


2015

The Influence of Perceived Similarity, Affect and Trust on the Performance of Student Learning Groups

Jennifer Louise Lacewell
Minnesota State University - Mankato

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The Influence of Perceived Similarity, Affect and Trust on the
Performance of Student Learning Groups

By

Jennifer L. Lacewell

A Thesis Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

In

Industrial/Organizational Psychology

Minnesota State University, Mankato

Mankato, Minnesota

May, 2015

TRUST IN LEARNING GROUPS

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Learning Groups

Jennifer L. Lacewell

This thesis has been examined and approved by the following members of the student's
committee.

Andrea Lassiter, Ph.D., Advisor

Emily Stark, Ph.D., Committee Member

Kristin Scott, Ph.D., Committee Member

TRUST IN LEARNING GROUPS

ACKNOWLEDGEMENTS

I would like to start by thanking my advisor, Dr. Andrea Lassiter for her help and encouragement throughout this entire process. Her expertise facilitated my design and study to help uncover findings about student learning groups. Her critiques and suggestions were essential in the completion of this thesis.

I would also like to thank Dr. Emily Stark for her assistance in implementing this research study in 3 of her classes and the suggestions she offered me throughout this process. I would also like to thank Dr. Kristin Scott for her supportive comments and critiques.

Lastly, I would like to thank my friends and family for their unwavering support in all of my academic endeavors. I would also like to thank all of my professors and colleagues in the I/O Psychology Master's program at Minnesota State University, Mankato for their continued guidance and encouragement. It has been a pleasure working with them for the past two years.

TRUST IN LEARNING GROUPS

THE INFLUENCE OF PERCEIVED SIMILARITY, AFFECT AND TRUST ON THE PERFORMANCE OF STUDENT LEARNING GROUPS

Lacewell, Jen L., M.A. Minnesota State University, Mankato 2015

Abstract

This study examined trust as one of the ways to improve satisfaction and performance in face-to-face student learning groups. A model was developed where trust mediates the relationship between perceived similarity, affect, and individual outcomes of satisfaction and performance (grades). Perceived similarity is positively related to trust, meaning that when students perceive themselves as similar to their group members they will be more likely to trust those group members. Negative affect was also negatively related to trust, but only in the beginning of the semester the group project/discussion. Positive affect was not related to trust. This suggests negative affect is the more important component of affect to study in conjunction with early development in student learning groups, but at the end of the semester affect (positive or negative) does not play a part in the trust, performance, or satisfaction of student learning groups.

Results also indicate that students who had higher levels of trust towards their group members, will be more satisfied with the overall group experience, but will not necessarily exhibit greater performance. This study adds to research on the relationship between trust and affect that is not as widely researched in the context of student learning groups.

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CHAPTER I

Literature Review

Education in the classroom comes in a multitude of forms. One of the most common is where students collaborate together in a group toward a common goal such as a group project. Studies have shown that student collaboration in the classroom can lead to higher quality learning (Peterson & Miller, 2004), increased self-esteem (Slavin, 1991), improved student relationships (Johnson & Johnson, 1989), better retention of material (Johnson & Johnson, 1989), deeper understanding of course content (Gaudet, Ramer, Nakonechy, Cragg, and Ramer, 2010), and higher academic performance (Slavin, 1991; Gaudet, et al., 2010).

Collaborative learning and cooperative learning have become extremely prevalent in all learning institutions from preschool through graduate school (Cohen & Bailey, 1997). Collaborative learning is not a specific classroom technique, but rather a philosophy based on the idea of consensus building among group members. Cooperative learning, on the other hand, is a teaching technique and is defined as a “set of processes which help students interact with one another to accomplish a specific goal or develop an end product that is usually content specific” (Laal & Laal, 2012). It is also tied in closely with the directions of the classroom instructor (Panitz, 1999). Cooperative learning is also increasingly becoming popular among the business community, which desires a workforce with effective teamwork skills. (Keller, 2001; Cohen & Bailey, 1997)

Learning groups have been a popular educational method of applying the philosophy of collaborative learning with the processes of cooperative learning. Learning

groups began with educators developing ways to improve classroom learning and is now a common foothold of education in America (Slavin, 1990). Learning groups have expanded internationally to numerous other countries such as Israel (Sharan, 1980), Mexico (Pons, Prieto, Lomeli, & Bermejo, 2014), and Taiwan (Hsiung, 2010).

Previous research has shown that cooperative learning is more than just putting students into groups (Williams, 2002). Researchers are still working on finding what combinations of factors allow for a cooperative learning group to be successful. A great deal of the research on cooperative learning has been dedicated to defining group learning processes and structures that may increase the performance of student learning groups. Despite the breadth of empirical research on cooperative learning, instructors still do not have a set of best practices for implementing student learning groups in the classroom.

The purpose of this present study is to first support the previous research by finding a relationship between trust and group performance. This research will also be examining the relationship between perceived similarity, affect of group members and trust. It is expected that perceived similarity, affect and trust are related to the performance of student learning groups. This will add to the current research by providing empirical evidence relating trust in student learning groups to tangible individual outcomes such as grades.

Trust

Previous research has shown that trust is a vital element of student learning groups (Huff, Cooper, & Jones, 2002; Serva & Fuller, 2004) and has a direct main effect on group processes and performance (Golembiewski & McConkie, 1975; Dirks, 1999).

During collaborative classroom projects, students are required to work together to effectively complete tasks. Trust allows for students to develop successful relationships among group members, thereby enabling the students to work together more effectively. Trust is therefore an essential element for a successful cooperative learning group.

However, there is a lack of agreement on the definition of trust among the research community (Costa, 2003). Many definitions show that the “willingness to be vulnerable” is a common theme in the many conceptualizations of trust. For example, Butler (1999), developed a definition, which stated trust as an individual’s willingness to reveal themselves or become vulnerable to others. Another definition by Rousseau, Sitkin, and Burt (1998) defined trust as “a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions of behavior of another” (p.395). The most popular and well-cited definition of trust by Mayer, Davis, and Schoorman (1995), states that trust is "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party” (p.712). When a group member trusts another group member in a cooperative learning environment it means the group member is making oneself vulnerable to risk (McAllister, 1995). For example, a group member will need to be willing to let other group members perform portions of the group project, thereby making oneself vulnerable to the possibility of the project not being completed or completely poorly.

