
The 1Touch Project: A Pilot Study of a Program to Teach Individuals Who Are Visually Impaired Self-Defense

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Structured abstract: *Introduction:* This pilot study evaluated the percentage of skills participants in the 1Touch Project Coaching Certification Course mastered after intensive training, as well as the maintenance of these skills six months after the initial training session. In addition, the potential psychosocial benefits of the training were evaluated. *Methods:* In this posttest-only, pre-experimental study, participants with visual impairments (that is, those who are blind or have low vision) were trained in skills, and observers assessed the accuracy of participants on each of 76 skills. Participants completed surveys before and after training to indicate self-perceived psychosocial growth as a result of participating in the training. *Results:* On average, participants mastered 84.75% of the 76 steps involved in the key skills of the 1Touch program, with a range of mastery from 60.53% to 100.00%. When assessed six months after the initial training, the average level of skill mastery was 89.68%, with a range of 53.95% to 100.00%, indicating there was not a noteworthy decline in the skills that had been mastered just after training. The return rate on the surveys measuring psychosocial benefits was too low to allow accurate statistical analysis, but potentially promising trends were identified based on the increased average response from pretest to posttest. *Discussion:* These benefits were achieved after a brief training that could be conducted in virtually any geographic location with relatively few resources. *Implications for practitioners:* Providing accessible instruction in self-defense using a program like 1Touch may lead to both physical and psychological benefits.

Martial arts is a broad term that includes self-defense, tournament competition, traditional forms, use of weapons, and healing. Current literature suggests that participation in martial arts can benefit overall health as well as improve balance and psychological well-being (Croom, 2014; Douris & Chinan, 2004; Wood-

ward, 2009). Martin (2002) conducted a survey of individuals with a variety of disabilities and reported that, after martial arts training, 80% of respondents felt more confident as a result of their participation in it, 40% indicated that they could do things as well as individuals without disabilities, and 70% reported an

increased sense of self-worth. Overall, 90% of respondents indicated that they had a more positive attitude toward themselves after participating in the martial arts, and 80% indicated that their quality of life was greatly improved as a result of their training. Participants in the study also reported improvements in the areas of balance, strength, and stamina.

Self-defense training involves teaching individuals how to recognize potentially threatening situations; de-escalate potentially threatening situations; and use releases, kicks, and punches to escape, if necessary, from a threatening situation (Searles & Follansbee, 1984). People who complete self-defense training also experience benefits to physical health and psychological well-being, including increased self-efficacy and reduced anxiety (Brecklin, 2007). There has been no research conducted on the benefits of self-defense training specifically for people with visual impairments (that is, those who are blind or have low vision). Individuals who are visually impaired are often perceived as being less capable, not just by strangers, but by family and friends (Cimarolli, 2002). When individuals are treated as being less capable, it can exacerbate their own perception of themselves as being disabled and can lead to decreased well-being and self-esteem (Tuttle & Tuttle, 2004). The perception of being less capable and more disabled can lead individuals to feel unsafe in their own communities, resulting in a hesitancy to travel independently in unfamiliar places, on public transportation, or after dark. Individuals who are reluctant to travel in their own environments lose functional independence, including the ability to work, take part in community

activities, and take advantage of local services (Bart, Katz, Weiss, & Josman, 2008; Katz et al., 2005; Naveh, Katz, & Weiss, 2000).

Traditionally, martial arts and self-defense courses are not taught in a format that is accessible to people with visual impairments. The vast majority of self-defense courses (including subcategories such as women's self-defense) tend to be based on striking or hitting from a distance, sparring or boxing with light blows, kicking, and boxing—all of which typically utilize visual information (Link & Chou, 2011). Further, self-defense courses presuppose the use of vision during the practice of recognizing threatening situations from a distance and applying techniques (Cranmer, 2006).

The 1Touch Project is a self-defense program created in 2009 by the third author to address the specific needs of people who are visually impaired. It is designed to teach self-defense skills such as threat recognition, threat analysis, and appropriate response in a way that can be learned with or without vision. The program emphasizes hands-on training and audio description to increase accessibility. Prior to learning any physical defense skills, participants in the program learn about self-defense theory: avoiding situations that place individuals at increased risk, identifying threatening situations, learning strategies for de-escalating situations that have the potential to become threatening, and knowing the factors that make individuals feel insecure and why. Participants in the program are also taught physical skills such as releases, strategies for extricating oneself from another's grip, locks, methods of immobilizing an assailant who may be larger and

