

The Role of Adult Attachment Style in Online Social Network Affect, Cognition, and Behavior

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Abstract: In the last decade, social network sites (SNS) have a major attendance in our everyday lives. Numerous studies have explored the antecedences and consequences of this novel phenomenon. The current study is yet another attempt in this direction. In this research we seek to explore the role of personality tendencies, namely the attachment system, in individuals' affect, cognitions, and behavior on what is presently considered as the most popular SNS - "Facebook". Over the years studies have continuously demonstrated that attachment theory is a relevant framework for understanding human behavior and has proven attachment tendencies to be significantly associated with quality of close relationships and daily social interactions. Since today virtual communication and social networks are capturing dominant aspects of social relationships, the linkage to attachment theory is evident. Hence, we approached 190 Israeli young adults, and asked them about their habits and daily routines on Facebook. We also measured their cognition and emotion concerning Facebook. Results show that attachment insecurity is associated with global orientations and emotions towards Facebook and that people develop attachment relationships with their Facebook network. We discuss the associations between attachment and virtual communication and its application for future theory and research.

Keywords: Attachment, attachment anxiety, attachment avoidance, Facebook, social network.

INTRODUCTION

Adult attachment theory has been prominent in recent decades as a central theory of interpersonal relationships. John Bowlby [1], the originator of this theory, emphasized the critical role of early relationships with primary caregiver on entire life span. Bowlby [2] suggested that interactions with significant others in times of need are internalized into working models, that are actually mental representations of the self and others. These models play a crucial role in the formation and organization of relational cognitions, affect, and behavioral repertoire.

Although originally the attachment theory focused on infant-caregiver interactions, in the following years it has become a fertile framework for explaining relational cognitions and behaviors across the entire life span. A major landmark in this direction is manifested in the germinal work of Hazan and Shaver [3] where they empirically demonstrated that the concept of attachment could be applied to adults. Since then, adult attachment theory and research has grown vastly and become relevant for explaining a wide array of adults' affect, cognition, and behavior (see Cassidy & Shaver, [4], for a comprehensive overview).

Although Hazan and Shaver [3] adopted earlier attachment typology [5], of secure, avoidant, and anxious style, contemporary research [6] concluded

that this typology actually reflects a two-component dimensional model of adult attachment style: avoidance and anxiety. Individuals who score low in these two dimensions correspond to the *secure* style and are characterized by positive experiences with significant others, sense of confidence in others' availability in times of need, and comfort with closeness and intimacy. On the other hand, individuals who score high on attachment avoidance correspond to the *avoidant* style, which holds negative internal representations of significant others, a self-reliance orientation, and a manifested tendency for emotional distance. Last, individuals who score high on attachment anxiety correspond to the *anxious* style, which is uncertain in others' intentions and actions, holds a negative self-appraisal, and a contradicting behavioral pattern of rejection and closeness.

Attachment research has repeatedly demonstrated that attachment tendencies are significantly associated with quality of close relationships and daily social interactions (e.g., Cassidy [7]; Feeney [8]; Pietromonaco & Barrett [9]) as well as with a wide array of relational cognitions and behaviors (e.g., Brennan & Carnelley [10]; Davila [11]; Collins & Feeney [12]; Shaver, Schachner, & Mikulincer [13]). Moreover, it has been shown that individuals tend to also develop attachment relationships with concepts and abstract entities and not only with concrete significant others. To illustrate, scholars found that believers develop attachment relationships with God and the religion (e.g., Granqvist, Mikulincer, & Shaver [14]; Kirkpatrick, [15]), while others found that people can develop

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attachment feelings toward a social group (e.g., Rom & Mikulincer [16]; Smith, Murphy, & Coats [17]). In the current study we attempt to follow this line of research and explore whether users of SNS (social network sites) develop attachment relationships to their online social network. Specifically, we explore the role of attachment tendencies in users' behaviors, cognition, and affect to what currently is considered the most popular SNS - "Facebook".

