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Boundary-blurred behaviors in academic teachers-students facebook interaction: are guidelines needed? A cross-sectional study

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Abstract

Background Communication via social networks has different norms than in the “offline” world and broadens the sphere of student-teacher interactions. Facebook is mainly used for social interaction and information sharing. However, it also serves as an education and learning platform. This risks boundary-blurred behaviors between students and their academic teachers in the virtual space. The current study examines the differences in perceived subjective norms, attitudes, and reported behaviors of academic teachers and nursing students’ boundary-blurred behaviors with each other on Facebook.

Methods A cross-sectional study was utilized, guided by the Theory of Reasoned Action (TRA), examining attitudes, subjective norms, and reported virtual behaviors that signify blurred student-teacher boundaries. Data were collected among 223 nursing students and 78 academic teachers. The university’s ethics committee approved the research (#21.9.19).

Results Consistent with the TRA, a significant correlation was found between virtual boundary-blurred behaviors and attitudes ($r = .55, P < .001$), university subjective norms ($r = .48, p < .001$), and peers’ subjective norms ($r = .47, p < .001$). Nursing students’ attitudes were significantly ($t = 5.81; p < .001$) more favorable towards boundary-blurred behaviors ($M = 2.40, SD = 0.91$) than those of academic-teachers ($M = 1.71, SD = 0.83$), and so were the perceived subjective norms of their student peers ($M = 2.72, SD = 1.15$) compared to those of their teachers ($M = 2.09, SD = 1.14$). Interestingly, the difference in reports of boundary-blurred Facebook behaviors between teachers ($M = 1.36, SD = 0.52$) and students ($M = 1.49, SD = 0.70$) was not significant. Boundary-blurred behaviors for teachers were best predicted by attitudes and perceived subjective norms of the university [$R^2 = 0.62; F(5,72) = 23.31$], and for students by attitudes and perceived subjective norms of their peers [$R^2 = 0.45; F(5,216) = 28.88$].

Conclusions The differences demonstrated between students and teachers may emanate from the perception of the teacher’s role and generational gaps. These may lead to miscommunication and the crossing of boundaries. The

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findings indicate the importance of setting more explicit guidelines for using social media in the context of student-teacher communication.

Keywords Academic nursing teachers, Nursing students, Blurred Facebook behaviors, Attitudes, Subjective norms

Background

Billions of people use social networks to share and to interact with peer groups. By October 2020, the monthly estimated number of active Facebook (FB) visitors reached 2.91 billion people, with over one billion active users [1]. In 2021, 7 of every 10 adult Americans were using FB, with higher percentages of use among young adults aged 18–29 (70%) and 30–49 (77%) [2]. Social distancing during the COVID-19 pandemic may have increased usage [3].

Social media is mainly used for social interaction and information sharing [4]. FB also serves as an education and learning platform [5, 6], allowing the assembly of study groups with partners across the globe [7]. Students and educators may set up classroom groups to interact through group work and by sharing study materials [8]. Nursing students ranked Facebook as a preferred learning platform second only to YouTube [9]. A recent review demonstrated that using social media in nursing student-teacher interactions enhances students' engagement [10]. Another study reported that social media improves nursing students study habits [11]. This virtual space broadens the sphere of student-teacher interactions [12], and, in doing so, raises questions regarding the appropriate policy regarding social media boundaries.

Setting guidelines for virtual behaviors may be challenging as some actions have multiple meanings. For example, posting private information to an unintended audience may be an honest mistake, yet it could be abused or shared with the aim of harming one's reputation and/or their respective institution [13, 14]. Moreover, information easily shared with a friend, such as personal pictures, may be extremely sensitive if viewed by a supervisor or colleague [15], and even friendship requests on FB can be construed as crossing boundaries.

Online social behavior differs from real-world (offline) behavior [16]. Since professional integrity can be jeopardized by involvement in students' personal lives on social media, it seems prudent on the part of professionals (such as academic teachers) to maintain boundaries. Given the unclear boundaries in the digital sphere [17], questions may be raised concerning perceived roles (personal vs. professional) and privacy may arise to avoid the misconception that all users are equal.

FB communications may include teachers' inappropriate involvement with students' personal lives or personal gain of information at the students' expense. In class, it may be easier to recognize power relationships and asymmetries. Accordingly, some policymakers have

banned student-teacher social media communication [18]. However, during the COVID-19 pandemic, virtual studies compelled teachers and lecturers to rely more on technology to communicate with their students [19].

