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Applying the theory of planned behavior to adolescents acceptance of online friendship requests sent by strangers

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Abstract

Drawing on a survey conducted among 1743 pupils in 16 (REMOVED FOR PEER REVIEW) secondary schools, this study applies an extended theory of planned behaviour (TPB) to adolescents' acceptance of friendship requests sent by online strangers on social network sites (SNSs). As demonstrated in the literature, random friending on social network sites can heavily impact adolescents' safety online. Results yielded by means of Structural Equation Modelling show that the subjective norm with regard to the acceptance of strangers as SNS friends is the most important predictor, followed by PBC and attitude. Bonding social capital (an individual's disposal of strong, intimate ties) is negatively associated with attitude and subjective norm, whereas bridging social capital (an individual's disposal of weak, superficial ties) is positively associated with the three TPB antecedents. Life satisfaction is negatively associated with attitude. This study also finds that introverted adolescents anticipate greater positive social pressure to accept friendship requests from strangers than extraverts.

Key words: ICT, adolescence, SNS, friendship requests

1. Introduction

In this study, we examine why adolescents accept friend requests on social network sites (SNSs) from people they have never met offline. Such friending of strangers appears to be common practice on SNSs. For instance, an Australian study amongst 400 adolescents, for example, reported that 51.5% of SNS users always or sometimes accept friend requests from strangers (O'Dea and Campbell, 2012; Paradise & Sullivan, 2012). Such behaviour is, however, not without dangers and explicitly discouraged by many websites on safe and responsible internet use (e.g., "MinorMonitor, 2015", "Top 10 tips to stay safe on Facebook", 2015). The help center of Facebook even names it as one of the primary actions to undertake in order to prevent an account from being compromised ("Facebook Security Tips", 2015).

Various studies point to the risks and harms that could follow from the acceptance of friend requests from strangers (e.g., Bossler, Holt, and May, 2012; Lenhart et al., 2011; Vishwanath, 2015). First, it drastically increases the likelihood of information leakage and identity theft (CBC, 2015). Second, it entails an increased exposure to malicious, spammy links and to phishing attacks (Vishwanath, 2015). Third, it increases exposure to criminal offences (Kadkol, 2015). Media reports demonstrate that criminals use Facebook to retrieve useful information with the purpose of conducting malicious activities (e.g., coercion, blackmail and fraud). Fourth, accepting strangers as Facebook friends may also invoke risks for other friends in social media (Gannes, 2011). Many adolescents accept invitations based on their observation that someone is a 'mutual friend' with one of their friends. So, if one adolescent decides to accept an unknown person as a Facebook friend, this may lower the threshold for friended others to accept that same person. Fifth, random acceptance increases one's likelihood of online harassment and victimization (Lenhart et al., 2011). Sixth, studies have found a positive relation between online risk experience and one's amount of friends (both unknown and known contacts) on SNSs (Lenhart et al., 2011).

While prior research has examined motives for disclosing information and the use of privacy settings on SNSs (e.g., Lewis, Kaufman and Christakis, 2008), the acceptance of friend requests from strangers has not extensively been examined. Despite the risks associated with random friending, as Kim and Yun (2007, p. 312) state current literature on online friending still lacks "more theoretically-based, analytical investigations (…) to broaden researchers' current understanding about the SNS phenomenon". Although research has established the difference between the size of offline vs. online networks (Tong et al., 2008), the random addition or acceptance of strangers by SNS users has largely been neglected (Leow, 2009). Therefore, this study applies the theory of planned behaviour (TPB) to gain insight into the acceptance of online friendship requests sent by online strangers. According to the TPB, an individual's intention to perform a specific behaviour is determined by that person's attitude, subjective norm and perceived behavioural control (Ajzen, 1991). It is appropriate and useful to apply this theoretical framework to adolescents' SNS friending behaviours given the TPB's focus on explaining volitionally performed human behaviours. Specifically, the added value of applying the TPB mainly relies within its ability to assess the relative importance of intra-individual factors (attitude and PBC) and extra-individual factors (subjective norm and social influence) in explaining why people accept friend requests from people they have never met offline. This information is especially fruitful for policymakers and educators concerned about young people's online safety and in need for effective preventative strategies to decrease harm caused to young people due to risky online behaviour. An additional advantage is the TPB's ability to strengthen the theoretical foundation of the research field.

