

Predictors of Behavioral and Relationship Outcomes During Mutual Self-Disclosure:  
Implications for Dyadic Peer Support Interventions

Joshua Swanson

Carnegie Mellon University

Author Note

This research was conducted as part of a Senior Honors Thesis for the Department of Psychology at Carnegie Mellon University.

Correspondence concerning this article can be addressed to Joshua Swanson, Carnegie Mellon University, Pittsburgh, PA 15213. Email: [jdswanso@andrew.cmu.edu](mailto:jdswanso@andrew.cmu.edu)

### Abstract

Despite the popular use of peer support interventions to improve the interpersonal functioning of patients with mental illness, research into the effectiveness of such programs has returned mixed results. In order to better understand potential moderators of these interventions' effectiveness, the present study involved the random pairing of two same-sex strangers who took turns engaging in mutual self-disclosure on two separate occasions, separated by one week. A total of 51 same-sex pairs of college students were enrolled in this study. Our aim was to examine whether social competence and existing levels of social support predicted engagement in the interactions, specifically self-disclosure and support provision. Although both social competence and social support predicted engagement in the interaction, social competence appeared to be the more robust predictor. Dyadic data analyses revealed that providing emotional and instrumental support to a partner predicted an increase in one's liking for and plans to communicate with this partner. The association between emotional support and relationship outcomes was stronger among males than females, whereas the association between instrumental support and relationship outcomes was stronger for females than males.

Predictors of Behavioral and Relationship Outcomes During Mutual Self-Disclosure:  
Implications for Dyadic Peer Support Interventions

Individuals suffering from moderate to severe mental illness typically experience difficulty building and maintaining social relationships (Davidson, O'Connell, Tondora, Staeheli, & Evens 2004; Mueser & Tarrier, 1998). As a result of this interpersonal deficit, people suffering from a variety of mental disorders consistently report feelings of social isolation, loneliness, and a lack of much needed social support (Bengtsson-Tops & Hansson, 2001; Davidson, Stayner, Lambert, Smith, & Sledge, 1997; Green, Hayes, Dickinson, Whittaker, & Gilheany, 2002). Problematic social relationships have also been shown to have deleterious effects on an individuals' physical and mental health (Cohen, 2004; Cohen, Sherrod, & Clark, 1986; Windle, Francis, & Coomber, 2011). Thus, establishing social relationships and improving interpersonal functioning is often considered a primary goal of recovery-oriented care (Davidson, O'Connell, et al., 2004).

One often-utilized method to accomplish this goal is the use of dyadic or group peer support interventions. Unfortunately, research into the effectiveness of such programs has shown mixed results (Chinman et al., 2014; Davidson et al., 1999; Fuhr et al., 2014; Lloyd-Evans et al., 2014; Repper & Carter, 2011). In attempt to reconcile conflicting research, specific moderators of the effectiveness of peer support interventions have been examined to determine who does and who does not benefit from individual and group supportive interactions. The two primary moderators of interest for this study are social competence and existing levels of social support.

Although specific operationalizations of social competence vary across the research literature, there is a general consensus that social competence is defined as real or perceived effectiveness in navigating social interactions (Rose-Krasnor, 1997). Higher levels of this

construct have been linked with better social, emotional, and academic adjustment (Chen, Huang, Chang, Wang, & Li, 2010; Kupersmidt, Coie, & Dodge, 1990; Lengua, 2003; Newcomb, Bukowski, & Pattee, 1993; Parker et al., 1995) and have been positively associated with the development of social networks (Hansson, Jones, & Carpenter, 1984; Heller & Swindle, 1983; Monroe & Steiner, 1986; Shaver, Furman, & Buhrmester, 1985). Additionally, social competence has been shown to prospectively predict friendship formation and increases in perceived support (Ciarrochi, Scott, Deane, & Heaven, 2003; Cohen, Sherrod, & Clark, 1986). Given these associations, social competence may play an important role in the establishment of new interpersonal relationships and supportive interactions.

While research examining social competence specifically as a pre-requisite for the beneficial effects of support interventions is limited, the results of a dyadic peer support intervention that paired mentally ill patients with healthy peer supporters found that people who displayed lower levels of social functioning showed lower levels of study adherence, which was assessed by how often patients met with their peer supporters and engaged in activities together. Although instructed to meet on a regular basis and given a small monthly stipend to provide the financial opportunity to engage in community activities, patients with lower social functioning refused to continue meeting with their partner. They did, however, continue with study follow-up assessments for the duration of the experiment (Davidson et al., 2004). Thus, people who display lower levels of social competence may lack some of the personal resources needed to establish and maintain supportive relationships with others and therefore are less likely to reap the benefits of a peer support intervention.

A second variable that may influence social interactions and the effect of peer support interventions is existing levels of social support. Social support has been positively associated

with better mental and physical health (Berkman, 1995; Cohen & Janicki-Deverts, 2009; Uchino 2004; Umberson & Montez 2010). The relation of existing social support to peer support intervention outcomes, however, has appeared to be paradoxical. Even though social competence is positively associated with social support, and social competence should predict benefits from peer support interventions, high levels of social support have been found to be a disadvantage in terms of benefits from peer support groups. In a study of women with breast cancer, peer discussion groups were helpful for women who lacked social support, but were associated with a deterioration in functioning for those with high levels of outside social support (Helgeson, Cohen, Schulz, & Yasko, 2000; Helgeson, Cohen, Schulz, & Yasko, 2001). Existing social support might also predict whether someone chooses to participate in a support intervention. One study found that those who attended a support group had lower levels of existing support (Taylor, Falke, Shoptaw, & Lichtman, 1986), suggesting that individuals may be motivated to participate in support interventions when they are currently lacking supportive relationships. Taken together it seems that existing social support may influence engagement in a peer support intervention, and ultimately, the outcomes of peer support interventions.

Although this study does not examine the effects of support interventions on interpersonal and psychological health outcomes, this study does examine how social competence and existing social support influence relationship formation—specifically initial engagement in self-disclosure and support providing behaviors that are needed for the successful establishment of relationships. In order to better understand the links of social competence and social support to relationship formation, it is helpful to draw upon the capability, motivation, and opportunity model of behavior (COM-B; Figure 1). In this system capability (one's psychological or physical capacity to engage in a behavior), motivation (one's internal processes

that energize and direct behavior), and opportunity (one's external factors that make a behavior possible) cooperate to generate behavior (Michie, Stralen, & West 2011). In the context of the present study which involves an interaction between two strangers, the interaction itself provides the opportunity for interpersonal engagement, social competence reflects one primary aspect of an individual's capability to engage, and existing social support influences one's motivation to engage (Figure 2). Capability and motivation then lead to actual engagement, which is operationalized as the quantity of self-reported self-disclosure and support provision.

