

The Effects of Gender On The Adoption of Social Media: An Empirical Investigation

Completed Research Paper

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Abstract

This study develops a research model to gain a deeper understanding on gender comparison relating to social media continuance/usage. The theoretical background for our research model is based on the diffusion of innovation and the technology acceptance models. We collected 290 datasets from college students that are enrolled in a large university located in North America. The statistical techniques to analyze our datasets are confirmatory factor analysis and structural equation modeling. The results of our data analysis show that females have stronger and significant perception of ease of use, compatibility, relative advantage, and risk when using social media compared to males. Also, our results show that males have a stronger perception of satisfaction and information quality when using social media compared to females.

Keywords

Diffusion of innovation, social media, ease of use, usefulness, technology acceptance model, satisfaction, compatibility, relative advantage, continuance usage, information quality, Social media risk

Introduction

Social media comes in many interrelated forms such as blogs, forums, podcasts, photo sharing, social bookmarking, widgets, video, just to name a few. Although the social media is often associated with young people (Boyle, 2007), it has attracted both men and women from different ages, educational levels, cultures, amongst others, from all over the world. Gender norms may influence the preference for a particular use of social media. Hence, our study focuses on gender differences relating to the continuance usage of social media. Mazman & Usluel (2011:133) observed that apart from 'checking e-mails, reading daily forums and newspapers or following instant message tools, people now also check their social network profiles by following others' status changes, updating their profiles or looking at others' profiles.

Bujala (2012) suggest that men are likely to have more time for the use of social network because of gender expectations and roles. In other words, the societal expectations and norms tend to favour men than women who are expected to take care of the private sphere while men take care of the public sphere which the social network incorporates. Volkovich et al. (2014) aver that societal expectations tend to favour men. However, they argued that there are more women in the use of social media than men. In other words, Volkovich et al. (2014) suggest that women outnumbered men for most social networking sites with the exception of LinkedIn. A 2009 Pew Internet Research report showed that women outnumbered men on social media platforms (Kaplan and Haenlein, 2010).

Gender has been found to occupy a special place in understanding people's decisions in the adoption and use of new technologies (Volkovich et al., 2014). Few research on the gender differences in usage patterns of Social Networking Sites (SNS) highlighted that the male gender used social networking sites for networking, making new friends, and seeking out potential dates and playing games; while female gender

used it for relationship maintenance (Rousseau and Puttaraju, 2014) and posting public message (Muscanell, 2012). Another related study averred that females used Social Networking Sites predominantly to look for old friends and keep in touch with the existing ones while, at the same time, hiding their identities and personal information for privacy purposes (Mazman and Usluel, 2011). As averred by Vankatesh and Morris (2000), while men are more driven by contributory factors such as perceived usefulness, women are more motivated by process and social factors.

To date, to the best of our knowledge no studies have provided answers to the questions below:

- 1) What are the gender differences in ease of use, usefulness, compatibility, and satisfaction of social media on the continuance use of social media?
- 2) What are the gender differences in relative advantage, information quality, and risk of social media on the continuance use of social media?

To answer the above research questions and to make significant contributions to the literature, we develop our research model to gain a deeper understanding and knowledge on gender comparison relating to social media continuance usage. The specific factors we investigated in our study relating to gender comparison are ease of use, usefulness, compatibility, satisfaction, relative advantage, information quality, and risk of social media.

This investigation further defines our research model as follows. In section 2, we present the theoretical background and hypotheses development. In section 3, we explain our research method, the procedure for data collection, and the operationalization of constructs. In section 4, we describe our data analysis, which includes the tests and strengths of our hypotheses. Finally, section 5 reports a discussion of key findings, implications and conclusion.

Theoretical Background and Hypotheses Development

Previous studies have found the different pattern in online activities between men and women (Boneva et al., 2001; Roberts et al., 2005; Song et al., 2009). Gender is a pervasive topic in the history of sociolinguistics. Females were likely to spend more time on visiting websites, sending/receiving emails, and on instant messaging than males, whereas males were more likely than females to invest time on computer gaming (Park and Lee, 2014). Mazman & Usluel (2009), p.133 recommended that “usefulness, ease of use, social influence and innovativeness can be considered as direct factors influencing usage of social networks whereas facilitating conditions, subjective norms, image and community identity can be accepted as indirect factors.” Our measurement model and structural path are shown in *Figure 1*.