We suggest that relationships with Facebook network can fulfill the three definitional criteria of attachment bonds. These criteria were formulated by scholars (e.g., Ainsworth [18]) who followed Bowlby's [1] basic assumptions and have been prominent in empirical studies that explored friendship and romantic relationships during adolescence and adulthood (e.g., Fraley & Davis [19]). The three criteria include: (a) *proximity seeking* – people tend to show preference for the relationship partner and seek proximity to him or her in times of need. In this sense we find Facebook users tendency to spend extensive hours on a daily routine in reading, commenting, and updating their Facebook pages (e.g., Steinfield, Ellison, & Lampe [20]); (b) *safe haven* – the partner facilitates distress alleviation and is a source of support, comfort, and relief. In this sense we find users report Facebook network as source for assistance and well-being (e.g., Manago, Taylor, & Greenfield [21]); and (c) *secure base* – the partner facilitates exploration, risk taking, and self-expansion. In this sense participating in Facebook activities can facilitate exploration and learning of social, emotional, and cognitive skills (e.g., Valkenburg & Peter [22]). On this basis, one can apply attachment theory as a relevant framework for advancing our understanding of individual differences regarding Facebook, and claim that attachment system may be active in this virtual context.

Online Social Media

The Internet changed the way we interact. People are communicating through a wide array of social media channels, such as e-mails, chats and networks. The use of SNS has grown vastly in recent years (see Boyd & Ellison [23] for a review), while Facebook is perceived as a category leader. The site was launched in 2004 and is continually growing with more than a billion monthly active users and over 618 million daily active users according to December 2012 [24].

While people are integrating Facebook into their daily lives and social routines [20] scholars have begun

exploring the implications of Facebook usage on a number of relational cognitions, affects, and behaviors. For instance, Freis and Gurung [25] examined helping behavior in a live Facebook discussion. Manago *et al.* [21] found that Facebook helps young individuals in satisfying enduring psychological needs for relationships, emotional disclosure, and well-being. And Ivcevic and Ambaby [26] analyzed the process of personality impressions driven from Facebook profiles. Studies have also demonstrated associations between Facebook usage and personality characteristics. For example, Amichai-Hamburger and Vinitzky [27] found that for the Facebook medium, higher extroversion was associated with increased social behavior, higher neuroticism was associated with less self-disclosure, and openness was associated with more expressive communication. Recently, Jenkins-Guarnieri, Wright and Hudiburg [28] encouraged researchers to better understand the personality characteristics that are associated with online social media use. In their study they explored the interrelationships among relational mental constructs and Facebook usage. Specifically, Jenkins-Guarnieri *et al.* [28] examined the associations between adult attachment theory, Five-Factor Model personality traits, interpersonal competency and Facebook use. Similarly to previous research (e.g., Amichai-Hamburger & Vinitzky [27]), they found Extraversion to be positively related to intensity of Facebook use. However, they could not establish a significant linkage between Facebook use and attachment style. In a more recent study, conducted by Jenkins-Guarnieri, Wright, and Johnson [29] with a similar sample, the researchers used structural equation modeling to test their predictions. In their analyses they found a negative indirect effect between attachment insecurity and Facebook use intensity. Taken together, both studies by Jenkins-Guarnieri *et al.* [28, 29] concluded that adult attachment style has an important role in developing interpersonal skills, and online social behavior.

Jenkins-Guarnieri *et al.* [28, 29] studies represent the first systematic step in applying attachment theory to the field of online social behavior on Facebook. Naturally, more research is needed in attempt to consolidate the conceptual and empirical associations between these two fields and understand the underlying psychological mechanisms. In the current study, we wish to further develop this line of inquiry and advance our knowledge concerning particular associations between attachment tendencies and Facebook users' cognitions, emotions, and behaviors.

We further develop and elaborate Jenkins-Guarnieri *et al.* [28, 29] measurements, that primarily tapped participants' use intensity on Facebook, and attempt to collect information concerning participants' cognitions, behaviors, and affect towards Facebook. Specifically, we address the role of attachment style in establishing general cognitive and emotional orientation towards Facebook, we attempt to organize usage patterns around a theoretical framework, and we explore whether people tend to develop actual attachment relationships with their Facebook network.

The Current Study

Scholars claim that in spite of recent popularity of SNS, and Facebook especially, there is still a lack of comprehensive research that integrates personality traits as explanatory factors of online social behavior (e.g., Amichai-Hamburger & Vinitzky [27]; Jenkins-Guarnieri *et al.* [29]). Hence, in the current study we apply attachment theory as a framework for understanding affect, cognition, and behavior on Facebook. Since virtual communication and social networks are capturing dominant aspects of social relationships, the linkage to attachment theory, as prominent in daily social interactions, seems natural. In the study we particularly approach young adults since they are increasingly using Facebook as a central channel for interpersonal communication and are employing the site for developing new relationships, maintaining, and further promoting existing relationships (e.g., Ellison, Steinfield, & Lampe [30]). It has been shown that social activities, such as the establishment of social identity, are being conducted today by young adults in their Facebook pages just as they would in the real world (e.g., Grasmuck, Martin, & Zhao [31]).