The two engagement processes just mentioned, self-disclosure and support provision, have been shown to be vital for the initial stages of relationship formation. Self-disclosure is conducive to increased liking and closeness between partners (Sprecher & Duck, 1994) and is predictive of increased positive affect in get-acquainted interactions between same-sex strangers (Vittengl & Holt, 2000). Providing social support has also been shown to improve mood and enhance self-esteem (Williamson & Clark, 1989), and in the context of relationships, support provision is associated with higher relationship and life satisfaction (Gosnell & Gable, 2015).

To test these ideas, the present study involved the random pairing of two same-sex strangers who were brought into the lab for two one-hour sessions, separated by one week. In each session, participants took turns sharing information about a personal problem with one another. Face to face interactions were used as opposed to online or telephone interactions, because they tend to produce higher affiliative outcomes (Sprecher, 2014) and are often used in real-life social support interventions.

Four hypotheses were developed. First, higher social competence will predict greater amounts of self-disclosure and support provision. Second, higher levels of existing social support will predict lower levels of self-disclosure and support provision. Third, the effect of social

competence and social support on these two engagement processes will be mediated by increased and decreased motivation, respectively. That is, people who have higher levels of social competence and lower levels of social support will be more motivated to engage in self-disclosure and support provision. Such increases in motivation will then lead to higher self-disclosure and greater support provision. Finally, higher levels of behavioral engagement will result in positive relationship outcomes, specifically partner liking and plans to communicate with their partner after the completion of the study. Although other relations between interpersonal variables may exist and are shown in our model in Figure 2, we are only testing the relations just mentioned in the present study. These relations are shown in bold.

## **Method**

### **Participants**

A total of 102 college students (38 males, 62 females) were enrolled in this study as part of a course requirement. Participant age ranged from 18 to 22, with a mean of 19.23 ( $SD = 1.13$ ). They responded to two separate questions about race and ethnicity. Participants self-identified as: White (31.37%), Black or African American (5.88%), Asian (63.73%), American Indian or Alaska Native (0.00%), Native American or Other Pacific Islander (1.96%). These numbers exceed 100% because respondents could choose more than one category. Regarding ethnicity, 10.78% self-identified as Hispanic or Latino, and 87.25% responded as being neither Hispanic or Latino. Two participants did not report their ethnic background. Finally, participants were asked to respond to a question about sexual orientation. Participants self-identified as Heterosexual (79.41%), Bisexual (6.86%), Homosexual (3.92%), or Other (4.90%). Of the original sample of 102 students, 2 participants did not return to complete their second session, resulting in a 98% retention rate.

## **Procedure**

The study was approved by Carnegie Mellon University's Institutional Review Board. In order to sign up for the study, interested participants enrolled online and completed a poll listing their typical weekly availability. Same-sex pairs of participants were matched based on their listed availability and scheduled to come into the lab for the first session. Sex for participants was obtained from a pre-enrollment questionnaire that all students were asked to complete as part of the course requirement.

Upon arrival, participants completed consent forms. Next, participants completed a baseline questionnaire. This baseline questionnaire assessed measures of social support and social competence, and included all demographic variables. The baseline questionnaire also asked participants if they knew their respective partners, in order to assure only strangers were used in our analyses. Only two pairs of participants reported being friends with their partner. Once the baseline questionnaire was completed, participants were randomly assigned to be either participant A or participant B. Participant A would be the first to pick and disclose a personal problem, while participant B would be the first to listen and respond to the problem in whatever way they felt comfortable.

In order to choose a problem, participants were given a topic sheet that included various potential problem areas (e.g. Academic, Interpersonal, Physical Health) and asked to select one or more of these areas. They were then instructed to write one to two sentences describing their problem in more detail and then disclose this to their partner. After the problem was revealed participants were given questionnaires to assess their motivation to engage with their partner, and asked further questions pertaining to the characteristics of the selected problem.

After completing these questionnaires, participants were given 8 minutes for discussion. Both participants were encouraged to actively engage in the discussion by being given the following set of instructions: “For the next eight minutes, please discuss the problem you selected. (*Directed Toward Participant A*) Provide as much or as little information about your problem that you feel comfortable providing, but please try to keep the discussion going for the full eight minutes. (*Directed Toward Participant B*) As your partner discusses his/her problem, feel free to respond to him/her in whatever way you feel comfortable. This discussion, although focusing on your partner’s problem, should involve both of you conversing together.”

After 8 minutes of discussion participants were given questionnaires to assess levels of engagement and overall satisfaction with their partner and the quality of the discussion. Roles were then switched, such that participant B was the one to pick and discuss a personal problem, while participant A listened and responded to the problem. The same procedure described above was repeated.

After both discussions, participants were then scheduled for their second lab session approximately one week later. In the second session, the same problems that were discussed in session one were reused. However, participant B was the first to act as the discloser, while participant A was the first to listen and respond to the problem. At the end of the second session, participants were given a final questionnaire to assess their attitudes toward their partner.

### **Instruments**

**Social competence.** Social competence was measured with 10 items from the Interpersonal Competence Questionnaire (ICQ; Buhrmester, Furman, Wittenberg, & Reis, 1988). These 10 items from the ICQ consisted of the highest factor loading social situations (two from each of the five interpersonal domains) and asked participants to indicate on a 5-point scale the

extent to which they felt competent and comfortable handling each type of situation (1 = I'm poor at this; I'd feel so uncomfortable; 5 = I'm Excellent at this; I'd feel very comfortable). Sample items included "Introducing yourself to someone you might like to get to know" and "Confiding in a new friend and letting him or her see your softer, more sensitive side." Cronbach's alphas for this measure were .64 for participant A and .72 for participant B.

**Social support.** In order to measure multiple aspects of social support, we used two measures. Our first measure of social support was the Social Support Questionnaire 6 (SSQ6) developed by Sarason, L.G., Sarason, B.R., Shearin, and Pierce (1987). This scale asked participants to list up to 9 people in their life who provided them with help or support, and then respond to 6 items regarding their satisfaction with the emotional support received from the prior-listed support providers. Responses were given on a 6-point scale ranging from Very Satisfied (6) to Very Dissatisfied (1). The Cronbach's alpha for this scale was .90 for participant A and .89 for participant B.

