

Extending Social Penetration Theory to Facebook

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With the multimodal nature of relationships today, assessing the extension of core interpersonal theories within online contexts is essential. This research considers Social Penetration Theory's (SPT) applicability in a digital age using self-reported survey and content analyzed data on friendships maintained through Facebook ($N = 103$). The results suggest that communication through Facebook, as illustrated on the Friendship Page, can be used to

identify relationship stages consistent with SPT. Also discussed is the maintenance of lapsed ties in relation to SPT's depenetration process. Implications of results both in terms of theory and practice are discussed.

Keywords: Facebook, friendship, lapsed ties, self-disclosure, social media, Social Penetration Theory

The availability of social networking sites (SNSs) for relational development, maintenance, and even dissolution is well documented (Craig & Wright, 2012; Ellison et al., 2014; Pennington, 2020; Orben & Dunbar, 2017; Sosik & Bazarova, 2014). Facebook, in particular, has been touted for its ability to connect friends and loved ones across distances (Johnson & Becker, 2011; Koban & Krüger, 2018). Research has demonstrated that communication through the site is related to core interpersonal concepts like self-disclosure (Park et al., 2011; Sheldon, 2013), social capital (Ellison et al., 2011; 2014), social support (High & Buehler, 2019; Rozzell et al., 2014), and relational closeness (Burke & Kraut, 2014; McEwan, 2013). Research has also explored the dissolution of ties through Facebook related to issues such as oversharing and context collapse (Pennington, 2020; Sibona, 2014). Even so, the focus on technology can at times come at the expense of evaluating relationships as multimodal, existing both online and offline (Hall, 2020). Indeed, in recent years, calls have increased for research to tie interpersonal theory to the study of communication technologies to understand better how existing relational perspectives may inform mediated interactions (e.g., Hall, 2020; High, 2019; Mason & Carr, 2021). As Facebook and other SNSs continue to serve as everyday maintenance tools for a wide array of relationships, it is important to consider

the effect communication through these sites may have on theoretical assumptions surrounding interpersonal communication practices today.

The present study embraces this need by placing the central focus on Social Penetration Theory (SPT) as a lens to view communication and relationships maintained through Facebook. Mason and Carr (2021) argue for SPT as an ideal lens for extending and thinking about relational maintenance that is mediated, citing the theory's focus on communication (disclosure) as it relates to relational closeness. From a theoretical point of view, SPT explains the importance of self-disclosure in developing and maintaining relationships. The basis of the theory argues self-disclosure is integral to relationships, creating the potential for common ground and increased feelings of closeness between relational partners over time (Altman & Taylor, 1973). SPT also discusses how a decrease in disclosures and communication can explain how relationships dissolve (Altman & Taylor, 1973). In assessing self-disclosure, SPT presents stages of increased closeness (penetration) and decreased closeness (depenetration) to understand better the development, maintenance, and dissolution of interpersonal ties over time (Altman & Taylor, 1973). Importantly, SPT was established long before the regular use of SNSs, making it particularly useful to apply to interpersonal communication online, given its long-standing in the field. The present study seeks to build on existing literature about relational development, maintenance, and dissolution through SNSs by testing key assumptions within SPT and their applicability today. In particular, the study focuses on the depth and breadth of communication through Facebook for development and maintenance and how users engage with lapsed ties through the site, as a discussion of relational dissolution and the depenetration process of SPT.

LITERATURE REVIEW

Developed by Altman and Taylor (1973), SPT argues that in weighing the costs and benefits of maintaining a connection over time, individuals make conscious decisions to increase or decrease self-disclosure both in terms of depth and breadth. Depth refers to the degree of intimacy in a disclosure ranging from surface-level to central details about one's life. For example, someone may disclose where they grew up as a surface-level detail but only talk about their feelings related to their home and upbringing with closer ties.

Breadth refers to the range of categories (facets) that one can share about. For example, peers may often discuss a class or school together but never stray into other topics, while stronger ties may connect on a wide array of topics.

Over time, relational partners have the opportunity to move closer together through the “stages” of a relationship. As they weigh the reward (or cost) of disclosures, increased sharing creates the potential to reach a new layer (depth) and type (breadth) of disclosure that is central to who each person in the relationship is as an individual (Altman & Taylor, 1973). The four stages of relational development that correlate with increased depth and breadth of interactions are *orientation*, *exploratory affective exchange*, *affective exchange*, and *stable exchange* (Taylor & Altman, 1987). The orientation stage is often public and is the shortest stage (Altman & Taylor, 1973). This stage will not be addressed in-depth, as the act of friending on Facebook would suggest users have already met and desire to move past this stage (see Fox et al., 2013). As individuals become more comfortable, they enter the exploratory affective exchange stage. At this stage, relational partners determine whether to maintain their current level of disclosure: no longer strangers but not close friends whom they would call on for support (Altman & Taylor, 1973). Those who make it to the third stage, affective exchange, experience a greater breadth of communication through different facets, and see the depth of interaction begin to reach the central layer of disclosure, though inconsistently, as there is still a perceived risk in sharing (Taylor & Altman, 1987). It is not until the stable-exchange stage where the greatest depth and breadth are achieved. According to Altman and Taylor (1973), few relationships reach this stage; it is reserved for only one’s closest relationships. Indeed, most ties never make it past the exploratory affective-exchange stage.

