing, thus providing influential tools for building online communities, in higher education as well (Mason & Rennie, 2008). While computer-mediated environments exist since the 1980s, and social networking sites appeared as early as the 1990s, the massive acceptance of contemporary social online networks by surfers occurred only during the last decade with the new generation of social networks, offering advanced features for users to find and manage friends, and some intriguing opportunities for communication.

Studies of SNS concluded that these sites have the ability to increase social interaction within organizations and between individuals and institutes upon interest (Waters, Burnett, Lamm, & Lucas, 2009; Reid & Ostashewski, 2010). When examining usage patterns in light of Rogers' Diffusion of Innovations theory, it seems that innovators and early adopters are using social media to revive their efforts in terms of public relations, fundraising and increasing the community, while the majority of organizations lag behind (Waters, 2010). The focus of this paper is higher education institutes, which were not yet examined empirically in terms of SNS usage. The main purpose of this study is to empirically examine how social networking sites (SNS) are being used by higher-education institutes. The research will address research questions regarding: (a) activity patterns are identified in SNS accounts of higher-education institutes; (b) content patterns identified in SNS accounts of higher-education institutes; (c) extent of interactivity occurring in SNS accounts of higher-education institutes?

Method

Data were collected from 47 Facebook accounts and 26 Twitter accounts of higher education universities or colleges and/or sub-divisions within these institutes in Israel. Accounts were identified following extensive search using several relevant keywords both in Hebrew and in English and by examining networks of identified accounts. These accounts should be considered part of a procedure within an exploratory study.

The combined sample of Facebook and Twitter accounts (N=73) included 29 accounts of universities or their sub-divisions (40%), and 44 accounts of colleges or their sub-divisions (60%). When examining the scope of the account holder, 41 account owners were institutions (56%), and 32 account owners were sub-divisions within these institutions (44%). A full description of the sample by website, institution type and account holder level is presented in Table 1.

Table 1. Sample description by website, institution type and account holder level

Institute	Scope	Twitter	Facebook	Combined
University	Institute	5	4	9
	Sub-division	7	13	20
	Total	12	17	29
Colleges	Institute	10	22	32
	Sub-division	4	8	12
	Total	14	30	44
Total		26	47	73

Examination of the actual usage of SNS required definition of a set of variables, describing the activity within Facebook and Twitter accounts. These included: Account Owner; Community Indicators; Main-platform Activity Indicators; Lifespan Indicators; and Content Indicators. Regarding the latter, for each Twitter account, tweets were sorted into one of 6 content types: (a) Local professional - tweets related to the professional aspects of the account holder, with regards to local activity; (b) External professional - tweets related to the professional aspects of the account holder, but with no regards to its local activity; (c) General news - tweets about recent topics unrelated to professional aspects of the account holder; (d) Administrative - tweets regarding administrative aspects related to the account holder; (e) Social - tweets with social content or style; (f) Public relations - tweets portraying the public image of the account holder. The tweets were coded by both authors, first separately, and then together, until agreement was reached regarding fine-tuned definitions of the categories and the sorting of the Tweets. When the coding was completed, statistical analyses were calculated using SPSS.