Trust increases the ability for group members to work together effectively. For example, Johnson and Johnson (1989) stated that trust allows for students to express their

thoughts, feelings, reactions, opinions, information and ideals openly without fear of reprisal. Students in trusting cooperative learning groups are able to bounce ideas off of each other without the threat of being called “stupid”. It also increases the ability of individuals within the group to address performance problems with worrying about possible backlash (Dirks, 1999). An open-minded cooperative environment such as this encourages creativity and ideas leading to more successful group outcomes. Another advantage trust adds to student learning groups is by reducing the need for group members to monitor other members. Group members can be confident in their group members’ abilities and do not need to oversee each other’s actions when trust is present in the group.

Empirical research also supports the importance of trust for effective group work. Chang (2009) conducted a qualitative study on online collaborative learning groups and revealed that the groups with higher levels of trust out-performed the groups with lower levels of trust. Another study by Staples and Webster (2008) revealed a positive relationship between trust levels and knowledge sharing levels amongst work teams in an organizational setting. Research has also shown that higher trust levels is positively related to higher creativity levels.

A study demonstrating objective outcomes of trust has not yet been done with student groups, but it has been shown in organizations. A study by Akgün and colleagues (2007) revealed that higher trust levels was an antecedent to higher team potency levels in a software company. This led to an increase in success in the organization (i.e. increase in product success and decrease in development costs).

If trust is present, group members are more likely to demonstrate effort and motivation (Huff, Cooper, & Jones, 2002). This increased effort and motivation leads to a more engaged classroom and better grades for students on group projects (Sankaran & Bui, 2001). Trust also facilitates group cohesion and effective communication. When group members trust one another they are better able to communicate leading to a more unified group. When a group is not unified, the consequences take on various roles such as when a group appears disharmonious during a group presentation. Costa (2003) also discovered a relationship between trust and group outcomes. Trust was found to be positively related to attitudinal commitment, task performance, team satisfaction, and attitudes towards the organization overall. For these reasons, instructors should care about trust in the classroom because of the many advantages trust has on student learning groups.

Overall, there is a breadth of research indicating that trust impacts groups in a variety of ways. Trust in student work groups have been associated with higher levels of performance (Costa, 2003), success (Akgün et al., 2007), motivation (Huff et al., 2002), creativity, group cohesion, and communication (Staples & Webster, 2008). The goal of this present study is to identify that individuals who have high levels of trust with respect to their group members will experience higher satisfaction and higher performance.

Perceived Similarity

Literature states that the more individuals in a team think they are similar, the more likely that trust will develop (Newman, 2006). Previous research has indicated that perceived similarity is a possible important interpersonal factor related to learning group performance (Newman, 2006). Graves and Elsass (2005) defined perceived similarity as

an individual and his/her team members viewing an individual as similar to the group on salient characteristics, such as background, ability, and many others. This research suggests that group members who find similarities in each other will trust each other more than group members who are dissimilar.

Individuals usually prefer to work in homogeneous groups and have the tendency to group themselves with others based on objective attributes such as race, age and gender (Turner, 1987). A great deal of research has been dedicated to researching the negative impact of being different from other group members on work outcomes. The research on perceived similarity mainly focuses on the similarity of easily observable demographic variables such as race and gender. Perceived similarity of personality is more difficult to assess but has shown to be an important factor. Group members, who share certain traits, even if they are unaware of the shared traits, are more likely to interact effectively with one another because they perceive, interpret and act on social cues similarly. For example, a group member who is agreeable who perceives another group member as agreeable will communicate better than group members who are perceived as disagreeable. This enhanced communication will positively impact the performance of the group. Similarity between group members can also impact the development of trust because group members not perceived as similar are viewed as more dishonest, untrustworthy and uncooperative (Brewer, 1979). When members of a group perceive another group member as dissimilar it will lead to a group that lacks trust.

Participants who perceive teams members to be similar to them rated the team member higher on trustworthiness solely on demographic variables and technical abilities, without ever having met the individual in person. This indicates that group

members are more apt to trust other group members who are similar demographically and intellectually (Newman, 2006). In a cross-cultural study, perceived similarity was discovered to impact supervisor and peer relationship. The study found that trust was most prevalent in the relationships where perceived similarity was highest (Schaubroeck & Lam, 2002). Research has also shown that the level of trust in a student learning group is affected by group members' perceived similarity.

The Similarity Attraction paradigm by Donn Byrne (1971) is a well-cited model that helps to explain the phenomena of perceived similarity. The model states that individuals are attracted to others who are similar to them. This similarity can be anything from attitudes to physical attractiveness, and many other characteristics. This attraction is likely to have a positive influence on trust (Byrne, 1971).

In sum, it is anticipated that individuals in student groups who perceive themselves as similar to other group members in demographics, personality, or intelligence will feel more comfortable with the group members. This can lead greater levels of trust, and ultimately contribute to better performance in collaborative learning environments.

Affect

Emotional constructs (e.g. positive affect, negative affect) have usually taken a back seat to cognitive constructs (e.g. intelligence) in the theories of team development and performance (Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Kozlowski & Ilgen, 2006), particularly in the studies of learning groups. Affect refers to a phenomenological state of feelings (Watson, 2000). It impacts many cognitive processes such as memory, imaging, attention, planning and judgment. (Forgas, 1995).

Positive affect is the extent to which an individual experiences positive feelings. Individuals who exhibit high positive affect are often labeled as “peppy”, “bubbly”, and “happy”. It is characterized by having high energy, total concentration and pleasurable engagement with one’s environment. Individuals with high positive affect maintain strong relationships, have high self-efficacy and positive sense of well-being. Individuals low on positive affect are often lethargic and disengaged from their environment. They do not view themselves positively and do not promote positivity in others. Research shows that these individuals are not unhappy, but just less enthusiastic about life (Erdheim, 2007).

Affect has also shown to be related to trust. Individuals often decide whether or not they can trust someone by the feelings one has towards that person. Positive emotions lay the foundation for trust development (Chun, Litzky, Sosik, Bechtold and Godshalk, 2010) Experiencing positive moods and emotions may cause an individual to see the world through “rose-colored glasses” resulting in a very high level of trust in their group members. However, there has been a lack of research examining affect in relation to trust.