Our second measure of social support was the Interpersonal Support Evaluation List Shortened Version (ISEL-12; Cohen, Mermelstein, Kamark, & Hoberman, 1985). This 12-item measure asked participants to indicate on a 4-point scale the extent to which they felt each statement was true (1 = Definitely False; 4 = Definitely True). Sample items include "I feel that there is no one I can share my most private worries and fears with", "If I wanted to have lunch with someone, I could easily find someone to join me", and "If I were sick, I could easily find someone to help me with my daily chores." The Cronbach's alpha for this scale was .80 for participant A and .75 for participant B.

Examining the relation between these two measures, we found that the SSQ and ISEL were highly correlated for both participant A (SSQ & ISEL:  $r = .63, p < .01$ ) and participant B

(SSQ & ISEL:  $r = .70, p < .01$ ). Because these measures were highly correlated we decided to combine the SSQ and ISEL into one measure of existing social support by standardizing each scale and taking their average value.

**Motivation.** Motivation was measured with two items, one to assess one's motivation to self-disclose ("Overall, how motivated are you to openly discuss this problem with your partner") and the other to assess one's motivation to provide support ("Overall, how interested are you in helping your partner with this problem"). Each item was assessed using a 5-point scale, ranging from 1 = Not At All to 5 = Extremely.

**Self-disclosure.** Amount of self-disclosure was assessed using a single item. Participants were asked to respond to the following question, "How much did you disclose about this problem to your partner?", using a 5-point scale ranging from 1 = Nothing At All to 5 = Everything.

**Support provision.** Emotional and instrumental support were each assessed with two items that used a 5-point scale ranging from 1 = None At All to 5 = A Lot. For emotional support participants responded to the following two items: "How much did you sympathize with your partner?" and "How much did you really listen to your partner as he/she discussed the problem?" These two items were correlated  $r = .55$  and  $r = .58$  for participant A during session one and two, respectively, and were correlated  $r = .33$  and  $r = .50$  for participant B during session one and two, respectively.

For instrumental support participants responded to the following two items: "How much advice did you give to your partner to help solve his/her problem?" and "How much did you help your partner come up with a plan to solve his/her problem?" These two items were

correlated  $r = .78$  and  $r = .75$  for participant A during session one and two, respectively, and were correlated  $r = .75$  and  $r = .69$  for participant B during session one and two, respectively.

**Relationship outcomes.** Measures of relationship outcomes focused on liking and interest in future interactions. Liking was measured with three items, each on a 5-point scale ranging from 1 = None At All to 5 = A Lot. These items were: “Overall, how much would you say you enjoyed interacting with your partner?” “Generally speaking, how much do you like your partner as a person?” and “Generally, how pleasant would you say the interactions have been with your partner?” The internal consistency was .90 for both A and B. Interest in future interactions was measured by a single item: “Do you plan to communicate with your partner after this study?” on a 5-point scale ranging from 1 = Not At All / Definitely Not to 5 = A Lot / Definitely Yes.

## Results

### Background Analyses

Both participants in the dyad were compared on prior social support and social competence. There were no differences between the two persons on either of these variables. We also examined whether participant A’s and participant B’s social support and social competence were correlated. Although social support between the two participants were not related ( $r = .01$ ,  $p = .96$ ), level of social competence was ( $r = .37$ ,  $p = .01$ ). Finally, male and female dyads were compared on social competence and social support. Independent samples T-tests revealed no significant differences between sexes.

### Initial Interaction

Although both persons in each dyad took turns sharing problems with one another, and this process was repeated on a second occasion, these first analyses test the hypotheses with

respect to the first problem sharing activity where participant A acted as the discloser and participant B acted as the support provider. These cross-sectional analyses examined how prior social support and social competence predicted motivation to disclose, motivation to provide support, actual disclosure and actual support provision, and whether the latter relations were mediated by motivation to disclose and motivation to support, respectively. All relations involving disclosure outcomes examined how A's social support and social competence predicted A's motivation to disclose and A's actual disclosure, whereas all support provision outcomes examined how B's social support and social competence predicted B's motivation to provide support and actual support provision.

We also examined longitudinal relations of social competence and social support to changes in our primary motivational and behavioral outcomes between the first and fourth (final) interaction. Because the order of participant disclosure is reversed between the first and second sessions, Participant A is the discloser and Participant B is the support provider in both the first and fourth interaction.

**Social competence.** As shown in the first two columns of Table 1, A's social competence was positively associated with A's motivation to disclose, and B's social competence was positively associated with B's motivation to provide support. Concerning our behavioral outcomes, A's social competence was not associated with A's self-disclosure, but B's social competence was positively associated with B's instrumental support provision.

Examining changes over time, shown in the first two columns of Table 2, higher levels of A's social competence predicted an increase in A's motivation to disclose between the first and fourth session. Participant B's social competence did not predict changes in B's motivation to

provide support. Longitudinally, A's social competence predicted increases in actual disclosure over time, but B's social competence did not predict changes in support provision over time.

**Social support.** In the last two columns of Table 1, we see that A's social support was not associated with A's motivation to disclose. There was a trend suggesting B's social support was related to B's greater motivation to provide support during the interaction. Regarding behavioral outcomes, A's social support was marginally associated with A's actual disclosure, but B's social support was not associated with B's support provision.

As shown in the last two columns of Table 2, longitudinally, neither A's nor B's existing social support predicted changes in motivational or behavioral outcomes.

**Mediation.** Examining our cross-sectional results from Table 1, we can see that the only potential relation for motivation to mediate is the relation between B's social competence and B's support provision. When B's motivation to provide support and B's social competence were entered into the same regression equation, the effect for B's social competence disappeared ( $\beta = .18$ , n.s.) while the effect for B's motivation to provide support remained significant ( $\beta = .49$ ,  $p < .01$ ). This supports our mediation hypothesis that the relation between social competence and support provision is partly driven by an increase in motivation to provide support.

