# Self-disclosure, Privacy concerns and Social Capital benefits interaction in FB: A case study

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## ABSTRACT

This paper explores the relationship between Facebook users' self-disclosure, privacy concerns about their digital privacy and the anticipated benefits in social capital. Previous research has shown a positive relationship between Facebook usage intensity and users' perceptions of social capital. However, only few researches to date have tested these correlations empirically, showing how users' self-disclosure practices and digital privacy concerns interact with their anticipated benefits of social capital. To address this issue, an online survey was conducted, administrated to the staff of the University of the Aegean in Greece. The findings indicate that Facebook intensity use, self-disclosure and social capital are positively associated; privacy concerns affect users' disclosure though social capital benefits effect is greater.

## Categories and Subject Descriptors

• Security and privacy~Social aspects of security and privacy

## Keywords

Self-Disclosure, Privacy Concerns, Social Capital, Facebook

## 1. INTRODUCTION

During the last decades, the use of Social Network Sites (SNSs) has become a daily practice in people's social life [1, 2] due to the fact that these social platforms allow mediated communication [2] without geographical, time or other constraints. Among all SNSs, Facebook (FB) is one of the most popular [3], since billions of users worldwide are engaged with it daily. FB comprises a valuable field of social liaison, communication and support, providing various types of recourses [4, 5, 6, 7], although its use includes risks regarding people's personal information disclosure, digital privacy [8] and its management [9, 10].

Despite the risks and the concerns about privacy circumvention in FB, the number of its users is growing exponentially per year [11], while personal information disclosure is rising respectively. This users' "privacy paradox" [12] practice is associated with the expected social capital benefits deriving from FB's usage [13, 14, 15]. As Lee et al. [16] support, FB is strategically designed in order to offer interaction with close friends and family members or for creating new relationships and friendships, resulting in the accrual of users' social capital [17]. However, despite the positive correlation between FB and social capital, researches have in general overlooked the important role of digital privacy in users' decision-making process with reference to self-disclosure and anticipated social capital benefits [18]. Furthermore, due to the structural function of the site that provides the disclosures [19], several digital privacy issues arise both in individual and social level. With respect to this flood, this paper focuses on FB as a privileged field for the development and maintenance of social capital [20], exploring how users' self-disclosure practices and privacy concerns interact with their anticipated benefits of social capital through a survey administrated to the staff of the University of the Aegean in Greece.

The main contribution of this paper consists in enlightening more facets of the relationship among these concepts, leading to further understanding of users' behavior on FB, indicating the significance of the effect of social capital benefits in privacy management, as well as the importance of privacy concerns regarding accessing and obtaining social capital in FB. The rest of the paper is organized as follows. Section 2 addresses related work on social capital resulting in FB usage, as well as FB use and privacy concerns. Section 3 refers to the methodology and the instrument by which the research was administrated. In Section 4 the research results are presented concerning the correlation between users' self-disclosure, privacy concerns and perceived social capital benefits. Finally, Section 5 recalls the main findings of the research and discusses future research objectives.


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## 2. RELATED WORK AND QUESTION RAISED

Within the technological infrastructures of the Information Society and the continuous transformation of social reality, the concept of social capital, deriving from SNSs' use, comprises an important aspect for studying and understanding users' behavior and practice patterns in SNSs regarding digital privacy issues [21, 22]. Social capital is defined as *"the aggregate of the actual or potential resources which are linked to the possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition"* [23]. According to Bourdieu [23], obtaining social capital depends on the number of the interconnections someone recruits, as well as on the size and the types of social capital which these interconnections possess. The larger the network size is, the greater social capital may be derived. Coleman [24] supports that the concept of social capital is a composition of factors which characterize the function of social networks, such as shared values, trust, common codes of communication, common decision criteria, while Lin [25] indicates that individuals are seeking "*investments in their social relationships expecting reciprocal benefits*". Landry, Amara and Lamari [26] argue that social capital captures the gains and the advantages that individuals obtain by participating in networks and social institutions.