Individuals higher in positive affect are likely to have greater levels of self-efficacy. Therefore, they are often rated by others as smarter, more competent, and they out-perform individuals with lower positive affect (Staw, Sutton, & Pelled, 1994; Wright & Staw, 1999). Individuals exhibiting these traits are often viewed as more trustworthy. Not only does one’s affect impact how others view them, but it can also impact how he or she views others. A person’s affect may impact how one makes judgments about their group members

Individuals with higher positive affect are also better equipped to handle ambiguous and challenging situations (Luthans, Avolio, Avey, & Norman, 2007). It is likely that in learning groups, members with high positive affect could help the group persevere in ambiguous situations, such as working on a project without a clear objective. Research on positive affect has also shown to work as a negative affect buffer (e.g., Bonanno, Rennie, & Dekel, 2005). For example, when a group member might complain about a class project, it is possible that the positive affect of another student might serve to squash some of the negativity. In other words, positive affect can help free up the cognitive resources being used by negative affect (Beal, Weiss, Barros, & MacDermid, 2005). Fisher (2010) also stated that individuals cope more effectively from stress when they have higher positive affect. Stress impacts students negatively in a variety of ways such as reduction in memory performance (Schwabe, Joels, Roozendall, Wolf & Oitzl, 2011), but an individual with positive affect will be more capable of handling a stressful task. This positive attitude impacts the education of students (Zeitlin, 1981)

Individuals with higher positive affect choose more demanding goals, are more determined, utilize more effective problem-solving strategies and take initiative in the completion of tasks (Elliot, Harkins, Sherwin, & Marmarosh, 1995; Kaplan, Bradley, Luchman, and Haynes, 2009). Individuals with higher negative affect tend to doubt themselves, and therefore do not take on challenging activities. This can lead into a downward efficacy spiral and lower performance (Kaplan et al., 2009)

Total concentration is one of the essential characteristics of an individual with high positive affect, along with being pleurably engaged with their surroundings. An

individual with high positive affect in a group may also help to facilitate communication within the group and help members of the group stay focused on the task at hand.

Individuals with high positive affect will be more satisfied with their group experience because these individuals have a positive outlook on life and enjoy activities. On the flipside, an individual with low positive affect will likely hinder the group performance due to these individuals being disengaged from their environment. Furthermore, individuals with high negative affect will hinder performance. These individuals are known to complain and start ineffective group arguments. These individuals also do not get along well with others, further impacting the performance of the overall group.

There is empirical evidence indicating that affect influences meaningful outcomes for individuals. Specifically, a meta-analysis conducted by Thoreson, Kaplan, Barsky, Warren, and de Chermont, (2003) showed that positive affect is positively correlated with job satisfaction. Negative affect is negatively correlated with job satisfaction. A study by Estrada, Isen and Young (1997) induced positive affect in practicing physicians. Giving a gift of candy to these physicians induced the positive affect. The physicians were then required to read the description of a patient and think aloud while determining the diagnosis. The results of the study showed that the positive affect induced physicians came to the correct diagnosis significantly sooner. A study by Erdheim (2007) found that mean positive affect was positively correlated with team performance and maximum positive affect was negatively correlated with team performance. The results from the study by Erdheim (2007) suggest a curvilinear relationship between positive affect and performance that was considered in the present study.

Affect is not only being looked at on the individual level, but also on a group

level. Positive emotions have shown to be related to success in a group environment (Fisher, 2010). Positive group affect has shown to be negatively related to intragroup conflict and positively related to cooperation and performance. Individuals in groups with homogeneous levels of positive affect have greater levels of cooperation and less conflict than heterogeneous groups (Barsade, Ward, Turner, & Sonnenfeld, 2000). Research has found that students with higher positive affect were viewed as more intelligent and competent than their lower positive affect peers (Diener & Fujita, 1995).

Individuals with negative affect will also negatively impact the group's satisfaction. These individuals have a negative view of themselves and their surroundings. This suggests that they will also not be satisfied with their group experience. The phenomenon of social contagion and the research demonstrating that the attitude of one individual can impact the attitudes of others suggests that including an individual with positive affect into a group can help others become more positive and satisfied with the group experience.

The "Broad and Build" theory of positive emotions proposed by Fredrickson (2001) helps to further explain how positive affect is related to performance. The theory states "positive emotions are vehicles for individual growth and social connection"(p.224). This theory has two main components. The first component being that positive affect fuels individuals to have "broadened thought-action repertoires". This means that positive affect helps increase the number of possible solutions to a problem cognitively. The second component of this theory is the building component. This states that the benefits of the broadened thought-action repertoires build up over time into resources.

Present Study

The present study will investigate the relationships between perceived similarity, affect, and trust in collaborative learning groups. It is proposed that perceived similarity will affect trust positively in the student work groups. Trust will positively be related to student grades (performance) and satisfaction with one's groups. In addition, affect will also be related to trust and performance (student grades).

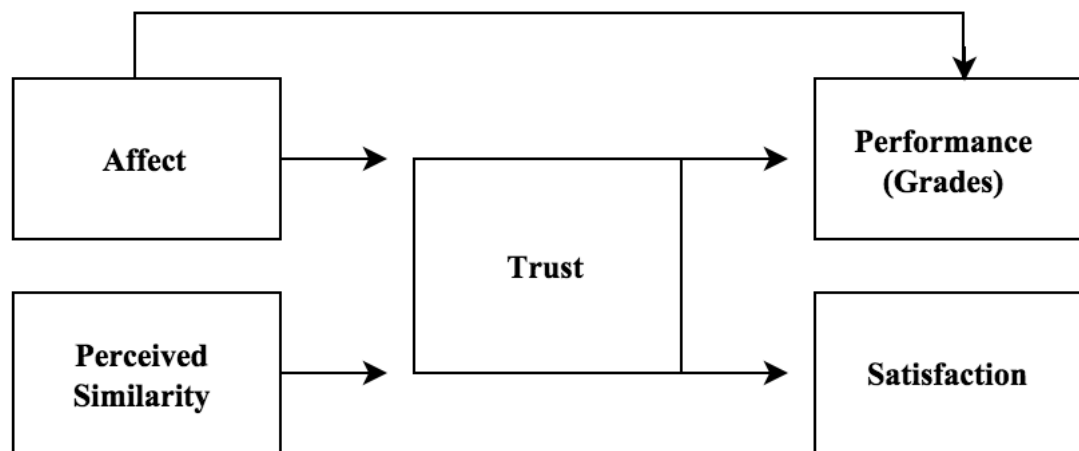


Figure 1. Proposed Model of Trust in Student Groups

The individual hypotheses drawn from this proposed model that will be tested are as follows:

Hypothesis 1: Individuals who perceive themselves as more similar to their group members will have greater levels of trust towards their group members.

