“Pieces of the Puzzle”: The Effect of Altruistic Motivation on Motor Skills Productivity

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Abstract

Altruistic motivation is the driving force behind charities, volunteerism, and random acts of kindness; it is the motivation to give a resource (eg., time, money) without the anticipation of personal gain. The purpose of this study is to quantitatively show the effect of awareness and altruistic motivation on behavior through assigning philanthropic significance to a mundane task. The participants made bracelets that were presented as either increasing awareness for Autism Spectrum Disorder (ASD) or having no external purpose. In the altruistic motivation condition, the task was given a purpose by highlighting its goal to raise funds for a charity supporting autism awareness. Participants in the altruistic motivation condition made a slightly greater number of bracelets than those in the control condition. Additionally, a survey measured the participants' compassion toward humanity. The participants with high levels of compassion in the altruism condition completed the greatest number of bracelets. Participants in the altruistic motivation condition best performed the task of making bracelets, showing the impact of altruism on a controlled activity. This research shows that inspiring empathy and giving an external purpose to a task can increase task performance.

"Pieces of the Puzzle": The Effect of Altruistic Motivation on Motor Skills Productivity

When people often give of themselves to help others in need, it is a welcome surprise in our daily life. Acts of selflessness can be small, such as driving a friend to the airport, or large, such as donating organs. Since all actions require motivation, researchers across disciplines wonder at the origin of prosocial behavior. Why do people give when they seemingly get nothing in return? The motivation behind charitable giving has been studied for decades, and researchers have found different factors behind selfless acts to promote the wellbeing of others (Bekkers & Wiepking, 2011). According to Bekkers and Wiepking (2011), charitable giving is motivated by eight reasons: awareness of need, solicitation, costs and benefits, reputation, psychological benefits, values, efficacy, and altruism. While many of the motivating factors are focused on the self, such as building a positive reputation or increasing self-esteem, one of the factors separating the self from giving is altruism. Bekkers and Wiepking define altruism as having tangible consequences that occur outside of the individual and go directly to the targeted cause whether it be independent or through a nonprofit organization (2011). The willingness to perform a charitable act due to the knowledge of having a legitimate effect on the situation one wishes to improve is altruistic motivation. For example, a person who gives a monetary donation to an animal shelter because they know their money will provide resources for that shelter is altruistically motivated. The person is not looking for recognition, reputation, or a tax deduction; they are simply looking to make a difference.

Prosocial behavior can be motivated by a variety of external factors, such as the need to see a tangible impact (Amos, Holmes, & Alfred, 2015). For example, the extremity of impact of a donation on the targeted cause, known as impact philanthropy, has been shown to be a primary motivating force for monetary donations (Amos, Holmes, & Alfred, 2015). In contrast, egoistic

motivation, giving for selfish reasons, was the lowest predictor of donation (Amos, Holmes, & Alfred, 2015). Therefore, communicating the impact of an individual's donation influences a person's likeliness to repeatedly donate, and it increases the person's emotional reward (Merchant, Ford, & Sargeant, 2010). Researchers Lanying, Ling, and Yi (2014) studied giving in microcharities and found that the highest factors contributing to charitable behavior were altruistic motivation, shared vision, and perceived accessibility. Again, a person will be more likely to exhibit prosocial behavior if there is an accessible and attainable goal. If an individual can connect to a cause and know that their actions will result in a direct impact, then that person is more likely to be motivated to give of their own resources. This plays an important part in the development of altruistic motivation because a person can be moved to act for a cause, but if they are acting altruistically, then they will want to assure that their actions have an impact.

External factors such as accessibility contribute to altruism, the selfless desire to improve a situation outside of oneself, and altruism is a powerful motivator of prosocial behavior (Bekker & Weipking, 2011). Altruism is not concerned with bettering the self, improving social reputation, or receiving a reward; it is the want to fulfill a need in order to see a condition improve (Bekkers & Weipking, 2011). In early studies related to altruistic motivation, Unger (1991) found that voluntarism (eg., unpaid time working for an organization) was greatly impacted by altruism, and altruism had a greater effect on voluntarism than socioeconomic status and availability of time. Even though charitable actions can be influenced by egoism and reciprocity, motivation caused by altruism (altruistic motivation) is the dominating predictor of prosocial behavior (Lee, Kim, & Kim, 2015). Researchers Garg, Vogelgesang, and Kelly (2016) further confirmed this research by showing that altruistic motivation was a primary motivator in volunteering oneself in a medical setting. Altruistic motivation (acting for others) trumped

personal motivation (acting for oneself) and mutual benefit motivation (acting for both self and others). Altruistic motivation continues to be shown as one of the most influential reasons to selflessly give of oneself to benefit another.