With the application of an *extended* theory of planned behaviour, we want to anticipate the often raised criticism against this theory regarding its sufficiency (e.g., Armitage and Connor, 2001). Some authors find the added value of the TPB insufficient

given its exclusive focus on proximal determinants. To enrich our theoretical framework, we have therefore included additional variables that perform as antecedent variables of the TPB-components: These are (1) satisfaction with life (SWL), (2) extraversion, (3) bonding/bridging social capital, and (4) perceived importance of SNS friendships. In the following paragraphs, we elaborate the hypotheses in our research model and why we have included these specific variables in our model.

Figure 1: Conceptual model
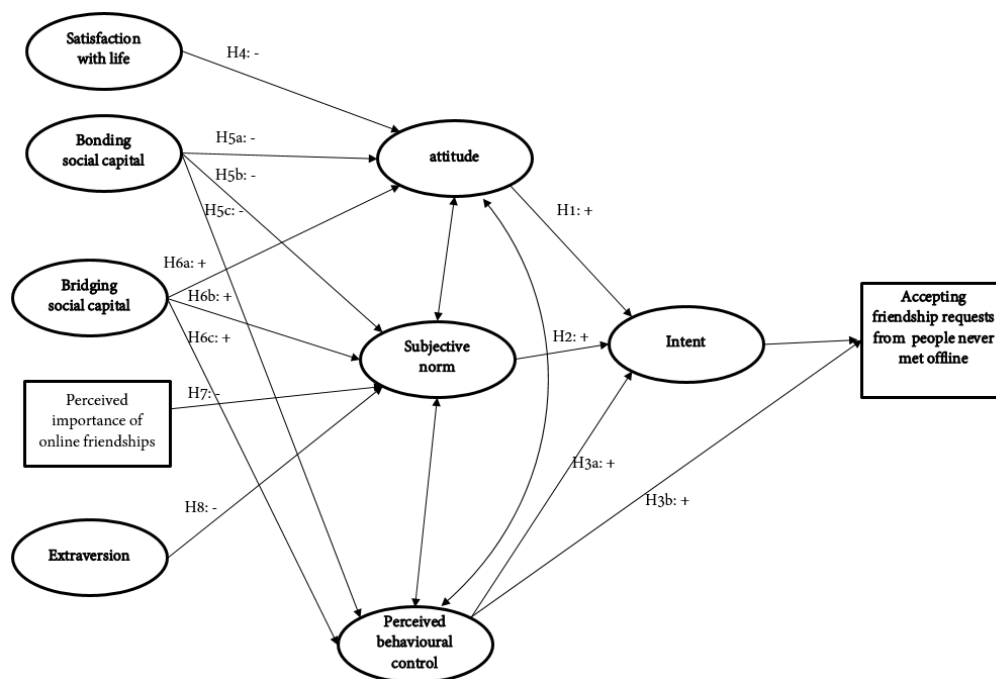
1.1 TPB factors

1.1.1 Attitude. Scholars have yet to examine the relationship between adolescents' attitudes towards accepting friendship requests from strangers and their motivation for accepting them. Studies in other contexts, however, provide indirect evidence of a positive relationship between attitude and intention. For instance one study by Peter et al. (2006) suggests that adolescents who are positive about the Internet as a venue for meeting new people are more inclined to talk with strangers. It is thus plausible that, when deciding

whether to accept SNS friendship requests sent by strangers, adolescents with positive attitudes towards such behaviour might be more willing to connect with strangers. Therefore, we expect in this study that:

H1: There is a positive association between attitude towards and motivation to accept friendship requests sent by strangers.