Hypothesis 2: Individuals with greater levels of trust towards their group will exhibit greater performance (grades).

Hypothesis 3: Individuals with have greater levels of trust towards their group will be more satisfied with the overall learning group experience.

Hypothesis 4: Trust will mediate the relationship between perceived similarity and group performance.

Hypothesis 5a: Trust will partially mediate the relationship between positive affect and group performance.

Hypothesis 5b: Trust will partially mediate the relationship between negative affect and group performance.

Hypothesis 6a: Positive affect with be positively correlated to performance.

Hypothesis 6b: Negative affect with be negatively correlated to performance.

CHAPTER II

Methods

Participants

The participants of this study were comprised of undergraduate students enrolled in four psychology courses at a medium-sized Midwestern University. The courses included are Research Methods, Social Psychology, History and Systems in Psychology, and Psychology and Law. These courses were selected because they require students to work in discussion or project groups. Students meet face-to-face to complete the group work in all four of the classes. Archival data was used in this study, but any cases that were from a virtual class environment were excluded from the following analyses. The reason the cases were removed is because virtual class environments would be an additional confounding variable.

There were 223 total participants. Out of the participants, 48 were from Research Methods in Psychology, 74 were from Social Psychology, 62 were from History and Systems, and 39 were from Psychology and Law. Out of the 200 participants who indicated their academic year, 1 was a freshman, 19 were sophomore, 50 were junior, 119 were senior, and 11 indicated “other.” For the 199 participants that indicated gender 56 were male and 143 were female. Participants ranged from ages 19 to 57 with a mean of 21.72 years.

Procedure

At the beginning of the semester, students were assigned to a project or a discussion group. The first time participants were introduced to their group members they

were then asked to fill out the demographic items, basic familiarity and liking for group work items, and the perceived similarity measures. Throughout the semester, participants completed their required tasks in their learning groups. At the end of the semester, the students were asked to complete the same trust measure again. They also completed questions regarding their general affect, their satisfaction with the group and their motivation to work in groups in the future. At the end of the semester, participants' grades were collected for the overall group project and/or the average grade on the discussions and lab activities. Surveys were administered by paper-and-pencil in class.

Measures

Demographics and Previous Group/School Experience.

Demographic information, including academic year, age, and gender was collected. A participant's university technical ID was also collected for the purpose of linking the responses of participants in the data. Participants were asked about their previous experiences in a group learning environment. Example questions include, "How much experience do you have working in a team setting?" and "Rate the extent to which you enjoy working in groups on course projects

Perceived Similarity.

The Perceived Relational Diversity scale was used to measure Perceived Similarity. (Clark, 2001) This measure asks participants to indicate how similar they believe they are to other members in their group on a five-point scale from "1- not at all similar" to "5- highly similar". This measure incorporates 24 different characteristics, including such things as personality, intelligence, age, and more. This measure will also

ask participants to rate how important it is to be similar to his or her group members on the 24 different characteristics.

A variable of perceived similarity was created by combining the 24 perceived similarity items. These items were score on a 1-5 scale with higher numbers representing higher levels of perceived similarity. The mean of this overall perceived similarity variable was 79.73, with a standard deviation of 11.64. This scale displayed good reliability, $\alpha = .859$.

Trust.

The survey assessing trust among the groups combined and adapted two different measures. The first measure to use was one by Costa and Anderson (2011). This survey contains 21 items measuring four facets of trust; propensity to trust, perceived trustworthiness, cooperative behaviors, and monitoring behaviors. The survey was made more relevant to the study by replacing the word “team” with “project/discussion group.” These items were rated on a 7-point Likert type scale from 1 being completely disagree to 7 being completely agree.

The second measure used was adapted from Mayer and Davis (1999). This measure assesses risk and trust and contains just four items. These items will also rated on a 7 point Likert type scale from 1 being completely disagree to 7 being completely agree. An example of one of the items on this measure is as follows “If I had my way, I wouldn’t let the other team members have any influence over issues that are important to the project.” Higher numbers will indicate higher levels of trust among the group. The trust measures were analyzed by adding all 25 of the trust items together while also taking into account the items that were reversely scored.

For both time periods, the items were combined into one overall trust score taking into account the reverse score items. The items 10, 11, 16, 17, 19, 20, 21, 22, and 24 were reverse-scored. All trust items were scored on a 1-7 agreement scale, with higher numbers corresponding to higher levels of trust. For the beginning of the semester, the mean trust measure score was 114.97, with a standard deviation of 14.86. This scale showed good reliability, $\alpha = .797$. For the end of semester trust measure, the mean was 120.32 with a standard deviation of 15.61. The reliability for this scale was good as well, $\alpha = .816$.

Satisfaction with Group Experience.

Student group satisfaction was measured using Park and DeShon's (2010) Team Satisfaction Scale. This measure was made more relevant to the study by replacing the word "team" with "project/discussion group." The measure includes only four items on a 1 to 7 scale from 1 being extremely dissatisfied to 7 being extremely satisfied. An example item is as follows "All in all, how satisfied are you with the members of your project/discussion group?"

The 4 items measuring satisfaction with one's group was computed by adding the items up. These items were rated on a 1-7 satisfaction scale, with higher numbers indicating higher levels of satisfaction. The mean for the satisfaction scale was 23.57, with a standard deviation of 3.55. This scale showed good reliability, $\alpha = .884$.

Positive and Negative Affect.

The Positive Affect-Negative Affect Schedule (PANAS; Watson et al., 1988) was used to measure trait positive affect and negative affect. It is a 20-item scale containing 10 items measuring descriptors of both positive and negative affect. The items are

measured on 5-point scale ranging from 1 being *very slightly or not at all* to 5 being *extremely*. The positive affect descriptors include: alert, enthusiastic, attentive, interested, excited, inspired, proud, determined, strong, and active. The negative affect descriptors include: upset, hostile, distress, afraid, irritable, scared, guilty, nervous, ashamed, and jittery.