With this respect, the main function of social capital concerns individuals' ability to create groups and social networks, through which they obtain collective benefits, both as group and individually [27]. Two of the most basic types of social capital, indicated in literature regarding SNSs and social capital [4, 28, 29], are bonding and bridging social capital. Bonding social capital concerns the development of coherent and close ties among individuals within tight networks, experiencing similar situations and exchanging emotional support and trust, such as family or close friends. On the other hand, bridging social capital refers to the development of connective ties among individuals within vulnerable, heterogeneous and diverse networks, experiencing different situations, without a common sense of belonging [30]. For obtaining both types of social capital, individuals' participation in networks is a basic factor allowing access to multiple resources. As Steinfield et al. [13] support SNSs enable users to structure networks with a great variety of people with whom they wish to share access to information, comments, photos or other forms of content and to obtain social capital benefits.

FB, due to its web structure [15], enables users to create connections not only with familiar but also with unknown people, while these connections are publicly displayed [13]. It also enables users to have access to other users' connections [4], to create new relationships [31], to maintain preexisting personal ties, to spend their leisure pleasantly [32], as well as to create groups with common interests [5,11]. Additionally, it facilitates the construction of public or semi-public profiles [4] through which users construct their personal identity in the way they wish, while forms of meta-communication, such as comments on posts, are activated as well [11]. Gray et al [29] also support that FB enables users to access information resources, while it reduces the required operational costs for networking or for the maintenance of an extensive network [33]. Due to these traits, many researchers [34, 17, 16, 20, 7, 35, 36, 37] highlight elevated levels of social capital -both bonding and bridging- on FB, focusing on the various ways of liaison, which enhance users' social networks.

It is also important to note that several researches [34, 28, 38 ,39] point out that FB, as an SNS, does not comprise a distinct arena of social action between digital and real life, since users' on line behaviors for obtaining social capital are correlated with their off line behaviors and practices. Steinfield et al. [13] support that this combination defines users' integrated sets of communication practices in order to gain and preserve social capital. FB users benefit by participating in "Friends Networks". Self-disclosure in FB, unlike users' general on line behaviors for protecting their digital privacy [8], is a basic parameter that facilitates the initiation, the development and the maintenance of these relationships, while it also allows the establishment of bonding and bridging social capital [33]. Self-disclosure is directly related to the broader structural function of the web site and especially to the feature *Privacy Settings*, by which it is specified which posts, comments or information are disclosed to which Friends' categories or to which "Walls" or "New Feeds" [37]. Self-disclosure defines users' engagement levels in FB, the interaction with other users, as well as the content that users share within it [18]. With this respect, many researchers [9, 10, 40] indicate that privacy on SNSs related to self-disclosure is a multidimensional issue which needs to be explored. Especially, regarding its correlation with social capital benefits on FB, it sets up a dimension that has not been adequately explored [18, 21]. It is also noted that most of the studies examining the relation between social capital and FB do not include the variable of privacy, which is a determining factor for users' decision-making processes of sharing content on the Site [18].

Privacy on SNSs is considered as a dynamic and ongoing process where individuals selectively control the access on their information and manage their social interactions within the Site [22, 18, 21]. As it happens with privacy concerns in real life, SNSs users need to balance their concerns regarding their visible content on the website to a variety of audiences with their desire to enjoy benefits from their interactions within it [21], since privacy circumventions in SNSs is a common issue [41]. In previous literature, contradictory findings have been recorded concerning digital privacy management, privacy concerns and self-disclosure practices in FB [19, 22, 18, 21]. Even though users are interested in their privacy protection and concerned about their information security [42], feeling vulnerable due to their privacy circumvention in FB [21], their practices are not accompanied respectively by appropriate self-disclosure strategies, such as less information disclosures or revision of Privacy Settings. In many cases, additionally, users in order to utilize Site's services, have, by default of its function, to disclose information [19, 42, 43]. As Ziegele & Quiring [44] indicate, users' behaviors concerning their privacy on SNSs are affected by three key factors: a) their awareness of Privacy Settings and the revision of their use, b) their access restrictions to their private information related to their visibility on the Site and c) their control on the kind and the content of disclosed information, which is estimated upon the anticipated benefits and the privacy risks they are willing to undertake.