Because altruism is such a strong motivating factor in charitable giving, researchers have studied what specific emotions influence, or inspire, altruism. Empathy, an emotion that allows humans to understand the perspective and pain of others, has been linked to altruism (Lang, 2008). Gaining a deep understanding of another's suffering could inspire action of that person to help relieve that suffering. Dovidio, Allen, and Schroeder (1990) examined whether altruism is affected by empathetic or egoistic motivation, and they discovered that people are more motivated by empathy, the desire to help another to relieve another's suffering, rather than egotism, the desire to help another to relieve personal distress caused by another's suffering. People were driven by empathy to act because they genuinely wanted to better the situation of another. Batson et. all (1991) illustrated that people are motivated by the opportunity to witness or share in the journey of other people as they progress from suffering to contentment. If a person acts out of altruistic motivation, it is likely that they experience some level of empathy toward the situation they are aiming to improve.

The link between empathy and altruism formed the empathy-altruism hypothesis which distinguished that people are more motivated by the prospect of improving a situation (altruism) rather than simply sharing in the suffering of a person (empathy), and, together, empathy-altruism is a strong predictor of prosocial behavior (Dovidio, Allen, & Schroeder, 1990). Therefore, creating a sense of empathy can strengthen altruistic motivation. Lang (2008) showed that inciting empathy could lead to altruistically motivated behavior. The participants in the study who were subjected to empathy-inducing conditions were more likely show altruistic

thinking (i.e., desire to help others in need) than participants who received neutral stimuli. In addition to the impact of empathy on thinking, heightened empathy concern is a primary predictor of individual giving behavior (McAuliffe et. al, 2017). Putting people in a helping role (i.e., doctor) further increases the level of empathic concern and the likelihood of a person engaging in prosocial behavior (López-Pérez, Ambrona, Wilson, and Khalil, 2016). When a person understands the need of another, empathizes with the situation, and has the tools to assist, they are likely to engage in prosocial behavior motivated by altruism. The empathy-altruism theory shows that people are truly motivated to assist others because of a sense of shared suffering and a desire to relieve it.

Empathy has been often shown as a factor contributing to prosocial behavior, yet there is a further distinction when one feels this empathy toward strangers (Dovidio & Penner, 2001). Compassion, or compassionate love, is defined by Sprecher and Fehr (2005) as acting with a care and concern for humanity and desiring to help people in need, regardless of personal relationship to them. The difference between compassion and empathy for Lazarus (1991) is that empathy is a feeling, but compassion is being moved by another's suffering to action. In a study by Smith (2003), 43% of a representative sample reported feeling a selfless caring toward others on most days, and 24% of people expressed having this feeling on some days. People generally care about others, and this general feeling can be interpreted as compassion. Compassionate love, a care for strangers, functions similarly to empathy as a contributing factor to altruistic motivation (Sprecher & Fehr, 2005). Compassionate love, however, may be an even better predictor of altruistic motivation due to its widespread influence.

Sprecher and Fehr (2005) developed a Compassionate Love for Humanity Scale to measure compassionate love in relation to empathy and altruism. When testing the validity of the

scale, the researchers found that compassionate love was moderately correlated with empathy. In addition, compassionate love was positively associated with self-reports of helping behavior (i.e., volunteer hours, social support). Compassionate love proved to be a better predictor of prosocial behavior than empathy. While these two factors are related, empathy requires a deep connection that is not always attainable. Compassionate love is more generalizable, proving to be more closely linked to altruistic motivation because one cannot always develop an empathic connection with charitable causes. These results show that compassionate love is an accurate descriptor of an internal motivating factor that leads to prosocial behavior, for those who have higher amounts of compassionate love toward humanity had a greater inclination toward charitable acts.

The purpose of this study was to quantitatively show the effect of compassion and altruistic motivation on a task through assigning philanthropic significance to a mundane activity. While much research has been conducted on prosocial behaviors that require large amounts of time and money (i.e., volunteering, monetary donation), this study aims to show the effect of altruistic motivation on a simple task that can be completed with ease (i.e., making bracelets). Compassion has been shown to influence altruistic motivation in self-reports of charitable behavior, but this study aims to measure the effect of compassion and altruistic motivation in a controlled setting on a measurable task (Sprecher & Fehr, 2005). The study also utilizes a population that has little time or money, yet the participants still engage in prosocial behavior when given the opportunity and ability. Going beyond availability of resources, this study shows that altruism can motivate small, achievable prosocial actions. People who feel compassion in their daily lives may be motivated to help others, and catering opportunities for practical charitable behavior could have a big impact.

