

Human Characteristics Prediction from Social Media Data

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Abstract

With 2.19 billion users, Facebook is one of the most famous and prosperous social network services (SNS). Because of its pervasiveness and especially concerning the recent issue on the collection of personal data of both users and non-users, some experts and psychologists believe that users are influenced to behave in certain ways vastly different from their usual behaviour. The present study provided insight into why students adopt a characteristic or identity in this online setting via a thorough examination of the student's level of participation on Facebook. The descriptive research design was employed for the study. The sample size used was 240 drawn from the first and third-year undergraduate students of the University of Ghana (UG). Purposive sampling technique was adopted for sample selection. The main research instrument for the study was a questionnaire. The study revealed that most of the students were digitally inclined and is very active on Facebook. It was also seen that due to the visual possibilities of Facebook, students tailored their characteristics or identity towards wanting their audience to like them, to be desired by their girlfriend and sought after by popular users. It was also discovered that unlike anonymous media such as chat room, users can be held accountable for deviant behaviour on the Facebook environment because pertinent information about them are kept and shared with third parties.

Keyword: *Developmental psychology, Social Network Service, identity management, construction of identity, the performance of identity.*

Introduction

In recent times, the construction of identity online has drawn much attention from psychologists in the social network field. Experts in developmental psychology such as Zacarias- Gonzalez, Iborra, Tomas, and Serra (2009) posited that identity construction has proven to be a major concern faced by young adults. Experts described identity as a coherent conception of oneself that includes the targets, values, and beliefs to which we make a firm commitment, it is psycho-social and is often influenced by self-concept, interpersonal relations and individual surroundings (Trimble, Root, & Helms, 2003; Perez-Torres, Pastor-Ruiz, & Ben-Boubaker, 2018). Studies on the prediction of human characteristics utilizing social network service, according to Perez-Torres et al. (2018), is focused on understanding how people construct their identity in a virtual or unreal world void of physical contact.

Herring and Kapidzic (2015) and Lin, Fang, and Jin (2017) conducted extensive investigation

and research on the anonymous online environment such as chat forums and their findings revealed that users are predisposed to hiding their true identity and take on a different identity that may closely resemble their innermost desire and aspirations especially in connection with things they cannot do in the real-world or offline. Users resorted to this type of identity construction due to the anonymous nature of the online environment of which users are less culpable. These findings fanned the interest of several researchers on social network service, including Ellison et al. (2006), Waheed, Anjum, Rehman, and Khawaja (2017) and Perez-Torres et al. (2018) to investigate how users construct identities in anonymous (i.e opposite of anonymous) online environment, especially on sites that identity is extremely important, such as internet dating sites.

Results of their study revealed that people constructed their identity differently on these sites (internet dating), their behaviour or actions revealed a sense of awareness of the anonymous online environment, of which their actions or

behaviour may be consequential. The result of Ellison et al, Waheed et al. and Perez-Torres et al. underpin the objectives of this study, because it vividly revealed that online environment was not constitutive of a single unit, it has shades of variation suggesting that how individuals constructed identity or presented themselves varied significantly from one online setting to another. Given this variation, the present study will carry out an extensive investigation into how users on Facebook, anonymous and social networking site, construct identity or perform self-presentation. The focus of the study is on university students because this social networking site – Facebook has become very popular with university students in Ghana.

Objectives of the study

To fully understand the various ways students' identity can be understood on social media (Facebook), the present study has as its objectives the following:

- i. To investigate how often students, visit Facebook
- ii. To ascertain how often students, update their profiles on Facebook
- iii. To establish how students, perform and construct their identities on Facebook.

Research questions

- i. How often do users visit Facebook?
- ii. How often do users update their profiles on Facebook?
- iii. How do users construct and perform their identity on Facebook?

Significance of the Study

The significance of this study cannot be overemphasized at a time when using Facebook, with 2.19 billion monthly active users, is considered a laudable achievement and 'keeping up with the Joneses' (Kearney, 2018). This study is also timely because of the mounting pressure on Facebook executives to review their privacy policies with less monitoring of messenger messages, to make the service less anonymous (Roettgers, 2018, p. 1). It is envisaged that result of the study will provide insight into the privacy issue and its impact on the construction of identity on Facebook. Moreover, the study would serve as an impetus in understanding the several forms of identity student are prone to create while on Facebook and add to the

literature on prediction of human characteristics on social networking sites.