Longitudinally, as shown in Table 2, the only potential relation for motivation to mediate is the relation between A's social competence and A's actual disclosure. When A's motivation to disclose and A's social competence were entered into the same regression equation, the effect for A's social competence disappeared ( $\beta = .12$ , n.s.) while the effect for A's motivation to disclose remained significant ( $\beta = .34$ ,  $p < .04$ ). This supports our mediation hypothesis that the relation between social competence and disclosure is partly driven by an increase in motivation to disclose.

**Prediction of relationship outcomes.** We also examined how our primary behavioral measures during this first interaction predicted how much each participant liked their partner and desired to interact with them in the future. A's amount of disclosure was not associated with A's liking of B, but both B's emotional and instrumental support provision predicted B's liking of A ( $r = .52, p < .01$ ;  $r = .52, p < .01$ ). Neither A's disclosure nor B's emotional or instrumental support provision during this first interaction predicted plans to communicate in the future.

### **Dyadic Analyses**

Because our study involved both participants taking turns being the discloser as well as the responder, we could conduct dyadic data analyses. These analyses examined the first session, in which both A and B had a turn disclosing a problem and responding to their partner's problem. First, we tested whether there were order effects on outcomes in terms of who disclosed first by examining whether the dyads were distinguishable. This test of distinguishability was done using multilevel modeling and examining the deviance between a distinguishable and indistinguishable model. The tests revealed that for almost every outcome the dyads were indistinguishable, so we decided to treat our dyads as indistinguishable.

The results of our analyses are presented in Table 3. We entered actor and partner social competence into a mixed model analysis to predict each of our motivational and behavioral outcomes. We then conducted a parallel set of analyses with actor and partner social support. Of note, in dyadic analyses each individual is both an actor and a partner. The results for social competence are shown in the first two columns of Table 3, and the results for social support are shown in the last two columns.

**Social competence.** Actor social competence did not predict disclosure motivation, but partner social competence predicted greater disclosure motivation. By contrast, actor social

competence was strongly associated with greater motivation to provide support, but partner social competence was unrelated to support motivation. For behavioral outcomes, neither actor nor partner social competence were related to amount of disclosure. Actor social competence was associated with greater emotional and instrumental support provision.

**Social support.** In the same pattern found for social competence, partner existing social support was positively associated with motivation to disclose, while actor existing social support was positively associated with motivation to provide support. Actor existing social support also was positively associated with actual disclosure. There were trends indicating that actor existing social support was related to greater emotional and instrumental support provision.

**Prediction of relationship outcomes.** We used dyadic data analysis to examine whether interaction behaviors (disclosure and support provision) predicted liking and plans to communicate with one's partner in the future, both of which were measured at the end of the second session. Results are shown in Table 4. Partner disclosure predicted an increase in liking but actor disclosure did not. Neither actor nor partner disclosure predicted plans to communicate. Actor emotional and instrumental support provision were associated with greater liking and increased plans to communicate. Partner emotional support provision was associated with plans to communicate but not liking, while partner instrumental support provision was not associated with either outcome.

**Sex as a moderator.** In our final set of dyadic analyses, we examined if sex moderated the relations between our interaction behaviors and relationship outcomes. Estimates of fixed effects that are positive show stronger relations for males than females, whereas negative estimates show stronger relations for females than males. First examining sex as a moderator for disclosure on relationship outcomes, we found a sex by actor disclosure interaction effect on

liking ( $\beta_{\text{sex}*\text{disclosure}} = .52, p < .01$ ), such that actor disclosure predicted increased liking for males ( $\beta_{\text{male}} = .48, p < .01$ ) but not females ( $\beta_{\text{female}} = -.04, \text{n.s.}$ ). There was no other disclosure effects moderated by sex.

Sex moderated the effect of actor emotional support provision on liking ( $\beta_{\text{sex}*\text{esprovision}} = .44, p < .03$ ), such that actor emotional support provision was a stronger predictor of liking for males ( $\beta_{\text{male}} = .77, p < .01$ ) than for females ( $\beta_{\text{female}} = .33, p < .05$ ). Sex did not moderate any of the partner emotional support provision effects.

Finally, we found a sex by actor instrumental support interaction on plans to communicate ( $\beta_{\text{sex}*\text{isprovision}} = -.44, p = .02$ ), such that actor instrumental support predicted more concrete plans to communicate for females ( $\beta_{\text{female}} = .44, p < .01$ ) but not males ( $\beta_{\text{male}} = .00, \text{n.s.}$ ).

### Discussion

A primary aim of this study was to examine how social competence and existing social support predict how two strangers engage with each other in the context of problem disclosure. Many, but not all, results confirmed our hypothesis that social competence would be related to greater engagement in the interaction, as evidenced by higher levels of self-disclosure and greater support provision. Social competence was associated with disclosure during the initial interaction and predicted increases in the amount of self-disclosure over time. Social competence was also associated with increased support provision. We believe these findings are a result of social competence representing skills that contribute to the effectiveness of social interactions, as both self-disclosure and support provision, when delivered skillfully, have a positive influence on interactions with others (Anders & Tucker, 2000; Halverson & Shore, 1969; Maisel & Shelly, 2009; Sprecher, 1987). This skill-based definition of social competence also fits within our

capability, opportunity, and motivational model of behavior, such that social competence represents an individual's capability to engage in these interpersonal behaviors. In this context, social competence may provide one possible explanation for why lower social functioning patients placed in dyadic peer support interventions did not engage in activities with their partner and were more likely than higher social functioning patients to drop out of the intervention (Davidson et al., 2004). Patients lower in social functioning may have lacked the social skills needed to engage in supportive interactions with their partner.

Our hypothesis that higher levels of existing social support would be related to lower levels of engagement in the interaction was not supported. Instead, evidence from our dyadic analyses showed that more social support was related to greater engagement in the interaction in terms of increased self-disclosure. There was little evidence that existing levels of social support was associated with support provision, but trends showed that existing social support was associated with greater rather than reduced support provision. One explanation as to why higher existing support was related to greater rather than lesser interaction engagement may be that individuals high in social support are also individuals who have a predisposition toward self-disclosure, especially because self-disclosure is predictive of positive relationship outcomes (Sprecher, Treger, & Wondra, 2013). Engaging in self-disclosure is likely to lead to greater perceived social support.