1.1.2 Subjective norm. Social pressure and influence have an effect on users' SNS behavior (Niemann, 2013; Livingstone, 2008), as these platforms encourage users to register, participate and connect with other network members. Moreover, the mere posting of status updates online elicits a certain degree of reciprocity (e.g., comments by other users). Perceived social pressure may therefore be highly relevant in understanding individual adolescents' behaviour in this context. Social norms play an important role in offline privacy (Nissenbaum, 2010), but only few studies have addressed this role in regulating individuals' privacy on social media (Steijn, 2013). Some scholars allude to conventions and norms shaped on SNSs for socialising with others and deciding what is cool (Tokunaga, 2011). Another implicit form of social pressure on SNSs involves adolescents' sensitivity the number of Facebook friends, as this number appears on their profiles and might serve for them as an indication of one's peer-group popularity (e.g., Walther et al., 2008). Some adolescent SNS users might even be inclined to accept all friendship requests in an attempt to be perceived as "cool" (Espinoza and Juvonen, 2011).

H2: There is a positive association between social pressure and the motivation to accept friendship requests sent by strangers.

1.1.3 Perceived Behavioural Control (PBC). Previous studies show that the usage and adoption of new technologies partially depend upon "confidence in (…) ability to successfully understand, navigate and evaluate content online" (Daugherty, Eastin, and

Gangadharbatla, 2005, p. 71). SNS friending involves no more than navigating to the friend menu and clicking on the accept-button, adolescents are likely to have considerable control over this behaviour. In line with the TPB's tenets, it is therefore plausible that those with higher feelings of control, will be more inclined to comply with strangers' requests.

H3a: There is a positive association between PBC and adolescents' willingness to accept friendship requests from strangers.

Adolescents disposing of many SNS contacts may perceive greater control over opportunities and resources than do those with fewer SNS friends. For example, Facebook has a *suggested friends*-application. Having more connections on the friend list thus increases its diversity and one's mutual friends, and therefore as well as the odds of receiving friendship requests from other possibly unknown people.

H3b: There is a positive association between PBC and adolescents' acceptance of friend requests from strangers.

1.2 Antecedents of TPB factors

1.2.1 Satisfaction with life (SWL). This concept can be understood as "a global assessment of a person's quality of life according to his chosen criteria" (Shin and Johnson, 1978, p. 478). To our knowledge, no studies have examined the relationship between Satisfaction with life (SWL) and attitudes towards SNS friending behaviour. Acar (2008) provides indirect indications for evidence of this relationship, showing that individuals with high self-esteem, which is like SWL an indicator of adolescents' psychosocial well-being, are less likely to accept strangers' SNS friendship requests. This is consistent with other studies showing that especially troubled adolescents use the Internet to meet with unknown people (Subrahmanyam and Greenfield, 2008). We expect that:

H4: Adolescents with lower SWL have a more positive attitude towards accepting friendship requests from strangers.

1.2.2 Social capital. Bourdieu and Wacquant (1992, p. 14) define social capital as "the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition." In literature, a distinction is made between bonding and bridging social capital. According to Putnam (2000), the first type of social capital is exclusive. It is typically formed when individuals who share strong ties (e.g., family and friends) provide emotional and loving support to one another. People with high bonding capital are less diverse in their backgrounds and typically share strong reciprocal social connections with others in their close social circle (Williams, 2006).

H5a: Adolescents embedded within a network of strong ties share more negative attitudes towards accepting strangers' requests.

There is reason to assume that adolescents already embedded in a network of close social ties are more exposed to disapproval of and thus negative social pressure against establishing friend connections with online strangers. Given the lack of available research in this area, we expect that:

H5b: Adolescents embedded within a network of strong ties perceive greater negative social pressure against accepting friendship requests from strangers.

People with high bonding capital are more exclusively oriented towards their own social networks, which are further characterised by less diversity (Putnam, 2000). Adolescents embedded in such relatively homogenous networks might not have as many opportunities to receive friendship requests from online strangers as do adolescents in heterogeneous networks. Therefore, we expect the following:

H5c: Adolescents with high bonding capital have lower levels of PBC.