Considering these concerns, the current study explores professional boundaries on social media by examining the components of Fishbein and Ajzen's Theory of Reasoned Action (TRA) [20], i.e., attitudes, perceived social norms, and reported behaviors related to blurred virtual FB boundaries between students and teachers. In addition, the reported frequency of FB usage and privacy settings on FB were assessed. FB allows people to maintain their privacy by limiting the exposure of their FB content to friends only or retaining the original settings and freely sharing FB content with all users. Not setting privacy limits increases the risk of blurred-boundary behaviors. The present study's results could accordingly serve as a catalyst for further development of up-to-date guidelines for shared digital activities on social media, including clear definitions of accepted boundaries.

The TRA maintains that a person's behavioral intentions are correlated with subjective norms and personal attitudes toward a certain behavior. Subjective norms relate to the individual's perceived appraisal of how others view a behavior, while attitudes are positive or negative internal evaluations of the behavior [21]. Fishbein and Ajzen (1975), claim that both personal attitudes and the attitudes of others influence behavior and that their value in determining behavior varies according to behavior type and the people and situation involved [20].

Hence, the research objectives were to examine the associations and correlations between attitudes, perceived subjective norms, and usage of FB, and whether these factors differ between nursing students and their academic teachers. According to the TRA, behavior can be predicted by the intention to perform the behavior, which is a function of attitudes and subjective norms [20]. The TRA components were therefore examined, with the aim of understanding the factors involved in decision making about blurred boundary behaviors with FB usage, by students and their academic teachers.

The present study examines factors contributing to blurred-boundary FB behavior among students and academic teachers. Blurred boundary behaviors are defined here as online social behaviors conducted via the FB social networking site that include greater familiarity than expected between students and academic teachers. It was hypothesized that attitudes and perceived norms regarding blurred-boundary FB behavior would

contribute to reported behavior frequency. It was also hypothesized that students would report more supportive attitudes and norms concerning these behaviors than would academic teachers, which may be reflected in a greater reported frequency of blurred-boundary FB behavior. This assumption was based on age and role differences; as academic teachers must comply with professional norms that seem to warrant resistance to such social media use. Also, it is unclear to what extent students adhere to formal or even non-formal social media behavior norms.

Methods

Aims

The study’s aim is to examine the differences in the perceived subjective norms, attitudes, and reported behaviors regarding academic teachers and nursing students’ boundary-blurred behaviors with each other on Facebook.

Sample and participants

The study included 301 respondents, comprising students and academic teachers. The students ($n=223$) were all enrolled in a four-year BA nursing program at a large Israeli university. The academic teachers ($n=78$) were teaching in the nursing schools affiliated with the university’s Department of Nursing (for demographic information, see Table 1). The sample size was determined using G*power [22]. Accordingly, the sample size required to achieve an effect size of 0.35, power of 0.80, and α 0.05, was 292 participants.

Table 1 Socio-demographic characteristics of the sample

Variable		Students (N=223)	Academic teachers (N=78)
Age in years, mean (SD)		23.71 (3.19)	46.69 (9.06)
Length of experience in years, mean (SD)		----	20.31 (11.14)
Gender N (%)	Male	40 (17.9%)	6 (7.7%)
	Female	183 (82.1%)	72 (92.3%)
Marital status N (%)	Married/has a partner	25 (11.2%)	68 (87.2%)
	Not married	198 (88.8%)	10 (12.8%)
Country of Birth N (%)	Israel	178 (79.8%)	46 (59%)
	Soviet Union	34 (15.2%)	29 (37.2%)
	Other	11 (4.9%)	3 (3.8%)
Religion N (%)	Jewish	180 (80.7%)	72 (92.3%)
	Muslim	31 (13.9%)	3 (3.8%)
	Other	12 (5.4%)	3 (3.8%)

Procedure

The questionnaire was constructed for the purpose of the present study, following Ajzen and Fishbein’s (1980) guidelines. According to the theory, in order to predict a particular behavior of interest, it is imperative to clearly delineate the behavior in terms of its target, action, context, and temporal dimension [23]. Hence, a designated questionnaire should be constructed specifically for the behavior one aims to measure. Each scale within the questionnaire referred to one of the three elements of the TRA (attitudes, subjective norms, and reported behavior), whereby participants rated their responses to the same nine behavior statements. The statements encompassed hypothetical behaviors applying to the other (student/teacher), as detailed in the measures section. Six experts examined the questionnaire for face validity. A pilot study was administered among 10 participants (students and academic teachers) to examine the questionnaire’s clarity and average completion time.

In addition, in the pilot study, we also asked about the use of different social media platforms, finding that in our institution, while students are familiar with many different social media platforms, academic teachers are most familiar with FB and WhatsApp. While WhatsApp is mainly used for messaging, FB is an acceptable platform for educational activities. For this reason, and since FB is still considered the most active social media platform [24], we chose to focus on this platform.