In the current study we divided our framework into three parts: (a) the association between attachment tendencies and global orientation towards Facebook, (b) particular usage patterns on Facebook, and (c) attachment relationships with Facebook network per se. For the purpose of exploring the global orientation that individuals tend to develop towards Facebook, we used a common performance array that distinguishes between *socioemotional functioning* (i.e., providing support, emotional sensitivity), and *instrumental functioning* (i.e., promoting performance, task orientation). These two dimensions have previously been associated with attachment tendencies in various contexts, such as leadership (e.g., Davidovitz *et al.*, [32]), social support (e.g., Florian, Mikulincer, &

Bucholtz, [33]), and teamwork (e.g., Rom & Mikulincer, [16]). In general terms, these studies have consistently found that while attachment avoidance is associated with instrumental orientation, attachment anxiety is associated with socioemotional orientation. Hence, we hypothesize that:

H1: Attachment insecurity will be associated with global orientation towards Facebook. Specifically, we speculate that while avoidant people will perceive Facebook more as an instrumental communication medium (e.g., gathering information), anxious people will perceive it more as a socioemotional platform (e.g., seeking support).

For the purpose of exploring the behavioral patterns that individuals tend to develop in their Facebook activities we were inspired by previous studies that demonstrated the role of the attachment system in regulating affect and behavior (e.g., Mikulincer & Florian [34]; Mikulincer, Shaver, & Rom [35]). Specifically, it appears that while attachment avoidance tends to correlate with inhibitory behavioral strategy, which is manifested in self-reliance and dismissive orientation as a means of suppressing attachment-related thoughts and emotions, attachment anxiety tends to correlate with hyperactive behavioral strategy, which is manifested in energetic and insisting activities as a means of regulating distress. Hence, we hypothesize that:

H2: Attachment insecurity will be associated with usage intensity on Facebook. Specifically, we speculate that while avoidant people will spend less time on Facebook, have fewer friends, and manifest lower levels of activity (e.g., posting contents, updating status, etc.), anxious people will spend more time on Facebook, have more friends, and manifest higher levels of activity on their Facebook pages.

Finally, for the purpose of exploring the possibility that Facebook users tend to develop attachment relationships with their Facebook network, in similar ways as believers, for instance, tend to develop towards their religion and God (e.g., Kirkpatrick, [15]), we hypothesize that:

H3: Attachment insecurity in close relationships will be associated with attachment insecurity towards Facebook network. Specifically, we speculate that while avoidant people will develop avoidant attachment relationships with Facebook network, anxious people will develop anxious attachment relationships with it.

METHOD

Participants and Procedure

One hundred and eighty Israelis (142 women and 48 men, ranging in age from 18 to 37 years, $Mdn = 27$) voluntarily participated in the study. Subjects were Israeli undergraduate students and their Facebook friends who voluntarily took part in the research. The study was introduced as a survey on attitudes towards online social networking and interpersonal relationships. The survey was posted online using Google Docs platform, and sent to participants via email or Facebook private message.

Measures and Descriptive Statistics

The online survey consisted of basic demographic items as well as attachment scale, Facebook global orientation scale, Facebook usage patterns, and attachment to Facebook scale. More specifically, participants completed the Brennan's *et al.* [6] Experience in Close Relationship scale (ECR) which assesses attachment tendencies within adult romantic relationships. Participants were asked to think about their general experiences in romantic relationships and to rate the extent to which each item describes their feelings and behaviors in close relationships on a 7-point scale ranging from "not at all" (1) to "very much" (7). Eighteen items measured attachment anxiety (e.g., "I worry about being abandoned"; $M = 3.60$, $SD = 1.10$ in the current sample) and 18 items measured avoidance (e.g., "I prefer not to show a partner how I feel deep down"; $M = 2.32$, $SD = 0.91$ in the current sample). Evidence for the strong reliability and construct validity of the ECR has been provided in numerous studies (see Mikulincer & Shaver, 2003 [36], for a review), and the reliability and validity of the Hebrew version of the ECR have also been demonstrated in many studies (e.g., Rom & Mikulincer, 2003 [16]). In the current sample, Cronbach alphas were high for both the anxiety items (0.92) and the avoidance items (0.91).