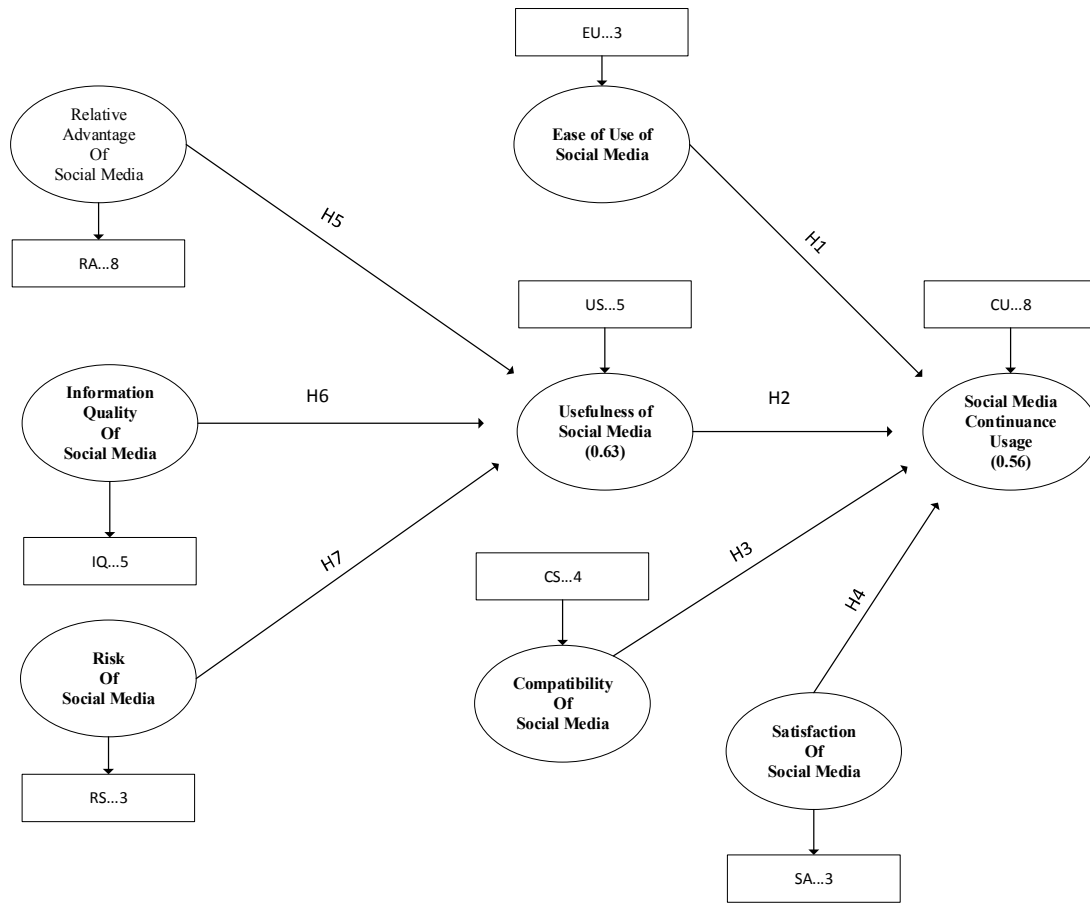


Figure 1: The Measurement Model for Gender Adoption of Social Media

Park and Lee (2014) found that smartphone text communications are more useful for female participants to strengthen bonding relations than for male participants, as spending more times on smartphones. Taking pictures could be a social activity for young females as a way of building social relationships by recording daily events as they occur and expressing their identities through uploading them (Park and Lee, 2014). Junco (2013) argues that female use social media more for communication, checking on friends, posting photos, and sharing of information compared to males.

H1: Ease of use of social media has a more positive influence on social media continuance usage for females than for males

Male participants tend to perceive greater level of bridging social relationships than female participants do, when spending more time on text communication on smartphones. Previous research shows that men are more likely to use smartphones for task-focused activities, while women have a tendency to use smartphones for entertainment and social exchange of expressing their own daily lives and browsing others' lives by taking and uploading photos and videos. When spending their time on smartphone mediated text communications, women are more likely to perceive bonding relationships to be strengthened, whereas men are more likely to perceive bridging relationships to be expanded. Men's instrumental communication styles make them more likely to be linked to their large, diverse social ties (Boneva et al., 2001; Park and Lee, 2014). Mazman and Usluel's (2011) study found that in 'making new relationships' factor, males had higher scores than females.