Facebook

Interested in putting his computer science skill to good use, coupled with his sophomoric sense of humour to create a type of "hot or not" game for Harvard students, Mark Zuckerberg, along with classmates Eduardo Saverin, Dustin Moskovitz, and Chris Hughes invented a social networking website called Facebook. This social networking website was initially made to assist Harvard University student to interact socially and get to know each other (Bellis, 2013). Initially, membership to the website was at first restricted to Harvard University students. However, other universities and colleges were later incorporated into this popular social networking site with the help of Zuckerberg's colleagues. For example, Severin improved the business section of the website, Moskovitz worked as a programmer, and McCollum as a graphic artist. In a short while, Facebook opened up for all audiences and has been growing in leaps and bounds ever since.

Facebook differs from other social networking sites because only users or friends who are part of the same network could view each other's profiles and posts. Unlike Twitter, users do not have access to all the messages on the site. Another unique feature of Facebook is that it allows applications of third parties to have access to certain user information via quiz or game. The website is structured to collect useful information when participants use a tool and give permission to the application to use their personal information.

Additionally, unlike Hyves, Twitter, Blackplanet and Flickr, Facebook was initially designed to host a specific audience, but due to its evolving nature as indicated by Boyd and Ellison (2007), it has embraced other users and has gained worldwide acclaim as a powerful social networking site. However, Facebook also has a marked limitation in that it grants users limited freedom of expression to construct identity or make self-presentation, users cannot choose their background and colours of their page, they have to stick to default settings.

Due to its curtailment of users' ability to feign the ideal personality, Facebook informs an ideal condition for examining identity construction in online environments where most

of the users are friends and can readily meet each other when not online. It is expected that people would engage in identity construction on Facebook and adopt various ways of presenting themselves in a bid to deal with the less anonymous environment. In essence, the way Facebook is structured underpins the present study because it facilitates prediction of user's characteristics that they would like to present their hoped-for-possible selves rather than their "true" or "hidden selves".

It is predicted that users may characteristically emphasize or even exaggerate their identity with much emphasis on part of them that are socially desirable but not readily discernible in a brief encounter with other users, such as inner qualities including one's character and intelligence. At the same time, they could seek to downplay part of their identities that they feel are socially undesirable, such as for overweight, shyness, or stuttering.

Though it is possible for people to emphasize or deemphasize their identity to present the better side of themselves in offline conditions, Facebook offers a unique opportunity of constructing selective identities. This makes Facebook vastly different from internet dating because those on internet dating sites create a romantic relationship with people unknown to them, while those on Facebook concretizes friendships and romantic relationships among people known and unknown to them. Hence, Facebook is an ideal social media to predict how people will present themselves in terms of strength and weaknesses, what want others to feel about them to the end of leaving a lasting impression on the minds of other users.

Recently there has been much pressure on Facebook executives to review the privacy policy and make Facebook less anonymous. This is as a result of Facebook leaking users' data to Cambridge Analytical for influencing voters in several countries including Nigeria and the United States. At present, Facebook is in the process of revising its policies on privacy.

However, Roettgers (2018) and Oremus (2018), citing Egan (Facebook Chief Privacy Officer) and Beringer (Deputy General Counsel for Facebook), indicated that Facebook will not fundamentally change its stance on user's data rather they will render the policies in a language easier to read, spelling out the data they collect and how they use such data within their platform

and with third parties. The two executives indicated that the revision is not yet finalized. Notwithstanding, it thus underscores the fact that the user's information is more anonymous than was previously thought. As a result, it is worth examining how users construct identities given the prevailing issues surrounding personal data on Facebook.

Literature Review

The advent of the internet has revolutionized the traditional conditions of predicting human characteristics or mode of constructing identities. With the inability of users to experience physical contact during the online encounter, it becomes possible for student A in Accra to interact with student B in Kumasi on the Facebook thinking he is communicating with a lady whereas offline (the real world) a young man is posing as a lady. Because of such tendencies, starting from the 1990's researchers have been conducting investigations into various possibilities and implication the internet would hold for the social conception of identity. Turkle (1995) for example investigated the potential for fragmented, multiple postmodern selves and arrived at the following submission: "computer-mediated communication can serve as a place for the construction of identity" (p. 14).