Bridging social capital. This concept is more inclusive than bonding capital. According to Putnam (2000), bridging social capital emerges from the connections that an individual has with a large number of people from a variety of backgrounds. The relevance of bridging capital in the present context is obvious: a majority of teens use SNSs as networked publics that allow them to connect to a broader community of people than only their own inner social circle. Many ties within bridging networks are weak, but "what they lack in depth, they make up for in breadth" (Williams, 2006, p. 597). It may be that those who have built up large networks of weak ties, might be more convinced of their benefits.

H6a: Adolescents with high bridging capital share more positive attitudes towards accepting friendship requests from online strangers.

Higher levels of bridging social capital amongst adolescents might also generate a self-reinforcing situation in which a subtle social pressure is experienced to keep expanding their networks.

H6b: Adolescents with high bridging capital are more likely to perceive social pressure to accept friendship requests from strangers.

Adolescents with high levels of bridging social capital might be more likely to receive online friendship requests from strangers. The list of potential friends expands with the size of the user's network, thus increasing the likelihood of receiving friendship requests from someone the user has never met.

H6c: Adolescents with high bridging capital perceive greater control over the acceptance of friendship requests.

1.2.3 Perceived importance of online friendships. Studies have demonstrated that many people perceive the quality of online friendships as lower than that of offline friendships (e.g., Mesch and Talmud, 2006). Adolescents who consider offline friendships more important than online friendships might therefore feel greater negative social pressure against becoming acquainted with strangers online.

H7: Adolescents who perceive offline friendships to be more important than online friendships anticipate greater negative social pressure towards accepting friendship requests from strangers.

1.2.4 Extraversion. In previous studies, this construct has been associated with the way in which people develop their social relationships with others in their surroundings, both online and offline (Nelson and Thorne, 2012). Of the Big Five personality traits, extraversion is the most commonly associated with SNS usage (Ong et al., 2011), although research has produced mixed results. According to one American study among college students (Acar, 2008), extraversion is an important predictor of online social network size. Furthermore, Tong et al. (2008) report that people with many friends on SNSs tend to be more extraverted. In contrast, other studies report that adolescents with introverted personalities are more likely to form online friendships (Peter, Valkenburg, and Schouten, 2005). Significant others in the social environments of introverted adolescents might suspect that they might have fewer friends, thus having a greater need to form social connections with their peers (Ross et al., 2009). This assumption could convince these significant others to encourage introverted youth to meet new people online, whereas extraverted adolescents feel less social pressure to broaden their circles of friends. It is therefore plausible that introverted adolescents experience greater positive social pressure to accept friendship requests sent by strangers.

H8: There is a negative association between extraversion and subjective norm concerning adolescents' acceptance of friend requests strangers.

2. Material and methods

2.1 Participants

This study is based on results from a survey completed in November 2012 by 1743 respondents (42.9% males; 57.1% females; M_{age} = 14.7; SD = 1.82) from 16 different schools. Respondents were between 12 and 18 years of age, with a relatively even age distribution. They were recruited from three different educational levels in the (REMOVED FOR PEER REVIEW PURPOSES) school system. The main component of the questionnaire included questions regarding adolescents' SNS activities. Only respondents reporting having at least one profile page were included in further analyses (n = 1,564).

2.2 Instruments

Attitude. This concept is defined as "the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question." (Ajzen, 1991, p. 188). Respondents' evaluation of accepting strangers' online friendship request was measured by means of four items on a 6-point scale. For a literal phrasing of all scale items we refer to the first column of table 1.

Subjective norm. This concept refers to the "perceived social pressure to perform or not perform the behaviour" (Ajzen, 1991, p. 188). The questionnaire contained three items that measured subjective norm measured on a 6-point Likert scales (see table 1 for literal phrasing). High response values on these items indicate that respondents perceived negative social pressure and disapproval from significant others in their lives.

Perceived behavioural control. This concept refers to "the perceived ease or difficulty of performing the behaviour" (Ajzen, 1991, p. 188). It can be interpreted in two complementary ways: as an individual's confidence in performing a specific behaviour and in terms of available opportunities and resources (Thorbjørnsen, Pedersen, and Nysveen, 2007). Two items measured individuals' perceptions about the ease or difficulty to accept strangers' requests (see table 1 for literal phrasing). High response values indicate that respondents perceived they had high control over their capacity to perform the behaviour.