H2: Usefulness of social media has a more positive influence on social media continuance usage for males than for females

Some studies in the information systems and psychology disciplines have shown that because of tradition, social pressure, security, and privacy reasons, females do not reveal themselves with sensitive information and data to strangers (Bölükbaş & Yıldız, 2005; Fallows, 2005). Mazman et al. (2009) investigate gender differences using social networks, and the findings are that the impact of social influence on females' decisions is stronger and higher compared to the impact from personal decisions. Also, Mazman et al. (2009) argue that for males, the impact of personal decisions are stronger and more dominant compared to the impact from social influence. Mazman and Usluel (2011) discuss that females are using social media more for academic purposes, planning agenda, and maintaining existing friendships/relationships compared to males. Males are using social media more for making new friendships and relationships compared to females (Mazman and Usluel, 2011). Also, Mazman and Usluel (2011) argue that males are using social media mostly for making new networks, contacts, friends, and relationships; while females are using social media to find old friends, networks, and to keep in contact with existing friends. Park and Lee's (2014) study found that females are using smartphones relating to social media for more emotional and social support compared to male. Muscanell and Guadagno (2012) discuss that females are using social media to maintain existing friendships and relationship; while males are using social media to find new friends and relationships. Female are spending more time with friends to develop deeper and intimate friendship and relationship on Facebook compared to males (McAndrew and Jeong, 2012; Thompson and Lougheed, 2012).

H3: Compatibility of social media has a more positive influence on social media continuance usage for females than for males

Individual worldwide are using social media to stay in contact with friends and relations (Lenhart 2009). Web users and online visitors are using social media for a lot of activities and functions such as meeting new people, making new friends, making relationships stronger, sharing information, sharing files and videos, planning for events, making professional networks, and flirting (Lenhart 2009). Park and Lee (2014) argue that women are using smartphones to establish and intensify stronger relationship when keeping up with friends; while men are using smartphones to expand their weak social networks and ties.

H4: Satisfaction of social media has a positive influence on social media continuance usage for both male and female adoption, and the effect is approximately the same for both males and females.

Prior studies present that women tend to define themselves more through the strengths of their social ties, networks, and relationship compared to males (Boneva et al., 2001; Facebook, 2013; Park and Lee, 2014). Korkut (2005) argues that females have more positive communication skills because females are more social compared to males. Some studies have shown that there are gender differences relating to privacy settings and protection; and the perception of privacy protection relating to Facebook usage is higher for female compared to males (Grubbs and Milne, 2010; Special and Li-Barber, 2012; Kuo and Tang, 2015).

H5: Relative Advantage of social media has a more positive influence on usefulness of social media for females than for males

Mazman and Usluel's (2011) investigate gender differences relating to social media usage, and the findings are that females use social media more for maintaining existing relationship and for academic purposes. Mazman and Usluel (2011) argue that during social media usage, women are more private and secure with sensitive information and data compared to men. Compared to men, women tend to hide their personal information and identities in the online and social media domains (Mazman and Usluel 2011). For security, privacy, traditional, and social roles/pressure, women do not reveal themselves to strangers online (Alzahrani, 2016). To contribute to the gender literature, Sorokowski et al. (2016) investigate and test if histrionic personality scores predict selfie posting behaviors in the online and social

media domains. The finding is that the relationship between histrionic personality and selfies were statistically significant for men, and insignificant for women (Sorokowski et al. 2016).

H6: Information Quality of social media has a more positive influence on usefulness of social media for males than for females

Harris and Glasser (2006) argue that females are risk avoidance and males are risk seeking. Females are using social media to search for important information and to compare themselves with other females (Haferkamp et al. 2012). Males are using social media to find old friends by looking at profiles of both web users and online visitors (Haferkamp et al. 2012). Also, Haferkamp et al. (2012) study identify that relating to photos, audios, and videos for self-presentation, female are selecting portraits; while males are using full-body shots. Social media through ICTs have made significant and positive impact by empowering women in low-income communities (Oreglia and Srinivasan, 2016). Oberst et al. (2016) examine the issue of gender stereotypes in relation to social media usage and self-presentation.

H7: Risk of social media has a more positive influence on usefulness of social media for females than for males

Research Method

Participants and Data Collection Procedures

Worldwide, researchers and scholars have consistently ranked survey methodology as one of the leading methodology use to investigate socio-psychological factors that positively influence the acceptance and usage of a wide range of information systems platforms (Wu 2012). Hence, the research method we used in our study, gender comparison of social media continuance usage, is survey methodology. We collected the datasets for our study from 290 students (i.e. 145 from male students; and 145 from female students) that are enrolled in a large public university in the United States of America. In our study, to enhance both external and internal validity, we administered our questionnaires to college students who use social media such as Facebook daily for constant communication and sharing of information, files, and videos.