Up to this point, researchers [45, 46] indicate that users reveal personal information in order to gain social capital benefits, regardless privacy risks. Self-disclosure in FB is a common practice among users, regarding heterogeneous audiences with differentiated social relationships within them, which takes place either in full publicity or within selected networks of "Friends" [22]. Stutzman et al [18], however, point out that if users disclose information in order to gain specific social capital benefits, such

as emotional support for a private issue, privacy concerns may burden the self-disclosure process, resulting in not obtaining the desired benefits. Additionally, Xu et al. [14] argue that anticipated social capital benefits compared to privacy concerns seem to affect users' self-disclosure behaviors much more. Taddicken [22] as well, supports that most surveys concerning self-disclosure in SNSs do not include multifactorial conditions affecting it, while they are usually administrated at convenience samples or students' samples. Stutzman et al. [18] survey also indicates that users' active engagement in FB leads to more resources and benefits, while privacy concerns do not affect users' perceptions of bonding or bridging social capital. On the other hand, it is noted that privacy is correlated with users' willingness to disclose information, which affects their social capital perceptions either positively or negatively.

With this respect, the correlation between users' self –disclosure and privacy concerns regarding the process of social capital forming in FB needs to be explored with focus on the ways that these variables interact, in order to serve further analyzing of more facets of the issue [47]. Our survey, emphasizing to the mediate role of social capital regarding self-disclosure and privacy concerns, aims to contribute to a further theoretical linkage of these concepts in FB through new empirical data coming up via a survey that is administrated to a Greek adult population, the staff of the University of the Aegean.

In our study, we test the following hypotheses:

H1: The acquiring of Social Capital (bridging and/or bonding) on FB increases Self-Disclosure.

H2: The greater the FB Intensity, the greater the Self-Disclosure.

H3: There is a correlation between FB Intensity Use and the perceived social capital (bridging and/or bonding).

H4: The acquiring of Social Capital (bridging and/or bonding) on FB affects more Self-Disclosure than the restrains of Privacy Concerns.

# 3. METHODOLOGY

In order to test our hypotheses, an on-line survey was conducted. To elaborate the research an individual questionnaire was implemented through GoogleDocs and the questionnaire link was incorporated in e-mails sent to the staff of the University of the Aegean. The specific population was recruited, since previous research [22] indicates that only few researches to date have been administrated to adults. The total number of the research population was 409. Of the 409 questionnaires sent, 125 in total were answered, 31% of the total population. The purpose of our research and the whole procedure, including ethics, was clearly explained in the on-line questionnaire. The instrument was divided in eight sections of questions, according to our theoretical conceptual categories. The instrument was composed of 43 items, including dichotomous questions and questions of graded scale (Likert scale). The questionnaire was weighted for using in Greece and it was tested for its validity and reliability (values of Cronbach's Alpha index were >0,7 for each section) in a pilot study. Basic prerequisite for participating in the survey was the existence of FB account. The first section of the questionnaire, composed of seven items in five grade Likert scale, was designed to measure users' self-esteem, using Rosenberg Self-esteem Scale [48], since previous literature [34] indicates that self-esteem is an important factor for the perceived social capital. The second section, FB Intensity Scale [34], composed of seven items as well, highlights the intensity use of FB as a major factor for self-disclosure and the perceived social capital. For items one to five, a five-grade Likert scale was used, while the rest two items had dichotomous form. The third and fourth section refers to scales, adapted from Williams [49] and each one of them included six items in five grade Likert scale, aiming to measure users' perceived bonding and bridging social capital in everyday day life and on FB respectively. The fifth section concerned users' privacy behaviors on FB, including two dichotomous items regarding privacy settings. The sixth section, regarding self-disclosure on FB, was composed by ten items, seven of which as dichotomous questions and three of which in a five-grade Likert scale. Privacy concerns section included three dichotomous items. The last section, which included three questions, addressed the socio-demographic characteristics of the respondents, concerning gender, age, studies. In order to analyze data, "IBM SPSS Statistics 23" tool was used.

# 4. RESEARCH RESULTS

Our survey was conducted with N= 125. Although, only 103 members of the staff had a FB account and therefore our final sample size was N= 103. The presentation of the descriptive statistics (N = 103) and sample of the items of our instrument precede the findings of our hypotheses.

## 4.1 Measures

Self-esteem scale's answers (7 items, M = 4.09, SD = .573) indicate that the participants have high self-esteem. Sample items include: "On the whole, I am satisfied with myself", "There are times when I think I'm not good at anything" (reversed question) and "I am able to do things as well as most of other people".