Intention. The questionnaire included three items that measured behavioural intention (see table 1 for literal phrasing of individual items). High response values indicated a high motivation of respondents to accept strangers' requests.

Social Capital. We used an abbreviated version (see table 1) of the Internet Social Capital Scale (Ellison et al., 2011), which is intended to measure both bridging and bonding capital. Several items from the original scale were tailored to suit the life phase of adolescence within the context of SNSs. Bridging social capital was operationalized using five items on a six-point scale ($\alpha = .80$), ranging from 1 *(strongly disagree)* to 6 *(strongly agree)* (e.g., "Using my profile page makes me feel like a part of a larger community"). Bonding social capital ($\alpha = .86$) was operationalized in a similar fashion (e.g., "There are several people on the profile page I use most whom I trust to help me with problems").

Satisfaction with life. Respondents' perceived quality of life was assessed using five items based (see table 1) on the scale developed by Diener and colleagues (1985). They were asked to express their level of accord with five items, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) (e.g., "In most ways, my life is close to my ideal").

Perceived importance of online friendships. We assessed this variable by asking respondents to express their opinions (1: *strongly disagree*; 6: *strongly agree*) on the

following statement: "Friendships on my profile page are less important than friendships in the offline world are." High scores on this item reflect respondents' tendency to consider offline friendships more important than they do SNS friendships.

Extraversion. Extraversion was operationalised using 6 items (see table 1) underlying the introversion-extroversion dimension in the BFI-46 scale (John and Srivastava, 1999) (e.g., "I see myself as talkative"). The scale was reliable (α =.75). Two items were removed because they loaded poorly on the identified factor ("I see myself as someone who generates a lot of enthusiasm"; "I see myself as someone who is outgoing/sociable").

Behaviour. We asked respondents to indicate the current percentage of friends in their SNS friend lists with whom they shared no offline connections. Respondents were asked to indicate the percentage of their SNS friends whom they had never met offline along a seven-point scale (1: *My SNS friend list contains no people whom I do not know offline,* 2: *1-10%*; 3: *11-20%*; 4: *21-30%*; 5: *31-40%*; 6: *41-50%*; 7: *more than 50%*).

2.3 Data analysis

Analyses were limited to the subsample of adolescents who use SNSs (n = 1,564). In the first instance, exploratory univariate analyses in SPSS 20.0 were performed to get an idea about the exact share of adolescents currently accepting unknown contacts to become part of their SNS friend list. Subsequently, in order to investigate the hypothesised relationships between the model components, structural equation modelling (SEM) was applied, using the Mplus 6 software package (Muthén and Muthén, 2010). We first conducted confirmatory factor analysis to establish a valid and reliable measurement model. We then conducted full SEM analyses to test the associations hypothesized in the research model (see Figure 1).

3. Results

Before testing the applicability of the proposed research models, we first wanted to find out how large the share of adolescents is that currently accepts unknown people as friends in their contact list. Our preliminary analyses show in this regard that about 35.4% ($n = 551$) of the adolescents in our study reported having no unknown friends in their SNS contact lists. The majority (64.6%; $n = 1,006$) had connections with online strangers, although the share of strangers differed considerably within this subsample (see Table 2).

Table 2

The share of SNS contacts never met offline

Percentage of SNS contacts never met offline…	n	Valid percent
0%	551	35.4%
1-10%	578	37.1%
11-20%	195	12.5%
21-30%	121	7.8%
31-40%	41	2.6%
41-50%	26	1.7%
More than 50%	45	2.9%

3.1. Measurement model

The first assessment of the measurement model was done by means of CFA. Table 3 displays the results. The measurement model provided a good fit for the data. The variables were treated as latent constructs, with the exception of two single-item measures *(perceived importance of online friendships* and *behaviour)*. All factor loadings were significant (see Table 3). The measurement model was further assessed for construct reliability. Computing composite reliability assessed construct reliability. The composite reliability for each construct included within this study is presented in Table 3. The composite reliability of all

latent constructs exceeded the benchmark of .7 recommended by Nunnally and Bernstein

(1994).