In his study, Hawisher (2004) examined feminist concepts such as affinity politics and oppositional consciousness through the idea of the Cyborg (a being with both organic and cybernetic parts) and sought to reject boundaries such as those between man and machine. In their studies, Zhao, Grasmuck, and Martin, 2008 indicated that due to the link between disembodiment and anonymity, social media creates a technologically mediated environment that paved way for the emergent new mode of identity production. Social media platform such as Facebook has unique features that allow people to "play-act at being someone else or to put on different online personae that differ from their "real life" identities" (Zhao et al., 2008, p. 1818).

Since online users are aware of the fact that there is no physical contact between them and the other individual, they tend to hide their undesired physical characteristics and re-create their biography and personality. The user could pretend to be of another gender (a man may present himself as a woman), pretend to be an

extrovert while in the real world is an introvert. Research has shown that social media cannot reveal the inner qualities such as stuttering, shyness, or vindictiveness hence makes it possible for users with these traits or characteristics bypass the usual obstacles that prevent them from constructing desired identities in face-to-face settings (McKenna, Green, & Gleason, 2002). Findings of Suler (2002) and Rosenmann and Safir (2006) studies revealed that social networking sites are an ideal location for predicting human characteristics since it enhances users' ability to construct any type of identity that interests them and impresses their audience.

However, Zhao et al. (2008) indicated that the online world is not entirely anonymous. Family members, neighbours, colleagues, and other offline acquaintances also communicate with each other on the Internet. More importantly, most social networking sites, according to Roettgers (2018) and Oremus (2018) often have records of a person's legal name, residential location, and institutional affiliations and shares this information with third parties. This means users are fully aware that the social media sites are anonymous, hence they construct identities to heighten positive traits and downplay negative ones.

In their book: *Handbook of self-determination research*, Deci & Ryan (2017), sees self-determination theory as a macro theory of human motivation and personality, concerning people's inherent growth tendencies and their innate psychological needs. Essentially, self-determination theory addresses three universal needs: competence, autonomy and psychological relatedness. According to Deci & Ryan (p. 227), needs "specify the necessary conditions for psychological growth, integrity, and well-being." Relatedness, on the other hand, is about being connected to others by caring or being cared for (Wang et al., 2008). Competence is described as the effecting-focused ability to produce valued outcomes and experience mastery which in turn implies the desire for information-based learning, while autonomy refers to a person's volition – the desire to self-organize experience and to engage in activities that are in harmony with one's sense of the self (Deci & Ryan, 2012).

These three aspects of personality are invaluable to understanding what and why

certain goals are pursued by actors in a social context. Motivation, according to Deci and Ryan, is very important because it lies at the bottom of the three characteristics mentioned earlier and it serves as the driving force for the three qualities, hence, there might be variation in what individuals need for competence, autonomy and relatedness.

As a result, it could be inferred that individuals are not simply passive and act only when they have to replenish perceived deficiencies of need fulfilment, but they also proactively and self-determinedly engage in activities that interest them and develop or actualize their potential. This is only possible as long as they are "in a context that allows needing satisfaction" (p. 230). This means that most activities people are interested in challenges their curiosity, openness and assimilation, culminating in positive resonance not necessarily because a need must be fulfilled but due to the mental exercise involved in such activities and the actualizing of their fantasies and innermost desires.

Deci & Ryan' study underpins the present study and sets the background for research domain: an empirical assessment of how quantitative data, or their change between two observation, may be perceived as effective reflective cues, about personal development in terms of satisfying intrinsic and higher-level needs, such as the need for relatedness, competence and autonomy which are often reflective in identity construction or self-representation on social networking sites such as Facebook. As a result, the present study shall unveil and discuss new dimensions in the performance and construction of identity by university students on the less anonymous online website – Facebook.