In order to assess participants' cognitions and intents towards Facebook (i.e., what are my goals in using Facebook?) we constructed *Facebook's Global Orientation Scale*. For this measure, we used items from Ellison *et al.* [30] Facebook Intensity Scale, Hughes, Rowe, Batey, and Lee's [37] Facebook and Twitter use Scale, and Ross *et al.* [38] Facebook Questionnaire. We selected items that tapped participants' socioemotional behavioral orientations towards Facebook (e.g., "I use Facebook to keep in

touch with my friends") and items that tapped participants' instrumental behavioral orientations towards Facebook (e.g., "I use Facebook to find information about different topics I'm interested in"). In total, 11 items were selected (7 for socioemotional orientation and 4 for instrumental orientation), that were found most suitable for manifesting behavioral orientations towards Facebook. Items were rated on a Likert type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Factor analysis using varimax rotation confirmed the two dimensions selection. The socioemotional dimension ($M = 3.71$, $SD = 1.47$) was responsible for 46% of the variance (eigenvalue 5.07), and the instrumental dimension ($M = 4.52$, $SD = 1.54$) was responsible for 12.5% of the variance (eigenvalue 1.37). Table 1 shows details of the items and their loadings on the two dimensions. Internal consistency coefficients for both subscales as measured by Cronbach's alpha were high for both socioemotional items (0.87) and instrumental items (0.79).

In order to assess participants' usage pattern in Facebook, we used modified items from Ross *et al.* [38]. Facebook Questionnaire. We asked participants' to report the frequencies in which they are engaging in common and popular Facebook functions, such as: posting photos; updating status; uploading links and files, following and commenting friends' activities, and reporting check-in. Items were rated on a Likert type scale ranging from 1 to 7. Response alternatives were: several times a day, once a day, several times a week, once a week, several times a month, several times a year, less than once a year or not at all. In addition, participants were asked to indicate the average time per day they spent on Facebook (response alternatives: 10 minutes or less, 10-30 minutes, 31-60 minutes, 1-2 hours, 2-3 hours, 3-5 hours, 4 hours or more), and the number of friends they have on Facebook (response alternatives: 0-50, 51-100, 101-200, 201-400, 401-600, 601-800, 801 or more). Internal consistency coefficient of the scale ($M = 3.45$, $SD = 1.07$) as measured by Chronbach's alpha was 0.83.

Finally, in an attempt to answer the question whether users develop attachment relationships towards their Facebook network, we created a measure of *attachment to Facebook*. For this measure, we modified Brennan *et al.* [6] romantic attachment measure to refer to attachment to Facebook network. Items from Brennan *et al.* [6] ECR were reworded such that they asked about participants' feelings and attitudes towards Facebook network instead of his or her romantic partner. For example, ECR item no. 1: "I

Table 1: Principal Components with Varimax Rotation Factor Loadings for Global Behavioral Orientation towards Facebook

Facebook Attachment Items	Factor 1: Instrumental	Factor 2: Socioemotional
I would be sorry if Facebook shut down	0.08	0.80
I feel I am part of the Facebook community	0.30	0.80
I am proud to tell people I'm on Facebook	0.25	0.76
I feel out of touch when I haven't logged onto Facebook for a while	0.19	0.75
I use Facebook to keep in touch with my friends	0.30	0.69
I use Facebook to increase my circle of friends	0.13	0.62
I use Facebook to communicate with people from my past	0.25	0.57
I use Facebook to find information about different topics I'm interested in	0.85	0.17
I Use Facebook to find and spread information	0.85	0.08
I use Facebook to collect information on people I am interested in	0.68	0.39
Facebook gives me distraction from my job/schoolwork	0.49	0.29

Table 2: Principal Components with Varimax Rotation Factor Loadings for Attachment to Facebook Items