This measure provided a separate score of positive affect and negative affect ranging by from a score of 10-50 for each with higher scores indicating higher positive or negative affect respectively. The mean for positive affect was 34.40, with a standard deviation of 6.62. The mean for negative affect was 17.86, with a standard deviation of 5.84. This scale showed good reliability, $\alpha = .732$.

Performance.

The individual grade received on the group project or the lab activities was used to assess the individual's performance. These grades were in the form of percentages and this will allow for comparisons across different courses and assignments. These grades were computed on a scale from 0 to 100. The mean of the project/discussion grades was 92.49, with a standard deviation of 11.55

CHAPTER III

Results

Participants' responses were matched by using the university identification numbers of the students. A total of 223 face-to-face cases were recorded in this study but only 77 participants completed all parts of both the pre and post survey. Analyses were performed pairwise to maintain statistical power. One individual did not provide a student identification number and therefore the data from the survey was not able to be matched to grades. Furthermore, only 77 of the 223 participants completed both surveys from time 1 and time 2. This small sample size reduces the power of certain analyses.

Table 1

Descriptive Information for All Variables

Measure	Number of Items	N	Mean	Standard Deviation	Cronbach's α
Perceived Similarity	24	168	79.73	11.64	.859
Trust (beginning of the semester)	25	119	114.97	14.86	.797
Trust (End of semester)	25	139	120.32	15.61	.816
Positive Affect	10	70	34.40	6.63	.732
Negative Affect	10	70	17.86	5.84	.732
Satisfaction with Group	4	148	23.57	3.54	.884
Project/Discussion Overall Grade	-	205	92.49	11.55	-

Hypothesis 1

The purpose of the first hypothesis was to test if individuals who perceive themselves to be more similar to their group members will trust their group members more. A Pearson's correlation was used to test this hypothesis using both the pre and post measure of trust. The results were insignificant for trust in the beginning of the semester, $r = .083, p = .443$, but was significant at the end of the semester, $r = .203, p < .05$. These results indicate perceived similarity does not have any impact on trusting group members in the beginning of the semester, but at the end of the semester individuals who perceive their group members as similar will also trust their group members more than individuals who they perceive as dissimilar. Refer to Table 2 for the correlation matrix of study variables.

Table 2

Correlation Matrix of Study Variables

Variable	Statistic	Variable					
		Perceived Similarity	Trust (Pre)	Trust (Post)	Positive Affect	Negative Affect	Satisfaction with Group
Trust (Pre)	<i>r</i>	.083					
	<i>N</i>	87					
Trust (Post)	<i>r</i>	.203*	.684**				
	<i>N</i>	109	77				
Positive Affect	<i>r</i>	.056	.119	.031			
	<i>N</i>	66	34	57			
Negative Affect	<i>r</i>	.064	-.363*	-.121	-.233		
	<i>N</i>	66	34	57	70		
Satisfaction with Group	<i>r</i>	.302**	.413**	.557**	.088	-.055	
	<i>N</i>	117	98	171	64	64	
Final Project Grade	<i>r</i>	.109	-.017	.123	-.122	.193	-.021
	<i>N</i>	125	163	168	31	31	113

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

Hypothesis 2

The purpose of the second hypothesis was to test if individuals with greater levels of trust toward their group members received higher grades on the project, labs, or discussion. A Pearson's correlation was performed to test this hypothesis. Analyses were insignificant for both in the beginning of the semester $r = -.017, p = .828$ and the end, $r = .123, p = .113$, measures of trust. These results indicate that the levels of trust individuals have toward their group members does not have an relationship with the grades of the group projects.

Hypothesis 3

The purpose of the third hypothesis was to test if individuals with greater levels of trust toward their group members led to greater levels of satisfaction with the group. A Pearson's correlation was performed to test this hypothesis. The results indicate that higher levels of trust do lead to greater levels of group satisfaction. The pre trust measure, was significantly related to higher levels of satisfaction with one's group, $r = .444, p < .001$. Individuals with higher levels of trust towards their group at the end of the semester had significantly greater levels of satisfaction with their group, $r = .586, p < .001$. These significant results indicate that individuals who trust their group members are more satisfied with the overall group experience than individuals who do not trust their group members.

Hypothesis 4

The fourth hypothesis was tested using the technique proposed by Baron and Kenny (1986). The fourth hypothesis proposed that trust mediates the relationship between perceived similarity and performance. In Step 1, an analysis was performed

regressing trust on the independent variable (perceived similarity). This pathway was significant, ($\beta = .203, p < .01$). In step 2 a regression was performed analyzing the effect of trust on performance. The results of this analysis were not significant, ($\beta = .123, p = .113$). Further analyses to demonstrate a mediation relationship were stopped due the non-significance of this pathway. These results indicate that trust does not mediate the relationship between perceived similarity and performance.

Hypothesis 5a & b

The fifth hypothesis tested if trust partially mediates the relationship between affect and group performance using the same procedure to test Hypothesis 4. In Step 1, an analysis was performed regressing trust on the independent variable (positive affect). This pathway was not significant, ($\beta = .031, p = .821$). Further analyses to demonstrate a mediation relationship were stopped due the non-significance of this pathway. A mediation relationship was again tested looking at negative affect. An analysis was performed regressing trust on the independent variable (negative affect). This pathway was also not significant, ($\beta = -.121, p = .370$). Further analyses to demonstrate a mediation relationship were stopped due the non-significance of this pathway. These results indicate that affect (positive and negative) does not mediate the relationship between trust and performance. It should be noted that the sample size was 56, so the insignificant results may be due to lack of power.

Hypothesis 6a & b

The sixth hypothesis tested if group performance is positively correlated with positive affect and negatively correlated with negative affect. A Pearson's correlation was performed to test this hypothesis. The relationship between positive affect and

performance was insignificant and in the opposite direction hypothesized, $r = -.143$, $p = .250$. Furthermore, the relationship between negative affect and group performance was also insignificant and also in the opposite direction hypothesized, $r = .178$, $p = .151$. These results indicate that both positive and negative affect does not have relationship with group performance.

Additional Analyses

Motivation.