The FB intensity measures (7 items, M=2.89, SD = .953) are very low, as most of the respondents don't use FB more than 30 minutes daily. Sample items include: "FB is part of my daily activities", "I feel I am part of the FB community", "I would be sorry if FB was shut down" and "In the past week, on average, approximately how much time PER DAY have you spent actively using FB?".

The perceived bonding social capital (6 items, M = 3.35, SD = .783) is higher than the bridging one (6 items, M = 3.09, SD = .74). Measures indicate that users' investment in social capital concerns medium to high levels. Bridging SC in social network sample items include: "Interacting with people in my general social network makes me want to try new things" and "I am willing to spend time to support general community activities". Bridging SC on FB sample items include: "Interacting with people in my FB network makes me want to try new things" and "Interacting with people in my FB network makes me feel like part of a larger community". Bonding SC in my general social network sample items include: "I do not know people at MSU well enough to get them to do anything important (reversed)" and "There are people in my social network who would be good job references for me". Bonding SC on FB sample items include: "There are several people on FB I trust to solve my problems" and "When I feel lonely there are several people on FB I could talk to".

Regarding privacy behaviors (profile privacy settings), 66% of the respondents have their profile visible only to friends, 22% of them visible to all (public) and 7% visible to a specific group of friends. It is particularly noteworthy that only 55% of the participants is recorded having used the FB privacy settings at least once. Sample items include: "My profile on FB is visible to…" and

"Have you ever changed the FB's privacy settings so that only some of your friends can view certain types of content?".

The self-disclosure findings (10 items, M=2.31, SD = .299) highlight a high degree of self-disclosure. Though, these findings are not recorded for personal information, such as telephone number, home address and e-mail address, since users' majority do not share them on FB. Sample items include: "My FB profile includes my personal status", "When I have an accomplishment I'm proud of, I share it on FB" and "When I'm having a bad day, I post about it on FB".

User's privacy concerns (3 items, M=1.24, SD = .315) findings indicate strong concerns regarding privacy risks on FB. Sample items include: "Are you concerned that being on FB can cause your harassment or unauthorized access to your system data?", "Are you concerned about the disclosure of personal information on FB?" and "Are you concerned about potential or current employers viewing incriminating content about you on FB?".

Socio-demographic characteristics of the sample are as follow. Gender: 72% women (70% of the research population are women). Age: 56% 36-45 years old, 30% 46-55 years old, 12% 26-35 years old, 2% older than 56 years old. Studies: 57% with Master degree, 31% with Bachelor degree, 8% with high school degree and 4% with PhD.

## 4.2 Findings

In order to test our hypotheses, the measures of self-disclosure, bridging social capital, bonding social capital, FB intensity and privacy concerns were compiled into single index values.

On Hypothesis 1, in order to examine the significance of statistical relation between bridging/bonding social capital and self-disclosure on FB, a simple regression analysis (one-way ANOVA) was implied. Bridging Social Capital was first tested with the Self-disclosure variable and Bonding Social Capital afterwards. The first test results (F-tests) support the correlation between the two variables ($p = .023 < .05$). Therefore, Hypotheses 1 regarding Bridging Social Capital is confirmed, indicating that the expectation of obtaining Bridging Social Capital increases Self-disclosure on FB. On the other hand, as far as Bonding Social Capital is concerned, ($p = .205 > .05$), there is no clear correlation between the two variables. The same test was implied for Hypothesis 2 as well. The p-value of the test ($.005 < .05$), supports that the greater the intensity of FB use, the greater the self-disclosure is.

The correlation both between the variables of bridging social capital and FB intensity and between bonding social capital and FB intensity use, regarding our Hypothesis 3, was examined by the Pearson r correlation test. Findings show that the intensity of FB use is positively correlated with bridging social capital (coefficient Pearson = .346), while their significant relationship is indicated (p-value = $.000 < .05$). Respectively, the same test was applied to the second pair of variables (factor Pearson = .320 and p-value = $.001 < 0.05$), highlighting also a significant correlation between FB Intensity usage and the perceived social capital (bridging and bonding).