The study included data that were collected over a period of four months. A total of 700 students are enrolled in the study program; based on the sample size calculation, 280 questionnaires were distributed to the students. The response rate was 86%. Seventeen student questionnaires were omitted as they were not fully completed. The number of academic teachers in the program was 144. According to the sample size calculation, 100 questionnaires were distributed to academic teachers, and their response rate was 79%. The scales’ internal reliability as estimated by α Cronbach internal consistency coefficient was good (all $\alpha>0.70$).

Measures

Socio-demographic data

To understand the characteristics of the sample, the following socio-demographic variables were collected: age; gender with three answer options: male, female and other (no one chose this option); professional seniority (only for teachers); marital status; place of birth; and religion. The sample’s description is presented in Table 1.

The measures for attitudes, subjective norms, and reported behavior all related to the same items with regard to behaviors towards the other (student/teacher) and were constructed for the present study according to the TRA guidelines [23]; (1) sending personal messages

to the other; (2) posting statuses containing personal opinions about the other; (3) requesting the friendship of the other; (4) approving friendship requests of the other; (5) searching for personal information about the other; (6) posting students' academic papers / teachers' class materials; (7) posting shared photos with the other; (8) participating in shared groups with the other; and (9) posting personal photos that one does not want the other to view (See supplementary files). To avoid neutral responses (neither positive nor negative), all scales were even numbered, ranging from 1 to 6.

Attitudes to blurred boundaries

Participants reported their attitudes regarding the nine blurred-boundary behavior statements. They rated their responses on an Osgood-type scale ranging from 1=undesirable behavior to 6=desirable behavior (students $\alpha=0.80$; teachers $\alpha=0.79$).

Subjective norms regarding blurred boundaries

Participants rated their responses to the same nine items as the previous scale (attitudes to blurred boundaries). On this scale, they reported their subjective norms regarding the nine blurred-boundary behavior statements. Subjective norms were operationalized as the perceived desirability of each of the blurred-boundary behaviors by their peers and by the university, i.e., "The degree to which the university agrees with the following statements" and "The degree to which your peers agree with the following statements." Participants rated their responses on a Likert-type scale ranging from 1=strongly disagree to 6=strongly agree with the behavior. The participants rated their responses twice, once stating the university's norms and the other stating their peers' norms. The two sub-scales (peer norms and university norms) were each united to a norms scale (students $\alpha=0.89$; teachers $\alpha=0.90$). The subscales also showed good internal consistency: university norms as perceived by students $\alpha=0.82$; university norms as perceived by teachers $\alpha=0.83$; peer norms as perceived by students $\alpha=0.87$; peer norms as perceived by teachers $\alpha=0.90$.

Reported behavior involving blurred boundaries

Participants rated their responses to the same nine items as in the previous scales (subjective norms and attitudes regarding blurred boundaries). In this scale, participants reported the frequency at which they perform each of the nine behaviors. Participants rated their responses on a Likert-type scale ranging from 1=not at all to 6=always (students $\alpha=0.84$; teachers $\alpha=0.74$).

Frequency of FB usage

Participants reported the frequency of their FB use. Usage frequency was measured on a Likert-type scale ranging from 1=not at all to 6=all the time.

Privacy setting

Participants responded with a Yes / No response regarding their privacy settings and whether they limit exposure to their FB content to friends only or allow it to anyone.

Data Analysis

Data analysis was performed using SPSS software version 27. The sample was analyzed using descriptive statistics. To test the associations between two discrete variables we used the Pearson Chi-Square. The assumption of five participants per cell was met [25]. Spearman correlation coefficients were calculated to test for correlations between the research variables, as all the variables were not normally distributed ($p<.001$ for all variables in the Shapiro-Wilk test). To determine differences between teachers and students, t-tests for independent samples were applied. The assumption of equal variance was tested (using Levene's test for equality of variances), and whenever this assumption was not met, we used a variant t-test that corrected for this violation ('equal variances not assumed' in SPSS). To elucidate variables that predict blurred-boundary FB behaviors, linear regressions were performed. We found no multicollinearity of variables in any of these analyses (all VIF values <3 , less than the rule of thumb indicating 10 [26] and the residuals of the models appeared to be normally distributed. To examine the effect of the interaction between attitudes to blurred boundaries \times subjective norms regarding blurred boundaries on reported blurred-boundary behaviors on FB, PROCESS Model 1 was used [27].

Results

The final sample consisted of 223 students (mean age=23.71, $SD\pm 3.19$) and 78 academic teachers (mean age=46.49, $SD\pm 9.06$). Table 1 presents the complete socio-demographic characteristics of the sample.