Data was collected on students' motivation to work in groups in the future. Motivation was measured by the item, "Because of this group experience, I am motivated to work in project/discussion groups in the future." A Pearson's correlation revealed a significant positive correlation with trust at the end of the semester, $r = .386$, $p < .001$, $n = 148$. This result indicates that students in this study are more motivated to work in groups in the future if they trusted their group members at the end of the semester.

Trust over Time.

To examine whether trust in one's group strengthened over time, a paired samples t-test was conducted to determine if there was a significant difference between students' levels of trust for the two periods. The analysis indicated there was not a significant difference between trust in the beginning of the semester the project ($M = 116.71$, $SD = 14.00$) and trust at the end of the semester ($M = 119.23$, $SD = 15.39$), $t(76) = -1.881$, $p = .064$.

Affect.

A Pearson's correlation was performed to test the relationship between trust in the beginning of the semester and affect. Analyses were insignificant for positive affect, $r = .119$, $p = .502$, but significant for negative affect, $r = -.363$, $p < .05$. These results indicate that positive affect does not have any effect on how individuals trust their group members in the beginning of the semester. However, individuals who are higher in negative affect will likely have problems with trusting their group members prior to the project/discussion. Trust at the end of the semester was not significantly related to positive or negative affect. This indicates that at the end of the semester, an individual's affect does not have an effect of how much they trust their group members.

A Pearson's correlation was performed to test the relationship between trust and affect. The analyses revealed a significant negative correlation between negative affect and trust in the beginning of the semester. This results indicate that individuals who have higher negative affect in the beginning of the semester are more likely to have lower levels of trust for their group members. This correlation weakens and becomes insignificant at the end of the semester group.

To examine the 20 items in the PANAS scale and how well they predict an individuals level of trust toward their group members prior to the project/discussion group a linear regression was performed. The results indicate the only item significant in predicting trust prior to the project/discussion group is "enthusiastic", $F(1,24) = 7.508$, $p < .05$. Enthusiasm accounted for 24.6% of the variance in the trust bin the beginning of the semester among the students ($R^2 = .246$). None of the items in the PANAS scale significantly predicted trust at the end of the semester group. This indicates that a

student's level of enthusiasm prior to the project/discussion group is very important in predicting a student's level of trust. Trust is an important factor for the success of student learning groups as previous research has indicated.

A linear regression analysis was also conducted to evaluate the 20 items of the PANAS survey to identify which items were significant in predicting performance. The "nervous" was shown to be the only significant predictor of performance $F(1,67) = 8.090$, $p < .05$. This item significantly accounted for 10.9% of the variance in the performance of the student learning groups ($R^2 = .109$). All the other items in the PANAS scale were not significant for predicting performance in student learning groups. This analysis provides some helpful insight to instructors. The level of nervousness of students can help predict the performance of a student learning group. This result lends itself to some useful practical implications for both students and instructors that will be further discussed in the following section.

CHAPTER IV

Discussion

The purpose of this study was to investigate the effects of perceived similarity, affect and trust on satisfaction, and performance in student learning groups. This study provides some evidence for the importance of trust within learning groups, as well as identifies some of trust's antecedents and consequences.

Perceived Similarity and Trust

The results of this present study indicate that perceived similarity is positively related to trust. When individuals perceive themselves as similar to their group members they are more likely to trust their group members. This finding supports the findings of previous research. Furthermore, this study is one of the few studies to test this specific relationship in the context of face-to-face student groups.

Trust Outcomes

The results of this study revealed that students who have higher levels of trust toward their group members will also be more satisfied with the overall experience of working in a student learning group.

Little research has been done to link a relationship between trust in student learning groups to tangible groups outcomes such as grades. However, the results of this study revealed that the level of trust one has toward their group members is not significantly related to group performance. The level of trust was significantly related to satisfaction of the overall group experience. Despite some of the insignificant findings, trust in student learning groups is still a very important factor for the success of groups.

There is a breadth of previous literature that identifies trust as a critical variable in predicting success.

The results also show that students who trust their group members more will be more motivated to work in groups in the future. This indicates that the level of trust one exhibits toward their group members not only affects student's level of satisfaction in the present, but it can also have a significant affect on a students' future. They will likely be motivated to work in student learning groups in the future. This motivation may also extend into the workplace.

This study also revealed a negative correlation between trust in the beginning of the semester and negative affect. This result indicates that individuals higher on negative affect will exhibit lower levels of trust toward their group members prior to the project/discussion group. Previous research and the data collected in this present study has shown that trust has a significant relationship with satisfaction in with the overall group experience.

Affect

According to this present study, affect does not have a significant relationship with performance in student learning groups. The insignificant findings do suggest an unusual negative correlation between positive affect and performance. It also indicates a positive correlation with negative affect and performance. These findings mean that in student learning groups when an individual is higher on positive affect they will have lower performance. It also indicates that when an individual is higher on negative affect they will exhibit greater performance. These findings are the opposite of what the previous research would state. It is important to note that the sample collected was very

small with only 70 participants. The findings may have been different with a larger sample size.

These results also revealed that positive affect does not have any effect on how individuals trust their group members in the beginning of the semester. However, it did reveal that individuals higher in negative affect will likely have problems with trusting their group members prior to the project/discussion. This suggests that when researchers examine student learning groups in the future they may want to focus on negative affect and on ways to improve or mitigate it. This would improve an individual's trust toward their group members.

When examining the PANAS scale and how well it predicts trust toward group members, a regression revealed that only 1 item on the scale was needed to predict trust, the item of "enthusiastic". Furthermore, a regression also revealed that the item "nervous" was the only significant predictor of performance. Shortening or modifying the scale for use with student learning groups should be considered for future studies. Students in general do not want to fill out long measures, therefore shortening the measure may lead to a higher response rate.

Recommendations for Instructors

There are many ways instructors can enhance student learning groups to improve trust, satisfaction and performance. Since greater levels of trust can lead to higher performance, instructors may want to know how they can foster trust in student learning groups.

The first recommendation I would make is to help students increase communication within the group and with the instructor. Research has shown that

increased communication is positively related to trust in groups. An example of increased communication is to openly discuss teamwork skills and the importance of trust in groups (Huff, Cooper, & Jones, 2002; Serva & Fuller, 2004). Many students especially freshman many not have ever worked in a group before and may not know what skills are needed to be effective. Discussing the skills needed and the expectations required to be successful in a student learning group can help to increase the transparency in the classroom and therefore increase trust. Communication could also decrease the level of anxiety students feel. A linear regression indicated that the item “nervous” was found to be a significant predictor of performance in student learning groups.