Table 3

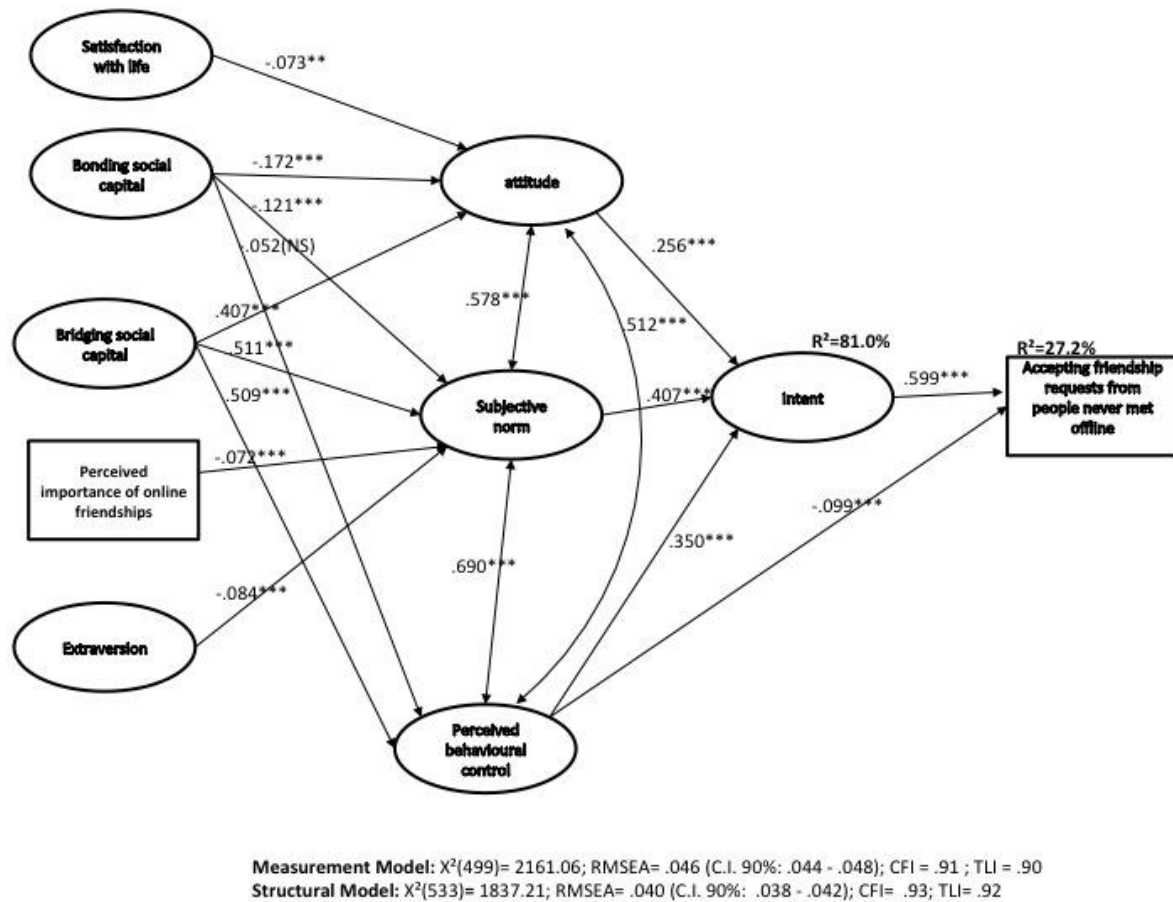*Unstandardised and standardised parameter estimates*