Attachment to Facebook Items	Factor 1: Avoidance	Factor 2: Anxiety
I need a lot of reassurances (likes, comments etc.) from my Facebook friends on things that I post. (18)	0.08	0.78
If I can't get my Facebook friends to show interest in things I post, I get upset and angry. (24)	0.04	0.73
I get frustrated if my Facebook friends are not available when I need them. (32)	0.06	0.72
I get upset from things that people say about me on Facebook.	-0.16	0.65
It helps me to turn to my Facebook friends in times of need. (33)	0.44	0.59
I worry that people will not want to be my friends on Facebook. (14)	0.17	0.58
I would like that my Facebook friends will show interest in what I post, as much as I show interest in what they post. (10)	0.39	0.56
I feel comfortable sharing my private thoughts and feelings with my Facebook friends. (R) (15)	0.71	0.28
I don't feel comfortable posting personal things on Facebook.	-0.69	0.03
I don't feel comfortable when people discuss personal issues with me on Facebook. (9)	-0.069	0.18
I prefer to not reveal my deep feelings on Facebook. (1)	-0.64	0.01
I don't mind asking my Facebook friends for comfort, advice, or help. (R) (31)	0.55	0.39
I usually discuss my problems and concerns with my Facebook friends. (R) (27)	0.53	0.38
I find it relatively easy to get close to other people on Facebook. (R) (19)	0.49	0.43
I tell my Facebook friends just about everything. (R) (25)	0.46	0.44

Notes: In brackets are the corresponding items on Brennan *et al.*'s (1998) [6] ECR; (R) = reverse scored item

prefer not to show my partner how I feel deep down", was changed to: "I prefer to not reveal my deep feelings on Facebook". Similarly, ECR item no. 18: "I need a lot of reassurance that I am loved by my partner", was changed to: "I need a lot of reassurances (likes, comments etc.) from my Facebook friends on things that I post". In total, 15 items were selected (7 from the anxiety dimension and 8 from the avoidance dimension). These were found most appropriate to be

reworded in a manner that will refer to attachment towards Facebook network. Items were rated on a Likert type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Factor analysis using varimax rotation confirmed the two dimensions selection. The Facebook anxiety dimension ($M = 2.22$, $SD = 1.07$) was responsible for 34.5% of the variance (eigenvalue 5.17), and the Facebook avoidance dimension ($M = 5.39$, $SD = 1.08$) was responsible to 14% of the

variance (eigenvalue 2.10). Table 2 shows details of the items and their loadings on the two dimensions. Internal consistency coefficients for both subscales as measured by Chronbach's alpha were high for both Facebook anxiety items (0.81) and Facebook avoidance items (0.80).

RESULTS

In order to test our predictions, we initially calculated the associations between demographic variables, romantic attachment tendencies, and cognition, affect, and behavioral patterns on Facebook (see Table 3). As seen from the table, age was negatively associated with attachment anxiety, socioemotional orientation towards Facebook, and Facebook usage. Also, age was negatively associated with attachment anxiety towards Facebook network and positively associated with attachment avoidance towards Facebook network. This pattern of findings implies for decreased levels of usage and socioemotional orientation towards Facebook, and for lower levels of anxiety and higher levels of avoidance towards Facebook network as age increases. Romantic attachment anxiety was positively associated with romantic attachment avoidance, socioemotional and instrumental orientations. This implies for the relevance of attachment anxiety in Facebook related cognitions. Attachment anxiety towards Facebook network was positively associated with both romantic attachment avoidance and anxiety. Finally, socioemotional and instrumental orientations, Facebook usage, and attachment anxiety towards Facebook network were all positively associated with each other, and negatively associated with attachment avoidance towards Facebook network. These findings suggest for a development of attachment relationships towards

Facebook and its linkage to cognitions and behavioral patterns on Facebook.

After conducting these preliminary analyses, we computed a series of regressions in an attempt to examine our predictions concerning the effect of romantic attachment tendencies on participants' cognition, affect, and behavior on Facebook (see Table 4). In order to test our first hypothesis that attachment insecurity will play a role in predicting global orientation towards Facebook, we conducted two multiple regression analyses. First, we regressed socioemotional orientation towards Facebook onto age, gender, attachment dimensions and their interaction terms (see Table 4). Results revealed significant effects of age ($\beta = -0.18$, $p < 0.05$) and attachment anxiety ($\beta = 0.20$, $p < 0.05$) on socioemotional orientation towards Facebook. Next, we regressed instrumental orientation towards Facebook onto age, gender, attachment dimensions and their interaction terms (see Table 4). Results revealed a significant main effect of attachment anxiety on instrumental orientation towards Facebook ($\beta = 0.21$, $p < 0.05$) independent of age and gender. Hence, our first hypothesis was partly supported as we found the expected effect of attachment anxiety on socioemotional orientation towards Facebook. However, the expected effect of attachment avoidance was not found, and alternatively we found that attachment anxiety predicted not only socioemotional orientation, but also instrumental orientation.