The procedure for data collection in our study is as follows:

- (1) We conducted a pilot test with ten subjects to make sure there are no errors with the questionnaires
- (2) We randomly selected professors to help deliver the questionnaires to their students in the classrooms
- (3) We printed hard copies of the survey for subjects to complete in the classrooms.
- (4) Hard copies were distributed to professors to help distribute to subjects in their classrooms for our study.
- (5) The professors or research moderator read the printed instructions aloud to all subjects in the classrooms.
- (6) The professors or research moderator make sure that all subjects know that the information they give is anonymous.
- (7) All subjects in our study were asked to read and complete both sections A and B very carefully, and to answer all questions in the survey to the best of their knowledge.
- (8) The research moderator or professors who moderated the completion of the survey in the classroom; ensure that all subjects in our study completed and answered all questions in the survey to the best of their knowledge.
- (9) The time spent by most subjects in our study to complete the survey ranges from 15 – 25 minutes.

The Operationalization of Constructs and Measurement Scales

To strongly validate the operationalization of constructs and measurement scales in our study, we used pre-validated measurement items from prior studies (Idemudia et al. 2016). Continuous usage, ease of use, usefulness, compatibility, satisfaction, relative advantage, information quality, and risk of social

media were each measured using the seven point Likert scales items that were developed and validated by (Idemudia et al. 2016).

Data Analysis

To be consistent with prior studies in the information systems discipline, in the data analysis in our study, we follow the two-step approach recommended by Anderson and Garbing (1988). The two-step approaches are measurement and structural model. In our study, both the measurement and the structural models for both male and female have measurement items that satisfy construct validity (i.e. convergent and discriminant validity).

Scale Validation and Measurement Model

In our study, construct validity proceeds in two sequential phases: (1) convergent validity and (2) discriminant validity. We used the three conditions recommended by Fornell and Larcker (1981) to assess convergent validity. First, all the CFA loadings for all our measurement items are significant and exceed 0.70. Second, each construct composite reliability exceeds 0.80. Third, each construct's average variance estimate exceeds 0.50. Hence, our study met all the conditions recommended by Fornell and Larcker (1981) for convergent and discriminant validity for both Female and Male.

Hypotheses Testing and Structural Model

In our study, we used CFA to help analyze the explanatory power of each path and to examine the R-square score of each endogenous variable in our research model for both Female and male (Figures 2 and 3). Chin (1998) argues that structural equation modeling (SEM) can be used to analyze all paths in research models as one analysis; hence, we use SEM for our data analysis. Also, Table 1 shows the SEMs' overall goodness of fit for both male and female based on commonly accepted levels recommended by Chau and Hu (2001).

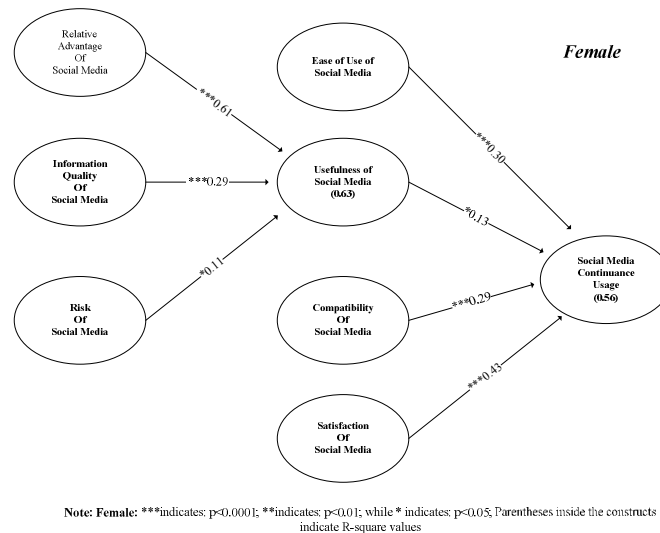


Figure 2. SEM Analysis with Path Coefficient and R-square (Female)