Our hypothesis that lower levels of existing social support would be associated with higher levels of engagement may be more applicable to a clinical population. In one qualitative study, researchers found that patients who lived alone placed a greater value on communicating with their partner than patients who lived with carers (Bradshaw & Haddock, 1998), suggesting that those with less support would be more motivated to engage in interactions with others. This

idea may only be applicable to individuals suffering from mental illness given their more substantial feelings of social isolation and lack of support compared to a healthy student sample. It would be beneficial for future research in this area to examine engagement in initial interactions specifically within a clinical population.

We also hypothesized that changes in motivation would explain the relation of social competence and social support to engagement. This hypothesis was partially supported. First we found that the effect of social competence on support provision was driven by an increase in motivation to provide support. Second we found that the effect of social competence on self-disclosure over time was driven by an increase in motivation to self-disclose. These results are in-line with the capability, opportunity, and motivational model of behavior that asserts motivation is a key factor in influencing behavior. Future research should examine other factors besides social competence that may influence an individual's motivation to engage in self-disclosure and support provision, such as partner similarity and emotional state (Karylowski, 1976; Forgas, 2011).

We also predicted that higher levels of self-disclosure and support provision would predict positive relationship outcomes. This hypothesis was generally supported. Although one's own disclosure did not predict liking, how much one's partner disclosed was associated with greater liking. This is in line with prior evidence that recipients of disclosure experience positive interpersonal impressions to a greater degree than the disclosers themselves (Sprecher, Treger, & Wondra, 2013). In contrast, the amount of support provided by one's partner did not predict relationship outcomes, while one's own support provision predicted positive relationship outcomes. The link of support provision to liking is consistent with cognitive dissonance theory or self-perception theory, which states that we like those we help (Schopler & Compere, 1971).

We are not entirely sure as to why the amount of support partners provided was not associated with how much individuals liked their partner. One possible explanation is that it is uncomfortable to receive support, as research has shown that receiving support may come with an emotional cost (Bolger, Zuckerman, & Kessler, 2000). Although receiving support may help address the problem, it also communicates that the individual needs help and may imply a lack of competence.

Taken together, our findings that being a recipient of disclosure as well as a provider of support leads to better relationship outcomes fits with the investment model of relationships (Rusbult, 1980; Rusbult, Martz, & Agnew, 1998; Le & Agnew, 2003). The investment model asserts that commitment in both romantic and platonic relationships is influenced by investment size, defined as tangible and intangible resources put into a relationship. In this study, those resources were disclosure of personal information and provision of support. Thus, in a sense, those who invested more in these initial interactions with a stranger liked their partner more and were more interested in continuing the relationship.

These results have significant implications for dyadic peer support interventions given that the individual being treated for mental illness is typically the discloser and support recipient, while their partner is the recipient of disclosure and support provider. Based on our findings, this non-reciprocal dynamic would not lead to greater relationship outcomes for patients because they are never acting as a recipient of disclosure or a support provider. Because the relationship between a patient and a carer is thought to be responsible for an enormous amount of the benefits of psychological and social interventions (Norcross & Wampold, 2011), it is vital to alter dyadic peer support interventions by encouraging both participants to engage in mutual self-disclosure

as well as provide reciprocal support. In this way, the relationship outcomes would be maximized for both participants.

Despite having no a priori hypothesis concerning how sex may moderate the relation of interaction engagement to relationship outcomes, we found evidence of moderation. First, engaging in self-disclosure was related to liking for males but not females. Self-disclosure may be thought of as a larger investment in a relationship for males given the social constraints that put pressure on males not to disclose (Kring & Gordon, 1998; Panjwani, Chaplin, Sinha, & Mayes, 2015; Pleck, 1976). We also found that the association between providing emotional support to a partner and liking was greater for males than females. It may be that providing emotional support comes more naturally for females than males as it is a communal behavior consistent with the female gender role (Burda, Vaux, & Schill, 1984; Helgeson, 1994). Thus, female support provision may be thought of as less of an investment in the relationship than male support provision. Finally, we found that instrumental support provision was associated with increased plans to communicate for females but not for males. Following a similar logic in explaining the previous effect, it may be that instrumental support provision does not involve enough effort for males compared to females to constitute an increase in commitment to their partner. There is some evidence that males, but not females, have a preference for instrumental support over emotional support (Ashton & Fuehrer, 1993) and are more accustomed to dealing with instrumental support.

The results of our study have some additional implications for peer support interventions. First, because social competence is strongly predictive of interaction engagement, it may be imperative that patients are provided with interpersonal skills training to improve social competence prior to the start of either dyadic or group peer support interventions in order to

maximize levels of engagement. Second, because one's own support provision rather than one's partner's support provision is linked to positive relationship outcomes, pairing patients in dyadic peer support interventions with consumer volunteers (individuals with a history of mental illness but are in recovery) may be more advantageous than pairing them with non-consumer volunteers (individuals with no history of mental illness). The rationale behind this idea is that consumer volunteers may promote reciprocal self-disclosure because both individuals would have a shared experience of mental health problems. Pairing patients with consumer volunteers also would give the patient a greater number of opportunities to provide support to a partner who might be going through similar difficulties. This reciprocal dynamic may strengthen the relationship and lead to greater and longer-lasting engagement in the intervention.

Before concluding, we note a few limitations of our study. Participants were not randomly selected but volunteered to participate and as such may have had a predilection for engaging in self-disclosure. Participants were also a fairly homogenous group of predominantly healthy college students, limiting our ability to generalize these findings to a clinical sample of patients and to other age and socioeconomic groups. Our study is also limited to the initial interactions between strangers and short-term outcomes. Future research should examine how social competence and other social relationship variables predict outcomes during long-term supportive interactions. Lastly, the study was correlational; thus, we are unable to make causal claims about the findings.

In conclusion, this study highlights key predictors of positive behavioral and relationship outcomes of supportive interactions and provides useful implications for the administration of dyadic peer support interventions. We have shown the principal importance social competence seems to have for engaging in self-disclosure and providing emotional and instrumental support.

We have also demonstrated that support provision is a stronger predictor of relationship outcomes than disclosure. Finally, we have begun to examine how the relation between these behavioral and relationship outcomes may be moderated by sex.