Another recommendation for instructors to facilitate trusting teams is to decrease social loafing during group projects. When every member in a student learning group has equal amounts of work and completes equal amounts of work, trust develops. A couple of ways that instructors can reduce social loafing is by creating and enforcing penalties for it.

Another recommendation for instructors is to develop a way to form the student learning groups that would best facilitate a trusting student learning group. For example, one suggestion proposed by Serva and Fuller (2004) would be to measure a student’s predispositions to trust and then form groups based on the collected data. However, this could be time-consuming for instructors to implement.

The additional findings on affect indicate that individuals who have higher negative affect in the beginning of the semester are more likely to have lower levels of trust for their group members. This correlation weakens and becomes insignificant at the end of the semester group. Affect has the potential of being modified (Estrada, Isen and

Young, 1997). One suggestion for instructors would be to develop and implement ways of increasing positive affect and decreasing negative affect. Another finding from the analyses indicates that enthusiasm accounts for 24.6% of the variance in trust in the beginning of the semester. Some last suggestions for instructors is to measure individual characteristics before assigning groups. For example, instructors could group individuals based on many different variables such as perceived similarity, motivation, and affect.

Lastly, the PANAS scale may need to be modified or a new scale created entirely to measuring affect in predicting performance in student learning groups. A shorter scale would enable students to complete the survey faster and may lead to greater participation and a higher response rate.

Limitations

There are several limitations in this present study. The biggest limitation is the small sample sizes for some of the analyses. This is due to the small size of classes and attrition of the sample over the semester. Many of the participants did not complete the entire survey or did not complete the survey for both time periods. The mediation analysis testing the relationship of affect, trust, and performance in particular only had 56 participants. Another limitation is that the different courses along with the different projects and discussion activities among the courses might be a confounding variable. Another confounding variable is the length of the projects or discussion group. Specifically the duration of the group discussion activity in the Psychology and the Law course was half of a semester, whereas the project/discussion activity was a full semester in the other classes. Future research examining trust in student learning groups should work toward addressing some of these concerns.

Implications for Future Research

This study is important in understanding the relationship of perceived similarity, affect and trust in face-to-face student learning groups. Future research should continue studying trust in student learning groups. Performing a controlled experiment would help to control confounding variables such as course, project or discussion activity, and length. This present study only examined face-to-face student learning groups, but future research could also examine virtual learning groups, an increasing trend among educational institutions. Future research should also work at obtaining a larger sample size. One way to help improve the sample size and reduce the problem of attrition is to modify and shorten the surveys based on what items were significantly related to the outcomes. Future research could also test out different methods for developing and fostering trust in a student learning groups to determine which method would be the most effective for instructors to implement in the classroom. Additional research should also look at other possible antecedents of trust to develop the most effective generalizable model of trust in student learning groups. Lastly, researchers need to continue researching the antecedents of tangible outcomes of student learning groups such as performance (grades). Developing a model that predicts the performance of students in learning groups would be very valuable to students, instructors, and educational institutions.

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Appendix A

Understanding Group Success

Instructions: Please complete the following information. The goal of this project is to give me information about what contributes to success working in groups.

1. Tech ID Number _____

2. Sex (circle one): M or F

3. Age: _____

4. Current overall GPA: _____

5. SAT/ACT Score: _____

6. Ethnicity:

_____ Caucasian/white

_____ African American/black

_____ Hispanic

_____ Asian American

_____ American Indian

_____ Other (please specify) _____

7. Academic year:

_____ Freshman

_____ Sophomore

_____ Junior

_____ Senior

_____ Other (please specify) _____

8. How much experience do you have working in a team setting?

- No experience
- Hardly any experience
- Some experience
- Frequent experience
- A great deal of experience

9. How do you prefer to work?

- Alone
- With others

10. How often have you worked on projects communicating with people mostly through technology (using e-mail, chat, group systems software, etc.)?

- Never
- A couple of times a month
- Once a week
- A few times during the week
- Every day

11. Would you rather work with a group face-to-face or mediated through computers?

(Please choose one)

_____ No preference

_____ Face-to-Face

_____ Computer Mediated (i.e. email, instant messaging, video conferencing,
etc.)

12. Rate the experience that you have had with group projects in your previous college courses:

1 2 3 4 5

Very Negative

Very positive

13. Rate the extent to which you enjoy working in groups on course projects:

1 2 3 4 5

Not at all

Very much

14. Rate the extent to which you enjoy group discussions in your courses:

1 2 3 4 5

Not at all

Very much

15. In my studies, I am self-disciplined and find it easy to set aside reading and homework time.

1 2 3 4 5

Strongly disagree

Strongly agree

16. I am able to manage my study time effectively and easily complete assignments on time.

1 2 3 4 5

Strongly disagree

Strongly agree

17. As a student, I enjoy working by myself with minimal support or interaction.

1 2 3 4 5

Strongly disagree

Strongly agree

18. In my studies, I set goals and have a high degree of initiative.

1 2 3 4 5

Strongly disagree

Strongly agree

19. I have good study skills and habits.

1 2 3 4 5

Strongly disagree

Strongly agree

Appendix B

Similarity to Others The following questions ask you to consider personal comparisons between yourself and your group members. For each characteristic, please rate your perceived similarity to your group members on the rating scale (1 – 5) provided. Also indicate the degree to which it is important to you that the members in your workgroups are similar to you on this characteristic. Please describe your personal perspective on this similarity, rather than the perspective that you might be expected to have.