In order to test our second hypothesis that attachment insecurity will play a role in predicting usage intensity on Facebook, we conducted a regression analysis and regressed Facebook usage onto age, gender, attachment dimensions and their

Table 3: Zero-Order Correlations for Demographic, Attachment, and Facebook Variables

	M	SD	1	2	3	4	5	6	7	8
1. Gender										
2. Age	28.1	6.20	0.07							
3. Att anx	3.60	1.10	-0.07	-0.20**						
4. Att avo	2.32	0.91	0.04	-0.11	0.41**					
5. FB SE	3.58	1.32	0.07	-0.21**	0.21**	0.13				
6. FB In	4.52	1.54	0.03	-0.10	0.16*	0.02	0.54**			
7. FB Usage	3.45	1.07	0.09	-0.24**	0.10	0.10	0.63**	0.50**		
8. FB Anx	2.22	1.07	0.05	-0.16*	0.47**	0.21**	0.60**	0.43**	0.41**	
9. FB Avo	5.39	1.08	0.08	0.23**	-0.07	0.09	-0.57**	-0.45**	-0.55**	-0.47**

Notes: * $p < 0.05$; ** $p < .01$; Att = Attachment; Anx = Anxiety; Avo = Avoidance; FB = Facebook; SE = Socioemotional; In = Instrumental.

interaction terms (see Table 4). Results revealed significant main effect of age ($\beta = -0.23$, $p < 0.001$), but neither for attachment anxiety nor avoidance. Hence, our second hypothesis was not supported.

In order to test our third hypothesis that attachment insecurity will play a role in establishing corresponding attachment relationships towards Facebook network, we conducted two multiple regression analyses. First, we examined the association between romantic attachment tendencies and display of attachment anxiety characteristics towards Facebook network. A multiple regression model (see Table 4) was applied, in which Facebook attachment anxiety was regressed onto age, gender, romantic attachment anxiety, romantic attachment avoidance, and their interaction term. Results revealed that romantic attachment anxiety predicted display of attachment anxiety characteristics towards Facebook network ($\beta = 0.49$, $p < 0.001$), independent of age and gender. The effects of romantic attachment avoidance and that of romantic attachment anxiety and avoidance interaction were nonsignificant. Next, we sought to examine whether romantic attachment tendencies are related to display of attachment avoidance characteristics towards Facebook network. In this analysis, Facebook attachment avoidance was regressed onto age, gender, romantic attachment anxiety, romantic attachment avoidance, and their interaction term (see Table 4). Results revealed that age ($\beta = 0.23$, $p < 0.001$) predicted display of attachment avoidance characteristics towards Facebook network independent of gender. The effects of romantic attachment anxiety and that of romantic attachment anxiety and avoidance interaction were nonsignificant. Hence, our third hypothesis was partly supported as we found the expected effect of attachment anxiety on display of

attachment anxiety characteristics towards Facebook network. However, the expected effect of attachment avoidance in developing correspondence display was not found.

DISCUSSION

Our preliminary motivation in investigating the role of attachment theory in affect, cognition, and behavior on Facebook stem from the intuitive linkage between these two domains. Namely, Facebook, as a growing psychosocial phenomenon that is capturing wide ranges in social behavior (e.g., Steinfield *et al.* [20]), and attachment style as an important factor in predicting interpersonal competence and on-line social behavior (e.g., Jenkins-Guarnieri *et al.* [29]). Overall, the results of the study provide further support for the notion that attachment tendencies are associated with affect and cognition on Facebook. Hence, our findings provide important information concerning the role of attachment theory for explaining individual differences in Facebook-related mental representations and emotions.