Methodology

The study is rooted in survey research paradigm. The choice of this research design was informed by its appropriateness and suitability. Mizner (2008) posited that survey research provides a high level of general capability in representing a large population. Due to the usual huge number of people who answers the survey, the data being gathered possess a better description of the relative characteristics of the general population involved in the study. As compared to other

methods of data gathering, surveys can extract data that are near to the exact attributes of the larger population. Moreover, Zhao et al (2008) and Ginger (2008) employed it in recent research similar to the present research with appreciable results.

Population and Sample

The population was made up of the all the first and third-year undergraduate students of the University of Ghana, Legon. The first-year students were selected by the researcher because they have less academic workload and under their level, the third-year students are not under much pressure academically like the second and final year students. The stated academic context of the first and third-year students allows them ample time to visit Facebook frequently. Using purposive sampling, a total of 240 undergraduate students was selected. The researcher employed purposive sampling because, the selection is by choice; the sample chosen is thought to be typical of the universe concerning the characteristics under investigation (Etikan, Musa, Alkassim, 2016).

The research site for the present study was the University of Ghana (UG). As Ghana's premier university, it was founded in 1948 as the University College of the Gold Coast-based on the recommendation of the Asquith Commission, on Higher education in the then British Colonies (Ofosu-Ampong, 2016; Ranking Web of Universities, 2018). The research site was selected due to its location and proximity. Located in Accra, the heart of Information Communication Technology in Ghana, social networking sites are popular among UG students (Kolan & Dzandza, 2018). Also, being a resident of Accra and within walking distance to the institution, data collection was relatively easy. Both factors (location and proximity) enriched the findings of the study.

Instrumentation

The major research instrument used was the questionnaire. Open-ended and closed-ended questions were used. Section C of the questionnaire contained structured questions based on a four Likert Scale where Always was 4, Sometimes 3, Rarely 2, and Never 1. The questionnaire was made up of three major

sections. Section (a) consisted of items dealing with the frequency of users to Facebook, section (b) contained items designed to measure respondents' effort in updating their profiles on Facebook while section (c) looked into how people construct and perform identity on Facebook.

Data Collection Procedure

The researcher was assisted by some course representatives during the administration of the questionnaire, the main instrument for data collection. This was to promote participation and a high return rate of the questionnaires from respondents.

Results

The analysis was done concerning the stated research questions. First, to answer research questions 1 and 2, simple frequencies were run for section A and B of the questionnaire using percentages and tables. Second, an adequate answer was provided regarding question 3 by calculating the average-mean of responses about section C of the questionnaire. The aggregate conjecture of the data aided confirmation of predicted characteristics of Facebook users in the research site.

Analysis and Discussion

Identification of student's activity on Facebook is primarily important to deciphering how the type of trait or self-presentation they would construct on Facebook; this matter is treated in researcher question one (1).

Research Question One (1): How often do users visit Facebook? This question is meant to reveal how frequently and intensively Facebook users visit their profiles and make necessary contacts, conversation, and announcements. Table 1 provided an answer to the first research question.

Table 1 shows that the majority (48.3%) were visiting at least once to two times a day. This means that many students are digitally oriented and desired to make and retain friends on popular Facebook. Many though, (21.7%) visit the site three to four times daily, while only 6.7% visited the site three times a week and 3.3% less than once a week. These statistics suggest that participants log on

frequently, which logically parallels the frequency at which they could (and do) perform their self-presentation (identity)

Table 1. How often do you visit Facebook?

Activity	Count	Per cent
6+ times daily	36	15%
3-4 times daily	52	21.7%
1-2 times daily	116	48.3%
3 times a week	16	6.7%
1-2 times a week	12	5%
Less than once a week	8	3.3%

n=240

Source: Fieldwork (2018).

Research Question Two (2): How often do users update their profiles on Facebook? This question is intended to elicit information on the regularity or readiness of users to update their profiles on Facebook. Table 2 dwelt on this aspect of the study and results are presented below.

Table 2 below revealed that an overwhelming 124 (51.7%) of the respondents update their profiles once every few weeks. This means the majority of the respondents are not very eager to update their profile, perhaps they feel until something very important happen before they

will update their profile. 32 (13.3%) update their profile every few days. 24 (10%) update their profile once a week. It is also noteworthy that 12 (5%) update their profile once a day. This means they are very frequent in updating their information, but they are few as compared to the total number of students' sample. Additionally, 48 (20%) are updating their profiles less than once a month. These are lagging, perhaps they are not digitally inclined or motivated or have fewer friends, hence they visit it once-in-a-while.