Differences in the FB use of students and academic teachers

We first examined differences in FB use patterns between students and academic teachers using independent samples t-tests. Since we used five t-tests to examine differences between students' and teachers' use of FB (Table 2), we applied a Bonferroni correction, according to which p must be under 0.0125 to be considered significant. We found that students reported a nearly significant higher frequency of FB use ($M=4.48$, $SD=1.58$) than teachers ($M=3.87$, $SD=1.96$), $t(113.92)=2.45$, $p=.016$, Cohen's $D=0.46$. We also conducted a Pearson Chi-Square test to

Table 2 T-tests comparing FB use, attitudes, subjective norms, and blurred-boundary behaviors of teachers ($n=78$) and students ($n=223$)

Variable	Students ($N=223$) M (SD)	Academic teachers ($N=78$) M (SD)	t	p	Cohen's D
FB Frequency of use	4.48 (1.58)	3.87 (1.96)	2.45	0.016	0.46
Attitudes	2.40 (0.91)	1.71 (0.83)	5.81	< 0.001	0.91
Subjective norms (university)	1.89 (0.84)	1.69 (0.90)	1.73	0.084	0.3
Subjective norms (peers)	2.72 (1.15)	2.09 (1.14)	4.21	0.001	0.71
Blurred-boundary behaviors	1.49 (0.70)	1.36 (0.52)	1.72	0.085	0.26

examine differences in privacy settings between students and teachers. We found that students' privacy settings differed from teachers' privacy settings, $\chi^2 (1)=3.78$, $p=.05$. Regarding limiting viewing of FB posts, this was more evident among students ($n=202$), of whom $n=167$ (82.7%) reported limiting viewing and $n=35$ (17.3%) not limiting viewing, than among teachers ($n=59$), of whom $n=42$ (71.2%) reported limiting viewing and $n=17$ (28.8%) not limiting viewing.

To compare attitudes to blurred boundaries, subjective norms, and blurred-boundary behaviors of students and academic teachers, *t*-tests for independent samples were performed. We found that students reported higher attitudes to blurred boundaries and subjective norms of peers than did teachers: attitudes: $M=2.40$, $SD=0.91$; $M=1.71$, $SD=0.83$, $t(163.92)=5.81$, $p<.001$, Cohen's $D=0.91$. respectively; subjective norms (peers): $M=2.72$, $SD=1.15$; $M=2.09$, $SD=1.14$, respectively, $t(140.64)=4.21$, $p=.001$, Cohen's $D=0.71$. Students also reported higher subjective norms (university): $M=1.89$, $SD=0.84$; than teachers $M=1.69$, $SD=0.90$, $t(129.56)=1.73$, $p=.084$, Cohen's $D=0.3$, and more blurred-boundary behaviors compared to teachers: $M=1.49$, $SD=0.70$; $M=1.36$, $SD=0.52$, $t(181.92)=1.72$, $p=.085$, Cohen's $D=0.26$. While the difference between

students' and teachers' reported attitudes to blurred boundaries and peers' subjective norms was significant, the difference in reported university subjective norms and blurred-boundary behaviors was not significant (Table 2).

Correlations between frequency of FB use and elements regarding blurred boundaries

We conducted Spearman's correlation tests to examine the association between the frequency of FB use and patterns of blurred boundaries, attitudes, norms, and behaviors. Table 3 presents the full correlation matrix of research variables for the entire sample. Consistent with the TRA, a significant correlation was found between virtual boundary-blurred behaviors and attitudes ($r=.55$, $P<.001$), university subjective norms ($r=.48$, $p<.001$), and peers' subjective norms ($r=.47$, $p<.001$). In addition, weak positive associations were found between the frequency of FB use with blurred boundary behaviors: $r=.22$, $p<.001$, attitudes: $r=.22$, $p<.001$; and peers' subjective norms: $r=.14$, $p=.016$.

When examining each of the populations separately, we found similar patterns of association. Among students, the frequency of FB use was also weakly associated with attitudes towards blurred boundaries ($r=.17$, $p=.008$), while among teachers, it showed a moderate association ($r=.33$, $p=.003$). Among students, the frequency of FB use was marginally associated with peers' subjective norms regarding blurred boundaries ($r=.13$, $p=.06$). However, among teachers, this association was not significant ($r=.09$, $p=.424$). The difference between the correlations was not significant ($r=.37$, $p=.705$) [28]. The association between the frequency of FB use and blurred-boundary behaviors was apparent in both populations, though marginal among students, and moderate among teachers (students: $r=.18$, $p=.008$; teachers: $r=.34$, $p=.003$). However, the difference between the correlations was not significant $r=1.28$, $p=.19$) [28].