Based on previous research that altruistic motivation is linked to charitable behavior (Lanying et. al, 2014; Unger, 1991; Lang, 2008) and explaining the extent of impact of an action influences behavior (Amos, Holmes, & Alfred, 2015), the researcher hypothesized that the participants who were in the altruistic motivation condition and received compassion-inducing information would be altruistically motivated to complete more bracelets than the participants who received neutral information and no purpose. Additionally, since people who have a heightened sense of empathy and compassion are more likely to engage in prosocial behavior (McAuliffe et. al, 2017; Sprecher & Fehr, 2005), the researcher predicted that those with higher scores on the Compassionate Love for Humanity scale would make more correct bracelets than those who had low scores, and participants with high scores in the altruism condition would make the most correct bracelets overall. This research could illustrate the effect of altruistic motivation on small tasks, showing that people can act daily to improve the lives of others.

Methods

Participants

The participants were drawn from a pool of introductory psychology, criminology, and sociology courses at Florida Southern College, *N*= (104). Participants were recruited through the SONA system, and they voluntarily signed up for study. The participants were primarily white and female college students between the ages of 18 and 22. Course credit or extra credit was given for participation.

Materials

The researcher utilized a variety of materials including and packet containing an informed consent form (see Appendix A) that each student signed before participating and a Compassionate Love for Humanity Scale (Sprechter & Fehr, 2005) (see Appendix B). On the

compassion scale, the participants rated statements such as “When I see people I do not know feeling sad, I feel a need to reach out to them” and “If I encounter a stranger who needs help, I would do almost anything I could to help him or her” on a 7-point Likert scale with 1 being “not at all true of me” and 7 being “very true of me.” Lacing shapes were used as the dexterity test to equate fine motor skill ability (see Appendix C). The shapes were thin pieces of crafting foam in the shape of triangles and hexagons with a sturdy string for the participants to lace through the holes. Each shape had a consistent number of holes. The researcher delivered the assigned motivation or lack thereof according to the scripts. In the altruism condition, the researcher read a script containing a true story about a boy with autism who has been helped by community support and services (see Appendix D). The script also included information about the charity and the impact of the donations. The participants were given a handout with information about Autism Spectrum Disorder and statistics from Autism Speaks (see Appendix E). In the neutral condition, the researcher used a neutral script containing a story about the history of bracelets (see Appendix F). A handout with neutral information about bracelets was given to the participants in the control condition (see Appendix G). The researcher provided participants with string, beads, and a puzzle piece charm to make bracelets (see Appendix H). The beads were the colors of the ASD awareness ribbon in order to represent Autism Awareness (see Appendix I). The participants made the bracelets according to an example picture of the correct bracelet (see Appendix J).

Procedure

Participants chose to sign up for the study through the SONA system used at Florida Southern College. The researcher randomly assigned the participants into either the control condition or the altruism condition. In both conditions, the participants entered the research room

where the materials for the study were prearranged. There were no more than 15 participants in the room. The researchers first asked the participants to complete a letter of informed consent (See Appendix A). Then, the participants were instructed to complete the Compassionate Love for Humanity scale (Sprechter & Fehr, 2005) (see Appendix B). After every participant had completed the survey, they were instructed to complete the lacing shapes for dexterity test (See Appendix C). They were given 1 minute 15 seconds to lace both shapes in front of them. If they completed both shapes, they were marked as high dexterity. If they did not finish lacing the shapes in the allotted time, then they were marked as low dexterity. After the dexterity test, the researcher proceeded to the next phase depending on the condition (see Figure 1).

[Insert Figure 1]

In the altruism condition, the researcher read the participants a story about a boy with autism who was helped by early intervention therapy. While listening, the research assistants passed out a handout stating statistics about Autism Spectrum Disorder for the participants to read (Autism Speaks, 2018). The researcher assured that every participant had ample time to look over the handout, giving approximately two minutes for reading. The researcher then explained the task of making bracelets. They expressed that the bracelets being made would be sold by the psychology club, and the funds would be donated to a charity that helps people with autism and their families like the boy in the story.

In the neutral condition, the researcher read the participants neutral information about the history of bracelets. The participants received a handout with neutral information about the history of bracelets. No external cause or motivation was given for the task of making bracelets. After the information has been given, both conditions were given 15 minutes to make as many bracelets as possible. The bracelets were started with a red bead tied on the end of a string. The

researcher gave the participants an example picture of the bracelet (see Appendix J) to imitate. They were instructed to make the bracelets exactly like the picture shown. The researcher explained that the participants did not need to tie the bracelets; they were to lay the completed string of beads in front of them as they finish. After the 15 minutes passed, the researcher told the participants to stop and leave all remaining materials on the table. The participants were debriefed and told the true purpose of the study. After the debriefing, the participants were dismissed. The researcher then collected data on the number of bracelets correctly completed, the dexterity test results, and the surveys. The surveys were scored and paired with the bracelet data. The names were stripped from all of the data. A statistical analysis was conducted to find significant data.