In addition to depth and breadth, SPT also argues that time is a crucial component. Individuals may disclose more and at a greater frequency as partners weigh the cost-benefit analysis in getting to know someone; this often consists of surface and peripheral disclosures that make up the first two stages of SPT. Relationships that move past the first two stages begin to slow down with disclosure, taking more time to reach the final stage (Taylor & Altman, 1987). SPT also assumes communication occurs in person and that disclosures made are directed to one’s relational partner.

These same assumptions regarding communication and self-disclosure may also hold true for the dissolution of relationships. Altman and Taylor (1973) briefly outlined a process of depenetration, wherein individuals pull back from a relational partner, decreasing both the breadth and depth of disclosures over time, until a connection ceases to exist. While the development of relationships is well-outlined in the theory, the dissolution side of SPT is less developed, and, as a result, studied less. Taking each of SPT's assumptions about relationships into account, the present study looked at communication practices through Facebook in assessing how individuals build, maintain, and potentially dissolve relationships. Literature related to Facebook and the development and maintenance of relationships is considered first, followed by research on relational dissolution and Facebook.

Relational Development & Maintenance through Facebook

Facebook and similar SNSs provide the opportunity to develop and maintain a wide range of relationships from weak to strong ties (Bryant et al., 2011; Burke & Kraut, 2014; Johnson & Becker, 2011). For example, in a series of focus groups, Fox et al. (2013) found that individuals often turn to Facebook after an initial offline encounter to learn more about someone and communicate further (Fox et al., 2013). Once users become “friends” on the site, the SNS can become an additional medium for self-disclosure and relational development. SNSs are also a space where individuals can reconnect with old friends or maintain relationship developed before relational partners were regular users (Bryant et al., 2011; Johnson & Becker, 2011).

Notably, much of the past research on Facebook has found that self-disclosure and communication are related to greater intimacy and connection; Sosik and Bazarova (2014) analyzed API data from Facebook alongside a self-report survey, finding a correlation between frequency of communication on the site and greater closeness. Similarly, Burke and Kraut (2014) assessed log data from Facebook. They found communication was related to increased relational closeness, with what they call “composed” messages (e.g., comments, posts) having a stronger relationship than one-click interactions (e.g., liking). Conversely, McEwan (2013) noted that broadcasting messages (i.e., sharing) through the site negatively correlated with satisfaction and liking, although it did not affect closeness. McEwan argues that because some disclosures through Facebook may be more general

and not focused on a single person (e.g., posting a status to one's entire network) that this may be why differences arose in terms of how self-disclosure were connected with relational outcomes. The lack of effect on closeness in particular could point to Facebook interactions as illustrative of relationship state, rather than predictive.

In addition to framing Facebook communication as directed, broadcasted, or "one-click," communication through the site can also be assessed as public or private, with the majority of Facebook communication public-facing (e.g., commenting on a status, writing on someone's wall). While private interactions no doubt demonstrate relational closeness, the question becomes whether public-facing communication through Facebook is also indicative of relationship stage. Past research would support public-facing communication as indicative, with research suggesting use of tagged status updates or posting on a friend's wall were both related to greater feelings of closeness (Burke & Kraut, 2014; Koban & Krüger, 2018; McEwan et al., 2018), demonstrating how these forms of public communication may be able to assess SPT stages. At the same time, missing from the extant literature is a more nuanced look at types of disclosure (e.g., depth, breadth), with much of the work assessing the volume of communication through these sites, and not necessarily the content of disclosures. While increased communication can contribute to closeness, in assessing SPT's applicability in a mediated world, the present study sought to foreground the content of posts as valuable while also accounting for nuances within the platform regarding communication frequency.

In assessing public-facing communication, the present study identifies a feature of Facebook that documents shared content between two friends, called the "Friendship Page" as ideal for evaluating communication through the SNS. This page, viewable for any connection on Facebook, includes all shared and tagged status updates, wall posts, images both friends are tagged in, a list of mutual friends, and a list of shared interests which includes pages or groups "liked" or "followed" on the site (Constine, 2012). Importantly, these pages are only viewable to the relational partners and are created for all friendships. This page is ideal for assessing relational development, maintenance, and dissolution through Facebook for several reasons. First, the tagged updates, pictures, and wall posts represent a portion of the directed communication discussed in the literature related to closeness noted above. Second, mutual friends and shared interests may help to clarify the

role of similarities and network overlap within relationship development literature, with a particular emphasis on breadth (Taylor & Altman, 1987). Finally, the overall volume of interactions documented on the page also speaks to the SPT claim that frequency of communication is related to closeness (Altman & Taylor, 1973). This is also supported by research on multi-modal relationships (e.g., Hall, 2020; Parks, 2017), which suggests relationships are maintained across a wide range of media. This would support the idea that Facebook would be an additional location to see that variance in communication for close versus non-close partners in terms of volume of interactions and content (i.e., depth, breadth), acting as an extension of offline communication practices.