Table 2. How often do you update any aspect of your profile on Facebook

Activity	Count	Per cent
Once a day	12	5%
Once every few days (or more)	32	13.3%
Once a week	24	10%
Once every few weeks	124	51.7%
Less than once a month	48	20%
I don't update my profile	0	0

n=240

Source: Fieldwork (2018)

Table 3. When using Facebook, you

S/N	Items	Always	Sometimes	Rarely	Never	Mean (X)	Remark
1.	Investigate/view profiles or pictures	125	10	57	48	2.96	Popular
2.	Investigate/view groups or event	144	38	48	10	3.32	Popular
3.	Investigate/view notes or posted item	-	115	77	48	2.28	Unpopular
4.	View news feeds (personal or general)	173	19	10	38	3.36	Popular
5.	Search for people (profiles) or pictures	192		19	29	3.48	Popular

6.	Search for groups or events		29	154	57	1.88	Unpopular
7.	Check, reply to, or send messages	192		19	29	3.48	Popular
8.	Read all posts	173	38	10	19	3.52	Popular
9.	Make or respond to wall posts	192		10	38	3.44	Popular
10.	Poke others (initiate)	10		221	9	2.04	Unpopular
11.	Return pokes (reciprocate)	150	38	9	43	3.23	Popular
12.	Create groups	-	115	77	48	2.28	Unpopular
13.	Create events	5	4	185	46	1.87	Unpopular
14.	Post pictures	182	29	19	10	3.60	Popular
15.	Check out advertisements	10		221	9	2.04	Unpopular

n=240

Source: Fieldwork (2018)

Research Question three (3): How do users construct and perform their identity on Facebook?

The study revealed that users are logging in often, and updating their profiles semi-frequently, but what are they doing when they log in, i.e how do they go about negotiating their identity on Facebook. Section C of the questionnaire contained questions to gauge student usage tendencies. These behaviours give one measure of how information might be exchanged in ways that construct or perform identity. By assigning a value of 4, 3, 2, and 1 to the four-point Likert scale allow for easy identification of popular or unpopular used items. Using 2.50 as the cut-off point to determine popular and unpopular items, then, frequently used or the popular item is represented by items with mean value higher than 2.50 while items with the mean value of responses lower than the 2.50 are indicative of unpopular item, 2.50, therefore, represent the neutral item. Responses of the students are given in Table 3 above: A closer look at Table 3 revealed that most activities have stayed at approximately the same level of popularity for respondents. The only significant exception might be posting of pictures, followed by wall actions and reciprocating pokes, which seem to have become more popular, 3.60 (posting pictures), 3.52 (read wall post). Picture and Wall posting is an interesting method of expression on the Facebook network. When user post to another's the wall they are not just simply messaging or communicating with one another, but doing so in a semi-public fashion, making it a distinctly different kind of performance-based

activity. The act of posting to another's wall is the only one that is (potentially) picked up by the newsfeed and easily visible to the general public (people who visit your profile).

Apart from wall actions, the remaining common usages in Table 3 were covert ones: investigate/view profiles and pictures, reading wall posts and messages, and following the newsfeed. Posting pictures and returning pokes are the only two occasional activities that are unconcealed. The remaining actions users sometimes take when logged on are hidden: Sending messages, searching for friends, and investigating or viewing groups and events. Table 3 also revealed that the most popular behaviours are those related to both direct and indirect communication and information exchange.

Direct and purposed construction of identity (on-stage) comes in the form of 'public' actions such as profile updates, posting of pictures, and wall messages as well as hidden reciprocating actions (back-stage) like messaging and poking communications. Implicit influences on identity construction are carried out by the searching and investigating of profiles and pictures, distanced observations of walls, groups, events, and newsfeeds, and potentially read but unanswered messages (off-stage). Participants know others are looking at their profiles and watching the newsfeed and thus situate them in a context suited to their audience, allowing for a blend of influence strategies (impression management) Pictures are often one of the driving features behind the whole economy of profile exchange.