Results

A 2 X 2 between-subjects factorial ANOVA was conducted with condition (altruistic motivation, control) and Compassionate Love for Humanity scale (high compassion, low compassion) as between-subjects factors with the number of completed bracelets as the independent variable. The main effect of condition (altruistic motivation, control) was approaching significance, F (1,100) = 3.06, $p < .08$ (see Figure 2). As shown in Figure 2, participants in the altruism condition correctly made more bracelets (M = 8.65, SD = 1.69) than participants in the control condition in the control condition (M = 7.83, SD = 2.89). Regardless of survey score, the participants who received motivation for making the bracelets (i.e., future donation to charity) generally made more bracelets than those in the control condition, even though the data was only approaching significance.

[Insert Figure 2]

Additionally, participants with a high score on the Compassionate Love for Humanity scale in the altruistic motivation condition made the most bracelets out of all the participants. While this is not significant, there is an increase in the number of completed bracelets by participants with high compassion in the altruistic motivation condition (See Figure 2). Participants with low compassion scores in the altruistic motivation condition made fewer bracelets than participants with high compassion scores. However, these participants with low compassion scores still made more correct bracelets than participants in the control condition, showing the potential effect of altruistic motivation.

In the control condition, participants made nearly the same number of bracelets. However, participants with high compassion scores made slightly more bracelets (See Figure 2). Even though it is not significant, this trend is interesting because these participants did not receive external motivation. Even without inspired altruistic motivation, participants with high compassion scores made more bracelets than participants with low compassion. Participants with low compassion scores in the control condition made the fewest number of bracelets out of all the participants (See Figure 2).

Additionally, dexterity was measured using a dexterity test, and participants were grouped into either high or low dexterity. A t-test was conducted to measure the effect of dexterity (high, low) on number of completed bracelets. There was no significant difference between participants with high dexterity and low dexterity on the task of making bracelets ($t(102)= .55$, $p = .58$). The dexterity of the participants did not significantly affect the number of bracelets made. In each condition, the participant's ability to complete the task did not hinder their performance, allowing for a truer measurement of effect of condition (altruistic motivation, control).

Discussion

The first hypothesis, which stated that participants in the altruism condition would make more correct bracelets than those in the control condition, was partially supported. The data was approaching significance, showing the potential for the participants to have been altruistically motivated. Participants could have been affected by the impact that they would have on the charity and autism awareness, for they made more bracelets with greater accuracy when they were assigned a purpose for their task. The dexterity test had no significant impact on the number of bracelets made, showing that the results achieved were more likely to be due to altruistic motivation than the capability of the students to perform the task. These results align with previous research that shows that inspiring empathy can increase prosocial behavior (Lanying et. al, 2014; Unger, 1991; Lang, 2008; Amos, Holmes, & Alfred, 2015). While much of this research measures prosocial behavior in terms of self-report volunteerism (López-Pérez, Ambrona, Wilson, and Khali,l 2016; Sprechter & Fehr, 2005), this study shows potential for novel results because it measures the effect of altruistic motivation on a motor skills task. Instead of altruism being measured in volunteer hours or large acts of service, which require time and resources, this study shows that altruism can affect simple, daily tasks. Even college students can be motivated to contribute to a cause. People can be motivated by altruism in their daily lives, showing that people generally want to improve the lives of others.

The second hypothesis, which stated that participants who scored higher on the Compassionate Love for Humanity scale would complete more correct bracelets than those with low scores, was not supported (See Figure 2). Even though participants with higher scores did complete more bracelets, the difference was not significant. This contradicts previous research that states that compassionate love and empathy predicts prosocial behavior (Dovidio, Allen, and

Schroeder, 1990; Lang, 2008; McAuliffe et. al, 2017; Spechter & Fehr, 2005). The inconsistency could have been caused by a fallibility in the scale used to measure compassionate love. People generally want to be seen as caring and loving, and since the scale measured compassion toward strangers through self-report, participants could have answered more favorably of themselves in order to be perceived as kind. Future research could utilize a different scale or measure implicit compassionate thinking. Alternatively, the researcher would recommend using this scale or another scale focusing on empathy as a prescreen. This would allow the researcher to use the highest and lowest scoring participants, potentially showing a greater significance in behavior.

In addition to altering the scale, other future directions of the study could manipulate time, task, and motivation. Increasing the time that the participant has to do the task (i.e., making bracelets for 45 minutes instead of 15) could lead to significant results because it is easy to stay on task for 15 minutes, but one has to be more motivated to efficiently complete a task for a longer period of time. Additionally, future studies should vary the sample as this sample was not representative on a national level. Varying age, ethnicity, and socioeconomic status would increase the generalizability of the results. Finally, future studies could use different charities or causes to inspire motivation. While this study focused on autism awareness, future studies may focus on Feed America, breast cancer awareness, or other widely supported causes. This would further add to the generalizability of the results.