Based on the existing literature related to the use of SNSs for relational development and maintenance and the core theoretical assumptions of SPT, the following hypothesis was offered regarding the relationship stage and communication through Facebook:

H1: Relational partners in the stable exchange stage will have the greatest (a) depth, (b) breadth, and (c) volume of communication on the Friendship Page, followed by the affective exchange stage, and last the exploratory affective exchange stage.

Relational Dissolution and Facebook

While less studied, SPT also theorizes about the dissolution of ties and highlights the necessary conditions for sustaining a connection. In assessing how relationships end, SPT argues relationships slowly pull back, decreasing depth and breadth, until the tie ceases to exist (Taylor & Altman, 1987). Notably, SPT also points to continuous, in-person, directed communication between two ties to maintain a relationship and prevent dissolution. Absent these conditions, the theory suggests relationships end. Research to date regarding maintenance and dissolution through Facebook stands in opposition to these claims, suggesting a need to revisit the theory in light of the increased flexibility of ties that technology affords (Johnson & Becker, 2011).

Mason and Carr (2021) suggest there are key features of technology that may alter the theoretical application of SPT, including the lightweight nature of some mediums, the masspersonal spaces created online, and the potential for “ambient awareness.” To the first feature, many researchers have identified the low effort of sustaining connections

through SNSs. The potential benefits of keeping a digital connection outweigh the perceived costs of severing a tie (e.g., Pennington, 2020; Tong & Walther, 2011). Part of this is due to the masspersonal nature of SNSs, wherein users can disclose or share to their entire network through broadcasted messages. While Mason and Carr (2021) point to this as an example of how a non-direct disclosure could lead to greater intimacy, it could also play the role of sustaining a connection without direct communication as there is often no expectation for reciprocity for these types of disclosures through SNSs.

Together the masspersonal nature of disclosures through SNSs and the ease with which individuals can post and share to their whole network creates what Mason and Carr (2021) call “ambient awareness.” This allows Facebook users to remain connected and “in the know” about parts of their social network without ever talking to them. Other studies have referred to this as “social surveillance,” with users reporting keeping tabs on long-distance lapsed relationships (e.g., passively reading but not responding to status updates), ensuring they have the potential to reconnect (Pennington, 2021; Koban & Krüger, 2018). Together, these features help make sense of a trend towards keeping more extensive social networks of “friends” on Facebook (Johnson & Becker, 2011; Pennington, 2021).

These larger networks create the potential for more nuance in how relationships are maintained and what those ties look like, shifting expectations outlined for communication and connection in SPT. Parks (2010) explored this topic, noting that one type of relationship commonly seen through Facebook is what he termed “lapsed ties.” Lapsed ties, Parks argued, are situated as another form of a weak tie; likely closer to an acquaintance than a current friendship or strong tie, and represented by someone who was once closer with the Facebook user but has since drifted apart (e.g., an old friend from high school). Similar to past work from Rawlins (1994) on dormant and commemorative relationships, lapsed ties highlight how SNSs create the potential to maintain and manage relationships across distances, disrupting SPT’s assumption that relationships would end without regular face-to-face contact and directed or “overt” communication (Mason & Carr, 2021; Taylor & Altman, 1987).

The present study explores communication with lapsed tie relationships through Facebook comparative to relationships that are currently maintained at higher levels of

closeness (current friends) and those that are not (acquaintances). While past work on SPT has demonstrated differences in depth and breadth for current friends versus acquaintances (e.g., Maheshwari & Mukherjee, 2020), the present study extends those findings to predict there will be more communication through Facebook for current friends versus acquaintances, helping to delineate further the types of relationships sustained virtually through the site as it relates to communication and self-disclosure practices, and claims that mediated communication practices are often an extension of offline interactions. Analysis of communication on Facebook as a collective should also theoretically show differences in communication between lapsed ties and acquaintances for similar reasons; however, no such analysis has been previously conducted. As such, the following were posed regarding these relationship types:

H2: Current friendships will have greater (a) depth, (b) breadth, and (c) volume of communication on the Friendship Page compared to acquaintances.

RQ1: Do current friendships and lapsed ties differ in terms of (a) depth, (b) breadth, and (c) volume of communication on the Friendship Page?

RQ2: Do acquaintances and lapsed ties differ in terms of (a) depth, (b) breadth, and (c) volume of communication on the Friendship Page?