The current study indicates that attachment style is relevant for understanding mental orientation differences towards Facebook. As predicted, attachment anxiety was associated with socioemotional orientation towards Facebook, although we did not find a similar linkage between attachment avoidance and instrumental orientation. Alternatively, we found that instrumental orientation was predicted also by attachment anxiety. The study also shed further light on the concept of Facebook-related attachment relationships, showing how attachment style in close relationships contributes to the formation of attachment display characteristics on Facebook. As predicted,

Table 4: Summary of Regression Analyses Predicting Facebook Variables

	Socio-emotional use of Facebook			Instrumental use of Facebook			Facebook Usage			Facebook Anxiety			Facebook Avoidance		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Gender	0.29	0.25	0.08	0.19	0.26	0.05	0.12	0.18	0.08	0.29	0.18	0.11	0.11	0.20	0.04
Age	-0.04	0.01	-0.18*	-0.02	0.02	-0.08	-0.04	0.01	-0.23**	-0.01	0.01	-0.08	0.04	0.01	0.23**
Anx	0.26	0.11	0.20*	0.29	0.11	0.21*	0.06	0.08	0.06	0.46	0.07	0.49**	-0.10	0.08	-0.10
Avo	0.04	0.13	0.02	-0.06	0.14	-0.04	0.03	0.10	0.02	0.01	0.09	0.01	0.18	0.11	0.14
Anx X Avo	-0.11	0.11	-0.07	-0.22	0.12	-0.14	0.03	0.08	0.03	-0.03	0.07	-0.03	0.07	0.08	0.06
R ²	0.10			0.07			0.07			0.27			0.08		
F	3.75**			2.52*			2.81*			11.52**			2.85*		

Notes: * $p < 0.05$; ** $p < 0.01$

attachment anxiety was associated with Facebook-related attachment anxiety. Yet, we did not find a similar linkage between attachment avoidance and Facebook-related attachment avoidance displays. Taken together, these findings provide support for the notion that attachment anxiety plays an important role in establishing cognition and affect towards Facebook. However, similar to previous studies (e.g., Jenkins-Guarnieri *et al.* [28]), we could not offer support for the notion that the attachment theory will predict actual usage patterns on Facebook, and further research is necessary in this particular facet.

With regard to persons scoring high on attachment anxiety in close relationships, we found that anxious individuals develop socioemotional orientation towards Facebook. Specifically, they are using Facebook for maintaining and further developing their social relationships. This finding is similar to results we obtained in a previous research [16] where we explored the role of attachment style in establishing cognition, affect, and behavior in small groups. In this study we found that anxious persons tend to develop emotional and security-love goals in their group interactions. This tendency reflects their chronic search for external sources of support and comfort in the group. We speculated that this predisposition will be manifested in virtual groups (as Facebook community) as well. Indeed, we found some support for this claim in the current study, although differently from Rom and Mikulincer [16] we found that anxious persons hold also instrumental orientation towards Facebook, as they perceive the site as a mean to gather information. Hence, it appears that anxious persons hold an inclusive mental orientation towards Facebook as they perceive it as both a platform for enhancing their social and emotional relationships and as a mean for their task-oriented activities.

We also found romantic attachment anxiety to predict Facebook-related attachment anxiety which is manifested in excessive reassurance seeking, need of approval, demands for care and attention, and resentment with lack of availability and interest. The association between the anxiety dimension on Brennan *et al.* [6] romantic attachment tendencies measure, and the anxiety subscale, on our modified attachment to Facebook instrument, seemed to represent a direct manifestation of the basic components of anxious persons working models. The themes that we measured in our questionnaire seemed to characterize romantic attachment anxiety. For example, evoking reassurance from others is thought to be part of

anxious people strategy to reduce their fear of rejection (Brennan & Carnelley, [10]). Using both self-report measure and interview procedure, Davila [11] found an association between attachment anxiety and excessive reassurance seeking. Similarly, Shaver *et al.* [13] found that attachment anxiety was highly correlated with excessive reassurance seeking from romantic partners as indicated by both the participants themselves and their relationships partners. In addition, they found that the association between attachment anxiety and excessive reassurance seeking was stronger following dyadic conflict, suggesting that anxious people use reassurance seeking as a strategy to cope with doubts and fears about their partner's commitment to the relationship.

Demands for care and attention, as well as resentment with their absence, are core parts of anxious people's hyperactivation strategy. As Bowlby claimed, anxious infants tend to react with anger, protest, and yearning, in response to attachment figure's unavailability [1]. Anxious adults as well, are likely to react with anger and protest in face of signs of attachment figure's unavailability or lack of responsiveness [36]. Taken together, the findings suggest of associations between anxious behavior in attachment relationships and anxiety-like behavior on Facebook. Presumably, these associations stem from patterns of attachment-related behavior and dispositional tendencies that effect diverse aspects of social lives, including online social interactions. For those individuals who score high on romantic attachment anxiety, Facebook is perceived as a community to which they belong. It is possible that for anxious persons that suffer from relational difficulties in the actual world Facebook is a comfortable platform for seeking alternative senses of belonging and connectedness. In this sense, Facebook serves as a *safe haven* [1] for those individuals in a manner that it facilitates distress alleviation and is perceived as a source of support, comfort, and relief.