stronger than the person being attacked, strikes or punches, and kicks. Participants are taught adapted strategies such as “1Step,” for creating a wide stance that improves balance and postural stability, which tend to be reduced for individuals with vision loss (Ray, Horvat, Croce, Mason, & Wolf, 2007); “1Touch,” for maintaining contact with an assailant and using tactile cues such as thumb position to determine the orientation of the assailant; and “TouchStrike,” maintaining contact with the assailant so that punches can be directed correctly at the target. The program was developed after an individual who is blind approached the creator of the program, a martial arts instructor, seeking training after being attacked. The creator of 1Touch began teaching the individual, but both teacher and student quickly realized that traditional methods of teaching martial arts were not accessible even though martial arts training often involves practicing skills while blindfolded after learning skills visually.

Although martial arts—and, specifically, self-defense programs that utilize martial arts—could have benefits for individuals who are visually impaired, any program is only as beneficial as it is effective and accessible. The purpose of the pilot study presented in this paper was to assess both the effectiveness of the program to teach individuals, including individuals who are visually impaired, the skills that are part of this self-defense program and to assess the hypothesized psychosocial impact of the training on participants by answering the following questions:

- What level of mastery do participants who complete the initial coaching cer-

tification course of the 1Touch Project achieve?

- Do participants maintain the level of mastery achieved during the initial coaching certification when reviewed approximately six months later?
- Do participants who complete the 1Touch Project experience a positive psychosocial impact?

Methods

A pre-experimental, posttest-only design was used to determine the acquisition of skills. Quantitative data in the form of behavioral observation was used to assess the acquisition of skills. A Likert scale survey was used to assess the psychosocial effect experienced by participants who completed the 1Touch Project training program. This study was reviewed and approved by the Institutional Review of Board of North Carolina Central University. Informed consent was sought from all participants.

PARTICIPANTS

Participants were a convenience sample of individuals who had registered for the 1Touch certification course. Since the program is still new and has not yet proliferated, convenience sampling was the most realistic way to obtain a sizable sample. During the portion of the study focused on the acquisition of skills, 37 individuals were evaluated at time 1 (directly after the initial training), and 25 individuals were evaluated at time 2 (six months later to assess maintenance). Twenty-seven of the participants were visually impaired, 16 at time 1 and 11 at time 2. A total of 46 surveys, 33 in pretest and 13 in posttest, were completed during the portion of the study that focused on

Table 1

Numbers of participants, by vision status, who participated in study activities that measured the acquisition of skills and psychosocial effects.

Vision status	Acquisition of skills		Psychosocial effect	
	After initial training	6-month follow-up (maintenance)	Prior to initial training	After initial training
Typical vision	19	13	9	4
Visually impaired	16	11	24	9
Vision unknown	2	1	NA	NA

the psychosocial effect of the program. Thirty-three of these surveys were completed by individuals who self-identified as visually impaired, 24 at time 1 and 9 at time 2. All participants were encouraged and reminded to complete the survey, but many chose to not do so. Individuals were asked to self-identify whether they had a visual impairment or if they were “blind.” Participants had a wide range of visual conditions, and their vision ranged from typically sighted to low vision to total blindness. More participants were visually impaired than were typically sighted, which was desirable since the program was designed specifically to be accessible to individuals who are visually impaired; however, data were collected on participants with typical vision as well, since these individuals often complete the training in order to become a 1Touch coach, certified to train other individuals in the program (see Table 1). All participants were over the age of 18. Most participants appeared to be between the ages of 20 and 50 years. Additional demographic information was not collected because this initial study did not target the specific populations for which this project is most beneficial (for example, age, gender, or additional disabilities). Future research will consider these variables.

PROCEDURE

Participants completed an intensive three-day 1Touch Project Coaching Certification Course. To maintain a high level of procedural fidelity, all training was taught by the same instructor, the developer of the program, who traveled to various locations around the United States to provide training. Every training between March 2015 and November 2015 with willing participants was coded. Approximately every third training was coded by a second coder. During the training, participants learned via a framework of five basic principles: 1Touch; 1Step; contouring, or using the lines of an assailant’s body to guide movements; feeding, or maintaining contact while pulling the assailant closer or pushing the assailant away; and TouchStrike, which is taught using tactile modeling and audio description. Participants were allowed to use any available vision to supplement tactile-modeling and audio description. All participants with vision did spend at least two hours practicing skills while wearing occluders. Beyond the basic principles, participants learned how to escape another person’s grasp (releases), and how to use immobilization techniques (locks) to confront the most minor situation to the most aggravated assault. Scenario training and

role playing were utilized as training tools. Participants completed numerous drills and exercises designed to increase spatial awareness, proprioception, and general health.