METHODS

Participants ($N = 103$) were recruited from three large Midwestern universities. Roughly half identified as female (51.5%, $n = 53$). Age ranged from 18-53 years old with a mean of 21.60 ($SD = 5.60$). Participants identified primarily as White (74.8% $n = 77$), followed by African-American/Black, Hispanic/Latino(x), and Biracial/Mixed Race (6.8% each, $n = 7$ each), Asian (3.9%, $n = 4$), and Pacific Islander/Native Hawaiian (1%, $n = 1$). The length of the relationship reported on ranged from less than a year to 46 years, with a mean of 6.66 years ($SD = 6.91$, $mdn = 5$ years). The average Facebook network size reported was 5.99 (1 = 100 or fewer friends to 10 = 900 or more), representing roughly 501-600 friends.

The study was first submitted for and received IRB approval from the university, ensuring adherence to ethical guidelines. Following the process of informed consent, participants were randomly assigned to one of three possible scenarios for selecting a

friend, corresponding to each SPT stage being studied. For example, “*This is a person you share your thoughts and feelings with regularly. This is one of the first people you would tell if something really good or really bad happened in your day*” (Stable Exchange). This process was used to ensure the stages of SPT were represented equally in the sample. Participants provided access to the Friendship Page, which the researcher downloaded for analysis. During this process, participants completed an online questionnaire about their selected relationship. Welch and Rubin’s (2002) measure of relationship stages was used as a manipulation check for the experimentally assigned conditions. Items derived from Welch and Rubin’s scale were shifted to align with each SPT stage, with not all items from the scale being used. Six items ($\alpha = .87$) corresponded with Exploratory Affective Exchange (e.g., *we share basic information about ourselves*), five items ($\alpha = .95$) corresponded with Affective Exchange (e.g., *I tell him/her things I would only tell a close friend*), and seven items ($\alpha = .94$) corresponded with Stable Exchange (e.g., *we freely talk about anything*).

Finally, participants were provided with an open-ended textbox that asked them to describe how they knew the friend selected. These responses were used to establish whether a friendship was current, acquaintance, or lapsed; for example, the language used by participants such as “we used to be close, but now we never really talk at all” was indicative of a lapsed connection. This additional coding suggested that 31.7% of the sample had reported on a lapsed connection, 23.8% reported on an acquaintance (e.g., “I know them from school”), and 44.6% reported on a current friend (e.g., “they’re one of my good friends”). Only two participants failed to describe the nature of the relationship in question and were not included for analysis of H2/RQ1-RQ2.

The Friendship Pages were coded for six cues related to counts (e.g., number of shared posts) and self-disclosure (i.e., breadth, depth) for the selected relationship. Cues were identified from past research on Facebook communication and modified from existing measures of self-disclosure that were also used in the survey (Parks & Floyd, 1996). The only change made to the measure was to allow for a code of “zero” for breadth and depth for any profiles that had no shared posts. Coders were asked to identify if depth and breadth on the page were high (5), middle (3), low (1), or non-existent (0), and were provided with examples that clarified what each level looked like (e.g., a low level of breadth was represented by communication about primarily one topic on Facebook). Once

training was complete, the two coders and primary researcher independently assessed all 103 Facebook Friendship Page for all codes. Reliability was calculated using Hayes and Krippendorff's (2007) alpha MACRO for SPSS. The average reliability was .80.

RESULTS

A manipulation check was conducted to ensure the experimental assignment was consistent with the self-reported stage indicated by participants for H1. The test showed an overall positive effect of relationship stage for each of the self-reported stages, $F(6, 196) = 19.21, p < .001, \eta^2 = .37$. This confirmed that the randomly assigned conditions each represented the stages of SPT. More specifically, the mean scores show the experimentally assigned groups were each highest in the corresponding self-reported stages of stable exchange, affective exchange, and exploratory affective exchange. Given the successful results of the manipulation check, subsequent analysis for H1 was conducted based on the information gathered from the coded Friendship Page. Please email the corresponding author for the full results of the manipulation check.

Table 1
Post-Hoc Analysis for Coded Friendship Page and Relationship Stage (H1)

Group	Depth		Breadth		Shared Likes		Shared Pictures		Shared Posts	
	M	SD	M	SD	M	SD	M	SD	M	SD
Exploratory Affective Exchange	1.18 _{bc}	1.19	1.08 _{bc}	1.14	10.97	21.11	9.16	20.48	6.54 _{bc}	9.68
Affective Exchange	2.12 _{ac}	1.20	1.94 _{ac}	1.03	9.58	13.54	21.28	45.65	17.62 _{ac}	20.83
Stable Exchange	2.78 _{ab}	.91	2.63 _{ab}	1.04	11.71	18.36	30.09	40.53	30.50 _{ab}	30.34

Notes. $N = 103$. Subscripts indicate significantly different groups based on post hoc analysis (Bonferroni adjustment). Subjective Items measured on a 1-5 scale, likes, pictures, and posts by total count. In the absence of posts, subjective items were assigned a code of zero.