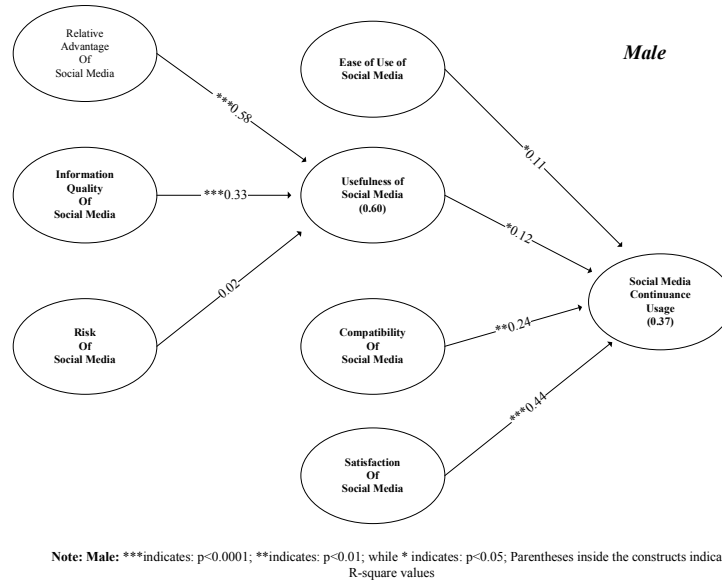


Figure 3. SEM Analysis with Path Coefficient and R-square (Male)

| Goodness of Fit | SEM's value for Female | SEM's value for Male | Recommended values |
|---|------------------------|----------------------|--------------------|
| Chi-square / degree of freedom | 1.86 | 1.92 | ≤ 3.00 |
| Normed Fit Index (NFI) | 0.901 | 0.903 | ≥ 0.90 |
| Comparative Fit Index (CFI) | 0.912 | 0.902 | ≥ 0.90 |
| Root Mean Square of approximation (RMSEA) | 0.079 | 0.081 | ≤ 0.10 |

Table 1. SEM's Overall Goodness of Fit

Conclusion

Discussion of Key Findings

To date, to the best of our knowledge, there are no published studies that have investigated gender comparison on the adoption of social media relating to the influence of ease of use, usefulness, compatibility, and satisfaction of social media on social media continuance usage. Motivated by this lack of research, we make significant contributions to the literature by developing our research model to empirically explain gender comparison relating to factors that positively and significantly affect social media continuance usage. SEM analysis for female, as shown in Figure 2, indicates that ease of use, usefulness, compatibility, and satisfaction of social media explain 56 percent of social media continuance usage. Also, SEM analysis for male, as shown in Figure 3, indicates that ease of use, usefulness, compatibility, and satisfaction of social media explain 37 percent of social media continuance usage. The SEM analysis for both female and male in our study are consistent with prior studies that strongly support and explain that constructs such as perceived usefulness, ease of use, satisfaction, and compatibility can be used to explain the intention to use and adopt a wide range of information systems platforms (Davis 1989; 1993; Davis et al. 1989; Gefen et al. 2003; Hu et al. 2013; Idemudia et al. 2013, 2014; Idemudia et al. 2016; Venkatesh et al. 2012). For female, relative advantage, information quality, and risk of social media explain 63 percent of the usefulness of social media. In addition, for male, relative advantage, information quality, and risk of social media explain 37 percent of the usefulness of social media.

For female, the effect of the ease of use of social media on it continuance usage is 0.30 and is significant at two-tailed 0.0001 level; and for male, the effect of the ease of use of social media on it continuance usage

is 0.11 and is significant at two-tailed 0.05 level. Hypothesis (H1) is supported because ease of use of social media has a more positive influence on social media continuance usage for females than for males. For female, the effect of the usefulness of social media on it continuance usage is 0.13 and is significant at two-tailed 0.05 level; and for male, the effect of the usefulness of social media on it continuance usage is 0.12 and is significant at two-tailed 0.05 level. Hypothesis (H2) is supported because usefulness of social media has a more positive influence on social media continuance usage for males than for females. For female, the effect of the compatibility of social media on it continuance usage is 0.29 and is significant at two-tailed 0.0001 level; for male, the effect of the compatibility of social media on it continuance usage is 0.24 and is significant at two-tailed 0.01 level. Hypothesis (H3) is supported because compatibility of social media has a more positive influence on social media continuance usage for females than for males. For female, the effect of the satisfaction of social media on it continuance usage is 0.43 and is significant at two-tailed 0.0001 level; and for male, the effect of the satisfaction of social media on it continuance usage is 0.44 and is significant at two-tailed 0.0001 level. Hypothesis (H4) is supported because satisfaction of social media has a positive influence on social media continuance usage for both male and female adoption, and the effect is approximately the same for both males and females.