Results for measurement model

Observed variable	Latent construct	β	Composite Reliability[a]	Two-tailed
	Attitude		0.88	
1. It is stupid to accept friendship requests from people you have never met offline.		0.778		
2. It is harmful to accept friendship requests from people you have never met offline.		0.794		.000
3. It is dangerous to accept friendship requests from people you have never met offline.		0.815		.000
4. It is not good to accept friendship request from people you have never met offline.		0.828		.000
	Subjective norm		0.75	
1. Significant others in my life would approve of me accepting friendship requests from people I have never met offline.		0.763		
2. Significant others in my life would encourage me to accept friendship requests from people I have never met offline.		0.674		.000

3. In general, significant others in my life accept friendship requests from people they have never met offline.	0.689	.000
PBC	0.58	
1. I am capable of accepting friendship requests from people I have never met offline.	0.441	
2. It is easy for me to accept friendship requests from people I have never met offline.	0.811	.000
Intention	0.92	
1. If I receive a friendship request from someone I have never met offline, I would accept this request.	0.890	
2. If I receive a friendship request from someone I have never met offline, I would plan to accept this request.	0.928	.000
3. If I receive a friendship request from someone I have never met offline, I would be inclined to accept this request.	0.864	.000
Bridging social capital	0.80	
On the profile page I use most, …		
1.I feel I am part of the Facebook Community.	0.637	
2. I feel like trying out new things in interacting with people.	0.738	.000
3. I am prepared to help with activities	0.643	.000
4. I often meet new people.	0.630	.000
5. Interacting with people on Facebook reminds me that everyone in the world is connected.	0.668	.000
Bonding social capital	0.86	
On the profile page I use most,...		
1.There are several persons that can help me in solving a problem.	0.708	.000
2.There are several persons that would provide me with an emergency loan in case	0.640	.000
3. There are enough persons with whom I could make contact in making important	0.854	.000
4. There are enough persons whom I can ask to do something important for me.	0.781	.000

5. There are enough persons that would recommend me, when asked for reference advice.	0.741	.000
Satisfaction with life	0.83	
1.In most ways my life is close to my ideal.	0.596	
2.The conditions of my life are excellent.	0.735	.000
3. I am satisfied with my life.	0.908	.000
4. So far I have gotten the important things I want in life.	0.716	.000
5. If I could live my life over, I would change almost nothing.	0.545	.000
Extraversion	0.73	
1. I see myself as someone who is talkative.	0.629	
2. I see myself as someone who is reserved.	0.623	.000
3. I see myself as someone who is full of energy.	0.430	.000
4. I see myself as someone who tends to be quiet.	0.681	.000
5. I see myself as someone who has an assertive personality.	0.389	.000
6. I see myself as someone who is sometimes shy, inhibited.	0.555	.000

[a]Composite Reliability: (Square of the summation of the factor loadings)/((square of the summation of the factor loadings) + (summation of error variances)).

Figure 2: Structural model

Measurement Model: X²(499)= 2161.06; RMSEA= .046 (C.I. 90%: .044 - .048); CFI = .91 ; TLI = .90
Structural Model: X²(533)= 1837.21; RMSEA= .040 (C.I. 90%: .038 - .042); CFI= .93; TLI= .92

Note: * = p <.05 ; ** = p<.01; *** = p < .001

3.2 Structural model. Overall, the fit indices indicated a good fit for the proposed model (see Figure 2). The full SEM explained 81.0% of the total variance in adolescents' intention to accept friendship requests from strangers and 27.2% of the variance in random acceptance behavior. Subjective norm is identified as the most important predictor of adolescents' intention to accept invitations from strangers, thus indicating that greater perceived social pressure to accept requests from strangers increases the likelihood of adolescents to report that they are willing to accept such requests (H2). Attitude and PBC are also positively associated with intention (H1; H3). With regard to antecedent factors of attitude, SWL is negatively associated with attitude (H4). Moreover, bonding social capital is negatively related to attitude (H5a) and subjective norm (H5b). No significant relationship is

found with PBC, however, and H5c must therefore be rejected. Bridging capital has a positive influence on attitude, SN and PBC (H6a, H6b and H6c). Our analyses confirm that adolescents who consider SNS friendships as less important than they do their offline friendships feel greater negative social pressure towards accepting online friendship requests (H7). Finally, our analyses confirm that introverts perceive greater positive social pressure to accept friendship requests from strangers than extraverts do (H8).