A one-way multivariate analysis of variance (MANOVA) was conducted to determine the effect of relationship stage on the coded variables in accordance with H1:

depth, breadth, shared pictures, shared likes, and shared posts. A significant difference was found for the overall model; Wilks' $\lambda = .70$, $F(10, 192) = 3.69$, $p = .001$, $\eta^2 = .16$. Additional analyses of variance found depth, $F(2, 100) = 17.76$, $p = .001$, $\eta^2 = .26$, breadth, $F(2, 100) = 17.73$, $p = .001$, $\eta^2 = .26$, and shared posts, $F(2, 100) = 9.76$, $p = .001$, $\eta^2 = .16$, were significantly different for each relationship stage, while shared likes ($p = .80$) and shared pictures ($p = .08$) were not. These results provide support for H1 with additional post hoc analyses conducted using the Bonferroni method (Table 1). Relationships in the stable exchange condition had greater depth of communication compared to those in the affective exchange ($p = .04$) and exploratory affective exchange ($p = .001$) conditions, as well as greater breadth compared to both the affective exchange ($p = .02$) and exploratory affective exchange ($p = .001$) conditions. The same was true for the stable exchange condition and volume of communication (shared posts) compared to the affective exchange ($p = .05$) and exploratory affective exchange ($p = .001$) conditions. The affective exchange condition also showed greater depth ($p = .002$), breath ($p = .004$), and shared posts ($p = .04$) compared to the exploratory affective exchange condition.

Table 2

Post-Hoc Analysis for Coded Friendship Page and Relationship Type (H2, RQ1, RQ2)

Group	Depth		Breadth		Shared Likes		Shared Pictures		Shared Posts	
	M	SD	M	SD	M	SD	M	SD	M	SD
Current Friendship	2.68 _{bc}	1.18	2.40 _{bc}	1.13	12.58	17.70	30.11	39.84	26.57 _{bc}	27.81
Lapsed Friendship	1.84 _a	1.07	1.67 _a	1.08	7.13	12.50	11.75	21.17	13.91 _a	19.66
Acquaintance	1.18 _a	1.16	1.21 _a	1.23	11.63	22.97	14.17	49.84	7.43 _a	12.60

Notes. $N = 101$. Subscripts indicate significantly different groups based on post hoc analysis (Bonferroni adjustment). Subjective Items measured on a 1-5 scale, likes, pictures, and posts by total count. In the absence of posts, subjective items were assigned a code of zero.

MANOVAs were also conducted to answer H2, RQ1, and RQ2, which explored differences in Facebook communication based on relationship type (friend, acquaintance,

lapsed) rather than relationship stage. In support of H2 and in response to RQ1, differences were found among the three relational types in the overall model, Wilks' $\lambda = .76$, $F(10, 188) = 2.83$, $p = .003$, $\eta^2 = .13$. Analyses of variance for shared pictures ($p = .08$) and shared likes ($p = .40$) showed no significant differences. However, depth, $F(2, 98) = 13.08$, $p = .001$, $\eta^2 = .21$, breadth, $F(2, 98) = 9.45$, $p = .001$, and shared posts, $F(2, 98) = 6.43$, $p = .002$, $\eta^2 = .12$, were significantly different based on relationship type. Post hoc analyses using the Bonferroni method showed that current friends showed significantly higher levels of depth ($p = .01$), breadth ($p = .02$), and shared posts ($p = .05$) compared to lapsed friendships and significantly higher levels of depth ($p = .001$), breadth ($p = .001$), and shared posts ($p = .003$) compared to acquaintances (Table 2). In regard to RQ2 however, post hoc analyses revealed no significant differences between lapsed friends and acquaintances for any of the variables evaluated.

DISCUSSION

Given the increasing multimodal nature of relationships today, the extension of foundational theories of interpersonal communication to mediated contexts is crucial in making sense of patterns of relational development, maintenance, and dissolution. The present study applied the well-known social penetration theory by assessing disclosure practices (depth, breadth, and volume of communication) through the popular SNS, Facebook. The results support the connection between depth and breadth of disclosure and communication frequency and the current relationship stage (Altman & Taylor, 1973). The results also encourage further analysis of the depenetration side of SPT and the persistence of lapsed ties through Facebook. Finally, the present study draws attention to the potential for researchers interested in studying the relational lifespan to draw on longitudinal data available with the Friendship Page on Facebook, which in some cases may contain 16+ years of interactions between two users. A discussion of the theoretical implications in terms of SPT and practical implications related to SNS use and methodological opportunities follows.