Table 3 Spearman's correlation matrix of research variables for the entire sample ($n=301$)

	1	2	3	4	5	6
1. FB behaviors	-					
2. Attitudes to blurred boundary behaviors	0.55***	-				
3. Subjective university norms of blurred boundary behaviors	0.48***	0.56***	-			
4. Subjective peer norms of blurred boundary behaviors	0.47***	0.60***	0.62***	-		
5. Frequency of FB use	0.22***	0.22***	0.10	0.14*	-	
6. Age	-0.01	-0.33***	-0.08	-0.17**	-0.13*	-
7. Gender (F=0, M=1)	0.11	0.16**	0.04	0.1	-0.005	-0.06
Mean (SD)	1.46 (0.66)	2.22 (0.94)	1.84 (0.86)	2.56 (1.18)	4.32 (1.71)	29.67 (11.42)

* $p<.05$; ** $p<.01$; *** $p<.001$

Table 4A Regression predicting blurred boundary FB behavior patterns of academic teachers ($N=78$)

Variable	Model 1			Model 2			Model 3		
	B	SE	p	B	SE	p	B	SE	p
Age	-0.007	0.006	0.301	-0.009	0.01	0.063	-0.005	0.004	0.284
Frequency of FB usage	0.08	0.03	0.005	-0.002	0.02	0.926	0.03	0.02	0.278
Attitudes				0.45	0.06	< 0.001	0.22	0.08	0.007
Subjective norms- university							0.26	0.07	< 0.001
Subjective norms- peers							-0.007	0.04	0.858
Model summary	$R^2=0.13$; $F(2,75)=5.74$; $p=.005$			$R^2=0.54$; $F(3,74)=29.00$; $p<.001$			$R^2=0.62$; $F(5,72)=23.31$; $p<.001$		

Table 4B Regression predicting blurred boundary FB behavior patterns of students ($N=223$)

Variable	Model 1			Model 2			Model 3		
	B	SE	p	B	SE	p	B	SE	p
Gender (F=0, M=1)	0.31	0.13	0.018	0.07	0.11	0.514	0.09	0.10	0.398
Frequency of FB usage	0.08	0.04	0.029	0.05	0.03	0.117	0.04	0.03	0.187
Privacy setting ($N=0$, $Y=1$)	-0.24	0.14	0.077	-0.15	0.11	0.160	-0.12	0.10	0.265
Attitudes				0.51	0.04	< 0.001	0.39	0.06	< 0.001
Subjective norms- university							0.09	0.06	0.097
Subjective norms- peers							0.09	0.04	0.035
Model summary	$R^2=0.07$; $F(3,219)=5.34$; $p=.001$			$R^2=0.41$; $F(4,218)=37.91$; $p<.001$			$R^2=0.45$; $F(5,216)=28.88$; $p<.001$		

Attitudes, subjective norms, and blurred boundary behaviors

A three-step hierarchical regression was performed to examine the variables that predict the reported frequency of blurred boundary behaviors on FB. Due to differences in background variables related to teachers' and students' performance of blurred-boundary FB behaviors, the analysis for each group was performed separately. For teachers, age and frequency of FB use were entered in the first step. In the second step, attitudes towards blurred boundaries was entered, and in the third step, subjective norms of peers and of the university regarding blurred boundaries were entered. For students, the variables entered at the first stage were sex, frequency of FB use, and using privacy settings. In the second step, attitudes towards blurred boundaries was entered, and in the third step, subjective norms of peers and of the university regarding blurred boundaries were entered.

In accordance with the TRA, among the final model for the teachers, which predicted 62% of the variance, a higher attitudes score (perceiving the behaviors as more desirable) and higher university norms score (perceiving the behaviors as socially acceptable by the university) predicted reporting a higher frequency of engaging in blurred boundary behaviors (see Table 4A). In agreement with the TRA, among the final model for the students, which predicted 45% of the variance, a higher attitudes score (perceiving the behaviors as more desirable) and a higher score for peer norms (perceiving the behaviors as socially acceptable by one's peers) predicted reporting a higher frequency of engaging in blurred-boundary FB behaviors (see Table 4B).