Results

Activity patterns data were based on Main-platform and Special Activity Indicators. Examination of growth in Facebook and Twitter accounts over time is illustrated in Figure 1, presenting the cumulative number of accounts opened by institute type (universities, colleges) and social network (Facebook, Twitter).
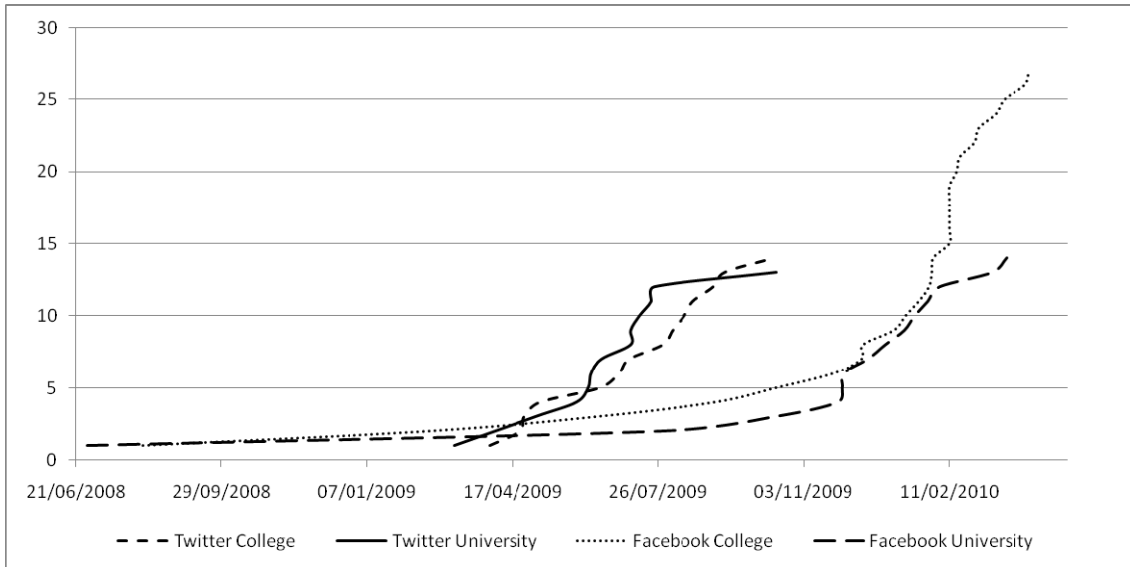
Figure 1. Growth in number of Twitter and Facebook accounts until October 22, 2009 and May 3, 2010 (last posts), respectively

Most accounts demonstrate little activity, while the minority of accounts is profoundly active. Figure 2 illustrates the Number of Tweets in Twitter, ranging from 1-279 with a median of 28.5, an average of 58.6 and a very large standard deviation (SD=75.3). The number of Wall-discussions on Facebook share a parallel pattern, ranging from 0-554, with a median of 15, an average of 69.8 and SD=111.9.
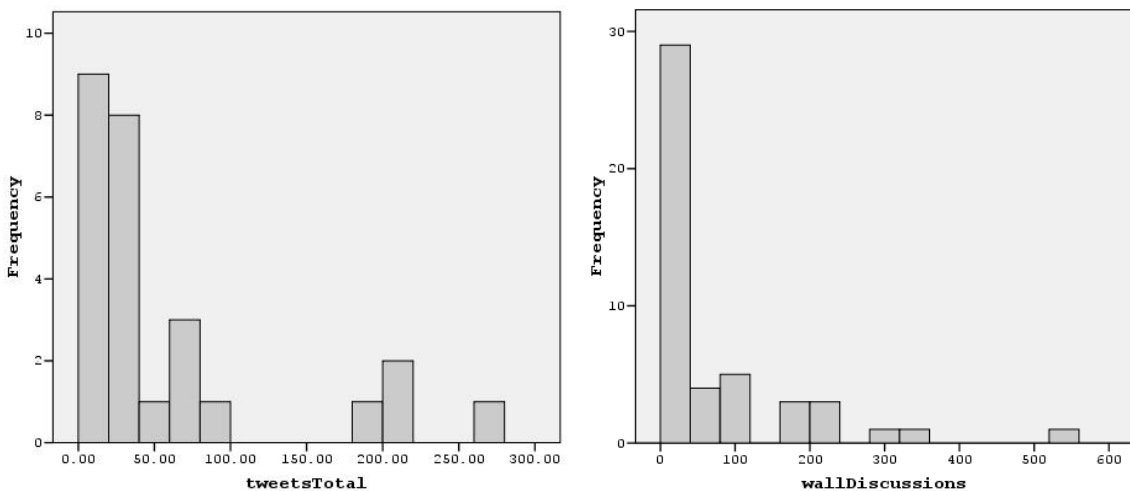
Figure 2. Histogram of tweets in Twitter (left) and Facebook wall messages (right)