From a theoretical standpoint, these results largely support a digital application of SPT for assessing the type and volume of self-disclosure as it relates to public-facing communication through Facebook. More specifically, the results demonstrated a

connection between the type and volume of communication in line with SPT stages, which suggests those in the stable exchange stage have the greatest depth, breadth, and frequency of communication (Altman & Taylor, 1973). The connection between the volume of communication and relational closeness is well documented within SNS research (e.g., Burke & Kraut, 2014; Sosik & Bazarova, 2014), with the present study offering additional support. SPT argues in favor of repeated interaction over time for building a relationship (Altman & Taylor, 1973), which aligns with the higher volume of communication correlating with stronger tie connections. Regarding the depth and breadth of disclosures, the current applications of SPT to mediated communication are limited. Gibbs et al. (2006) did explore SPT stages in relation to communication within online dating, finding that depth and breadth did not correlate with stage. However, this work focused on online dating, which as a platform often encourages sharing more with a stranger from the start. A greater depth and breadth of disclosure is considered worth the potential risk of not having a relationship with that person at all (Gibbs et al., 2006). As Facebook is used beyond romantic relationships, it is unsurprising that the present study's results differ from online dating research and are more in line with the theoretical assumptions of SPT. When it comes to weighing the cost-reward side of disclosure, the public nature of Facebook may make members more cautious in their disclosures in new or less close relationships, as may be the case with these findings. Interestingly, the coded data still captured significant variance in both depth and breadth across the stages of SPT, suggesting there are nuances in disclosures through public-facing communication through Facebook that should be studied further.

In terms of additional content viewable on the Friendship Page, no relationship was found between the relationship stage and the number of shared likes and shared pictures. Given that much of what constitutes shared likes could be considered peripheral disclosures in terms of depth of communication (Taylor & Altman, 1987), it would follow that they do not necessarily forecast a closer relationship. The lack of relationship for shared images could question the necessity of geographical distance suggested by SPT. However, it could also be a product of different site uses between relational partners, warranting further study.

The present study also explored how lapsed ties fit within the framework of SPT with a focus on self-disclosure and communication with lapsed ties compared to closer friends and acquaintances. Lapsed ties represent a trend towards viewing friendships as “flexible” rather than “fragile” (e.g., Johnson & Becker, 2011). SPT would suggest without active communication and disclosure, that ties would ultimately dissolve, but as past work has shown, SNS use can sustain relationships absent active communication. Recent work argues that the main reasons for sustaining lapsed ties are the potential for social capital, reconnecting, and nostalgia (Pennington, 2021). That lapsed ties had similar levels of communication through the site as acquaintances spotlights their regressed state, which, while not inconsistent with SPT, raises the question of how features of SNSs facilitate connections that may otherwise have ended. As Mason and Carr (2021) suggest, SNSs are lightweight social interaction tools that can keep a relationship from fully dissolving. In exploring communication with lapsed ties compared to close friends and acquaintances, the present results did find lapsed ties were significantly different than actively maintained connections but were similar in terms of depth and breadth of communication when it came to acquaintances. The volume of posts was trending towards significance (Table 2), which would track with the idea these relationships were once maintained at a greater level compared to acquaintances who have not moved past those early stages of relationship development. Future work on relational dissolution would benefit from assessing these ties and what they mean for theories developed pre-SNS use.

Beyond theory, the present results offer practical implications for research on relational development, maintenance, and dissolution in a mediated world. This study found communication through Facebook was representative of how a user perceives that relationship outside of Facebook, supporting a growing body of literature that interpersonal relationships are sustained through various channels of communication, extending offline to online and vice versa (e.g., Caughlin & Sharabi, 2013; Ledbetter, 2016; Parks, 2017). In this regard, it may be possible for future researchers to use Friendship Page data to explore changes in communication patterns and closeness over time. This can extend interpersonal communication theories online and offer practical takeaways regarding friendship communication patterns. As mentioned above, these findings speak to a connection between the perception of relational closeness and actual communication

over time. As such, researchers may find this type of data particularly helpful in assessing communication across a wide range of interpersonal theories and contexts.

Limitations

The present study did not attempt to assess the first relationship stage outlined by Altman and Taylor (1973), “orientation.” Given the multimodal nature of relationships, from the outset, it was clear that being able to find an adequate sample of people who had interacted only one to two times - either face-to-face or online - was unlikely. As previously suggested, the act of friending through Facebook would signify the desire to move beyond orientation and into the exploratory affective exchange stage, which has been noted in earlier research on relational development and social media use (Bryant et al., 2011; Fox et al., 2013). While there are Facebook relationships that are no longer maintained and in past research, participants have admitted they do not even know if they know their entire social network online (Parks, 2010), these lapsed ties illustrate a new type of relational stage rather than orientation. These lapsed connections, and the ability to map the depenetration of a relationship through the Friendship Page, are important to consider as we consider the affordances of new media. If they are functionally no different than an acquaintance, what is the purpose of maintaining that tie online, and what does a user gain from having this relationship as a part of their overall social network?

Generalizations based on the data should also be tempered based on the sample size and demographics of the participants. The study did not control for possible effects like age, gender, or physical proximity, which may influence disclosure and relationship building through the site. That said, findings did suggest communication online was reflective of offline perceptions of closeness, and past work also found no significant differences between men and women and the depth of Facebook disclosures (Sheldon, 2013). The present study also only focused on a subset of information available through Facebook, so it cannot be generalized to all interactions that occur through the site. The Friendship Page consists of status updates that tag both friends (either by them or a third party), wall posts made between them, tagged photo albums that contain both friends, and a list of any shared friends, photos, and likes. This leaves out information such as communication through Facebook messages/chat and commenting on a status update where one of the parties was not tagged initially. Research has demonstrated the value of

directed communication such as Facebook messaging; however, analysis of the types of disclosures made privately versus publicly on the site may help to further assess communication and relationship development through SNSs, creating space for the Friendship Page to be assessed in line with other online disclosures in future research.