Finally, we tested for the effect of the interaction between attitudes to blurred boundaries \times subjective norms regarding blurred boundaries on the reported blurred-boundary behaviors on FB, using Hayes's (2012) (27) PROCESS (Model 1) bootstrapping command with 5,000 iterations. We tested this interaction among students and teachers separately. However, since the pattern was highly similar, we present here an analysis of the entire sample. This includes both attitudes to blurred boundaries [$b=0.25$, $SE=0.04$, $p<.001$, 95% Confidence Interval (CI) = (0.17,0.33)] and subjective norms regarding blurred boundaries [$b=0.18$, $se=0.04$, $p<.001$, 95% Confidence Interval (CI) = (0.10,0.26)]. The analysis also yielded a significant interaction [$b=0.15$, $se=0.03$, $p<.001$, 95% CI = (0.10,0.21)]. The interaction pattern was such that when attitudes were not in favor of blurred-boundary FB behavior, subjective norms supporting blurred-boundary FB behavior did not affect the reported frequency of this behavior [$b=0.03$, $se=0.05$, $p=.514$, 95% Confidence Interval (CI) = (-0.06,0.13)]. However, when attitudes were in favor of blurred-boundary FB behavior, subjective norms supporting this behavior had resulted in significantly increased reported frequency of these behaviors [$b=0.32$, $se=0.05$, $p<.001$, 95% Confidence Interval (CI) = (0.23, 0.41)]; see Fig. 1.

Discussion

This study empirically examined how certain behaviors involving student-teacher interactions on social media are perceived and to what extent they are performed. Consistent with our research hypothesis, student attitudes reflected more acceptance of blurred boundary behaviors than among teachers. The generational gap

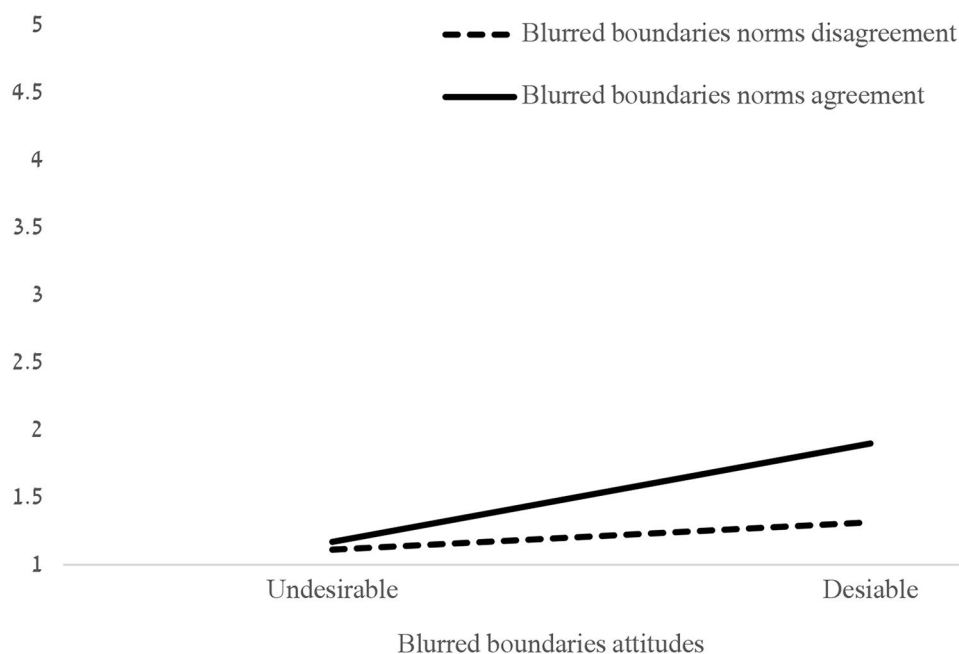


Fig. 1 Frequency of students' blurred-boundary FB behavior patterns as a function of attitudes and subjective norms ($N=301$)

could partially explain this difference. Indeed, it was suggested that the younger generation considers social networks a natural extension of regular teacher-student communication [29]. While many students view FB as a mechanism for safe and improved student-teacher communications, others contend that the risks outweigh the benefits, particularly the negative impact on learning and the infringement of one's privacy [30]. Similarly, teachers' attitudes regarding FB communication with students are diverse and reflect various arguments. Namely, teachers view social media as beneficial for facilitating friendships and non-learning related opportunities, but also as allowing undesired exposure of information and possibly modifying teacher-student relationship [31].

Frequency of use

Our findings show that students tend to use FB more often than do academic teachers (the difference was nearly significant), which may be due to age differences. A significant generational difference among FB users has been reported [32]. Moreover, it has been reported that people younger than 40 use social media more than those over 40 [33]. Similar results were demonstrated in a 2017 Israeli survey [34]. Furthermore, we found that the more time a person (student or teacher) spent on FB, the more boundary-blurred behaviors emerged. Of interest is that even teachers, as they become more FB savvy, seemed to become more comfortable with performing boundary-blurring behaviors.