Clustering of accounts according to different activity patterns presented scatter plot of Activity Length vs. Recent Non-active Period (Figure 4). Four account types were identified according to their activity over time: a) *Short-lived* (10 accounts) – a low value of Activity Length (less than a month), and a high value of Recent Non-active Period (greater than a month); b) *Abandoned* (3 accounts) – activity for relatively a long period of time (Activity Length greater than 2 months), but abandoned, with Recent Non-active Period greater than 1 month; c) *Constantly Active* (30 accounts) – active for a long period of time, with Activity Length greater or equal to the average (98 days) and Recent Non-active Period less than a month; and d) *Potentially Active* (4 accounts). Since studies show that a high rate of SNS users drop out during

their first month of activity, we considered all accounts with Activity Length less than a month which demonstrated recent activity potential becoming active accounts. Our clustering included only 47 of the total amount of accounts in these four groups (Twitter-Facebook combined), leaving out 26 accounts we could not assign to one of the four groups.
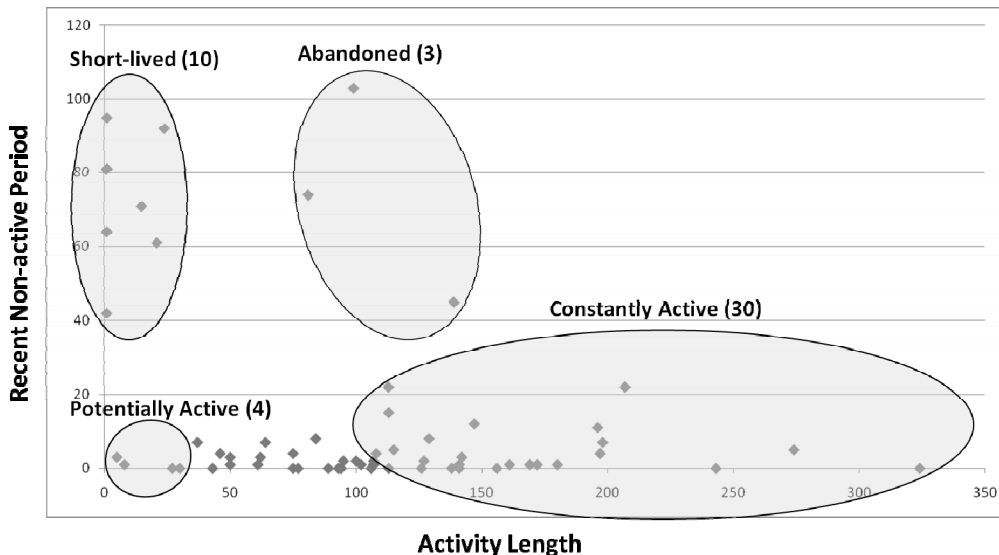
Figure 4. Activity Length vs. Recent Non-active Period in Facebook and Twitter accounts