Future Directions

It is important to bridge research on interpersonal relationships and technology features to understand better how theory informs interpersonal communication processes in a mediated environment (Hall, 2020). This study offers a case for the Friendship Page as reflective of relational closeness based on communication practices through Facebook. Importantly, this study draws on an analysis of actual dyadic communication and engagement through Facebook rather than strictly self-report measures; Ledbetter (2016) notes a reliance on self-report is a common weakness in SNS research. The ability for researchers to use the Friendship Page in the future can help to supplement and strengthen an understanding of communication within interpersonal relationships and the role of direct and public-facing communication through the site, particularly when access to API and log data is limited to those who work for Facebook or part of their broader company, Meta. For example, the present study only coded for depth and breadth of disclosure, future work might explore things like types of social support, or the use of different relational maintenance behaviors as demonstrated through tagged posts and comments.

Future research would also benefit from assessing private and passive uses of SNSs related to theories such as SPT. Passive use (e.g., scrolling one's newsfeed or reading a profile) would not rise to the threshold of dyadic communication, begging the question of how social information seeking online may disrupt expectations for slow and mutual disclosures identified by SPT (Taylor & Altman, 1987). Similarly, private uses of the site (e.g., messaging) may most closely mirror offline conversation, particularly in terms of the depth of disclosure as users may have privacy concerns that limit their public-facing disclosures. While this study found that public disclosures aligned with relationship stage and closeness, quantitative analysis of direct messages and the Friendship Page may also offer evidence of the role of public versus private communication online as it relates to

disclosure practices and relationship development, as well as other interpersonal communication concepts noted above (e.g., social support, relational maintenance behaviors). Finally, in addition to the features of SNSs and components of SPT discussed in the present article, Mason and Carr (2021) also suggest that the nature of disclosures, social presence, and algorithmic approximation may influence the application of SPT in a mediated world. Future work that builds on these and the questions mentioned above can help refine and reflect on the applicability of this theory today.

References

- Altman, I., & Taylor, D. A. (1973). *Social penetration: The development of interpersonal relationships*. Holt, Rinehart, & Winston.
- Bryant, E. M., Marmo, J., & Ramirez, Jr., A. (2011). A functional approach to social networking sites. In K. B. Wright & L. M. Webb (Eds.) *Computer-mediated communication in personal relationships* (pp. 3-20). New York, NY: Peter Lang Publishing.
- Burke, M., & Kraut, R. (2014). *Growing closer on Facebook: Changes in tie strength through social network site use*. Paper presented at the CHI Conference, Toronto, Canada.
- Caughlin, J. P., & Sharabi, L. L. (2013). A communicative interdependence perspective of close relationships: The connections between mediated and unmediated interactions matter. *Journal of Communication*, *63*(5), 873-8983. doi: 10.1111/jcom.12046
- Constine, J. (2012, November 8). *See everything you've ever shared with someone on Facebook's redesigned friendship pages*. TechCrunch. <https://techcrunch.com/2012/11/08/facebook-friendship-pages/>
- Craig, E., & Wright, K. B. (2012). Computer-mediated relational development and maintenance on Facebook. *Communication Research Reports*, *29*(2), 119-129. doi: 10.1080/08824096.2012.667777
- Ellison, N. B., Steinfield, C., & Lampe, C. (2011). Connection strategies: Social capital implications of Facebook-enabled communication practices. *New Media & Society*, *13*, 873- 892. doi: 10.1177/1461444810385389
- Ellison, N. B., Vitak, J., Gray, R., & Lampe, C. (2014). Cultivating social resources on social network sites: Facebook relationship maintenance behaviors and their role in social capital processes. *Journal of Computer-Mediated Communication*, *19*, 855-870. doi: 10.1111/jcc4.12078
- Fox, J., Warber, K. M., Makstaller, D. C. (2013). The role of Facebook in romantic relationship development: An exploration on Knapp's relational stage model. *Journal of Social and Personal Relationships*, *30*(6), 771-794. doi: 10.1177/0265407512468370
- Gibbs, J., Ellison, N. B., Heino, R. D. (2006). Self-presentation in online personals: The role of future interaction, self-disclosure, and perceived success in Internet dating. *Communication Research*, *33*(2), 152-177. doi: 10.1177/0093650205285368