### References

- Anders, S. L., & Tucker, J. S. (2000). Adult attachment style, interpersonal communication competence, and social support. *Personal Relationships, 7*(4), 379-389. doi:j.1475-6811.2000.tb00023.x
- Ashton, W. A., & Fuehrer, A. (1993). Effects of gender and gender role identification of participant and type of social support resource on support seeking. *Sex Roles, 28*(7), 461-476. doi:10.1007/BF00289608
- Bengtsson-Tops, A., & Hansson, L. (2001). Quantitative and qualitative aspects of the social network in schizophrenic patients living in the community. Relationship to sociodemographic characteristics and clinical factors and subjective quality of life. *International Journal of Social Psychiatry, 47*(3), 67-77. doi:10.1177/002076400104700307
- Berkman, L. F. (1995). The role of social relations in health promotion. *Psychosocial Medicine, 57*(3), 245-254.
- Bolger, N., Zuckerman, A., & Kessler, R. C. (2000). Invisible support and adjustment to stress. *Journal of Personality and Social Psychology, 79*(6), 953-961. doi:10.1037/0022-3514.79.6.953
- Burda, P., Vaux, A., & Schill, T. (1984). Social support resources: Variation across sex and sex role. *Personality and Social Psychology Bulletin, 10*(1), 119-126. doi:10.1177/0146167284101014
- Buhrmester, D., Furman, W., Wittenberg, M. T., & Reis, H. T. (1988). Five domains of interpersonal competence in peer relationships. *Journal of Personality and Social Psychology, 55*(6), 991-1008. doi:10.1037/0022-3514.55.6.991
- Bradshaw, T., & Haddock, G. (1998). Is befriending by trained volunteers of value to people suffering from long-term mental illness? *Journal of Advances Nursing, 27*(4), 713-720. doi:10.1046/j.1365-2648.1998.00618.x
- Chen, X., Huang, X., Chang, L., Wang, L., & Li, D. (2010). Aggression, social competence, and academic achievement in Chinese children: a 5-year longitudinal study. *Developmental*

- Psychopathology*, 22(3), 583-592. doi:10.1017/S0954579410000295
- Chinman, M., George, P., Dougherty, R., Daniels, A., Ghose, S. S., Swift, A., & Delphin-Rittmon, M. E. (2014). Peer support services for individuals with serious mental illnesses: Assessing the evidence. *Psychiatric Services*, 65(4), 429-441. doi:10.1176/appi.ps.201300244
- Ciarrochi, J., Scott, G., Deane, F. P., & Heaven, P. C. L. (2003). Relations between social and emotional competence and mental health: a construct validation study. *Personality and Individual Differences*, 35, 1947-1963. doi:10.1016/S0191-8869(03)00043-6
- Cohen, S. (2004). Social relationships and health. *American Psychologist*, 59(8), 676-684. doi:10.1037/0003-066X.59.8.676
- Cohen, S., & Janicki-Deverts, D. (2009). Can we improve our physical health by altering our social networks? *Perspectives on Psychological Science*, 4(4), 375-378. doi:10.1111/j.1745-6924.2009.01141.x
- Cohen S., Mermelstein R., Kamarck T., & Hoberman, H.M. (1985). Measuring the functional components of social support. In I. G. Sarason & B. R. Sarason (Eds.), *Social support: theory, research, and applications* (pp. 73-94). The Hague, Netherlands: Martinus Nijhoff.
- Cohen, S., Sherrod, D. R., & Clark, M. S. (1986). Social skills and the stress-protective role of social support. *Journal of Personality and Social Psychology*, 50(5), 963-973. doi:10.1037/0022-3514.50.5.963
- Davidson, L., Chinman, M., Kloos, B., Weingarten, R., Stayner, D., & Tebes, J. K. (1999). Peer support among individuals with severe mental illness: A review of the evidence. *Clinical Psychology: Science and Practice*, 6(2), 165-187. doi:10.1093/clipsy.6.2.165
- Davidson, L., O'Connell, M., Tondora, J., Staeheli, M. R., & Evans, A. C. (2004). *Recovery in serious mental illness: Paradigm shift or shibboleth?* Retrieved from Yale University and the Connecticut Department of Mental Health and Addiction Services: <http://www.ct.gov/dmhas/LIB/dmhas/Recovery/paradigmshift.pdf>
- Davidson, L., Shahar, G., Stayner, D., Chinman, M., Rakfeldt, J., & Kraemer, J. T. (2004).

- Supported socialization for people with psychiatric disabilities: lessons from a randomized controlled trial. *Journal of Community Psychology*, 32(4), 453-477. doi:10.1002/jcop.20013
- Davidson, L., Stayner, D. A., Lambert, S., Smith, P., & Sledge, W. H. (1997). Phenomenological and participatory research on schizophrenia: Recovering the person in theory and practice. *Journal of Social Issues*, 53, 767-784. doi:10.1111/0022-4537.00048
- Forgas, J. P. (2011). Affective influences on self-disclosure: Mood effects on the intimacy and reciprocity of disclosing personal information. *Journal of Personality and Social Psychology*, 100(3), 449-461. doi:10.1037/a0021129
- Fuhr, D. C., Salisbury, T. T., De Silva, M. J., Atif, N., Ginneken, N., Rahman, A., & Patel, V. (2014). Effectiveness of peer-delivered interventions for severe mental illness and depression on clinical and psychosocial outcomes: a systematic review and meta-analysis. *Social Psychiatry and Psychiatric Epidemiology*, 49, 1691-1702. doi:10.1007/s00127-014-0857-5
- Gosnell, C. L., & Gable, S. L. (2015). Providing partner support in good times and bad: Providers' outcomes. *Family Science*, 6(1), 150-159. doi:10.1080/19424620.2015.1082045
- Green, G., Hayes, C., Dickinson, D., Whittaker, A., & Gilheany, B. (2002). The role and impact of social relationships upon well-being reported by mental health service users: A qualitative study. *Journal of Mental Health*, 11(5), 565-579. doi:10.1080/09638230020023912
- Halverson, C. F., & Shore, R. E. (1969). Self-disclosure and interpersonal functioning. *Journal of Consulting and Clinical Psychology*, 33(2), 213-217. doi:10.1037/h0027158
- Hansson, R. O., Jones, W. H., & Carpenter, B. N. (1984). Relational competence and social support. In P. Shaver (Ed.), *Review of personality and social psychology* (pp. 265-284). Beverly Hills, CA: Sage.
- Helgeson, V. S. (1994). Relation of agency and communion to well-being: Evidence and potential explanations. *Psychological Bulletin*, 116(3), 412-428. doi:10.1037//0033-