In addition to the physical techniques, participants learned the legalities of self-defense, personal awareness, posture and presentation, stress and conflict management, and stages of threat. Participants with no prior experience teaching individuals who are visually impaired were also required to complete a sensitivity training course that addressed audio description procedures, cultural sensitivity and appropriate terminology, tactile modeling, physical guidance, and using sleep shades.

Participants returned after six months to complete a brief review of the skills, followed by an action-based core curriculum exam that included the application of techniques and a written exam.

MEASURES: ACQUISITION OF SKILLS

A task analysis was performed on the key skills taught as a part of the 1Touch Project training program. When all of the skills were task analyzed, a total of 76 steps were identified, which were used as an action-based, core curriculum exam. Definitions, examples, and non-examples were developed for each of the 76 steps. To reach mastery in a skill, the participant had to complete the skill with 100% accuracy according to the definition, examples, and non-examples. Two coders were trained in how to code participants using the core curriculum assessment tool. Coders assessed the participants using a pen-and-paper version of the tool in real time and then entered data on an electronic version using a computer. Interrater reliability was assessed in real time by a sec-

ond coder during 33.87% of the sessions across geographic locations to ensure the data were not affected by interobserver drift. The same second coder performed the coding in all instances. Interrater reliability was calculated using the formula (number correct/total opportunities) \times 100. The average rate of agreement was 95.51%.

MEASURES: PSYCHOSOCIAL IMPACT

To assess the effect of the 1Touch program related to psychosocial aspects of the training, three surveys were administered to each participating individual in the 1Touch Project. A survey, administered to participants before they began the initial training, addressed their own motivation for participating in the course as well as aspects related to psychosocial well-being such as feelings of security and self-confidence, comfort level in traveling independently, ability to take part in social opportunities, and perceived physical health. A similar tool was administered after the initial training and at the time of the participants' six-month evaluation. Only three participants completed the survey at the time of the six-month evaluation, so those responses were not analyzed. The tool asked questions that required participants to respond using a Likert scale. Comments were sought at the end of each section (see Figure 1). The survey was available on paper in print and large print, as an electronic Microsoft Word document, as an electronic survey, and in braille upon request.

DESIGN AND DATA ANALYSIS:

ACQUISITION OF SKILLS

For assessing the acquisition of skills, a pre-experimental, posttest-only design was used. A quasi-experimental design,

Location of training: _____

Date: _____

Do you have a visual impairment? Yes _____ No _____

Do you consider yourself blind? Yes _____ No _____

Safety

1. How safe do you feel on a daily basis? (1 = not safe at all; 5 = very safe): 1 2 3 4 5

2. How often do people pick on you? (1= very rarely; 5 = very often): 1 2 3 4 5

3. Do you feel safe traveling independently to new places? Yes _____ No _____

Comments?

Self-confidence

How would you rate your opinion of yourself? (1 = very low opinion of self; 5 = very high opinion of self):
1 2 3 4 5

How confident would you rate yourself? (1 = very unconfident; 5 = very confident): 1 2 3 4 5

Comments?

Travel

1. How often do you travel independently within the community you reside? (1 = not often at all; 5 = very often): 1 2 3 4 5

2. Are there places within your community which you would like to travel to but do not because you fear for your safety? (1 = never; 5 = all the time): 1 2 3 4 5

3. How many days do you travel independently after dark on an average week? _____
a. If this answer is zero or one, why do you choose not to travel or travel often after dark? Comments?

4. Is there public transportation in your community? Yes _____ No _____
a. If the answer is yes, do you use the public transportation that is available in your area? Yes _____ No _____
b. If you do NOT use the public transportation in your area, why do you choose not to travel by public transportation? Comments?

Figure 1. 1Touch Program: initial training, pre-training survey.

which would have required a control group, was not chosen, because the authors decided it could safely be assumed that even participants who had backgrounds in martial arts or self-defense techniques would not have completed an accessible training course with the features unique to the 1Touch Project. In addition, the authors feared that assessing

participants prior to instruction would have frustrated and confused them, as well as reduced the amount of instructional time.

Descriptive statistics were conducted for participant scores ($N = 37$) after the initial training and after the six-month review ($N = 25$) to determine the gain in the mastery and maintenance of skills.