Privacy settings

Some of the risks associated with social media include posting content that may adversely affect students or academic teachers, the educational institution, and /or the nursing profession. Content may violate privacy or confidentiality, use inappropriate language, publicize images of a sexual nature, and express negative remarks about the academic institution, and others [35]. Studies show that users are familiar with FB's privacy settings [36], and this includes nurses and midwives [37]. Similarly, the current research showed that most students, and over half the academic teachers, restrict viewing to online friends only. Providing guidance to both groups on setting appropriate privacy restrictions on FB could help maintain professional boundaries and prevent unintentional boundary-blurring behaviors.

At the same time, the present study found a significant difference in privacy settings, where students used them more than did academic teachers. This result is consistent with the conclusions of a study whereby younger adults are more likely to engage in behaviors that protect their privacy on social networks compared to those over 40, possibly because older people share less personal information [38]. Similar results demonstrated that nurses' older age predicted more exposure of personal information and less use of privacy settings [37].

The difference in privacy settings can also be attributed to the higher frequency of use among young users, demonstrated in the current study, and their higher awareness of online dangers [36, 39], which was not directly examined in the present study. A survey conducted in Israel in

2017 also found that young people take more precautions to maintain their privacy on apps and social networks than adults [34]. Accordingly, some older users may also be less aware of the privacy settings options due to a lack of online literacy. Furthermore, the present study found that participants using the “friends only” privacy settings reported fewer blurred-boundary behaviors.

Blurred boundaries, attitudes, subjective norms, and actual behaviors

The current study found differences regarding attitudes toward FB use within the student-teacher relationship. Specifically, nursing students have more positive attitudes towards blurred-boundary behaviors, that is, perceive the behaviors as more desirable, than their academic teachers. A recent study reported that nursing students held positive attitudes toward social media and that many posted inappropriate personal pictures on FB [40]. Another study that explored inappropriate tweets (on X, previously Twitter) by nurses and nursing students found that high-frequency tweeters were more likely to post inappropriate content, perhaps indicating that they felt more comfortable on social media [17]. This may also be the case for high-frequency FB users. Indeed, in the present sample, there was a significant positive correlation between higher FB usage and the frequency of blurred-boundary behaviors. Although the correlation was weak, it suggests a potential trend. With a larger sample, the effects might become more pronounced. Concerning the frequency of blurred-boundary behaviors reported in the present study, it is important to note that the overall frequency of blurred-boundary behaviors reported was low. No significant difference was found between students' and teachers' performance of these behaviors.

The current study's results show that students perceive their peers' (but not their university's) subjective norms regarding blurred FB behaviors as more favorable. Sheldon (2016) reported that subjective norms were the most significant factor predicting students' intentions to add professors as friends and/or upload photos to FB. Whereas for professors, attitudes were the most significant predictor of their intentions to add students as friends [41]. In our study, the subjective norms measure was constructed from: i) how the norms of peers were perceived and ii) how the norms of the university were perceived. Regression analyses demonstrated that attitudes regarding blurred behaviors significantly predict both students' and teachers' reported blurred behaviors on FB. However, perceived peers' subjective norms were a significant predictor of students', but not of teachers' reported blurred behaviors on FB, and perceived university's subjective norms were a significant predictor of teachers', but not of students' reported blurred behaviors on FB. This may point to a difference in the commitment

of the two groups. While students feel more committed to their peers' views, teachers are less affected by their peers' views and more affected by the university's views as their employer. According to the TRA, attitudes and subjective norms predict performance of behaviors [23]. The difference between teachers and students with regard to the importance of norms (university vs. peers) may reflect the degree of importance that each of them represents for teachers and students. For teachers, the university dictates the norms and rules of conduct at work, while students are probably more influenced by the norms and values of their peers. These results accordingly indicate that for the same situation (blurred-boundary behaviors on FB), one's role (teacher vs. student) is substantial for determining the significant subjective norms that influence one's behavior.

In light of our findings, raising awareness of professional boundaries in an online environment may be facilitated by introducing clear policies that promote responsible social media use [42, 43]. Such policies may consider, for instance, that posting class notes by a student or posting a student's academic paper by a teacher is a copyright infringement and that a student sending a message to a teacher or vice versa at a late hour or during weekends is undesirable [44]. A study conducted in the US reported that about one-third of the 306 nursing schools sampled had established such policies/guidelines [43]. In Israel, the Ministry of Education formulated a procedure regarding appropriate communication between elementary and high-school teachers and students [45]. Although the university participating in the current study does not have specific guidelines, the Department of Nursing adopted guidelines for social media behavior for the academic staff. While these refer to social network discourse, privacy, avoiding defamation, and professional boundaries, they are merely “recommended guidelines.” These guidelines are explicitly aimed at the teachers and not the students, which could explain the lower subjective norms on the part of teachers in the current study. This also falls short of following them in practice, as the above guidelines were not compulsory.