The ties between the physical and online worlds facilitate a stronger representation of identity and help to combat feelings of

disembodiment. Sharing through pictures may be less assertive. However, as viewing a picture does not notify the owner of the picture that someone is looking at it, users seem to browse (investigate) more than they actively and intentionally search for specific people, groups, and events in the system. The newsfeed, however, offers an interesting mixture of potentially passive observation and indications of assertive characteristic or behaviour. Some items, like the breakup of a romantic relationship, group and application involvement, and status changes are also tagged by the newsfeed but were not included above in the collection of widespread routines.

Significantly, Table 3 indicates that the newsfeed 3.36 (popular) has become viable, or at least, accepted way of sharing one's activities, constructing identity information, and otherwise communicating indirectly (and potentially unintentionally) with the mass. While some users may not purposely act to perform for the newsfeed, they at least know that it's observing them. The fact that far fewer people initiate pokes 2.04 (unpopular) than return them probably indicates fewer poke starters than people willing to engage in poke-exchanges.

The most assertive activities, such as creating events, groups, and poking others as well as the ones least directly connected to people, such as viewing groups, events, the pulse, and posted items, were the ones of lowest occurrence. Advertisements 2.04 (unpopular) were one of the least often engaged items on Table 3, which is perhaps not surprising, but unfortunate news for marketing agents who feel Facebook is the best place to get their product to take off.

Ginger (2008) and Compete.com (cited by Friert, 2007) also conducted similar studies to determine what Facebook visitors were doing most on the website. Their findings are consistent with those explained here though they sourced data via a different method. For example, Compete.com tracked only behaviour, wall posting was not examined. Their study was not user-reported or empirical data but instead collected data by analysis of system statistics. Unlike this study, Compete's results ranked browsing of profiles as the most frequent activity, followed by browsing pictures and interacting with applications. Ginger, on the other hand, studied the differences between users based on the number of friends on other

networks and also analyzed the demographics of participants.

Findings

The major findings emanating from the research include the following:

- i. It was discovered that Facebook subscribers have many opportunities to perform their identity on Facebook, hence several students investigated are frequently (Table 1, item 3 (48.3%)) visiting the site once or two times a day for connections, making and retaining friends and the likes.
- ii. The investigative study also revealed on Table 2, item 4 that majority (124 (51.7%)) of the respondents are updating their profiles once every few weeks, this means they are semi-frequent in updating their profiles. This may also suggest that are very actively involved or passive about such matters but are rather interested in checking postings or events on the site.
- iii. The study also revealed that majority of the respondents is highly interested in posting pictures (3.60) followed by wall posting (3.52) as depicted in Table 3, item 8 and 14. These are veritable means of constructing and performing individual identities on Facebook.

Conclusions

Given the findings emanating from this study, the following conclusions were drawn:

- a. In line with the analysis presented above, the majority of the students showcased themselves indirectly through photo and wall posting on Facebook. In this way, it was shown that most of the respondents display mediated interaction due to being online and expected their audience to respond alike. Respondent tailored their characteristics or identity towards wanting their audience like them, to be desired by their girlfriend and sought after by popular users.
- b. The study also showed that the virtual (online) world is not a dreamland for deviant behaviour. As it is expected of an individual to behave according to established norms; conformity to norms will be rewarded and deviations from them will be punished. On the Facebook environment, individuals can be held accountable for deviant behaviours,

hence users maintained adorable personality or identity, in harmony with normative expectations.

- c. It was also seen that several users downplay unfavourable characteristics while highlighting positive ones.

Recommendations

Based on the findings and the conclusions enumerated above regarding the construction and performance of identity on Facebook, the researcher made the following recommendations:

1. All users of the Facebook network should be wary in their approach to matters on the website because Facebook allows subscribers to partition their Facebook pages into many “back” and “Front” regions in this case staging different identity shows for different audiences. One should not be deceived into believing what may later hurt him physically and otherwise.
2. Also, because of the recent development regarding a privacy issue, it is recommended that Facebook should refrain from technical approach to seeking the consent of users, of which, on several occasions, they are not aware of how their personal information is being used. Facebook executives should be transparent and revise their privacy policy to facilitate users’ informed decision.

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