<p>Socialization</p> <p>1. Do you like to spend time with other people? (1 = very rarely; 5 = very often): 1 2 3 4 5</p> <p>2. How many times do you socialize in an average week? _____ a. If you typically do not socialize, why not? Comments?</p> <p>Physical health</p> <p>1. How would you rate your strength? (1 = not strong at all; 5 = very strong): 1 2 3 4 5</p> <p>2. How would you rate your endurance? (1 = very low; 5 = very high): 1 2 3 4 5</p> <p>3. How would you rate your flexibility? (1 = not flexible at all; 5 = very flexible): 1 2 3 4 5 Comments?</p>

Figure 1. continued.

Frequency counts were used to determine if there were specific skills that appeared more difficult to master or maintain.

DESIGN AND DATA ANALYSIS:

PSYCHOSOCIAL IMPACT

Descriptive statistics were conducted for participant responses for each question. Promising trends were noted on the basis of improved means from pretest to post-test, but not enough participants completed the survey for additional statistics to be run with confidence in the results. The comments participants provided were evaluated for trends and consistent messages.

Results

ACQUISITION OF SKILLS

Descriptive statistics indicated a high level of mastery after the initial training. On average, participants mastered (or performed the skill accurately according to definition, examples, and nonexamples) 84.75% of the 76 steps involved in the key skills of the 1Touch program; mastery levels ranged from 60.53% to 100.00%. Not only did participants meet the criteria for mastery for a large percentage of these

skills, but they seemed to retain the skills they had mastered. When assessed six months after the initial training, the average level of skill mastery was 89.68%, with a range of 53.95% to 100.00%.

When participants were separated into subgroups of individuals who were visually impaired and individuals who had typical vision, the trend in mastery was found to be similar for both groups. On average, participants who are visually impaired mastered 81.69% of the 76 steps involved in the key skills, with a range of mastery from 64.47% to 95.95%. When assessed six months after the initial training, participants who are visually impaired demonstrated an average mastery of 91.99%, with a range of 89.47%–98.68%. On average, participants with typical vision mastered 86.36% of the 76 steps, with a range of mastery from 67.11% to 100.00%. When assessed six months after the initial training, participants with typical vision demonstrated an average mastery of 87.04%, with a range of 53.95% to 100.00%. The increase in average number of skills mastered after the initial training indicates that participants maintained the skills they learned

Table 2
Skills that participants struggled to master.

Description of skill	Participants who made an error, <i>n</i> (%)
1 step as part of the first release: Step backward at a 45-degree angle with either left foot (if right wrist is being grabbed) or right foot (if left wrist is being grabbed)	11 (14.47)
1 step as a part of the release from right cross-wrist hold: Step to the side with either left foot (if right wrist is being grabbed) or right foot (if left wrist is being grabbed)	19 (25.00)
Pretty girl as a part of the release from right cross-wrist hold: Fingers point upward with palm turned toward participant approximately six inches from nose during right cross-wrist hold	10 (13.15)
1 step as a part of the release from two-hand grip on 1: Step forward, placing the foot that is opposite to the grabbed wrist between partner's feet	23 (30.26)
Body positioning as a part of the release from two-hand grip on 1: Reach over and toward partner with free hand; grasp held hand with free hand; step back, bringing hand back to the free side; step back with same foot that stepped forward	10 (13.15)
Release as a part of outside feed: Spread left fingers apart, making wrist stronger; face palm of hand toward the ground; turn wrist so narrow edge is aimed out through the break in partner's grip; pry wrist away toward the hip opposite the grip	14 (18.42)
Feed as a part of outside feed: Simultaneously grasp partner's right wrist with the free right hand.	13 (17.11)
1 step as part of outside feed: Step forward with the left foot at a 45-degree angle	14 (18.42)
Pretty girl as part of feed from 2-on-1 right grip: Right hand is rotated to the left and up so that the palm faces the nose	11 (14.47)
Parry as part of slap parry check: Raise the left arm to block, palm down as if their arm was the spout of a teapot	12 (15.79)
Feed as part of lock 4: Grasp the knife side of the partner's hand with the left hand	14 (18.42)

during six months without training. It is also hypothesized, since the average number of skills mastered increased rather than remained stable, that many participants practiced and refined skills even though no additional formal training was offered.

When frequency counts were conducted on the errors that were made by individual participants, 11 skills were identified as being performed incorrectly by 10 or more of the participants (see Table 2). When participants were assessed six months after the initial coaching certification course training, only one

skill was performed incorrectly by 10 or more of the participants.

PSYCHOSOCIAL IMPACT

Due to the limited number of participants, the authors were unable to determine if there was a statistically significant increase in the participants' reported psychosocial well-being. Increases after training were noted with regard to perceived safety on a daily basis, the participants' opinion of himself or herself, and reported self-confidence (see Table 3). Additionally, participants who considered themselves blind reported a reduction in

Table 3
Psychosocial effect from pretest to posttest.