In order to address Hypothesis 4, a regression analysis model was conducted to examine the effect between each independent variable (social capital and privacy concerns) and the dependent variable (self-disclosure). Findings (analysis of variance ANOVA) for our first pair of independent variables -bridging social capital & privacy concerns-, support our Hypothesis ($p = .004 < .05$). Even though the regression analysis results of the two independent variables (bridging social capital = - .119 and privacy concerns = - .118) are negative, they adversely affect the dependent variable. Furthermore, it is indicated, based on the t-test applied to the two independent variables, that the effect of bridging social capital on the dependent variable (self-disclosure) is significant ($p = .002 < .05$), while the effect of privacy concerns is not ($p = .193 > .05$). Respectively, for our second pair of independent variables -bonding social capital and privacy concerns- F-test results ($p = .020 < .05$) confirm that the model amplifies the dependent variable. The regression analysis indicates that the value of bonding social capital (= .079) is greater than that of privacy concerns (= .040), while the variable bonding social capital is significant ($p = .009 < .05$). Finally, the acquiring of Social Capital (bridging and bonding) on FB affects more Self-Disclosure than the restrains of Privacy Concerns.

# 5. DISCUSSION

Building upon previous literature on social capital, self-disclosure and privacy on FB [21, 18], this study furthers to exploring the linkage of these concepts in order to understand FB users' behavior regarding self-diclosure and privacy practices, highlighting the significance of social factors such as social capital. Our research is differentiated to many previous researches whose samples concerned young adults or college students, mostly in USA, since it was administrated to a working adult population, which probably has cultivated different privacy behaviors compared to the students. Even though, no claims could be made about generalizing the findings of our research, this is the first-known research conducted in Greece, providing the opportunity for basic data comparisons with previous research.

Previous research [13, 14] indicates that FB users disclose in order to gain social capital benefits either bonding or bridging. Our research, though, confirms that only investments in bridging social capital affect users' self-disclosure practices, while bonding social capital's investments do not. So, even though respondents' bonding social capital index is higher, greater disclosures take place primarily in order users to obtain bridging social capital benefits. These findings may be indicated due to characteristics of Greek culture, where family ties are really strong, resulting in Greek users to have greater need for obtaining bridging social capital. Findings can also be highlighted on men, since their percentage is remarkably higher.

Additionally, it is argued that self-disclosure on FB is an important factor for accessing social capital [13], but our research doesn't support it, at least not as a general practice by which self-disclosure practices automatically provide access to its benefits. We should mention, though, that our research did not include specified self-disclosure practices, such as status updates and personal photos uploading [46] or other influential parameters such as disclosures' duration [45]. However, our results highlight that the linkage between self-disclosure and social capital may depend on diverse factors [22, 18]. Our findings, supporting previous thesis [18,36,21], indicate that the positive correlation between these variables needs to be explored further, since it may be affected variously and reshaped when other features, such as social life management, privacy concerns, FB usage intensity or culture, impact on it. FB use intensity findings support previous literature [18, 36] regarding the positive bidirectional correlation between self-disclosure and FB intensive use. Our research indicates that users recorded with higher values on FB intensity use demonstrate an increased tendency to reveal personal information, as well as the users who disclose mostly have a more

intensive presence on FB. Interestingly, results showed that the use intensity and the social capital investment are increased among users with lower self-esteem. This finding, consistent with previous research, widens the contributor parameters for this study field, indicating new correlations among variables.

The positive correlation among FB use intensity and bonding and bridging social capital [20,36] is also recorded in our research. Furthermore, beyond this linkage, findings highlight a major influence of privacy attitudes on users' perceived social capital on the website, as previous research has shown [20,21,18]. Users recorded with profile visible only to their friends and with higher values on FB intensity use invest more in bonding social capital than bridging, while, at the same time for these users' higher values of privacy concerns are recorded regarding their privacy circumvention on the Site. It is also important to note that in this users' category only women were detected.

Finally, although findings indicate that privacy concerns have a positive effect on self-disclosure restraints, social capital influence is greater. Nevertheless, due to our collected data, this correlation is quite complicated to be analyzed adequately. Simultaneously, it is highlighted that privacy concerns do not affect users' perceptions regarding the acquiring bonding and bridging social capital, while users recorded with higher values of privacy concerns make greater use of privacy settings [47].

The correlations among variables of social capital, FB's usage intensity, self-disclosure and privacy concerns in our research are consistent with previous literature findings, contributing to future research. For future surveys, it seems worthwhile to use more control parameters in order to create a conceptual model that may analyze the impact of each variable more focused. Additionally, the more clarified the dynamics of each variable become the more appropriate applications can be produced for restraining privacy risks on FB.

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