Content patterns included content analysis of tweets in Twitter, in accordance with the six categories mentioned in the procedure section, i.e. *local professional, external professional, general news, administrative, social or public relations*. Descriptive statistics portray distribution of Tweets in Twitter accounts (N=1,523) by content. Findings illustrate that 29% of all tweets were social, while 29% reported local professional news. About 10% of total tweets were external professional, and another 18% focused on public relations. Figure 5 displays these findings.
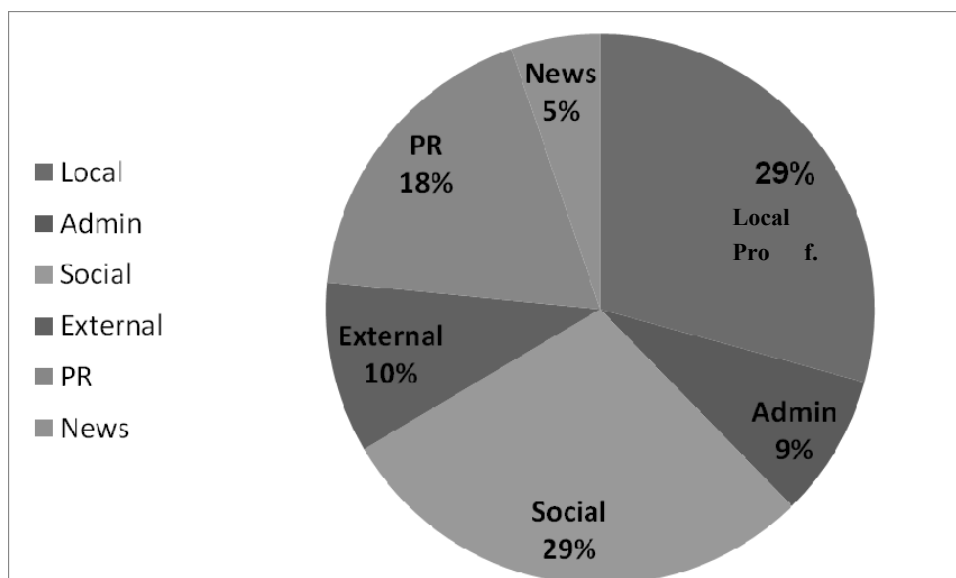
Figure 5: Distribution of Tweets in Twitter accounts by content (N=1,523)

Interactivity was also calculated for Twitter and Facebook social networks, using indicators of the accounts' volume: followers and following in Twitter and likers in Facebook vs. scope of activity. A correlation was calculated between the amount of activity and the size of the accounts' audience. In Twitter accounts, correlation between number of followers and number of tweets was significant: $r=.7**$ (N=26). Also, correlation between number of following and number of tweets was significant: $r=.7**$ (N=26).

In Facebook accounts, a correlation was calculated between number of likers and number of wall discussions. Results show that when account owner is the initiator of wall discussions correlation was non-significant ($r=.1$, N=31), while in pages in which also likers initiated wall discussions correlation was significant: $r=.6**$ (N=15). An additional interesting finding is the significant difference between the numbers of likers in both types of accounts – those in which only the account owner initiated wall discussions ($X=177$), and those in which likers initiated discussions as well: ($X=677$), $t(df=44)=-4.9**$.

Discussion

Social network sites were established initially for interaction on the basis of similar fields of interest. Facebook was established for assisting higher education students to identify their peers from other institutions (Kirschner & Karpinski, 2010). Hence, social networking sites (SNS) are being used for interacting with people within the institute and beyond it, depending on their field of interest (Boyd & Ellison, 2007). Academic institutes, however, have lagged behind in joining these social networks, while in commerce and business SNS are entrenched. When analyzing measures related to activity within the higher-education institutions' Facebook and Twitter accounts in Israel, a repeated pattern which is evident also in commerce, politics and additional fields arises: while many accounts were only active to a minor degree, only a few accounts were intensively active. This behavior was prevalent across platforms, contents, and contexts.

In concurrence with findings of previous studies examining the use of novel technologies, a similar pattern arises in our study: new technology (i.e., SNS) is being utilized in an assimilation mode (Rogers, 2003). An excellent example was two synchronous sessions held by Twitter account of one of the universities, in which users were invited to join a live chat on a given topic; this chat was limited in time, hence ignoring the very essence of SNS, which allows easily manageable asynchronous communication in a microblogging mode (Honey & Herring, 2009).

The question is: what is the main purpose of novel social network sites in the eyes of their operators and users, or an extension of the institute's website? And if so, what is their added value, and is it similar for all account holders? Our findings indicate that SNS are seen as potentially beneficial for universities and colleges in Israel. However, accounts are being operated with a systemic agenda rather than as a network for social interaction as a means of strengthening ties to the community. Research on SNS is still rather limited in general (Mazman & Usluel, 2010), and in academia in particular. However, the growing need for research on social networks and their utilization may assist account holders in using them more effectively.

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