Measures		Pretest (n = 33)	Posttest (n = 13)
Safety	How safe do you feel on a daily basis?	3.94	4.15*
	How often do people pick on you?	1.38	1.46
	Do you feel safe traveling independently to new places?	No = 10 (31%) Yes = 22 (69%)	No = 1 (8%) Yes = 12 (92%)*
Self-confidence	How would you rate your opinion of yourself?	4.16	3.92
	How confident would you rate yourself?	4.09	4.38*
Travel	How often do you travel independently within the community in which you reside?	3.64	4*
	Are there places within your community which you would like to travel to but do not because you fear for your safety?	2.15	1.92*
	How many days do you travel independently after dark in an average week?	3.06 days	3.63 days*
	Is there public transportation in your community?	No = 7 (21%) Yes = 26 (29%)	No = 2 (15%) Yes = 10 (15%)
	If public transportation is an option in your community, do you use it?	No = 11 (44%) Yes = 14 (56%)	No = 4 (40%) Yes = 6 (60%)
	How much do you like to spend time with other people?	4.18	4
	How many times do you socialize in an average week?	4.47 days	4.25 days
Physical health	How would you rate your strength?	3.7	3.92*
	How would you rate your endurance?	3.6	3.69*
	How would you rate your flexibility?	2.9	3.38*

* Denotes a potentially promising trend based on improved means from pretest to posttest.

the number of places in their community to which they would like to travel but did not because of fear (pretest average, 2.29; posttest average, 1.8). Individuals who had low vision but did not consider themselves blind reported an increase in the number of days they traveled independently each week (pretest average, 2.6 days; posttest average, 4 days). Finally, responses on the survey were higher for all individuals with regard to perceived strength, endurance, and flexibility.

Participants often chose to respond to the Likert scale questions but left the section for comments blank. When they chose to make comments, they made statements like “I feel a lot safer now traveling than I did before taking the [1Touch program]” and “I have gained

even more confidence after the [1Touch program], and part of it is due to being more aware and paying more attention to what is going on. . . .” The comments participants made were all positive. They made no negative comments.

Discussion

Martial arts can benefit individuals both with and without disabilities on a variety of physical and psychological measures (Martin, 2002; Woodward, 2009). The 1Touch Project was developed specifically to make the benefits of martial arts and, specifically, self-defense accessible to individuals who are visually impaired. Participants acquired the skills taught in the program at very high levels of mastery, on average 84.75%, and did not

demonstrate a noteworthy loss of mastery when reviewed six months after the initial training. Further, positive trends related to psychosocial wellness were reported that related to feelings of safety, self-esteem, self-confidence, increased independent travel, frequency of travel, and socialization. These benefits were achieved after an intensive but short training that could be conducted in virtually any geographic location with relatively few resources. This study provides preliminary evidence of skills that could potentially lead to increases in functional independence and quality of life for all individuals who are visually impaired.

LIMITATIONS

It is important to note that this was a pilot study with a pre-experimental design. That design and the exploratory nature of this study resulted in several limitations. The results of this study are far from conclusive but were intended as an initial investigation into the accessibility and effectiveness of the 1Touch Project. Although the authors were encouraged by the findings, particularly the findings related to skills acquisition, it is very possible that the individuals who were tested at time 2 differed in motivation, confidence, and self-defense skills from those who did not return for the maintenance testing.

Despite positive trends found in the surveys of psychosocial well-being, there were not enough respondents to determine if these changes were statistically significant. A power analysis that assumed a moderate effect size (.5) indicated that 125 participants were necessary to avoid missing a statistically significant result as a result of a small number of

participants, which makes it impossible to know if the psychosocial impact was low or if the study needed more participants to accurately observe an effect. The fact that any positive trend was noted with so few participants provides an indication of the potential effect of the program.

DIRECTIONS FOR FUTURE RESEARCH

The current study did not take any demographic variables into account other than the presence or absence of vision. Future research will focus on the effect of the 1Touch Project for specific groups of individuals such as children, students who are of transition age, women, and veterans. Research with children should focus on incidences of bullying and if the 1Touch Project has the potential to decrease those incidences. Additionally, research into women's self-defense should address the issues of sexual assault, harassment, and safety when traveling. Research conducted for veterans who are visually impaired should examine the effectiveness of the 1Touch Project in assisting with participants' transition back to civilian life, with an emphasis on social and vocational rehabilitation.

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