This study had multiple positive outcomes. First, the results contributed novel information to research regarding altruistic motivation, and it opened a path to more altruism research involving fine motor skills and controlled tasks. Additionally, the study itself raised awareness for Autism Spectrum Disorder. The participants were exposed to information and statistics surrounding ASD that may have been unknown to them. Through this, participants left

the study knowing the need for resources for people with autism and their families. Finally, the bracelets made in this study were sold by the Florida Southern College psychology club to raise funds for the Autism Society of Florida. The club raised $140 to donate which will help the organization better serve the community of people affected by autism in Florida. From beginning to end, this study shines an optimistic light on humanity. People were motivated by a cause to better perform a task, and many of the same people came back and donated to the cause, further solidifying people's desire to put good into the world.

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Figure 1. Procedure Schematic. This figure illustrates the chronological progression of the different tasks the participants completed during the study.

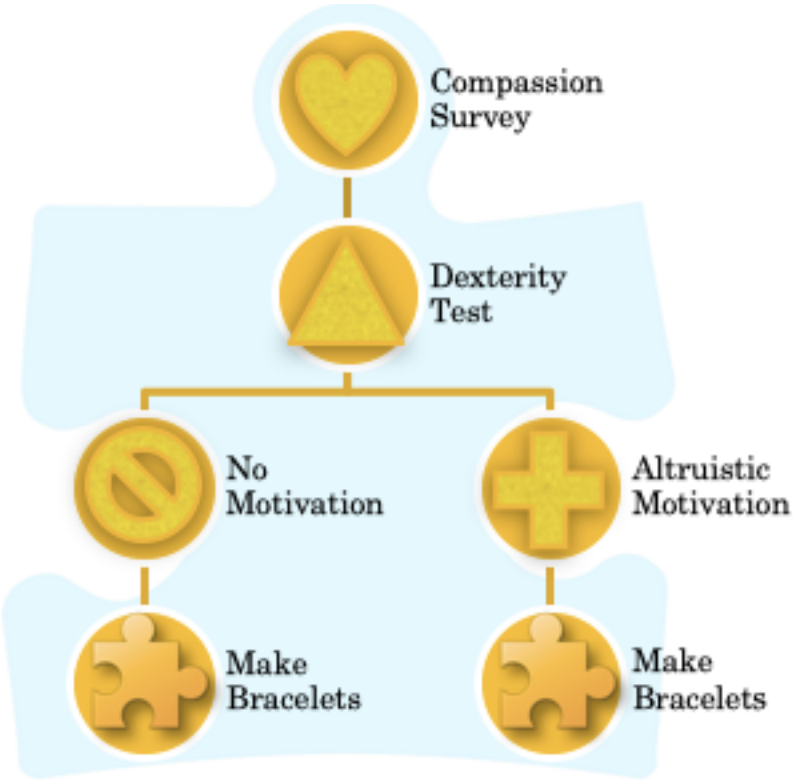
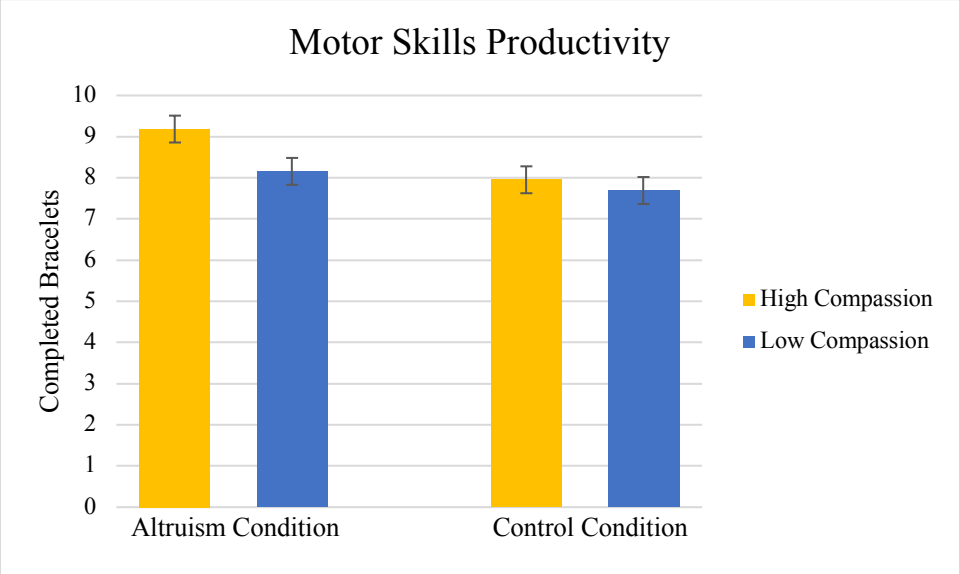


Figure 2. Motor Skills Productivity as a Function of Condition and Compassion. This figure illustrates the number of bracelets completed according to condition and score on the Compassionate Love for Humanity scale.