2909.116.3.412

- Helgeson, V. S., Cohen, S., Schulz, R., & Yasko, J. (2000). Group support interventions for women with breast cancer: Who benefits from what? *Health Psychology, 19*(2), 107-114. doi:10.1037//0278-6133.19.2.107
- Helgeson, V. S., Cohen, S., Schulz, R., & Yasko, J. (2001). Long-term effects of educational and peer discussion group interventions on adjustment to breast cancer. *Health Psychology, 20*(5), 387-392. doi:10.1037/0278-6133.20.5.387
- Heller, K., & Swindle, R. W. (1983). Social networks, perceived social support, and coping with stress. In R. D. Feiner, L. A. Jason, J. N. Moritsugu, & S. S. Farber (Eds.), *Preventive psychology: Theory, research and practice* (pp. 87-103). New York, USA: Pergamon Press.
- Karylowski, J. (1976). Self-esteem, similarity, liking and helping. *Personality and Social Psychology Bulletin, 2*(1), 71-74. doi:10.1177/014616727600200116
- Kring, A. M., & Gordon, A. H. (1998). Sex differences in emotion: Expression, experience, and physiology. *Journal of Personality and Social Psychology, 74*(3), 686-703. doi:10.1037/0022-3514.74.3.686
- Kupersmidt, J. B., Coie, J. D., & Dodge, K. A. (1990). The role of peer relationships in the development of disorder. In S. Archer & J. Coie (Eds.), *Peer Rejection in Childhood* (pp. 274-308). New York: Cambridge University Press.
- Le, B., & Agnew, C. R. (2003). Commitment and its theorized determinants: A meta-analysis of the Investment Model. *Personal Relationships, 10*(1), 37-57. doi:10.1111/1475-6811.00035
- Lengua, L. J. (2003). Associations among emotionality, self-regulation, adjustment problems, and positive adjustment in middle childhood. *Journal of Applied Developmental Psychology, 24*(5), 595-618. doi:10.1016/j.appdev.2003.08.002
- Lloyd-Evans, B., Mayo-Wilson, E., Harrison, B., Istead, H., Brown, E., Pilling, S., Johnson, S., & Kendall, T. (2014). A systematic review and meta-analysis of randomized controlled trials of peer support for people with severe mental illness. *BMC Psychiatry, 14*(1), 14-

39. doi:10.1186/1471-244X-14-39
- Maisel, N. C., & Gable, S. L. (2009). The paradox of received social support. The importance of responsiveness. *Psychological Science, 20*(8), 928-932. doi: 10.1111/j.1467-9280.2009.02388.x
- Michie, S., Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science, 6*(42). doi:10.1186/1748-5908-6-42
- Monroe, S. M., & Steiner, S. C. (1986). Social support and psychopathology: Interrelations with preexisting disorder, stress, and personality. *Journal of Abnormal Psychology, 95*(1), 29-39. doi:10.1037/0021-843X.95.1.29
- Mueser, K. T., & Tarrier, N. (1998). *Handbook of social functioning in schizophrenia*. Needham Heights, MA: Allyn & Bacon.
- Newcomb, A. F., Bukowski, W. M., & Pattee, L. (1993). Children's peer relations: A meta-analytic review of popular, rejected, neglected, controversial, and average sociometric status. *Psychological Bulletin, 113*(1), 99 – 128. doi:10.1016/S0022-4405(03)00048-7
- Norcross, J. C., & Wampold, B. E. (2011). Evidence-based therapy relationships: Research conclusions and clinical practices. *Psychotherapy, 48*(1), 98-102. doi:10.1037/a0022161
- Panjwani, N., Chaplin, T. M., Sinha, R., & Mayes, L. C. (2015). Gender Differences in Emotion Expression in Low-Income Adolescents Under Stress. *Journal of Nonverbal Behavior, 1*-16. doi:10.1007/s10919-015-0224-6
- Parker J. G., Rubin K.H., Price J., & DeRosier M. E. (1995). Peer relationships, child development, and adjustment: A developmental psychopathology perspective. In: D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Risk, disorder, and adaptation* (Vol. 2, pp. 96–161). New York: Wiley.
- Pleck, J. H. (1976). The male sex role: Definitions, problems, and sources of change. *Journal of Social Issues, 32*(3), 155-164. doi:j.1540-4560.1976.tb02604.x
- Repper, J., & Carter, T. (2011). A review of the literature on peer support in mental health services. *Journal of Mental Health, 20*(4), 392-411. doi:10.3109/09638237.2011.583947

- Rose-Krasnor, L. (1997). The nature of social competence: A theoretical review. *Social Development, 6*(1), 111-135. doi:10.1111/j.1467-9507.1997.tb00097.x
- Rusbult, C. E. (1980). Commitment and satisfaction in romantic associations: A test of the investment model. *Journal of Experimental Social Psychology, 16*(2), 172-186. doi:10.1016/0022-1031(80)90007-4
- Rusbult, C. E., Martz, J. M., & Agnew, C. R. (1998). The investment model scale: Measuring commitment level, satisfaction level, quality of alternatives, and investment size. *Personal Relationships, 5*(4), 357-387. doi:10.1111/j.1475-6811.1998.tb00177.x
- Sarason, I. G., Sarason, B. R., Shearin, E. N., & Pierce, G. R. (1987). A brief measure of social support: Practical and theoretical implications. *Journal of Social and Personal Relationships, 4*(4), 497-510. doi:10.1177/0265407587044007
- Schopler, J., Compere, J. S. (1971). Effects of being kind or harsh to another on liking. *Journal of Personality and Social Psychology, 20*(2), 155-159. doi:10.1037/h0031689
- Shaver, P., Furman, W., & Buhrmester, D. (1985). Transitions to college: Network changes, social skills and loneliness. In S. Duck & D. Perlman (Eds.), *The Sage series in personal relationships* (Vol. 1, pp. 193-219). London, England: Sage.
- Sprecher, S. (1987). The effects of self-disclosure given and received on affection for an intimate partner and stability of the relationship. *Journal of Social and Personal Relationships, 4*(2), 115-127. doi:10.1177/0265407587042001
- Sprecher, S. (2014). Initial interactions online-text, online-audio, online-video, or face-to-face: Effects of modality on liking, closeness, and other interpersonal outcomes. *Computers in Human Behavior, 31*(1), 190-197. doi:10.1016/j.chb.2013.10.029
- Sprecher, S., & Duck, S. (1994). Sweet talk: The importance of perceived communication for romantic and friendship attraction experienced during a get-acquainted date. *Personality and Social Psychology Bulletin, 20*(4), 391-400. doi:10.1177/0146167294204006
- Sprecher, S., Treger, S., & Wondra, J. D. (2013). Effects of self-disclosure role on liking, closeness, and other impressions in get-acquainted interactions. *Journal of Social and Personal Relationships, 30*(4), 497-514. doi:10.1177/0265407512459033