4. Discussion and conclusion

The goal of this paper was to examine the predictors of adolescents' acceptance of SNS friend requests from strangers. To this end, we applied an extended theory of planned behaviour model. Our results indicate that the perceived social pressure exerted by significant others is the most important predictor of adolescents' friendship acceptance behaviour of online strangers. When adolescents anticipate negative reactions from significant others (e.g., peers, parents, teachers), they are less motivated to accept requests from strangers. Conversely, their motivation increases when they expect significant others to remain neutral or to approve of friending strangers. This is consistent with literature on the role of peer pressure in adolescents' daily lives (Steinberg and Morris, 2011). During adolescence, "peer interactions arguably hold the greatest importance for individuals' social and behavioural functioning" (Mikami et al., 2010, p. 46). Policymakers and educators who aim to reduce this type of behaviour should therefore involve this socio-oriented factor in their strategies for intervention or prevention.

Attitude and perceived behavioural control are also related to adolescents' motivation to accept friend requests from strangers. According to our findings, adolescents with a positive attitude towards friending strangers are indeed more inclined to accept requests made by people with whom they have no offline connection. Moreover, adolescents who perceive that it is easy to accept requests from strangers demonstrate a higher inclination to become

acquainted with people they do not know on SNSs. With regard to the influence of attitude, our findings suggest that policymakers or educators who are seeking to reduce the blind acceptance of online friend requests might do well to focus on converting positive attitudes into negative ones. Moreover, with regard to the influence of perceived behavioural control, given that teenagers perceive the acceptance of friendship requests as easy, it might be beneficial for social media providers to sensitise young users to the possible consequences of such easy, *one-click* activity. The architecture of most SNSs would allow the integration of a clear reminder to accompany all incoming friend requests, and in addition containing a link to a help section specifically addressing the risks of accepting friend requests from unknown users. In addition to increasing the awareness of minors regarding the risks of online contacts, providers could increase the stringency of the default privacy settings for minors.

Our research model shows that subjective norm is negatively influenced by bonding capital and extraversion. As discussed before, bonding capital is exclusive by nature, and adolescents with high bonding capital feel greater negative social pressure from others within their intimate social circle against including strangers on their profiles. Contrary to our expectations, our data suggest that adolescents embedded in networks of strong ties do not feel less confident or as having fewer opportunities to accept friend requests from strangers. The negative association between extraversion and subjective norm might involve the tendency of significant others to perceive that extraverted individuals have sufficient social contacts, while perceiving that introverts have fewer friends. One possible explanation is therefore that the significant others of introverted adolescents might encourage them to use the Internet to compensate their difficulty in getting acquainted with people offline by making contact with new people online. This latter possible explanation needs further validation by future research.

Despite the risks associated with accepting strangers' friend requests, we acknowledge that this behaviour can also have beneficial outcomes. Young people can express ideas or concerns that they cannot disclose to people whom they know offline. Benign and benevolent *unknown* contacts can be of tremendous benefit by acting as sincere confidants for the adolescents involved. The problem is, however, as the adolescent has no interpersonal offline connection with this person, he/she cannot verify whether the other is the person he pretends to be. If this is not the case and the adolescent is deceived about the true identity of the stranger, serious risks of harm can arise such as the public revealing of intimately shared information or assault.

Several limitations of our study should be acknowledged. First, because the data are cross-sectional, any inference of causality should be made with caution. Second, although we attempted to include as many interesting predicting factors as possible, the length of the questionnaire allowed the inclusion of only a limited set of variables. It would be interesting to verify which additional variables could be included in the model. Specifically with regard to self-reported behaviour, our research model leaves a considerable share of the variance (72.8%) unexplained. Inspired by qualitative research efforts or new revelations in literature, future researchers could therefore consider adding components alongside the traditional TPB components.

Author disclosure statement

No competing financial interests exist for authors

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