For female, the effect of the relative advantage factor on the perceived usefulness of social media is 0.61 and is significant at the two-tailed 0.0001 level; and for male, the effect of the relative advantage factor on the perceived usefulness of social media is 0.58 and is significant at the two-tailed 0.0001 level. The hypothesis (H5) is supported because relative Advantage of social media has a more positive influence on usefulness of social media for females than for males. For female, the effect of the information quality factor on the perceived usefulness of social media is 0.29 and is significant at the two-tailed 0.0001 level; and for male, the effect of the information quality factor on the perceived usefulness of social media is 0.33 and is significant at the two-tailed 0.0001 level. The hypothesis (H6) is supported because information quality of social media has a more positive influence on usefulness of social media for males than for females. A lot of studies have shown that social media improve the sharing of quality information relating to solving complex and complicated problems during communication and networking (Idemudia et al. 2016).

For female, the effect of the perceived risk factor on the perceived usefulness of social media is 0.11 and is significant at the two-tailed 0.05 level; and for male, the effect of the perceived risk factor on the perceived usefulness of social media is 0.02 and is not significant at the two-tailed level. The hypothesis (H7) is supported because risk of social media has a more positive influence on usefulness of social media for females than for males.

Implications

Statistics show that the top social media adopted by users worldwide include Facebook, WhatsApp, Facebook Messenger, QQ, WeChat, QZone, Tumblr, Instagram and Twitter in that order. The use of these social media tools is very pervasive today in virtually all spheres of daily life. The ubiquitous nature of the media means that is virtually part of communication in and out of professional environments. Social media is a game changer for organizations worldwide because of the wide reach and its galvanizing qualities (Heller Baird & Parasnis 2011). There are previous studies that show that there are differences along gender lines between how males and females adopt and use technologies and specifically social media. This study shows gender is a significant factor in the adoption of social media. A significant high proportion of females in the sample show a preference for the use of social media compared to the males.

Software developers

Gender influence on the adoption of social media should be of immense interest to software developers responsible for developing social media applications and continuance of use. It is important for developers to aggregate information on how their applications are being used and to be aware of future expectations of software capabilities. Understanding the unique differences in gender usage will contribute to blending user expectations in order to produce robust systems for exciting customer experience. New social media products incorporating new insight into how different sexes use social media can help in extending the reach of the media and breaking new frontiers in its application to human endeavors. Simplifying social media features and functionalities to boost ease of use and usefulness should also be a target for developers. An example is extending usefulness by enabling the use of local languages on social media like Indus OS did with the translation of Android OS into several Indian

languages with enabled the company to capture a regional market (Rao, 2016).

Academics

Student engagement is a recurring theme in academia. Academics are always worried about how best to engage students in and out of the classroom in order to improve educational outcomes. Teachers are looking for creative ways to keep students engaged (Chalokwu & Achebo, 2003). New technologies are always popping up with some promise in alleviating the engagement problem in schools. Social media appears to be one of those tools with great promise for academia because of the way society has taken to the medium. The issue, however, remains how can the powers of social media be harnessed to keep students engaged in and out of the classroom. Social media tool functionalities should be enhanced to include features that are a catalyst for collaboration and social learning. There are perceived risks involved in the use of social media in the classroom and this perception is sometimes a barrier to the use of social media by students and faculty (Cao et al., 2013). What can be done as part of the software creation process or inclusion of inbuilt features to give users in academic environments the confidence that social media tools can indeed be safe for use in classrooms as faculty and students interface with content or engage in communication?

Information seeking and use

Information seeking behaviors differs for men and women, and the use of social media tools further reinforces this belief because while males are first to adopt the tools, their focus is on using the tools for job-related activities. Females, on the other hand, are slower to adopt these tools, but in the end, they make the most use of it by drilling deep into the features of the tools and harnessing. Organizations are looking for ways to ensure employees are not operating in silos today to create the kind of synergy that boost productivity and make a difference to the bottom line. Participating in social networks has a way of galvanizing people around common causes. While organizations focus on the use of projects to achieve strategic goals, social media applications can be adopted for communication and building team spirit. Also, this understanding of gender differences can be leveraged to help in the building of better communication lines in the acquisition, creation and dissemination of knowledge (Idemudia et al., 2016).

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