Appendix A
Information to Consider Before Taking Part in this Research Study

Project Title: Motivation in Making Bracelets
Principal Investigator(s): Emma Skiba
Faculty Advisor(s): Dr. Patrick Smith

PURPOSE OF THE STUDY: You are being asked participate in this experiment to further research on motivation and its role in human behavior.

STUDY PROCEDURES: If you should agree to participate in this study, you will be asked to listen to a set of instructions, engage in the task of making bracelets.

RISKS AND DISCOMFORTS: There are no more risks than those involved in everyday activities.

POTENTIAL BENEFITS: You will receive extra credit towards your grade for a course as determined by your course instructor (which may include SONA participation credit). You will not directly benefit from participating in this study, however the results may help researchers better understand motivation and behavior.

CONSENT: By signing this consent form, you agree that you understand the procedures and any risks and benefits involved in this research.

CONFIDENTIALITY: We must keep your study records confidential. Your privacy will be protected because you will not be identified by name as a participant in this project. Your data will be assigned a number code and will be kept in a locked cabinet. No records will be kept with your name on them. The obtained information will be kept until the data collection is complete and will be shredded after completion. However, certain people may need to see your study records (including IRB officials). By law, anyone who looks at your records must keep them completely confidential.

VOLUNTARY PARTICIPATION / WITHDRAWAL: Your participation is completely voluntary and you are free to refuse to participate or to withdraw your consent to participate in this research at any time without penalty or prejudice.

QUESTIONS, CONCERNS, OR COMPLAINTS: If you have any questions, concerns or complaints about this study, please contact the Chair of the Institutional Review Board at (863) 680-6205, VP for Academic Affairs at (863) 680-4124.

It is up to you to decide whether you want to take part in this study. If you want to take part, please sign the form, if the following statements are true.

I freely give my consent to take part in this study. I understand that by signing this form I am agreeing to take part in research.

_____ _____

Signature of Person Taking Part in Study Date

_____

Printed Name of Person Taking Part in Study

Appendix B
Compassionate Love for Humanity Scale

1.) When I see people I do not know feeling sad, I feel a need to reach out to them.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
2.) I spend a lot of time concerned about the well-being of humankind.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
3.) When I hear about someone (a stranger) going through a difficult time, I feel a great deal of compassion for him or her.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
4.) It is easy for me to feel the pain (and joy) experienced by others, even though I do not know them.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
5.) If I encounter a stranger who needs help, I would do almost anything I could to help him or her.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
6.) I feel considerable compassionate love for people from everywhere.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
7.) I would rather suffer myself than see someone else (a stranger) suffer.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
8.) If given the opportunity, I am willing to sacrifice in order to let the people from other places who
are less fortunate achieve their goals.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
9.) I tend to feel compassion for people even though I do not know them.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
10.) One of the activities that provides me with the most meaning to my life is helping others in the world who need help.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
11.) I would rather engage in actions that help others, even though they are strangers, than engage in actions that would help me.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
12.) I often have tender feelings toward people (strangers) when they seem to be in need.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
13.) I feel a selfless caring for most of mankind.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
14.) I accept others whom I do not know even when they do things I think are wrong.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
15.) If a person (a stranger) is troubled, I usually feel extreme tenderness and caring.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
16.) I try to understand rather than judge people who are strangers to me.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
17.) I try to put myself in a stranger's shoes when he or she is in trouble.
not at all true of me 1 2 3 4 5 6 7 *very true of me*
18.) I feel happy when I see that others (strangers) are happy.
not at all true of me 1 2 3 4 5 6 7 *very true of me*

19.) Those whom I encounter through work and public life can assume that I will be there for them if they need me.

not at all true of me 1 2 3 4 5 6 7 *very true of me*

20.) I want to spend time with people I don't know well so that I can help enrich their lives.

not at all true of me 1 2 3 4 5 6 7 *very true of me*

21.) I very much wish to be kind and good to fellow human beings.

not at all true of me 1 2 3 4 5 6 7 *very true of me*

Sprecher, S. & Fehr, B. (2005). Compassionate love for close others and humanity. *Journal of Social and Personal Relationships*, *22*, 629-651.

Appendix C
Lacing Shapes for Dexterity Test

Appendix D
Altruistic Motivation Condition Script

Before we get to the materials in front of you, take a moment to think about a time when you played ring around the rosy. It's a simple, fun game, right? Most children sing, spin, and fall down; however, for a little boy named Alex, ring around the rosy was not fun and games. Alex is a four-year-old boy with autism who would not even acknowledge the presence of a peer in a room; so, engaging in a game such as ring around the rosy seemed out of this world. Alex was fortunate, though. He was diagnosed at a young age and is in early intervention behavioral therapy. In therapy, he started with small tasks: sitting near a peer, playing near others, and even making eye contact. At the beginning of the summer, he was introduced to ring-around-the-rosy, and the therapist had to physically hold the boy's hands against his peers. Just the other day, the boy independently went up to his peer, grabbed his hands, and started spinning as the therapist sang ring around the rosy. At the end of his session, the therapist told his mother about his progress, and with happy tears streaming down her face, she said, "I think this is the year he will make a friend."