Example *If I believe that the members of my workgroup are "somewhat similar" to me regarding our involvement in recreational sports, I'd mark the column as follows:*

Similarity

 4 SPORTS (extent to which both you and others in your group play recreational sports)

Similarity of my work unit members to me being similar

5 = highly similar

4 = somewhat similar

3 = slightly similar

2 = somewhat dissimilar

unimportant

1 = not similar at all

Importance of

5 = highly important

4 = somewhat important

3 = slightly important

2 = somewhat

1 = not important at all

Similarity**Importance**

_____ VALUES (what is important to you; family orientation,
ethics, helping the team beyond what is
required)

_____ GOALS (high achievement, desire for promotion,
degree motivated by money or status)

_____ PERSONALITY (sociability, emotional stability,
attention to detail, flexibility,
importance of work,
competitiveness, preference for
working individually or in groups)

_____ SENSE OF HUMOR (finding similar things to be
funny)

_____ RISK-TAKING (tendency to engage in dangerous
activities or those with a high
failure rate)

_____ CREATIVITY (ability to come up with ideas and ways
of solving problems; originality)

_____ INTELLIGENCE (intellect, competence, IQ, insight) _____

_____ WORK HABITS (early/late arrival to work, organized
 or not, pride in work, feel
 ownership of work, commitment
 level, accomplishment) _____

Similarity

Importance

_____ INTERESTS (hobbies, sports, social activities) _____

_____ POWER (hierarchical position, control over others'
 decisions) _____

_____ ATTRACTIVENESS (physical attractiveness, sex
 appeal) _____

_____ PHYSICAL (height, weight, athleticism, fitness) _____

_____ POLITICS (political orientation - conservative, liberal,
 etc., level of involvement) _____

_____ WORK EXPERIENCES (struggles, common
 experiences at work) _____

_____ PARENTHOOD (having children, similar ages of children) _____

_____ PHYSICAL ABILITY/ DISABILITY (status of needing or not needing a wheelchair or walking cane, being physically weak, speech, hearing, or vision impairment) _____

Please rate the following in terms of SIMILARITY only

- _____ AGE
- _____ RACE/ETHNICITY
- _____ SEX
- _____ RELIGION
- _____ SEXUAL ORIENTATION
- _____ SOCIO-ECONOMIC STATUS
- _____ GEOGRAPHIC ORIGIN
- _____ EDUCATION
- _____ OVERALL (considering all aspects)

Appendix C

Trust in Teams

Tech ID: _____

Course: _____

Instructions: Please rate whether you agree or disagree with the following statements by writing in the number indicating your answer in the blank provided. Please rate your agreement using the following scale:

1 = Completely Disagree

2 = Disagree

3 = Somewhat Disagree

4 = Neither Agree nor Disagree

5 = Somewhat Agree

6 = Agree

7 = Completely Agree

_____ 1. Most people in this discussion/project group do not hesitate to help a person in need.

_____ 2. In this discussion/project group, most people speak out for what they believe in.

_____ 3. In this discussion/project group, most people stand behind their convictions.

_____ 4. The typical person in this discussion/project group is sincerely concerned about the problems of others.

_____ 5. Most people will act as “Good Samaritans” if given the opportunity.

_____ 6. People usually tell the truth, even when they know they will be better off by lying.

(Items adapted from Costa & Anderson, 2010)

Instructions: Please indicate your answer by writing it in the blank provided.

1 = Completely Disagree

2 = Disagree

3 = Somewhat Disagree

4 = Neither Agree nor Disagree

5 = Somewhat Agree

6 = Agree

7 = Completely Agree

- _____ 7. In this discussion/project group, people can rely on each other.
- _____ 8. We have complete confidence in each other's ability to perform tasks.
- _____ 9. In this discussion/project group, people will keep their word.
- _____ 10. There are some hidden agendas in this discussion/project group. (r)
- _____ 11. Some people in this discussion/project group often try to get out of previous commitments. (r)
- _____ 12. In this discussion/project group, people look for each other's interests honestly.
- _____ 13. In this discussion/project group, we work in a climate of cooperation.
- _____ 14. In this discussion/project group, we discuss and deal with issues or problems openly.
- _____ 15. While making a decision, we take each other's opinion into consideration.
- _____ 16. Some people hold back relevant information in this discussion/project group. (r)

(Items adapted from Costa & Anderson, 2010)

(r)= Reverse-scored item

Instructions: Please indicate your answer by writing it in the blank provided.

1 = Completely Disagree

2 = Disagree

3 = Somewhat Disagree

4 = Neither Agree nor Disagree

5 = Somewhat Agree

6 = Agree

7 = Completely Agree

_____ 17. In this discussion/project group, people minimize what they tell about themselves. (r)

_____ 18. Most people in this discussion/project group are open to advice and help from others.

_____ 19. In this discussion/project group, people watch each other very closely. (r)

_____ 20. In this discussion/project group, people check whether others keep their promises. (r)

_____ 21. In this discussion/project group, most people tend to keep each other's work under surveillance. (r)

(Previous items adapted from Costa & Anderson, 2010)

(The following items adapted from Mayer et al. (1995)).

_____ 22. If I had my way, I would not let the other team members have any influence over issues that are important to the project. (r)

_____ 23. I would be comfortable giving the other team members complete responsibility for the completion of this project.

_____ 24. I really wish I had a good way to oversee the work of the other team members on the project. (r)

_____ 25. I would be comfortable giving the other team members a task or problem which was critical to the project, even if I could not monitor them.

(r)= Reverse-scored item

Appendix D

Group Satisfaction & Motivation

Instructions: Please indicate your answer by filling in the bubble above your response.

All in all, how satisfied are you with the members in your discussion/project group?

①	②	③	④	⑤	⑥	⑦
Extremely Dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Satisfied	Extremely Satisfied

All in all, how satisfied are you with your group's performance?

①	②	③	④	⑤	⑥	⑦
Extremely Dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Satisfied	Extremely Satisfied

How satisfied are you with the progress you made on the tasks?

①	②	③	④	⑤	⑥	⑦
Extremely Dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Satisfied	Extremely Satisfied

Considering the effort you put into the task, how satisfied are you with your discussion/project group's performance?

①	②	③	④	⑤	⑥	⑦
Extremely Dissatisfied	Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Satisfied	Extremely Satisfied

(Previous 4 Items adapted from Park and DeShon, 2010)

Because of this group experience, I am motivated to work in project/discussion groups in the future.

①	②	③	④	⑤
Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

Appendix E

1 =
very slightly or not
at all

2 =
a little

3 =
moderately

4 =
quite a bit

5 =
extremely

_____ interested

_____ distressed

_____ excited

_____ upset

_____ strong

_____ guilty

_____ scared

_____ hostile

_____ enthusiastic

_____ proud

_____ irritable

_____ alert

_____ ashamed

_____ inspired

_____ nervous

_____ determined

_____ attentive

_____ jittery

_____ active

_____ afraid