- Hall, J. A. (2020). *Relating through technology*. Cambridge, UK: Cambridge University Press.
- High, A. (2019). Theorizing a more complete picture: Integrating interpersonal communication with computer-mediated communication. *Human Communication & Technology, 1*, 22-26. <https://journals.ku.edu/hct/article/view/11977/11370>
- High, A. C., & Buehler, E. M. (2019). Receiving supportive communication from Facebook friends: A model of social ties and supportive communication in social network sites. *Journal of Social & Personal Relationships, 36*(3), 719-740. doi: 10.1177/0265407517742978
- Johnson, A. J., & Becker, J. A. H. (2011). CMC and the conceptualization of “friendship”: How friendships have changed with the advent of new methods of interpersonal communication. In K. B. Wright & L. M. Webb (Eds.) *Computer-mediated communication in personal relationships* (pp. 225-243). New York, NY: Peter Lang.
- Koban, K., & Krüger, S. (2018). Out of sigh, (not yet) out of mind: The impact of tie strength on direct interaction and social surveillance among geographically close and long-distance Facebook friends. *Communication Research Reports, 35*(1), 74-84. doi: 10.1080/08824096.2017.1383235
- Ledbetter, A. M. (2016). Friendship and social media. In M. Hojjat & A. Moyer (Eds.), *The psychology of friendship* (pp. 93–108). Oxford University Press.
- Maheshwari, S., & Mukherjee, T. (2020). How strong are our weak ties? Examining the usefulness of Facebook friendship in youths’ life from the Social Penetration Theory. *The Journal of Social Media in Society, 9*(2), 29-46.
- Mason, A. J., & Carr, C. T. (2021). Toward a theoretical framework of relational maintenance in computer-mediated communication. *Communication Theory*, online first. doi: 10.1093/ct/qtaa035
- McEwan, B. (2013). Sharing, caring and surveillin: An actor-partner interdependence model examination of Facebook relational maintenance strategies. *Cyberpsychology, Behavior, and Social Networking, 16*(12), 863-869. doi: 10.1089/cyber.2012.0717
- McEwan, B., Sumner, E., Eden, J., & Fletcher, J. (2018). The effects of Facebook relational maintenance on friendship quality: An investigation of the Facebook relational maintenance measure. *Communication Research Reports, 35*(1), 1-11. doi: 10.1080/08824096.2017.1361393
- Park, N., Jin, B., & Jin, S-A. A. (2011). Effects of self-disclosure on relational intimacy in Facebook. *Computers in Human Behavior, 27*(5), 1974-1983. doi: 10.1016/j.chb.2011.05.004
- Parks, M. R. (2010, June). *Who are Facebook friends? Exploring the composition of Facebook friend networks*. Paper presented at the International Communication Association Conference, Singapore.
- Parks, M. R. (2017). Embracing the challenges and opportunities of mixed-media relationships. *Human Communication Research, 43*(4), 505-517. doi: 10.1111/hcre.12125
- Parks, M. R., & Floyd, F. (1996). Meanings for closeness and intimacy in friendship. *Journal of Social and Personal Relationships, 13*(1), 85-107.

- Pennington, N. (2020). An examination of relational maintenance and dissolution through social networking sites. *Computers in Human Behavior, 105*, 1-8. doi: 10.1016/j.chb.2019.106196
- Pennington, N. (2021). The maintenance of dormant and commemorative ties by young adults through social media. *Southern Communication Journal, 86*(3), 244-255. doi: 10.1080/1041794X.2021.1900353
- Rawlins, W. K. (1994). Being there and growing apart: Sustaining friendships during adulthood. In D. J. Canary & L. Stafford (Eds.) *Communication and relational maintenance* (pp. 275-294). Emerald Publishing Group.
- Rozzell, B., Piercy, C. W., Carr, C. T., King, S., Lane, B. L., Tornes, M., Johnson, A., & Wright, K. B. (2014). Notification pending: Online social support from close and nonclose relational ties via Facebook. *Computers in Human Behavior, 38*, 272-280. doi: 10.1016/j.chb.2014.06.006
- Sheldon, P. (2013). Examining gender differences in self-disclosure on Facebook versus face-to-face. *The Journal of Social Media in Society, 2*(1), 88-105.
- Sibona, C. (2014, January). *Unfriending on Facebook: Context collapse and unfriending behaviors*. Paper presentation at the 47th Hawaii International Conference on System Science (Waikoloa, HI).
- Sosik, V. S., & Bazarova, N. N. (2014). Relational maintenance on social network sites: How Facebook communication predicts relational escalation. *Computers in Human Behavior, 35*, 124-131. doi: 10.1016/j.chb.2014.02.044
- Taylor, D., & Altman, I. (1987). Communication in interpersonal relationships: Social penetration processes. In M. Roloff and G. Miller (Eds.), *Interpersonal processes: New directions in communication research* (pp. 257-277). Sage.
- Tong, S. T., & Walther, J. B. (2011). Relational maintenance and computer-mediated communication. In K. Wright & L. Webb (Eds.), *Computer-mediated communication in personal relationships* (pp. 98-118). New York, NY: Peter Lang.
- Welch, S-A., & Rubin, R. B. (2002). Development of relationship stage measures. *Communication Quarterly, 50*(1), 24-40. doi: 10.1080/01463370209385644

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Supplemental Materials

Additional files regarding the manipulation check and data are available upon request.

Online Connection

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