Many people do not think about small things like playing a game with friends until it is no longer a given. Because Alex's mom had access to specialists, resources, and a community of support, she was able to get him into treatment to help build his social, functional, and communication skills. What does this have to do with the beads and strings in front of you? Well, you now have the opportunity to make bracelets to raise funds for Autism Speaks, an organization who "is dedicated to promoting solutions, across the spectrum and throughout the lifespan, for the needs of individuals with autism and their families," and they do this through "advocacy and support; increasing understanding and acceptance of people with autism spectrum disorder; and advancing research into causes and better interventions for autism spectrum disorder and related conditions."

With your consent, the bracelets you make will be sold by myself and the research assistants, and the proceeds will be donated to Autism Speaks. The puzzle piece in the center of the bracelet is a symbol for autism awareness, since every child with autism is unique. Please take a moment to look at the handout in front of you to see a few statistics on autism and how Autism Speaks responds to a need. Through your efforts making the bracelets, more children like Alex can be given the help and resources they need so that they can have new opportunities otherwise unattainable to them, such as making a new friend through playing ring around the rosy.

Appendix E
Altruistic Motivation Handout

AUTISM SPEAKS®

INCREASING UNDERSTANDING & ACCEPTANCE

Autism affects an estimated 3 million people in the United States and 70 million people worldwide. More than 90 percent of the world's autism community lives in low- and middle-income countries with little access to autism services or support, challenged by the high cost of care, as well as stigma and social intolerance.

1 in 68 children is diagnosed with autism in the U.S.

nearly **2/3 of children** with autism **between the ages of 6 and 15 have been bullied**

nearly 1 in 3 people with autism **feels socially isolated**

autism affects more than 70 Million people worldwide

Through your support, we are measurably increasing understanding of autism, elevating public health practices and supporting the delivery of sustainable services across the life span.

AUTISM SPEAKS®

INCREASING EARLY CHILDHOOD SCREENING & TIMELY INTERVENTION

Autism Speaks is helping to lay the foundation to ensure all children on the spectrum reach their highest potential. We continue our work with a special focus in high need, lower socioeconomic populations by empowering parents, educating physicians and advancing research.

Autism can be diagnosed between **18-24 months** with a thorough behavioral assessment

the average age of diagnosis in the U.S. remains around **4 years of age**

AUTISM AFFECTS **ALL ethnic** and socioeconomic groups

minority groups tend to be **diagnosed later** and **less often**

AUTISM SPEAKS®

IMPROVING THE TRANSITION FROM ADOLESCENCE TO ADULTHOOD

Autism Speaks is urgently identifying solutions to address the diverse needs, challenges and strengths of adolescents with autism and develop new opportunities to enhance adult life.

an estimated **50,000** **teens** with autism age out of school-based services each year

teens with autism **receive healthcare services** **1/2** as often as those with **other healthcare needs**

nearly **half** of 25-year-olds **with autism never held a paying job**

many young adults with autism **do not receive healthcare** for years after they stop seeing a pediatrician

AUTISM SPEAKS®

BEING A CATALYST FOR LIFE ENHANCING RESEARCH BREAKTHROUGHS

Autism Speaks is helping to lead the explosion in discovery of genes associated with the underlying biology of different subtypes of autism. At the same time, we have generated a vital pipeline of talent for the future of autism research. Autism Speaks Science has played a major role in:

Early identification **(screening and diagnosis)**

early **developmental and behavioral** intervention

Increasing knowledge **and ability to care for co-occurring** medical and mental health conditions

Uncovering the basic **biology** of autism

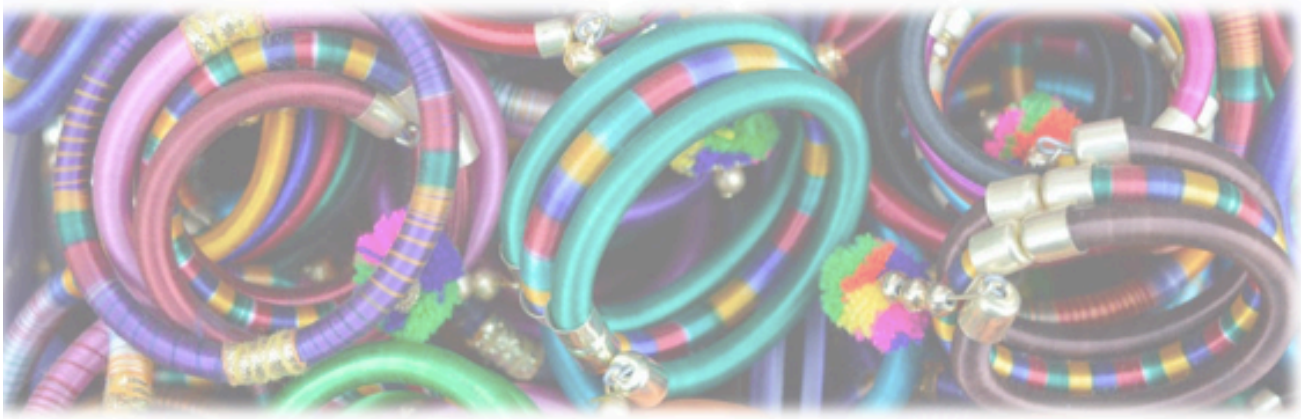
Appendix F
Control Script Containing Neutral Information