Academic institutions should be knowledgeable about policies and serve as role models for digital ethics by respectfully using social media and endorsing policies promoting professional behavior. Students may interpret the lack of guidelines for students on social media as preserving their freedom to choose whether they extend their social media use beyond personal to academic matters [46]. In contrast, academic teachers are university employees in the Nursing Department and are expected to follow formal and informal norms. It follows that universities should establish clear guidelines for online

behavior, which can be incorporated in professional conduct or ethics courses.

According to the TRA [20], attitudes and subjective norms are linked to a person's intention to perform a specific behavior, which is the best predictor of actual performance of the behavior. The present study's findings demonstrated that perceived subjective norms and attitudes strongly predict blurred FB behaviors reported. Interestingly, the subjective norms of peers did not predict blurred behaviors on FB among teachers, which may be explained by the Nursing Department's guidelines for social media behavior [47], which, as described above, are not compulsory. It is possible that the university's subjective norms are unknown or unclear to students and therefore have less impact on their behavior. It is recommended that academic faculties develop workshops or tutorials on safe internet use, digital ethics, and social media boundaries as part of the institution's obligation to enable and empower their workers to do their job and improve their performance [52].

These results are similar to findings of previous studies that examined relationships between attitudes, subjective norms, and intentions or patterns of using social media among students and academic staff and reported positive relationships between the variables [48, 49]. While many studies based on this theory have focused on examining intentional behavior [41, 48], the current study investigated reports of actual FB blurred-boundary behaviors between students and their academic teachers. Moreover, the current study found that attitudes to blurred boundaries are a significant factor explaining the patterns of using digital space, similar to previous results [50, 51]. It is possible that attitudes are the decisive explanatory factor, not subjective norms, when it comes to behavior with no clear boundaries. Because the behaviors described in the questionnaire were not necessarily unacceptable, the subjective norms were less influential than attitudes toward the behavior.

The pattern described above was supported by the interaction pattern between attitudes and subjective norms supporting blurred-boundary FB behavior in predicting the reported frequency of blurred-boundary FB behavior. The interaction was such that subjective norms supporting blurred-boundary FB behavior increased the reported frequency of blurred boundaries on FB only when also attitudes supported blurred-boundary FB behavior.

The present study examined blurred-boundary behaviors on FB among nursing students and teachers. We recommend conducting further studies examining different social media platforms, such as WhatsApp, Instagram and Telegram. Additionally, we suggest exploring blurred-boundary behaviors between academic teachers and students in other fields and conducting a

cross-cultural comparison of blurred-boundary behaviors on social media.

Research limitations

The present study has several limitations. First, we assessed self-reported blurred-boundary behaviors and not actual behaviors. It is possible that due to social desirability, the participants reported an underestimation of inappropriate behaviors. In addition, the measurement tools were constructed for the study, and hence are not standardize, this raises various concerns regarding the results. However, according to the TRA (23), in order to predict a specific behavior it is necessary to build a questionnaire specifically for the behavior one aims to measure. Also, it is possible that students and teachers underwent information security training in other settings, such as hospitals and nursing schools, which may have influenced their social media interactions. Another limitation relates to external validity; as data were collected in one nursing department at a large university in Israel, conducting an international study that includes academic institutions in different countries and diverse study fields is recommended.

Conclusions

Students use social media more frequently than teachers and have more positive attitudes and social norms regarding social media interactions with their teachers. This may indicate the relevance of setting shared social media guidelines in the context of academic relationships. The differences demonstrated between students and teachers may also emanate from the perception of the teacher's role and from generational gaps. These may lead to miscommunication and a crossing of boundaries. In addition, the results showed that some teachers and students do not apply privacy settings on FB. Our results may be presented in the context of professional academic boundaries but also in the context of students' subsequent professional lives as nurses. This is especially important considering the finding that perceived subjective norms influence the reported FB behaviors, namely the influence of significant others perceived as in favor of blurred-boundary behavior on FB.

Supplementary Information

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Supplementary Material 1

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Author contributions

R.L. Study design, data collection, writing. O.A. Study design, data analysis, writing, tables preparation. S.B. Study design, data analysis, writing, tables preparation and revisions. All authors reviewed the manuscript.

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Data availability

The data that support the findings of this study are not openly available due to reasons of sensitivity and are available from the corresponding author upon reasonable request.

Declarations

Ethics approval

The ethics committee of Tel Aviv University approved this study (#21.9.19). The ethics committee granted an exemption from signing an informed consent form. Completing the questionnaire constituted consent to participate in the study. To make sure no hierarchical relationships existed between the researchers and the students, the questionnaires were distributed by a member of the research team who was a graduate student in the data collection phase.

Consent for publication

Not applicable in this study.

Competing interests

The authors declare no competing interests.

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