Seemingly, there are two somewhat contradicting patterns emerging from our findings regarding anxious people's behavior on Facebook. On the one hand, we found that anxiously attached persons behave on Facebook with the same inhibitions that characterize them in interpersonal relationships in the actual world (i.e., excessive needs for approval and reassurances, and exaggerated demand for care and attention). On the other hand, we found them to be socially active on Facebook, and even see Facebook as a community to whom they belong. This supposedly contradiction, is

actually a fine demonstration of anxious people's core conflict – their yearning for contact and proximity on the one hand, and their fear of rejection on the other hand [4].

Interestingly, we also found that anxious individuals report using Facebook for instrumental goals of finding and spreading information. One possibility is that this task-oriented perception of Facebook is a consequence of Facebook being a dominant part of their lives, and that spreading and sharing information is an integral part of their social interactions. Another possibility is that for anxious persons, Facebook is a potential platform in which they can easily voice their opinions on different topics. Since, some of these topics may raise controversy, anxious individuals would probably feel more comfortable in articulating their opinions on the cyber space and not on the actual world, as they prefer to avoid tension and conflicts in their relationships with others.

With regard to persons scoring high on attachment avoidance in close relationships, the pattern of findings did not support our initial hypotheses, as attachment avoidance did not predict any of the Facebook-related affect, cognition, or behavior variables. We expected avoidant behavior on Facebook to involve reluctance to unveil personal information, to share private thoughts and feelings, and to discuss personal thoughts and concerns with Facebook friends. If any, we speculated that avoidant persons will perceive Facebook merely as an instrumental platform for their natural task-oriented strategy (e.g., Smith *et al.*, [17]). Concerning Facebook, we did not find a manifestation of behavioral tendencies parallel with avoidant people's preference for low levels of emotional involvement with others [7], as well as their preference for privacy and distance from others (Feeney, [8]; Rowe & Carnelley, [39]). Similar to previous research (e.g., Jenkins-Guarnieri *et al.*, [28, 29]) we could not find traces for avoidant persons deactivation strategy which intent to maintain high level of self-reliance and to avoid interdependency with other people on the Facebook sphere.

In addition, we were not able to establish a clear linkage between attachment insecurity and Facebook actual usage patterns. Both attachment anxiety and attachment avoidance were not associated with variables indicating behavioral routines on Facebook. Higher levels of attachment anxiety or avoidance did not predict higher or lower frequency of Facebook usage in general, or use frequency of any commonly-used Facebook functions (e.g., updating status,

uploading files and links, and commenting on friends' activities). We presume that our measurement method (i.e., self-report questionnaires) contributed to the fact that we could not find direct associations between these variables. Hence, we urge future research to apply more direct and sophisticated measurement techniques, such as content analysis of discussions or coding of personal profiles.

Furthermore, in the current study we used a correlational design, thus we are prevented from drawing causal explanations regards possible effects of Facebook usage on attitudes and behavior. Future studies may use experimental designs to examine whether using social networks sites could change behavior tendencies of interpersonal relationships in the actual world. For instance, it would be interesting to explore whether anxious persons gain more confidence in their social and romantic interactions as a result of their experiences online. Can we actually develop social skills through online social interactions, and what could be the positive as well as the negative consequences of this process?

Naturally, the implications of the current study's findings are limited to the unique demographic characteristics of our sample that included young Israelis, and generalization should be conducted carefully. Since SNS is a global social phenomenon we urge future research to use diverse samples from different ethnic group and societies. Last, the data in the current research was not collected randomly as participants voluntarily chose to take part in the research. This, of course, could cause some bias that influences the pattern of results.

Despite these possible limitations, our research provides evidences that people tend to imitate their actual world behaviors in their online interactions, especially in the context of interpersonal relationships that was the focus of our investigation. We also found some preliminary evidence that online social network sites can serve as an inner mental representation that activates attachment-like displays. Hence, the current study emphasizes the relevance of attachment theory within virtual social context, and contributes to the conceptual and empirical integration of the fields of online social networks and personality characteristics.

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