Before we get to the beads and string in front of you, take a moment to think about a time when you wore a bracelet or other accessory that made you feel good—maybe more stylish, fancy, or cool. In middle school, there one girl who wore a purple beaded bracelet every day because her mom had a matching one that she also continuously wore. When asked about her habit, she would answer that she liked having something in common with her mom, and also that purple was her favorite color. Why should she take it off? Whether the purpose is sentimental or merely aesthetic, bracelets are a common accessory worn by a variety of people. For many of us, we have been wearing them since elementary school to express our personal style, to display a collection, or even to show support for a cause.

Bracelets and jewelry can be traced back to the earliest civilizations. One of the oldest bracelets was found in Turkey, and it dates back to 7500 BCE. Throughout the years, bracelets held cultural significance. Some bracelets were crafted for religious or spiritual means, while others depicted social status. For example, in India, the number of bangles being worn by a woman showed her wealth and position in society. In Greece, there was a tradition of wearing red and white string in summer to protect the wearer from sunburn! As you can see, bracelets have a long and interesting history. Please take a moment to look at your handout for further information about bracelets.

Cited From: http://blog.usantiqueshows.com/2014/09/25/the-history-of-bracelets-around-the-world/

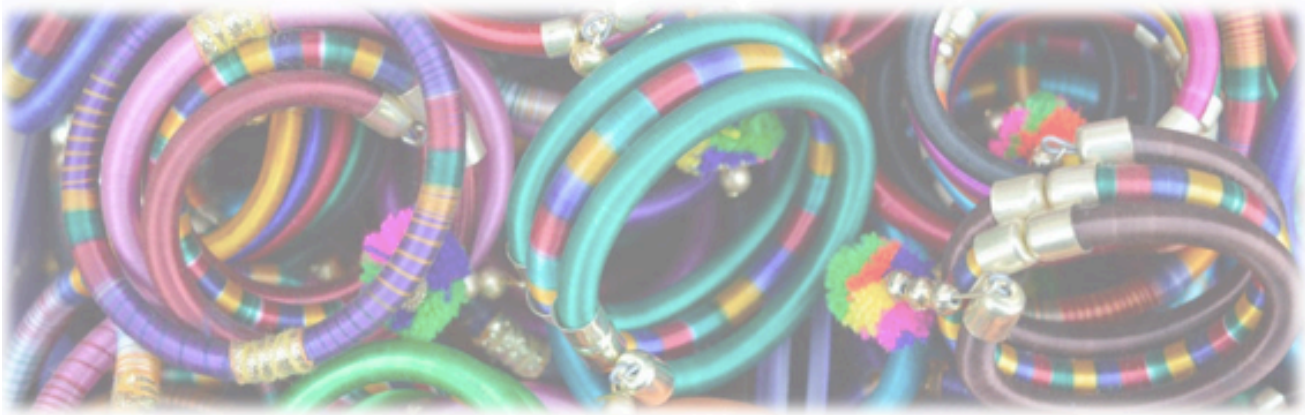
Appendix G
Control Condition Handout



Bracelet comes from the Greek word *brachille* meaning "of the arm."

Ancient Egyptians wore bracelets as far back as **5000 B.C.E.**

Bracelets were not simply decoration... in China, **jade** was used to protect the wearer from spirits.

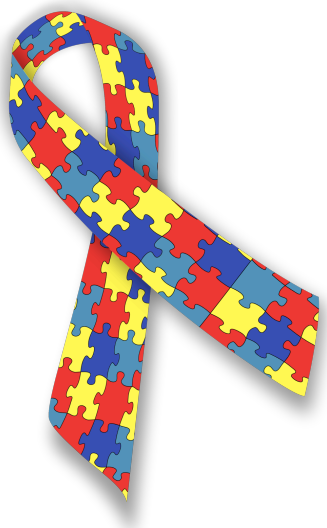


Bracelets were mass-produced in the US in the 19th century, making them an **accessible** accessory.

Today, bracelets have been worn by **everyone** from Cleopatra to First Lady Michelle Obama.

Appendix H
Materials for the Bracelets

Appendix I
Autism Awareness Ribbon



Appendix J
Example Bracelet for Participants