- Taylor, S. E., Falke, R. L., Shoptaw, S. J., & Lichtman, R. R. (1986). Social support, social groups, and the cancer patient. *Journal of Consulting and Clinical Psychology, 54*(5), 608-615. doi:10.1037/0022-006X.54.5.608
- Uchino, B. N. (2009). Understanding the links between social support and physical health: A life-span perspective with emphasis on the separability of perceived and received support. *Perspectives on Psychological Science, 4*(3), 236-255. doi:10.1111/j.1745-6924.2009.01122.x
- Umberson, D., & Montez, J. K. (2010). Social relationships and health: A flashpoint for health Policy. *Journal of Health and Social Behavior, 51*(Suppl.), S54-S66. doi:10.1177/0022146510383501
- Vittengl, J. R., & Holt, C. S. (2000). Getting acquainted: The relationship of self-disclosure and social attraction to positive affect. *Journal of Social & Personal Relationships, 17*(1), 53–66. doi:10.1177/0265407500171003
- Williamson, G. M., & Clark, M. S. (1989). Providing help and desired relationship type as determinants of changes in mood and self-evaluations. *Journal of Personality and Social Psychology, 56*(5), 722–734. doi:10.1037/0022-3514.56.5.722
- Windle, K., Francis, J., & Coomber, C. (2011). *Preventing loneliness and social isolation: interventions and outcomes* (Issue Brief No. 39). London, England: Social Care Institute for Excellence.

**Table 1: Social Competence and Social Support Associations with Primary Outcomes in First Interaction**

Primary Outcome	Social Competence		Social Support	
	A	B	A	B
A's Motive – Disclose	.32*	—	.14	—
B's Motive – Support	—	.37**	—	.23†
A's Disclosure	.14	—	.24†	—
B's E.S. Provision	—	.14	—	.21
B's I.S. Provision	—	.36*	—	.20

All values displayed are Pearson product-moment correlation coefficients. Values omitted indicate that these analyses are not applicable. During the first interaction Participant A acted as the Discloser while Participant B acted as the Support Provider.

E.S. = Emotional Support; I.S. = Instrumental Support

Note: † $p < .10$  \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .005$

**Table 2: Social Competence and Social Support Predicting Changes in Primary Outcomes Between First and Fourth Interaction.**

Primary Outcome	Social Competence		Social Support	
	A	B	A	B
A's Motive – Disclose	.39**	—	.13	—
B's Motive – Support	—	.17	—	-.08
A's Disclosure	.30*	—	.20	—
B's E.S. Provision	—	.01	—	.04
B's I.S. Provision	—	.17	—	-.05

All values displayed are standardized Beta coefficients. Values omitted indicate that these analyses are not applicable. Social Competence and Social Support were entered in the regression model as predictor variables with the fourth interaction primary outcomes as the dependent measure, controlling for the first interaction outcomes. During the first and fourth interaction Participant A acted as the Discloser while Participant B acted as the Support Provider.

E.S. = Emotional Support; I.S. = Instrumental Support

Note: † $p < .10$  \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .005$

**Table 3: Dyadic Analyses Estimating Actor and Partner Effects of Social Competence and Social Support on Primary Outcomes During Session One.**

Actor's Outcomes	Social Competence		Social Support	
	Actor	Partner	Actor	Partner
Motive – Disclose	.28	.41*	.13	.22*
Motive – Support	.69***	.13	.23*	.08
Disclosure	.27	.21	.31**	.10
E.S. Provision	.32*	.02	.13†	.01
I.S. Provision	.42*	.01	.18†	.07

All values displayed are estimates of fixed effects using mixed model dyadic analysis.

E.S. = Emotional Support; I.S. = Instrumental Support

Note: † $p < .10$  \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .005$

**Table 4: Dyadic Data Analyses Estimating Actor and Partner Effects of Disclosure and Support Provision on Relationship Outcomes.**

Actor's Outcomes	Disclosure		E.S. Provision		I.S. Provision	
	Actor's Disc.	Partner's Disc.	Actor's E.S. Prov.	Partner's E.S. Prov.	Actor's I.S. Prov.	Partner's I.S. Prov.
Liking	.11	.19*	.55***	.08	.23***	.06
Plan To Comm.	.03	.14	.42***	.33*	.28***	.03

All values displayed are estimates of fixed effects using mixed model dyadic analysis.

Comm. = Communicate; E.S. = Emotional Support; I.S. = Instrumental Support; Prov. = Provision

Note: † $p < .10$  \* $p < .05$  \*\* $p < .01$  \*\*\* $p < .005$

## Figure Captions

Figure 1 Caption: The COM-B System – A framework for understanding behavior.

Figure 2 Caption: Proposed model for the effects of social support and social competence on relationship formation. Relations of interest are in bold. Because social competence is our *measure* of capability, as opposed to a *predictor* of capability, the relation between social competence and motivation is in essence the relation between capability and motivation (*see Figure 1*). For illustrative purposes, the direct arrow between social competence and motivation is dashed while the arrow between capability and motivation is partially transparent to indicate that these two arrows are representative of the same relation.

Figure 1:

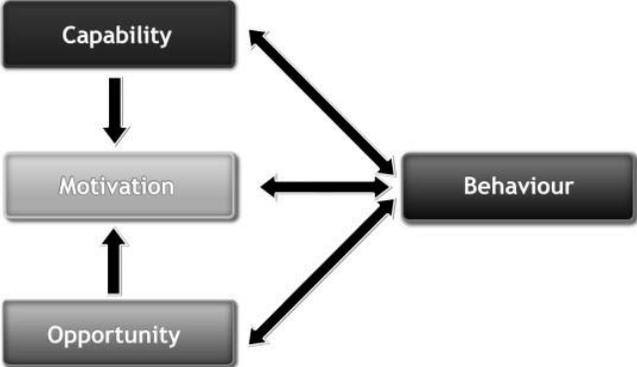


Figure 2:

