INTERGENERATIONAL PROGRAMMING ON A MULTI-GENERATIONAL PLAY PARK AND ITS IMPACT ON OLDER ADULTS

by

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A thesis submitted to the faculty of
The University of North Carolina at Charlotte
in partial fulfillment of the requirements
for the degree of Master of Arts in
Gerontology

Charlotte

2017

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ABSTRACT

AMANDA T. DAWSON. Intergenerational programming on a multi-generational play park and its impact on older adults. (Under the direction of DR. MICHAEL J. TURNER)

Intergenerational programming between children and older adults have been shown to make significant contributions to older adults' overall wellbeing. However, it is uncommon to find in research the combination of active aging and intergenerational programming. It is even more rare to find research about intergenerational programming on multi-generational play parks. Because of this gap, this study focuses on comparing a control group, an active control group with those participating in an on-going exercise class offered at a senior center, and an experimental group taking part in an active intergenerational program on a multi-generational play park. Identical pre-tests and post-tests that evaluated health, physical activity, and variables of older adults' overall wellbeing were given to all research participants to determine if there were any significant changes between the groups. Fifteen older adults (n = 15) aged 55 and older participated in this five-week study. Key findings revealed educational disparities, a decrease in feeling down-hearted and blue, an increase of participants believing that they have better health because they exercise, and an increase of feeling accomplished when a task is completed in participating groups.

DEDICATION

To my husband, Gavin, who joined my academic journey and unbeknownst became educated in gerontology along the way. Your words of encouragement and steadfast presence during this time have provided an insurmountable amount of support and successful completion of my thesis program.

To my parents, Lee and Teresa Thomas, and my brother Cliff, without your love and support in my educational attainment as a first-generational college student, I could not be where I am today. Your continued support and encouragement to me to follow my dreams in academia has been overwhelming and much appreciated.

To Dr. Jeannine Skinner who had a larger impact on this study and my education than I could ever realize. Her passion for serving the older adult population, research, and student success will forevermore thrive in the work I do and pass along.

ACKNOWLEDGEMENTS

I would like to acknowledge the contributions of Tracy McGinnis the Director of Philanthropy at Southminster to this project. Without your innovative mind, spirit, and passion to provide opportunities for older adults to remain active and connect all ages, this study would not have been implemented. I am honored to call you a mentor and so thankful that our paths crossed.

I would also like to acknowledge Mecklenburg County's Park and Recreation's senior centers, especially Tyvola Senior Center, and all of the senior centers staff that allowed this study to occur. This project could not have been successfully completed without their patience, willingness to work with my schedule, and continuous fostering of my education.

Additionally, I would like to acknowledge Huntersville Parks and Recreation. Without your partnership to allow children to come participate in Ageless Play, my study would not have occurred. Thank you for taking a chance on this study.

Lastly, I would like to acknowledge my best friend Brittany Castle. Although you're immersed in the study of animal science 4,600 plus miles away in Hawaii, your consistent presence and help through the entirety of my social science schooling has been phenomenal. Thank you for being the sister I never had.

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INTRODUCTION

Research in regards to intergenerational activities specifically designed to promote active aging is limited. Because the older adult population is continuously expanding and longevity is increasing (Administration on Aging [AoA], 2014), the need for innovative exercise programs, such as implementing ones with an intergenerational concept, is growing. According to the Centers for Disease Control and Prevention (CDC), physical activity is essential to healthy aging (2015). Their recommendations for the amount of exercise older adults should obtain weekly include three different options. These options include constantly executing muscle-strengthening activities two or more days a week and variations of cardio exercises such as: two hours and thirty minutes of moderate-intensity cardio activity, an hour and fifteen minutes of vigorous-intensity cardio activity, or a mix of moderate and vigorous-intense cardio exercises (Centers for Disease Control and Prevention [CDC], 2015). With this information in mind, active intergenerational programs should contribute to maintaining healthy and active lifestyles that align with the CDC's guidelines, but should also assist in older adults' overall wellbeing.

A study conducted by Ruthig (2016) depicted gender specific reasons as to why older adults exercise and indicated that wellbeing influences maintaining active lifestyles among the older adult population. According to the study on health risk perceptions and exercise in older adulthood conducted by Ruthig (2016), coping appraisal measures such as self-efficacy, response efficacy, and response costs were strong indicators for women to engage in exercise. In contrast, strong indicators for men to engage in exercise are prior physical activity (PPA), age, and coping appraisals (Ruthig, 2016). These factors

contribute to a growing importance for older adults to have a variety of options, such as active intergenerational programs, available for them to partake in for maintaining a healthy lifestyle and overall wellbeing. This concept is supported in a study conducted by Teater (2016). Her research indicated positive results on how older adults view their participation in intergenerational programming in regards to measures of their health, self-development, community building, and what they thought, felt, and learned in the program (Teater, 2016). While this study defines active aging in a more holistic way, it is important to note that intergenerational programming and the bonds that are projected to build provides "mutual aid and support" (Teater, 2016) during active aging, and is a strong indicator for a means of creating a successful physically active intergenerational program. This research concluded that the concept of active aging should be explored by integrating intergenerational programs that can enhance health and well-being from the perspective of the older adults and how intergenerational activities can contribute to active aging (Teater, 2016). The study also expands and confirms on previous research implemented in regards to active intergenerational programming.

Perry and Weatherby (2011) implemented a community-based participatory research project that integrated active intergenerational programming in the form of tai-chi sessions. This is one of the first studies conducted that focuses on active aging and how it affects both older adults and children. Participants of the tai-chi program reported that they enjoyed attending the sessions and that both older adults and youth from all backgrounds eventually became comfortable with each other, which was observed by the interaction towards the end of the program (Perry & Weatherby, 2011). In a study conducted by Xaverius and Mathews (2003), intergenerational activities proved to

"represent a promising strategy for increasing the levels of engagement and expressiveness in community-dwelling older adults" (p. 59). The intergenerational tai-chi program implemented by Perry and Weatherby supported this suggestion and signified a positive response in active intergenerational programming. It is also suggested that structured intergenerational programming implies that a higher percentage of older adult engagement is achievable, which was demonstrated in Xaverius and Mathews' study on evaluating the impact of intergenerational activities on engagement of older adults. They denoted trends of engagement in older adults between intergenerational activity and no structured activity. One significant trend showed that older adult participant engagement levels averaged to 90% when an intergenerational activity was implemented in comparison to no structured activity (Xaverius & Mathews, 2003).

These studies suggest a promising form of active aging in the practice of intergenerational programming. Incorporating the use of a multi-generational play park brings another layer of external factors, such as environment and age-friendly design, which can significantly influence healthy lifestyles in older adults. An active intergenerational program designed for the use of multi-generational play parks can contribute a greater positive impact for older adults to adopt the concept of active aging and maintain healthy lifestyles. Furthermore, there is minimal, if any, research that studies intergenerational programming on multi-generational play parks. However, through application from established research, it is likely that intergenerational programming on multi-generational play parks will add notably in regards to older adults who are actively aging and their overall wellbeing.

In this quantitative research study, the analysis of an active intergenerational program (Ageless Play) implemented on a multi-generational play park will be evaluated to determine its impact on older adults' health and wellbeing. This will be compared to a non-exercise control group and an activity control group that will consist of older adults' participating in on-going exercise classes at a senior center. This senior center is located near the multi-generational play park in a heavily populated and financially successful suburban area. Measurements that will be evaluated between the control group, active intergenerational program, and the on-going exercise class at the senior center will include: general health, enjoyment, self-worth, self-efficacy, personal growth, and physical activity. Two hypotheses will be tested during this study. One hypothesis of this study is that older adults who participate in Ageless Play at the multi-generational play park will show overall higher results in all measurement areas when compared to those who participate in the on-going exercise program at the senior center. The second hypothesis of this study is that both exercise groups will exhibit improved health outcomes on administered surveys compared to the control group.

The intention of this study is to contribute research to intergenerational programming and justify the establishments of multi-generational play parks in communities. If positive results are found, then those in the field of gerontology, the health field, and individuals working with children will be impacted. Advancements in areas such as programming, individual health, healthcare, and community engagement can ensue. Lastly, it is an overall goal that this research can assist in contributing to combating ageist viewpoints and bringing a life-span perspective to community dwellers.

LITERATURE REVIEW

1.0 ACTIVE AGING

It is important for older adults to regularly stay active as they continue to age. Not only does this present health benefits but cognitive and social benefits as well. The World Health Organization (2002) states that, "active ageing is the process of optimizing opportunities for health, participation and security in order to enhance the quality of life as people age" (p. 12). They continue to define "active" as a prolonged involvement in social, economic, and cultural affairs and where one is not just being physically active (World Health Organization [WHO], 2002). Active aging is meant to be applied throughout the life span. Because of this, active aging confirms the need for active intergenerational programming that focuses on increasing the maintenance of healthy lifestyles physically, socially, and cognitively for both older adults and children. Furthermore, incorporating easy accessible establishments, such as multi-generational play parks, can promote active aging across the lifespan in an efficient way. However, the purpose of this research is to focus on how active intergenerational programming on a multi-generational play park effects older adults and therefore the primary information following is applicable to this population.

1.1 OLDER ADULTS AND EXERCISE

As previously stated, the CDC provides guidelines on the amount of physical activity recommended for older adults to implement weekly. They advocate consistent muscle-strengthening exercises at least twice a week and variations in length of times executing cardio exercises, which depends on the intensity of the activity (CDC, 2015). These recommendations are essential to achieving beneficial health outcomes for older adults

and for this population to continue actively aging. The CDC's guidelines are also supported by Christmas and Andersen's (2000) research. They state that "aerobic exercise is superior to resistance training" but both aerobic exercise and muscle-strengthening exercise are advantageous to improving longevity and reducing possible disability that comes with age (Christmas & Andersen, 2000, p. 318). Furthermore, the researchers state that exercise can lead to significant improvements in body composition, risk of falling, growth in strength, lowered depression, and reduction of chronic and hereditary diseases (Christmas & Anderson, 2000). These trends indicate exponential health benefits for older adults and are strong indicators to incorporate exercise daily. They also suggest an underlying trend of allowing older adults to have a higher quality of life.

A study conducted by McAuley et al. (2006) examined three different models of physical activity and the relationship with quality of life (QOL) for Black and White older adult women. Items that were measured included physical activity participation, physical health status, mental health status, and QOL. Self-efficacy was another measurement in this study, which is defined as an individual's belief in their ability to succeed in certain events or accomplish a task, and is something that regulates functioning in four major ways: cognitive, motivational, mood, and affect (Bandura, 1997). This measurement is significant and common throughout research pertaining to older adults, especially for those that focus on exercise. More specifically, the Exercise Self-Efficacy Scale (McAuley, 1993) is commonly used in many exercise studies and was utilized to gather data for McAuley et al.'s study. The results of McAuley et al.'s (2006) study indicated that older women with higher activity levels displayed greater

self-efficacy, which was associated with more positive physical and mental health status. This is supported by another study conducted by McAuley et al. (1999), which included both older men and women. They discovered that their "overall findings with respect to physical activity effects on exercise and physical self-efficacy are suggestive of a curvilinear growth function in which exposure to physical activity programs leads to increased self-efficacy over time with a decline in efficacy resulting during the follow-up period beyond the program" (McAuley et al., 1999, p. 290). This supports a need of programming that has lasting effects for older adults as well as children with active intergenerational programming. As a further result from McAuley et al.'s (2006) more recent research, participants' health statuses were found to be positively related to satisfaction with life, and indirectly related to QOL. This is a significant finding because it demonstrates the importance of exercise for not only the physical body, but also how it affects QOL and wellbeing in older adults. Although the measurement of self-efficacy is similar and significant in previous research, McAuley's more recent study is limited in that it only evaluated older women as research participants and did not include older men. Because of this, it is important to discuss reasons why all older adults decide to exercise and ultimately choose to actively age.

1.2 CONTRIBUTING FACTORS FOR OLDER ADULTS TO EXERCISE

Hawley-Hague and her colleagues (2014) cite from the Agency for Healthcare Research and Quality published in 2002 that approximately 30% of those aged 65 years and older report regularly exercising in daily life. Another study conducted by Jefferis et al. (2014) found that about 15% of older adult men and 10% of older adult women achieved recommended levels of physical activity. While the aforementioned information

is ambiguous, it is evident that older adults do not get enough exercise that they need. Exercise provides older adults with many health benefits, but it is important to understand some of the specific reasons as to why they engage in physical activity. Research has studied contributing factors that range from personal to social influences that cause older adults to pursue exercise and participation in group exercise classes. Ruthig (2014) studied the intent to exercise and health risk perceptions in older adults. The study included data gathered from both older men and women ages 65 years and older. Older men demonstrated greater intent to engage in regular exercise and that self-efficacy and response efficacy measurements were associated to predict this intent to exercise (Ruthig, 2014). In comparison, Ruthig (2014) discovered that greater self-efficacy, fewer response costs (such as being too tired to exercise, too busy, etc.), and coping appraisal measures predicted older women's intent to engage in regular exercise. Not only are these measurements predictors for older adults' individual motivation to pursue exercise, the findings also relate closely to other research that has been studied for older adults participating in physical activity with exercise groups.

Caperchione and Mummery (2007) executed research that "examined mediating relationships between the theory of planned behavior (TPB) and group cohesion on physical activity intention" (p. 81). Theory of planned behavior, which is important to associate with active aging due to its relationship with individual motivation, is similar to self-efficacy in that it suggests an individual's intention to perform certain behaviors is key to the central determinant of behavior because it takes individual motivational factors to engage in behavior (Ajzen & Fishbein, 1980; Courneya, 1995). Their study revealed that attitude and perceived behavioral control mediated the connection between group

cohesion concepts of attraction to the group, which included the intention for social and physical activity (Caperchione & Mummery, 2007). Hawley-Hague et al. (2014) found similar results in studies they have conducted, but included demographic and instructor qualities in their research to determine the intention of older adults to exercise. They discovered that social economic status and educational levels influenced older adults participation in group exercise classes. The higher the economic status and educational level, the more likely older adults were found to participate in group exercise classes and physical activity, while the inverse is similar for lower economic and educational statuses (Hawley-Hague et al., 2014). Furthermore, they discovered that instructors and their personality are a significant contributing factor in the likelihood of older adults continuing to participate in group exercise. Their research found a significant standard deviation of 0.016 ($p<0.05$) in instructor conscientiousness, which indicated a strong correlation for older adults to continue to participate in group exercise classes (Hawley-Hague et al., 2014). However, a different perspective from the instructor's viewpoint might show alternative reasons as to why older adults choose to continue participating in physical activity.

A study that examined exercise instructors' perspectives on older adults' intake and adherence to different exercise classes discovered valuable factors that are indicators to motivating older adults to attend group exercise classes. Themes that appeared from multiple instructors' perspectives in the study included: (1) health professional recommendations for older adults to exercise can be a barrier or a motivation, (2) the most significant promoter for older adults to attend class is through the peers that already attend, and (3) that once participants attend classes regularly, they are drawn in by the

social outcomes and physical and psychological improvements they accomplish (Hawley-Hague, Horne, Skelton, & Todd, 2016). Instructors also revealed barriers that provide reasons as to why older adults are prevented to participate in group exercise classes. Barriers included cost, venue, the exercise class not meeting personal expectations, and social influences such as families and peers in the likelihood that they forced the older adult to engage in the exercise class when they did not want to (Hawley-Hague et al., 2016). While many of these factors are vital to ensuring successful active aging among older adults, it is important to be cautious of the barriers and to develop exercise programs that are free from common obstacles as much as possible.

One last contributing factor that influences older adults' likelihood to engage in exercise is cognitive functioning. McAuley et al.'s (2011) study on examining self-efficacy among men and women with a mean age of 66.44, and who volunteered to participate in a 12-month exercise intervention, mediated the relationship between self-regulatory processes and sustained exercise behavior, showed significant results in effects of two elements of executive function. The study defined executive function as an individual having the ability to "arrange, integrate, and control cognitive actions" (McAuley et al., 2011, p. 284). Another study that discusses influences of exercise on cognitive function focuses on older women as the main research participants. This study, conducted by Williams and Lord (1997), revealed significant improvements in reaction time, strength, memory span, and measures of wellbeing in the subjects who participated in exercise. Because these studies confirmed that older adults' cognitive function would improve with physical activity and reduce age-related declines in certain physiological

and cognitive functions (Williams & Lord, 1997), it can thus be considered a substantial reason for older adults to pursue active lifestyles.

While these contributing factors are critical to incorporate in everyday exercise and group exercise classes, it is equally important to apply a lifespan perspective to the research attained. Intergenerational programming can be a solution to successfully accomplishing the physical activity requirements, overcome aforementioned barriers, and make a significant impact in the lives of not only older adults but for children as well. Because of this, intergenerational exercise programs can add a new level of satisfaction in physical activity achievement and overall positive wellbeing for older adults. Beginning an intergenerational exercise program will also influence children at a young age to live healthy, active lives and thus actively age throughout their life.

2.0 INTERGENERATIONAL PROGRAMMING

Intergenerational programming is considered to be a newer form of programming to connect older adults with the younger generation through educational and artistic activities. In an article written by Herrmann, Sipsas-Herrmann, Stafford, and Herrman (2005), they stated that "the main purpose of intergenerational programming is to bring together different generations to collaborate on purposeful activities, while supporting and nurturing each other in meaningful ways" (p. 124). This is important to understand when researching intergenerational activities and programming, because the effectiveness of the program will be determined by how well older adult and child participants respond. There are three common types of intergenerational programming: those where older adults provide a service to youth, where youth help older adults, and cooperative programs where both older adults and youth collaborate equally on activities (Herrmann

et al., 2005). Significant benefits provided by intergenerational activities for older adults are (1) the experiences that come with it can be ideal for older adults to prevent and resolve issues that occur in late life, and (2) intergenerational activities that are designed to help youth successfully assist older adults in accomplishing certain life stages outlined by Erikson, such as integrity versus despair (Hermann et al., 2005). Generations United, whose mission is to improve lives of children, youth, and older people through intergenerational collaboration, public policies, and programs for the enduring benefit of all (Generations United, 2016), supports these and includes additional benefits that older adults endure, such as enhanced socialization, stimulated learning, increased emotional support, and improved overall physical health (Generations United, 2007).

Significant contributions can continue to be made through intergenerational programming. When combined with exercise, both older adults and youth should reap benefits whether it is socially, physically, or both. Furthermore, research has been implemented to gather data of the effectiveness of intergenerational programming and its possible application to form an intergenerational exercise program but it is limited. More evaluation of a variety of intergenerational programming can contribute significantly to implementing successful intergenerational exercise programs promoting active aging and healthy lifestyles throughout the life span.

2.1 INTERGENERATIONAL PROGRAMMING AND ITS EFFECTS ON OLDER ADULTS

The execution of intergenerational programming has been evaluated by researchers and is still considered an emerging topic in literature. Experiences of older adults who participate in intergenerational programming are limited in intergenerational

research. However, Kuehne (2008) studied older adults' experiences between those who participated in intergenerational programming with preschoolers and school aged children. She discovered that older adults enjoyed participating in programming with school-aged children more than preschoolers. A variety of positive interactions were discovered in Kuehne's findings to support this such as: (1) older adults were able to share more with school-aged children than preschoolers, (2) school-aged children assisted older adults when participating in the program, (3) an overall positive interaction was associated with school-aged children, and (4) school-aged children demonstrated more group unity building with older adults (2008). However, a limitation to this study is that older adults who participated in intergenerational programming with preschoolers came from either nursing homes or adult day cares, while older adults who participated in the study with school-aged children were either considered independent or from a retirement facility where they were presumed to be more active compared to others (Kuenhe, 2008). With the diversity of older adults who participated in this research, the results could have been more significant and equally contributing to the intergenerational field if research subjects were either all from adult day cares or living independently. For example, in a study conducted by Griff, Lambert, Dellmann-Jenkins, and Fruit (2006) they found that community-living elders appeared to be the most comfortable and approachable for children to interact with when compared to frail older adults living with Alzheimer's disease. This information contributes to the development of active intergenerational programming and suggests that implementing this type of program with school-aged children will have a greater impact on older adults than regular exercise programs.

A study that came out the same time as Kuenhe's showed similar results. Reisig and Fees (2008) studied whether participation in intergenerational programs positively contributed to psychological wellbeing among older adults living in rural areas in the United States. They found overall high satisfaction rates among older adults who participated in the intergenerational programs. A higher rate was commonly found in 75-84 year old research participants and lower rates were found in those older than 85 years (Reisig & Fees, 2008). Three themes emerged from the higher rates among the 75-84 year old participants of this study: anticipation for working with children, seeing themselves in a more positive way, and joy and satisfaction were found when they had activities to do with the children (Resig & Fees, 2008). These themes indicate positive factors contributing to older adults' desire to participate in intergenerational programming, and with proper execution can span to older adults at different age stages. When combined with factors motivating older adults to engage in exercise and active aging, intergenerational programs focusing on physical activity can be beneficial for both maintaining healthy lifestyles and wellbeing. Fortunately, some research has been conducted on intergenerational programming focusing on physical activity.

2.2 ACTIVE INTERGENERATIONAL PROGRAMMING

Teater (2016) describes that older adults who actively age is based on factors such as economic, social, health and social services, behavioral, personal, and physical. Furthermore, she cites from the World Health Organization (2002) that "interdependence and intergenerational solidarity (two-way giving and receiving between individuals as well as older and younger generations) are important tenants of active aging" (p.12). Because of this, intergenerational relationships are suggested to be vital to active aging.

Teater's (2016) study asked two key questions to examine whether older adults believed that participating in intergenerational programs can contribute to their health and what they thought, felt, and learned during their participation of these programs. Approximately 73% of older adults rated their intergenerational experience as excellent and similar ratings were discovered for growth in confidence, discovering themselves, contributing to personal self-esteem, developing social skills, expressing personal identity, and assisting them to reveal thoughts, feelings, and physical skills to others (Teater, 2016). This is supported by research implemented by Perry and Weatherby (2011) who studied an intergenerational tai-chi program, one of the earliest recordings of active intergenerational programs in research. The results indicated enjoyment between youth and older adults who attended the tai-chi sessions (Perry & Weatherby, 2011). Furthermore, the older adult participants stated that they wanted an increase in activity level that would spark more interactive activity and social interaction between both generations (Perry & Weatherby, 2011). The application of this information to the upcoming study would confirm positive benefits of intergenerational programming on a multi-generational play park.

There is limited research about active intergenerational programming that confirms the need of more studies and research to be executed in order to determine the best avenue to implement intergenerational programming combined with physical activity. A suggested start would be to carefully design a program that addresses recommendations for older adults and children's physical activity level, incorporate factors that motivate older adults to exercise, set goals associated with positive aspects about intergenerational programming to reach, and incorporate a uniqueness that fosters

intergenerational play and accessibility for all ages. The active intergenerational program should also heavily focus on sustaining healthy lifestyles and being able to contribute positively to overall wellbeing. Ultimately, an active intergenerational program should promote intergenerational play for all ages.

2.3 INTERGENERATIONAL PLAY

The majority of literature in intergenerational play focuses on other population groups such as mother-child relationships and not older adult-child relationships. However, Davis, Larkin, and Graves (2002) have contributed significant information to the intergenerational field especially in regards to intergenerational play. When combined with the possibility of implementing an active intergenerational program on a multi-generational play park, the concept of intergenerational play can flourish to new levels that can contribute to maintaining healthy lifestyles and overall positive wellbeing.

Davis and her colleagues (2002) discovered that playing with children allows older adults an opportunity to reminisce about their past childhood, while children receive an enriched learning experience from interacting with positive role models. In this research it is also stated that, “Play, a basic activity of childhood, when combined with older adults in an intergenerational setting, opens a new gateway to intergenerational programming” (2002, p. 42). Because of this, intergenerational programming at a multi-generational play park is highly likely to foster interaction, teamwork, and relationship building between older adults and children.

Learning through play will also provide children the opportunity to develop social and emotional skills that are critical to have throughout the lifespan (Davis et al., 2002). Additional studies have shown that children with active adults involved in their play tend

to be more creative (Davis et al., 2002) and therefore would benefit from intergenerational bonding at multi-generational play parks. This concept also allows older adults to learn about the children of today's society and experience the "world of play" from the perspective of the child (Davis et al., 2002). Programming at a multi-generational play park would foster an opportunity such as intergenerational play because its design provides easy conversation starters between children and older adults as well as equipment to promote this concept.

3.0 MULTI-GENERATIONAL PLAY PARKS

Multi-Generational Play Parks is a newly introduced term and concept to the United States. These types of parks are like playgrounds but they are built for everyone of all ages to use. Its hypothetical purpose is to provide a way for people to stay healthy and fit as they age at no cost while also fostering relationships between individuals and the community as a whole. More specifically, multi-generational play parks and their design cater to younger children and older adults and therefore can be used as a tool to promote intergenerational bonding. Although multi-generational play parks have not been widely researched, the establishment of them and the possibilities, implications, and impacts that they can bring to the population of the United States can make significant contributions to society and assist in the development of active intergenerational programs.

3.1 CHINA AND MULTI-GENERATIONAL PLAY PARKS

Multi-generational play parks stem from a trend implemented throughout China. The country's Nationwide Physical Fitness Program promoted outdoor fitness centers designed for people of all ages to use in urban public parks (Hindman, 2015). Furthermore, it had a target goal of engaging more than 40% of China's population to

participate in regular physical exercise, and that there would be an improvement in the country's citizens' national physique as well as an increase in the amount of fitness sites to satisfy people's need to exercise ("Nationwide Physical Fitness Program"). The playgrounds established through this program have been coined as "nursing care prevention playgrounds" and have been in existence since the year 2004 (Hindman, 2015). They were modified to include the opportunity for the elderly to engage in less intensive exercise (Hindman, 2015), but to remain active none-the-less. This initiative has been popular in China and ever since has been a trendsetter for other countries throughout the world to build upon their idea and establish multi-generational play parks to foster active aging, intergenerational bonding, healthy lifestyles, and community engagement.

3.2 EUROPEAN AND ASIAN MODELS OF MULTI-GENERATIONAL PLAY PARKS

With different values and traditions than America, many other countries recognize the need to accommodate healthy lifestyles for all ages. Multi-generational play parks, which cater to children as well as their parents and grandparents, are popular throughout Europe (McPherson, 2011). Although they are still considered a relatively new concept, Europeans and Asians have embraced the idea of active aging and have used these types of parks to promote a healthy lifestyle. Mattox stated that in 2010, "senior playgrounds have only slowly started cropping up in countries like Germany and Spain over the last three years" (Stolarz, 2010). New Zealand built its first multi-generational play park in 2011 with high expectations of the exercise equipment having the ability to promote building strength in older adults making them less frail (McPherson, 2011) and, therefore, allowing them to be more capable to fulfill activities of daily living. As a result of this installation, the playground has assisted in reducing the admissions of seniors to hospitals

while also providing an opportunity for socialization with other community members (McPherson, 2011). London also opened a variation of a multi-generational play park in the year 2010. This city built a public playground in Hyde Park with a senior set in order to increase active aging because they believed that the gym was commonly found intimidating for seniors (Stolarz, 2010).

Japan has the most developed system of senior playgrounds due to its population of older adults and its citizens having the longest life expectancy in the world. Tokyo's Nursing Care Prevention Parks initiative, which is similar to China's Nationwide Physical Fitness program, has playgrounds throughout the country for seniors. Older adults can partake in classes held at the parks that teaches proper movement and equipment usage and are conducted by instructors from the Association of Physical Fitness Promotion and Guidance (Cohen, 2010). Other European countries, such as Finland, have built play parks designed with seniors in mind based off of three basic principles: mental health, generational play, and interaction. Older adults who live in Finland state that playgrounds designed with seniors in mind allow them to feel better mentally because of exercising and feeling empowered when they overcome an obstacle from a piece of equipment (Sillito, 2006). The Finnish are also trying to sell the idea of "3 generational play" meaning that all playgrounds in Finland should be designed with at least three generations in mind, if not all ages (Sillito, 2006). The third principle that the Finnish are using to justify building multi-generational play parks is that Lappset researchers feel that creating playgrounds as a cross-generational meeting place will assist generations to understand one another better and establish an enhanced social feel throughout neighborhoods (Sillito, 2006).

Europe and Asia encompasses ideas and initiatives for healthy and active aging that many countries, including the United States, should adopt. Multi-generational play parks and the possibilities associated with them all seem to be positive and promising in European and Asian countries. It's affordability for seniors to use and the benefits they will reap will be notable in many disciplines such as the health care industry, senior programming, and research. Fortunately, different states within the United States have adopted the idea of multi-generational play parks. However, there are few established throughout the nation.

3.3 THE UNITED STATES AND MULTI-GENERATIONAL PLAY PARKS

Leisure and exercise equipment established in multi-generational play parks are becoming popular in the United States as an alternative for equipment used in traditional playgrounds. They are designed to be low impact fall prevention tools, an establishment that works almost every muscle group, and can be used by people, especially older adults, with limited agility, balance, and flexibility ("Swings for Grown-Ups", 2015). It can be inferred that multi-generational play parks are utilized for keeping individuals active due to the growing health problems and costs in the nation. For example, children can use multi-generational play parks as an outlet for running, climbing, and crawling while also developing fine motor skills and raising their heart rates (Miller, 2014). In contrast, older adults can use the wellness and exercise stations to exercise their cardiovascular and respiratory systems, as well as build strength and flexibility to protect their bodies from arthritis (Miller, 2014). Additionally, multi-generational play parks are envisaged to foster a sense of respect and community where children and older adults come together in one setting. These reasons provide a strong foundation for the increase of multi-

generational play parks throughout the country and the need to explore active intergenerational programming.

While equipment is created to foster activity among people of all ages, there are more factors as to why the creation of multi-generational play parks should be a priority in the United States. Gamble from Land Design Collaborative, Inc. states that children and adults are becoming more "sedentary and gaining weight, losing mobility, developing diabetes, heart disease as well as new ailments like carpal tunnel syndrome" (2007). He further indicates that multi-generational play parks in conjunction with public park facilities can be used as an alternative to lower health care costs, shorten hospital stays, improve rehabilitation accomplishments, and prolong independent living by reducing the need for skilled care (Gamble, 2007). Furthermore, when paired with an adult exercise concept called stealth exercise, the ability to continue stimulating healthy lifestyles for older adults is created. The theory of stealth exercise is designed to implement spontaneous physical movements to improve health through outside recreation use and encourages walking, stretching, and strengthening (Gamble, 2007) all components that can be introduced in active intergenerational programming. It is projected that park users of multi-generational play parks integrated with stealth exercise will experience a boost in energy and reap benefits of fresh air and nature while undergoing simple recreational and leisure activities (Gamble, 2007). This is beneficial to seniors in providing them ample doses of healthy activity, which assists in healthy aging because of the activities play parks and the outdoors offer.

Humana and KaBOOM also created a recent partnership that built eight multi-generational play parks in eight states during the year 2014. Humana stated that the

playgrounds would allow them to promote healthy living in cities across the country and make it easy for children and adults to achieve their best health ("Humana and KaBOOM", 2014). Another article published through Huffington Post stated that the United States is approaching playgrounds for seniors in a slightly different way than Europeans by incorporating an intergenerational factor in their design (Brenoff, 2015). Lade, a writer for the Sun Sentinel in Florida, wrote about Humana and KaBOOM's multigenerational play parks initiative and states that "intergenerational play spaces support the growing number of households where three or more generations live under one roof as well as grandparents who are raising grandchildren" (2014). In another article that connects outside additional components, Brenoff (2015) explains that plans are being made to improve the quality of multigenerational play parks by adding other features for all ages to use such as butterfly gardens.

One of the newest multi-generational play parks that have been established is located in Charlotte, North Carolina. Presented as a community benefit project by Southminster who partnered with Mecklenburg County's Park and Recreation Department, Kompan, The Great Outdoor Company (TGO), and UNC Charlotte's Kinesiology and Gerontology departments, a multi-generational play park was built near a senior center (one of the largest senior centers in Charlotte, North Carolina), Marion Diehl Recreation Center, and Queens University's Sports Complex. The equipment used in this multi-generational play park is from Kompan and The Great Outdoor Gym Company, both of which are popular throughout Europe. This multi-generational play park was built based off of the European concept of doctors sending their patients to these types of playgrounds to help with their rehabilitation (Perlmutt, 2015). However, Southminster's philanthropy director, stated,

“Instead of building a space that was just for one age group, we thought we’d create a space that had many benefits for all” (Perlmutt, 2015). This gift to Mecklenburg County will bring a plethora of opportunities for research and programming for all age groups due to its strategic location, partnerships, and the amount of people that surround the area. Furthermore, it is the prime location where the research of this study will be conducted.

4.0 COMBINING EXERCISE, INTERGENERATIONAL PROGRAMMING, AND MULTI-GENERATIONAL PLAY PARKS

The important elements of exercise, intergenerational programming, and multi-generational play parks can make a significant difference in the lives of older adults. An active intergenerational program specifically designed to be implemented at a multi-generational play park called Ageless Play will be evaluated to determine the impact intergenerational programming implemented on multi-generational play parks will have on older adults overall physical and mental wellbeing. This program combines the aforementioned elements to meet needs older adults commonly experience as they age as well as motivate children to live healthy and active lives. Research participants will undergo Ageless Play and be compared to research participants partaking in an on-going exercise program offered at a nearby senior center. It is the goal of this research to quantitatively collect data from both sets of research participants and determine that those who participate in Ageless Play at the multi-generational play park will have higher rates of physical fitness and different measurements of wellbeing when compared to those participating in an on-going exercise class.

METHODOLOGY

1.0 RESEARCH DESIGN

This research study will model a classical experimental design, where a random assignment, a pretest and posttest, an experimental group, an active control group, and control group are present. The random assignment of research participants will occur in the beginning of the study. The control group will include research participants not participating in any exercise groups, the active control group will consist of the research participants randomly assigned to the ongoing Fit After 55 exercise class offered at a senior center, and the experimental group will involve the research participants randomly assigned to undergo Ageless Play. Both pretest and posttest surveys will be the same and will be given before and after participation to respective programs to determine any significant change among research participants. ID numbers will be randomly assigned to research participants to ensure confidentiality. These ID numbers will be on surveys, which will be kept in folders with the corresponding number associated with the research participant. The IRB Committee at UNC Charlotte approved this research study design.

1.1 PARTICIPANTS

A partnership between older adults participating in Ageless Play and a nearby school program or surrounding youth organization will be the initial step to launching this research study. Parental consent will be needed for children to participate in this research study, however, children will only be participating in the Ageless Play program and no personal data whatsoever will be collected. Children who are qualified to participate in this research study must be between the ages of six and eleven as well as in the second through fifth grade. Older adult research participants will be recruited via

word of mouth, flyers, letters, and emails in the surrounding community where the senior center is located and the study will occur. A consent form, approved by the IRB Committee at UNC Charlotte, will allow research participants to agree to participate in the research study. Inclusion criteria for the recruitment of this study comprises of the following characteristics: participants must be non-attending or recent (attending the senior center for no more than three months) individuals who joined the senior center, they must not have participated in the Fit After 55 class offered at the senior center prior to the research study, they must be the age 55 or older, must come to at least 80% of the exercise or program sessions, and cannot be listed in the North Carolina Sex Offender Database. Exclusion criteria consists of any potential research participants attending the senior center for longer than three months and/or being found on the North Carolina Sex Offender Database. If older adult research participants have a past history of child abuse or sexual predation, then they will not be allowed to participate in this study.

1.2 PROCEDURES

Recruitment procedures will consist of advertising for participation by approved recruitment flyers, letters, and emails by the IRB Committee at UNC Charlotte. Older adult research participants who qualify for the study will be asked to meet at least one week prior to the beginning of the research study where they will be provided a consent form. This consent form will be reviewed during this meeting and the qualifying older adults will choose to agree in participating in this study or not. In addition to this meeting, which will take no longer than one hour, the study will be discussed and any questions will be answered. Those who are willing to participate will sign the consent form and return it to the principal investigator. Simple random sampling will occur after

the meeting where research participants will be placed in either the control group, active control program, or experimental group by drawing numbers from a hat. A minimum of fifteen and a maximum of thirty research participants are required for the implementation of this study. This study maintained fifteen research participants three of whom were sorted into the control group, five in the active control group, and seven in the experimental group. Numbers 1-10 placed research participants in the control group, 11-20 placed individuals in the activity control group, and 21-30 placed research participants in the experimental group. Research participants were notified of their placement during the consent form meeting, provided a schedule of their program, and then completed the pretest survey. Those who were randomly selected to participate in Ageless Play also had to attend an Ageless Play orientation, which lasted no more than 45 minutes.

While the active control group will participate in the Fit After 55 exercise class at the senior center, the experimental group will participate in Ageless Play. This intergenerational program that will take place on the multi-generational play park outside of the senior center is outlined in Appendix A. It is designed to foster intergenerational collaboration and build relationships between older adults and children. The program comprises not only of this teamwork establishment, young and older generations working together to accomplish set goals for planned activities, but also ways for older adults to stay active in an innovative way.

At the conclusion of the research study, participants were required to meet within one week after their programs end. At this meeting, any additional questions by participants were answered and the posttest, which was identical to the pretest, was administered. The primary investigator also gave research participants an opportunity to

state whether or not they would like to be notified of the results. Anyone who would like the final results of the research study will be sent a summary of the findings and its implications.

1.3 EXPERIMENTAL GROUP PROCEDURES

The experimental group participating in this research study participated in the intergenerational program, Ageless Play, specifically designed to take place on the multi-generational play park outside of the senior center. This five-week long program focused on different themes each week such as: introductions and teamwork, continued teamwork, strength, balance, and be creative, which utilizes all components of the multi-generational play park. The activities for this program was designed for a one to one ratio pair of child and older adult research participants. This small ratio assists in fostering meaningful relationships between pairs. The general layout of each one-hour activity session consists of warm up laps, warm up stretches, the main activity, free play, and a cool down all of which the child and older adult pair executes together. Below is the list of the weekly activities for Ageless Play:

1. Introductions and Teamwork: The first activity that the child and older adult research pairs will participate in is Beach Ball Buzz. This consists of writing a question on each color of the beach ball for participants to ask each other. Questions will serve as a way for participants to learn more about each other. The session can also have music playing in the background so that when the music stops it will be an indicator to the participants to ask a question and provide answers. If no music is available, then the principal investigator or lead facilitator can shout “stop”, so questions can be asked and answered. Whatever question is

closest to the person when they catch it is the question that will be asked. The second activity is an introduction to the multi-generational play park. This activity will serve as an orientation to the equipment at the multi-generational play park. An explanation of the exercise equipment will be given and a short time for each participant pair to explore the equipment will take place. Older adults will read the description of the exercise equipment to their partner and they can both test the equipment out. A facilitator will be present at all times.

2. Teamwork: The first activity the research pair will participate in is called Capture the Flag. This activity will utilize the capture the flag game installed on one of the pieces of equipment at the multi-generational play park. Partners will have to work together to gain the most points or "capture the flag". Two pairs will go against each other in order for the activity to be fulfilled like it was designed to do. A facilitator will be present to monitor the game, and stickers (or small prizes) will be given out at the end of the game to all participants with the winners being able to choose first. The second activity that participants will partake in is called Beat the Clock. This activity will allow older adults and children to be quick by hitting as many lit up buttons as they can. The goal of this game is to get as many points as pairs can before the clock runs out of time. A facilitator will be present to monitor the game, and stickers/prizes will be given out at the end of the game to all participants.
3. Strength: The multi-generational play park's strength exercise equipment will be utilized for this activity. Participants will rotate on each equipment piece that is supposed to build upper and lower body strength. They will take turns on the

equipment for a designated time and do their strength exercises. Music will also be playing in the background to be a signal for participants to start, stop, and switch partners or exercise equipment. A brief break will happen during the middle of the activity.

4. Balance: In addition to the first part of the Ageless Play session that exposes research pairs to different balance exercises, they will also participate in an activity called Supernova Wheel. This activity will utilize the multi-generational play park's moving balance wheel. Child participants with the help of their partner will try to balance as long as they can on the balance wheel and begin walking on the wheel. Turns will be taken to allow all participants a chance to go on the balance. If an older adult feels comfortable, and would like to go on the balance wheel, then their partner will motivate them while they are on the supernova wheel. Music will be playing as this activity is implemented and facilitators will be present at all times.
5. Be Creative: Participants will participate in the Jungle Dome Safari and pretend that they are on a safari in the jungle. They will have to work together and search for clues facilitators created on cards or pieces of paper. These clues will include simple exercises (run in place, jumping jacks, etc.) participant pairs will have to do before searching for the other clues as well as utilize all the parts of the multi-generational play park.

1.4 DATA ANALYSIS

Research participants will take the same survey that incorporates the Short Form 12-Health Survey and an additional Likert Scale both before and after the execution of

the research study to determine the overall change among the control, activity control, and experimental groups. The second part of the survey used in this research study was designed by the primary investigator due to the need to measure certain types of variables, which are outlined in Table 1, that current existing surveys do not measure. Variables that are being measured include: physical activity, enjoyment, self-worth, self-efficacy, and growth. These measures were chosen because they reflect both common physical activity variables and ones that can relate to both exercise and intergenerational programming as well as overall wellbeing among older adults. Dummy variables are included in the surveys to make certain key information (e.g. male or female) is easy to code. Two hypotheses will be tested for this research study. One hypothesis of this study is that research participants who have been randomly selected to participate in Ageless Play in comparison to those in the Fit After 55 class will show increased levels among all variables being measured. The second hypothesis of this study is that both exercise groups will exhibit improved health outcomes on the administered surveys compared to the control group.

Table 1 Survey Questions

Question	Characteristic Being Measured	Type of Question
Age	Demographic	Open-Ended
Gender	Demographic	Closed-Ended
Race and Ethnicity	Demographic	Partial Open-Ended
Highest Level of Education	Demographic	Closed-Ended
I consider myself active.	Physical Activity	Scaled
I exercise frequently.	Physical Activity	Scaled
I feel I do not get enough exercise.	Physical Activity	Scaled
I participate in exercise classes outside the senior center.	Physical Activity	Scaled
I am able to do more things	Physical Activity/Self-	Scaled

Table 1 Continued		
because I exercise.	Efficacy	
I have better health because I exercise.	Physical Activity	Scaled
I am hesitant to try new things when I exercise.	Physical Activity/Self-Efficacy	Scaled
I consider myself to have an active social life.	Self-Worth	Scaled
I am generally happy.	Enjoyment	Scaled
I am cautious when learning new things.	Growth	Scaled
I look forward to participating in new opportunities.	Growth	Scaled
If I concentrate to finish a task, I can complete it.	Self-Efficacy	Scaled
I feel accomplished when I complete a task.	Self-Efficacy	Scaled
I believe in myself to overcome obstacles I might encounter.	Self-Efficacy	Scaled
As I get older, I can imagine myself taking on new roles.	Growth	Scaled
When I participate in new programs, I grow in different areas in my life.	Growth	Scaled
I value myself and the accomplishments I make.	Self-Worth	Scaled

Data analysis will include simple descriptive statistics (frequencies) of the variables being measured and one-tailed t test calculations. Descriptive statistics will indicate trends among research participants and assist in determining significant changes among research participants before and after the study. Furthermore, one-tailed t tests will assist in determining whether there are significant indications in one direction between the control and experimental group in the study. Additionally, the results from the one-tailed t tests will assist in determining changes in the measurement areas outlined in Table 1 as well as the Short Form 12 Health Survey. Any positive or negative change

via the one-tailed t tests will be investigated further to determine exactly what changed among research participants. Significance will be measured as $p < 0.05$.

RESULTS

1.0 DEMOGRAPHICS

Seventeen research participants (n=17) initially began in the study. Four were randomly selected to be a part of the control group, six were selected to be a part of the active control group, and seven were selected to be a part of the experimental group. The study was five weeks long and at the conclusion two participants were omitted from data analysis (n=15). One research participant missed too many active control group sessions and the other research participant never returned to take the post-test.

Table 2 displays the differences among the three research groups for the different measurement areas of the demographics section. The results include means ± SD as well as whether significance was found for the results. Each means ± SD line under the Pre-Test and Post-Test columns is associated with different research groups. The first means ± SD line is associated with the control group, the second line the active control group, and the third line the experimental group. The average age of the research participants for this study was 71 years old (± 8.15). The youngest participant was 55 years old and the oldest participant was 84 years old. Of the research participants, 60% identified as female and 40% identified as male. The majority of the older adult research participants identified as white (73%), while 20% identified as Black/African American and one (6%) identified as other. All had completed high school and most indicated that they had some form of college education. Significant group differences ($p = 0.01$) for education were found between the different research groups. However, no relationship was found between the control group and the experimental group.

Table 2 Demographics

Measurement	Means ± SD	DF	Significance
Age	63.67 ± 12.50 73.80 ± 5.17 74.14 ± 6.31	2	$p > 0.05$
Gender	0.33 ± 0.58 0.60 ± 0.55 0.71 ± 0.49	2	$p > 0.05$
Race and Ethnicity	4.00 ± 1.73 6.00 ± 0.00 5.57 ± 1.13	2	$p > 0.05$
Education	4.00 ± 1.73 5.60 ± 0.90 7.14 ± 1.07	2	$p < 0.05$

Figure 1 details the different educational levels of the research participants. Each segment indicates the number of participants denoting a different educational level: three indicated some college, five coded for bachelor's degree, six had some graduate school, seven indicated a master's degree, and eight coded for obtaining a PhD. Most of the older adult research participants had received some form of graduate school education with 26.7% identifying as having some graduate school education and 26.7% indicating they have a Master's degree. A significant difference in level of education was identified between the control group and the experimental group, with the experimental group consisting of higher levels of education (Master's and PhD degree holders) and the control group comprising of lower levels of education (some college and bachelor's degree holders). This highly educated sample size is likely due to the majority of the recruitment coming from a local senior organization that tends to consist of highly educated members.

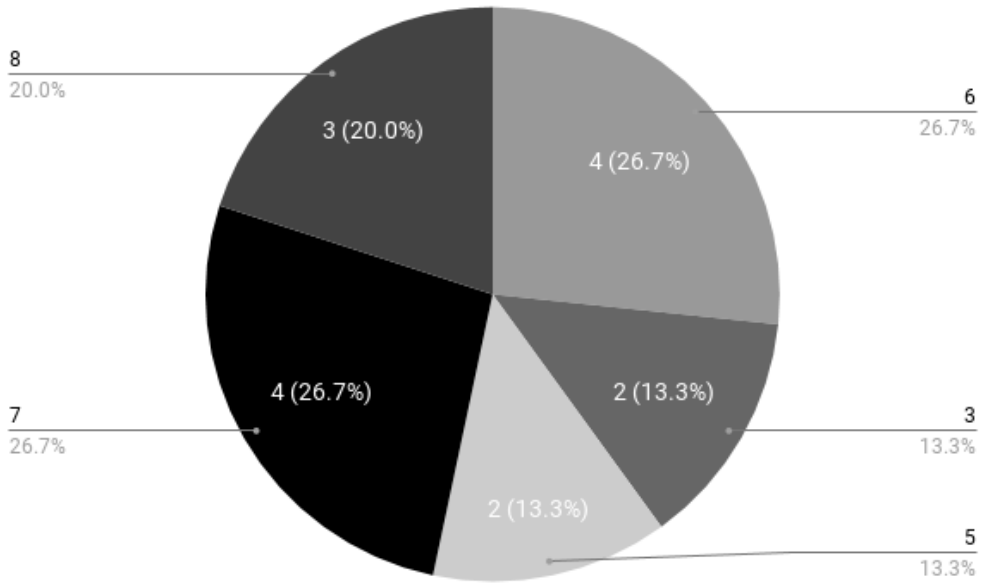

Figure 1 Educational Levels

1.1 SHORT FORM 12-HEALTH SURVEY PRE- AND POST-TEST TRENDS

The Short Form 12-Health Survey revealed that many of the research participants considered themselves in good health. There was little variability among the Short Form 12-Health Survey. All but one question in this pre-test revealed consistent responses among research participants. This question asked whether participants felt down-hearted and blue in the past four weeks. Answer choices ranged from a little of the time and none of the time, with a significant difference between groups ($p = 0.01$). This same question also revealed significance in the post-test. Group differences were found to be significant ($p = 0.02$) for feeling down-hearted and blue in the past four weeks. With respect to LS Group Means, the control group stayed consistently high (pre and post = 6.00), the experimental group continued to stay high (pre = 6.00; post = 5.83), while the active control group was lower than the other groups (pre = 5.20; post = 5.60). Table 3 reveals the pre- and post-test results that also include means ± SD as well as whether significance was found for the results. Each means ± SD line under the Pre-Test and Post-Test

columns is associated with different research groups. The first means ± SD line is associated with the control group, the second line the active control group, and the third line the experimental group.

Table 3 Short Form 12 Health Survey Results

Measurement	Pre-Test	Post-Test	DF	Significance
SF-12 Q1	2.33 ± 0.58 2.20 ± 1.10 2.00 ± 0.82	2.33 ± 0.58 2.20 ± 1.10 1.86 ± 0.90	12	$p > 0.05$
SF-12 Q2	3.00 ± 0.00 2.60 ± 0.55 2.57 ± 0.53	2.33 ± 1.15 2.60 ± 0.55 2.71 ± 0.49	12	$p > 0.05$
SF-12 Q3	3.00 ± 0.00 2.20 ± 0.84 2.71 ± 0.49	2.50 ± 0.71 2.80 ± 0.45 2.71 ± 0.49	12	$p > 0.05$
SF-12 Q4	2.00 ± 0.00 1.80 ± 0.45 2.00 ± 0.00	1.67 ± 0.58 1.80 ± 0.45 2.00 ± 0.00	12	$p > 0.05$
SF-12 Q5	2.00 ± 0.00 1.60 ± 0.55 1.86 ± 0.38	1.67 ± 0.58 1.80 ± 0.45 2.00 ± 0.00	12	$p > 0.05$
SF-12 Q6	2.00 ± 0.00 2.00 ± 0.00 2.00 ± 0.00	2.00 ± 0.00 1.80 ± 0.45 2.00 ± 0.00	12	$p > 0.05$
SF-12 Q7	2.00 ± 0.00 2.00 ± 0.00 2.00 ± 0.00	2.00 ± 0.00 2.00 ± 0.00 2.00 ± 0.00	12	$p > 0.05$
SF-12 Q8	1.67 ± 1.15 1.80 ± 0.84 1.71 ± 0.49	3.00 ± 2.83 1.75 ± 0.50 1.57 ± 0.53	12	$p > 0.05$
SF-12 Q9	1.67 ± 0.58 1.80 ± 0.45 1.86 ± 0.69	1.67 ± 0.58 2.20 ± 0.45 1.83 ± 1.00	12	$p > 0.05$
SF-12 Q10	2.00 ± 0.00 2.40 ± 1.14 1.71 ± 0.49	2.33 ± 0.58 3.00 ± 1.73 1.83 ± 0.41	12	$p > 0.05$
SF-12 Q11	6.00 ± 0.00 5.20 ± 0.45 5.86 ± 0.34	6.00 ± 0.00 5.60 ± 0.54 5.83 ± 0.41	12	$p < 0.05$
SF-12 Q12	4.67 ± 0.58 5.00 ± 0.00 4.86 ± 0.38	4.33 ± 1.15 4.80 ± 0.45 4.86 ± 0.40	12	$p > 0.05$

1.2 PRE- AND POST-TEST SURVEY TRENDS

Seventeen questions were asked via a Likert Scale that consisted of two main categories, physical activity and wellbeing. The wellbeing category encompassed four characteristics that were being measured: self-efficacy, self-worth, enjoyment, and growth. Seven questions were asked for the physical activity section and ten questions for the wellbeing section. The Likert Scale choices were: strongly agree, agree, neutral, disagree, and strongly disagree. Trends for these questions revealed high levels of physical activity and positive levels of wellbeing.

The pre-test survey revealed no significance in any of the measurement areas among the three research groups. However, the post-test survey revealed significance in two measurements. These measurements were "I have better health because I exercise" and "I feel accomplished when I complete a task." The first measurement for research participants believing that they have better health because the exercise revealed a significant decrease over the five week study period ($p = 0.05$) where participants indicated that they either strongly agreed or agreed in the post-test compared to varying answers in the pre-test. With respect to LS Group Means, all group means decreased from pre- to post-test: the control group moved from 2.33 to 1.67, the active control group shifted from 1.4 to 1.2, and the experimental group moved from 1.71 to 1.42. The second measurement evaluated responses from participants on whether or not they felt accomplished when completing a task. Results indicated a trend towards group differences ($p = 0.06$) for this measurement. The effect of Time ($p = 0.01$) over a five-week period was found to be significant, with an increase in value of feeling accomplished when a task is completed. With respect to group means pre-test to post-test:

the control group moved from 1.33 to 2, the active control group shifted from 1.6 to 1.8, and the experimental group stayed consistent at a 1.14. The interaction of group x time ($p = 0.05$) for feeling accomplished when a task is completed was also observed to be significant. Table 4 reveals other trends that were not significant for the pre- and post-test survey. Similar to Table 3, the pre- and post-test results for the survey include THE means ± SD as well as whether significance was found for the results. Each means ± SD line under the Pre-Test and Post-Test columns is associated with the research groups of the study. The first means ± SD line is associated with the control group, the second line the active control group, and the third line the experimental group.

Table 4 Pre- and Post-Test Survey Results

Measurement	Pre-Test	Post-Test	DF	Significance
I consider myself active.	1.67 ± 0.58 1.40 ± 0.55 1.57 ± 1.13	2.00 ± 0.00 1.60 ± 0.55 1.29 ±0.49	12	$p > 0.05$
I exercise frequently.	3.33 ± 1.15 1.20 ± 0.45 2.43 ± 1.81	3.00 ± 0.00 1.60 ± 0.55 1.86 ± 1.21	12	$p > 0.05$
I feel I do not get enough exercise.	2.00 ± 1.00 2.40 ± 1.14 2.57 ± 1.72	2.33 ± 0.58 3.40 ± 0.90 3.14 ± 1.46	12	$p > 0.05$
I participate in exercise classes outside the senior center.	3.67 ± 0.58 1.80 ± 1.30 2.57 ± 1.81	3. 67 ± 1.53 2.20 ± 1.64 2.00 ± 1.41	12	$p > 0.05$
I am able to do more things because I exercise.	2.33 ± 0.58 1.20 ± 0.45 1.86 ± 0.90	2.00 ± 0.00 1.40 ± 0.55 1.43 ± 0.53	12	$p > 0.05$
I have better health because I exercise.	2.33 ± 1.53 1.40 ± 0.55 1.71 ± 0.95	1.67 ± 0.58 1.20 ± 0.45 1.43 ± 0.53	12	$p < 0.05$
I am hesitant to try new things when I exercise.	4.33 ± 0.58 3.60 ± 0.55 3.43 ± 0.96	4.67 ± 0.58 3.60 ± 0.90 3.43 ± 1.40	12	$p > 0.05$

Table 4 Continued				
I consider myself to have an active social life.	1.67 ± 0.58 1.60 ± 0.55 1.29 ± 0.50	2.00 ± 0.00 1.60 ± 0.55 1.29 ± 0.49	12	$p > 0.05$
I am generally happy.	1.33 ± 0.58 1.40 ± 0.55 1.23 ± 0.50	1.33 ± 0.58 1.60 ± 0.55 1.43 ± 0.53	12	$p > 0.05$
I am cautious when learning new things.	3.00 ± 2.00 2.80 ± 0.45 2.67 ± 1.03	3.33 ± 2.08 2.60 ± 0.90 3.29 ± 1.25	12	$p > 0.05$
I look forward to participating in new opportunities.	1.33 ± 0.58 1.80 ± 0.84 1.43 ± 0.53	1.67 ± 1.15 2.00 ± 0.71 1.14 ± 0.38	12	$p > 0.05$
If I concentrate to finish a task, I can complete it.	1.33 ± 0.58 1.60 ± 0.55 1.43 ± 0.53	1.67 ± 0.58 1.80 ± 0.45 1.29 ± 0.49	12	$p > 0.05$
I feel accomplished when I complete a task.	1.33 ± 0.58 1.60 ± 0.55 1.14 ± 0.34	2.00 ± 0.00 1.80 ± 0.45 1.14 ± 0.38	12	$p < 0.05$
I believe in myself to overcome obstacles I might encounter.	1.33 ± 0.58 1.40 ± 0.55 1.43 ± 0.80	1.33 ± 0.58 1.80 ± 0.45 1.14 ± 3.80	12	$p > 0.05$
As I get older, I can imagine myself taking on new roles.	2.33 ± 0.58 2.20 ± 1.10 1.86 ± 0.90	1.33 ± 0.58 2.20 ± 0.84 1.57 ± 0.53	12	$p > 0.05$
When I participate in new programs, I grow in different areas in my life.	1.67 ± 0.58 1.60 ± 0.55 1.71 ± 0.76	1.67 ± 0.58 1.80 ± 0.45 1.29 ± 0.49	12	$p > 0.05$
I value myself and the accomplishments I make.	1.33 ± 0.58 1.20 ± 0.45 1.14 ± 0.38	1.33 ± 0.58 1.60 ± 0.55 1.14 ± 0.38	12	$p > 0.05$

DISCUSSION

This study evaluated three groups of older adults 55 years and older to determine better overall health and wellbeing: a control group, an active control group participating in an ongoing exercise class at a local senior center, and an experimental group participating in a new intergenerational program specifically designed to take place on a multi-generational play park. The purpose of this study was to evaluate the impact intergenerational programming has on older adults by adding a new contextual component in the form of a multi-generational play park to this type of programming. This new program called Ageless Play focused on different themes over a course of a five-week period such as teamwork, balance, and strength. Its overall goal is to promote active aging in older adults and determine the success of the establishments of multi-generational play parks. The overall study evaluated two hypotheses regarding health and wellbeing outcomes from the three different groups.

The primary hypothesis of this research study stated that research participants who have been randomly selected to participate in Ageless Play in comparison to those in the Fit After 55 class would show increased levels among all variables being measured. The second hypothesis of this study was that both exercise groups will exhibit improved health outcomes on the administered surveys compared to the control group. Trends from the study indicated little change from all groups from pre-test to post-test. Because of this, results did not support the first hypothesis and partially supported the second hypothesis.

1.0 FINDINGS RELATIVE TO THE HYPOTHESES

The study revealed minimal change between participants who had been randomly selected to participate in Ageless Play in comparison to those in the Fit After 55 class. Because of this, the first hypothesis was not supported by this study. This might be due to the research participants already living highly active lifestyles. Results revealed consistency among all measurement areas for pre-test and post-test except for participants feeling down-hearted and blue for the past four weeks, participants believing that they have better health because they exercise, and feeling accomplished when a task is completed. There was a significant decrease over the five week study period ($p = 0.05$) for feeling down-hearted and blue for the past four weeks where participants indicated that they either felt this way a little or none of the time in the post-test compared to varying answers in the pre-test. Group differences were also found to be significant ($p = 0.02$) with the active control group experiencing more decreased feelings of this measurement. Responses from the active control group shifted from majority of a little of the time in the pre-test to none of the time in the post-test. A significant decrease also occurred over the five week study period ($p = 0.05$) where participants indicated that they either strongly agreed or agreed in the post-test compared to varying answers in the pre-test that they believed they have better health because they exercise. Lastly, it was indicated that over the five-week period ($p = 0.01$) there was an increase in value of feeling accomplished when a task is completed, which is further supported by the significance of the interaction of group x time ($p = 0.05$).

The second hypothesis, which stated that both exercise groups would exhibit improved health outcomes on the administered surveys, was partially supported by this

study. Although the majority of the results stayed consistent, the active control group displayed increased benefits in three measurements of health and wellbeing (feeling down-hearted and blue for the past four weeks, participants believing that they have better health because they exercise, and feeling accomplished when a task is completed), while the experimental group remained consistent in their answers. Furthermore, the control group experienced differences in some of these measurements that revealed significance such as having better health because they exercise and feeling accomplished when a task is completed.

2.0 EDUCATION LEVELS BETWEEN GROUPS

The educational levels acquired by the research participants were different among the three participating research groups. There were similar educational levels between the experimental group participating in the intergenerational program and the active control group participating in the Fit After 55 class. The experimental group comprised of those having some graduate school, master's degrees, and Ph.D. degrees, the consistency of which is similar to the active control group that included research participants holding bachelor's degrees, some graduate school, and obtaining master's degrees. A relation between the control group and active control group existed as well. The control group consisted of those whose educational levels were either some college or having a bachelor's degree. However, there was no relation between the control group and experimental group. The experimental group participating in the intergenerational program had much higher levels of education than the control group.

Education is considered a social determinant of health, which means that this can heavily influence quality of life outcomes and risks among people (CDC, 2015). Trends

indicate that higher levels of education are often associated with living more active and healthy lifestyles. It is generalized that higher the economic status and educational level, the more likely older adults are found to participate in group exercise classes and physical activity, while the inverse is similar for lower economic and educational statuses (Hawley-Hague et al., 2014). Furthermore, a study conducted by Mejia, Tyan, Gonzalez, and Smith (2016) about successful aging found that education was associated with the likelihood of activity involvement and that it differentiated patterns of global wellbeing. It was found that individual resources had minimal effects on activity participation among those with higher education (Mejia et al., 2016). The multi-generational play park and the intergenerational program can be considered an individual resource but did not have a significant impact on the highly educated individuals selected to be a part of the experimental group of the study, since their results indicated overall better health and general wellbeing throughout the entirety of the study.

3.0 SIGNIFICANT STUDY MEASUREMENTS

Three significant outcomes resulted from the pre-test and post-test surveys, which indicated a positive impact on the older adult research participants involved with this study. The first significant study measurement was feeling down-hearted and blue in the past four weeks, which consisted of significant ($p = 0.02$) group differences. The control group did not experience change (pre and post = 6.00) and the experimental group continued to stay high (pre = 6.00; post = 5.83), however the active control group shifted from low to high at post-test (pre = 5.20; post = 5.60). This increase was due to participants switching responses from majority a little of the time in the pre-test survey to majority of none of the time in the post-test survey. Because of this, those who

participated in the Fit After 55 class experienced an overall decrease in feeling down-hearted and blue. The shift in responses might be due to the socialization aspect of participating in group exercises, the senior center environment, or the instructor teaching the fitness class. Again, this supports Hawley-Hague et al.'s (2014) study that discovered instructors and their personality are a significant contributing factor in the likelihood of older adults continuing to participate in group exercise. It also supports another study where researchers state that exercise can lead to significant improvements in body composition, risk of falling, growth in strength, lowered depression, and reduction of chronic and hereditary diseases (Christmas & Anderson, 2000).

A second study measurement that resulted in significance was participants believing that they have better health because they exercise. There was a significant decrease over the five-week study period ($p = 0.05$) for the measurement of participants believing that they have better health because they exercise. Answer choices in all study groups indicated that they either strongly agreed or agreed in the post-test compared to varying answers in the pre-test. This change in opinion among the research participants might have resulted due to staying consistently active during the study. Additionally, participants could have perceived exercise differently at the end of the study than prior to the beginning of this study.

The last measurement that revealed significance was feeling accomplished when a task is completed. There was a trend towards group differences ($p = 0.06$) for feeling accomplished when a task is completed, significance for the effect of Time ($p = 0.01$) over a five-week period, and the interaction of group x time was observed to be significant ($p = 0.05$) for this measurement. Each study group fluctuated their responses

between strongly agree and agree at the time of the post-test. This is a positive trend for all participating in the research study because their involvement indicates being able to focus and feel active enough to feel accomplished when a task is completed. It also supports the concept of self-efficacy, which is defined as an individual's belief in their ability to succeed in certain events or accomplish a task (Bandura, 1997) and is a key motivator in participating in physical activity. These results also support previous studies that indicated that greater self-efficacy predicted greater intents to exercise (Ruthig, 2016) or staying active. The answers support this and suggest that any form of consistent involvement, such as being a part of the research study, allows older adults to remain active. Since self-efficacy is an individual's belief in their ability to accomplish tasks, the possibility of the research participants completing the research study might be perceived as an achievement and therefore be considered as an increase in individual self-efficacy. While all groups shifted towards favoring that they feel accomplished when completing tasks, the activity control group and the experimental group participating in the intergenerational program showed the least increases. This might be due to educational levels and how individuals with higher education remain highly consistent with activity compared to those with lower education as well as a small sample size.

4.0 STUDY LIMITATIONS

This study is not without limitations. The most substantial limitation was the small sample size (n=15) that participated in the study. It is likely that a larger sample size would allow for more significant results to occur. Furthermore, a larger sample size would have had the potential to influence the demographics of this research study, which would influence a variety of social determinants of health. First, in regards to

demographics, there was a lack of diversity in this study due to a small sample size. The majority of the research participants identified themselves as white with a few identifying as other or African American. The lack of different racial and ethnic identities in this study limits the findings in determining positive impacts for diverse groups participating in ongoing exercise classes versus active intergenerational programming, or neither of these. Educational levels, and how participants were randomly sorted into each group, was also a limitation. As noted previously, the lack of subject numbers in this study could potentially influence the differences we see in education levels within each group. Many of the research participants who engaged in the intergenerational program had obtained much higher education compared to the other two groups. If higher education is a predictor for remaining active, then individuals with lower education should display a greater change reflecting greater physical activity, growth, self-efficacy, and self-worth after participating in their respective programs. Because of this, educational levels should evenly be distributed among the three study groups to gain a better perspective of how each responds to doing their regular activities, participating in Fit After 55, or participating in an active intergenerational program (Ageless Play).

Other limitations of this study involve the partnership made with the organization bringing children to participate in Ageless Play. Out of the five weeks that meetings for Ageless Play were scheduled, the child organization rescheduled three out of the five session times and was almost thirty minutes late for another session. The last minute switches in dates prevented some participants from coming to the Ageless Play sessions. Furthermore, while it was stated that no participant was allowed to miss more than one session, yet two participants had to miss two meetings due to a last minute switch and not

being able to rearrange their schedules. Because of an already small sample size, the two that missed more than one Ageless Play session was still included in the study because of the last minute change with the partner organization. This could have possibly skewed results since no make up time for Ageless Play was an option. In addition to this, there was frequent turnover with children from week to week. While research participants transitioned into partnering with a new child well, it is better for a steady partner to be present and participate in the program.

Weather was another key limitation for this study, because it was conducted outside during the summer in a geographical region known to be extremely hot and humid during the summertime. The partnership created between the child organization only allowed two meeting times in the morning and the rest midday, which was incidentally the hottest part of the day. While the research participants continued to come to the scheduled meetings, it would have been better to have meetings early to mid-morning especially during the summer. This would further prevent all participants from becoming overheated and be able to enjoy the activities more. Furthermore, data analysis could have revealed more significant changes.

Due to consistency of responses in the current research study, the active intergenerational program might have indicated better results if it was compared to another already established intergenerational program instead of an exercise class. By comparing two different intergenerational programs, questions specifically designed to evaluate the effectiveness of intergenerational programming could have been incorporated and analyzed. Furthermore, by evaluating intergenerational programming and the responses from research participants, a better perspective of how this type of

program positively impacts those who are participating could have been assessed. Lastly, responses about the children participating in the intergenerational program could also be gathered in order to determine the impact it had on them.

5.0 POLICY IMPLICATIONS

This study allows for implications to be contributed to a variety of areas in gerontology and associated with the social sciences. Specifically, Ageless Play and multi-generational play parks can play key roles in increasing social networks, reduction in ageism, the built environment, and becoming an evidence-based model to be easily replicated by others. While more research is needed to determine these implications, the present study serves as a foundation to begin exploring these different avenues and investigating the impacts they can have on community-dwelling older adults. It also allows for Ageless Play to be refined in order to become a successful future evidence-based program.

Social networks are "defined by a set of social actors and the social relationships that connect them to each other in a larger structure" (Cornwell & Schafer, 2016, p. 181). Participants of intergenerational programming tend to expand their social networks and are able to access social resources such as social support. Older adults receive emotional, companionship, and informational social support from the younger generations who participate in this type of programming and the reverse is true for younger generations. The ability for individuals to have social support enhances quality of life. Additionally, those who participate in intergenerational programming, especially for persons in a disadvantaged situation, can expand their social network and be placed into a positive life trajectory category and experience cumulative advantage through the lifecourse. This

suggests that intergenerational programming can be used as interventions for people with mental health issues, substance abuse problems, and family issues in addition to regular intergenerational programming. Furthermore, the application of intergenerational programming taking place on establishments such as multi-generational play parks allows for a unique way to be connected to alternative social resources older adults may not typically get such as being outdoors and having access to exercise outside.

Ageism is a society-wide issue that many gerontologists and professionals in the field of aging are researching and combatting against. In the United States, society views aging negatively, however, intergenerational programming has indicated that early exposure to collaborating with older adults makes a significant impact in reducing children's ageist viewpoints toward this population. Ageless Play has the potential to deteriorate ageist viewpoints especially changing those beliefs of older adults living a sedentary lifestyle and who are actually actively aging. Because of this, intergenerational programming that occurs at a young age or even in young adulthood has the ability to shape and improve attitudes toward older adults to continue in the learning and work environment these individuals encounter. This is significant because changes in healthcare, access to services, caregiving, and policy-wide changes that involve the inclusiveness and wellbeing of older adults can be made and implemented.

The concept of multi-generational play parks can impact the external, or built, environment. The built environment refers to surroundings, spaces, and settings that have been made or modified by people for activity use (as cited in Aneshensel, Harig, Wight, 2016). As stated by Moorman, Stokes, and Morelock (2015), neighborhoods can provide an environment for "good health and well-being through interactions that provide

opportunities for generativity" (p. 668). Intergenerational programming occurring on multi-generational play parks and the benefits this type of programming reaps for both older adults and younger generations can be used as a means of support for age-friendly communities and the revamping of neighborhoods to reduce age segregation are best for people of all ages. Because of this, age-friendly community initiatives advocate for better built neighborhoods that allows older adults to safely age in place and attract younger people to nest in an area that is safe to raise families. This initiative can especially thrive with continued additions of multi-generational play parks, which promotes active aging, being accessible for people of all ages throughout communities. Age-friendly communities also promotes active aging, which "optimizes opportunities for health, participation, and security in order to enhance quality of life as people age" (Plouffe & Kalache, 2010, p. 735). This suggests that a better built environment will promote benefits in the lives of older adults as they continue to age in place. The benefits of communities interacting with young and old deteriorates ageist perspectives and is a step closer for older adults to receive the services they need to maintain an overall enhanced quality of life. Additionally, social environments of all living in age-friendly communities will benefit because social networks will positively grow.

5.1 RESEARCH IMPLICATIONS

One research implication of this study is to continue to evaluate the outcomes of Ageless Play for it to one day become an evidence-based program. The National Council on Aging (2017) defines evidence-based programs as programs that "offer proven ways to promote health and prevent disease among older adults". Evidence-based programs often demonstrate reliable and consistent positive changes in important health-related

functional measures (National Council on Aging [NCOA], 2017). Through the assistance of outcome evaluations for all program sessions and the program itself being implemented on a repeated basis, empirical evidence can be gathered to support the development for Ageless Play to become an evidence-based program. For instance, the significant findings of this study suggest a trend for older adults to feel less down-hearted and blue as well as feeling accomplished when completing tasks. Although findings revealed that the most change occurred with the active control group, this might largely be due to the high education levels of the older adults participating in Ageless Play and the small sample size. Another replicated study that places those with lower educational levels with another contextual factor such as depression in Ageless Play can make a significant impact in reducing feelings of depression and increase healthy lifestyles. This one example of a specific measurement to be evaluated for Ageless Play, and for it to become an evidence-based program that assists in increasing the quality of life of the older adults participating in it.

6.0 RECOMMENDATIONS

Further studies are required to establish a definitive answer as to whether the intergenerational program on the multi-generational play park can have significant impacts on older adults' health and wellbeing. Most importantly the sample size needs to be larger in order to determine significant results. Future replications of this study should consist of it being compared to another intergenerational program instead of a fitness class. This will allow data to be gathered about intergenerational components (e.g. generativity) instead of statements on intergenerational programming being coded on surveys. For example, the present study does not include statements that directly use

phrases and words such as younger generation and children. Replicated studies being compared to another intergenerational program can have a statement like “I look forward to participating in new opportunities with children.” Additionally, scales such as the Loyola Generativity Scale that evaluates generativity can be used. This intergenerational program would also benefit from being compared to another active intergenerational program. The measurements between these two would be comparable and depict the most accurate results. Furthermore, due to the setting of Ageless Play taking place on a multi-generational play park, which is considered a public community space, future studies can evaluate age integration theory. This theory argues that institutional, cultural, and spatial factors bring together or separate individuals across the life course and that poor health and wellbeing are the result of a lack of intergenerational contact (Hagestad & Uhlenberg, 2005, 2006). Age integration theory can merge with the concept of the built environment and segue into confirming the effectiveness of multi-generational play parks. In sum, the environment where these intergenerational programs take place can also be assessed to determine better health and wellbeing.

Another recommendation for this study is to establish a partnership with aging and youth organizations prior to IRB approval. The present study had received a letter of support from the senior center, but not the youth organization. Although a partnership was made with a youth organization prior to the study, if it was previously created with a letter or support before the submission of the IRB, then there would have been limited schedule changes. This would have assisted in a smoother execution of the study. Also, the partnering youth organization would be better prepared to bring the same children

consistently so stable and significant relationships can be established between the older adult and child pair.

Lastly, some revision of the Ageless Play program itself should be considered. Due to the nature of the program following CDC guidelines of exercise for older adults and contributing to daily activity for children, a partnership between an expert in the field of gerontology and one in exercise science should be established. The contributing knowledge of aging and exercise from two area experts will allow Ageless Play to provide the best opportunity for the maintaining of physical activity as well as the implementation of innovative programming. Additionally, it can contribute to significant discoveries for those who utilize multi-generational play parks while participating in an active intergenerational program.

CONCLUSION

The purpose of this study was to evaluate the impact intergenerational programming on multi-generational play parks has on older adults compared to those participating in a structured group exercise or not. The primary hypothesis of this research study stated that research participants who have been randomly selected to participate in Ageless Play in comparison to those in the Fit After 55 class would show increased levels among all variables being measured. However, it was not in agreement with the current findings. The second hypothesis of this study stated that both exercise groups would exhibit improved health outcomes on the administered surveys compared to the control group, which was in partial agreement to the findings. Key findings of this study revealed that there was a decrease in feeling down-hearted and blue, an increase of participants believing that they have better health because they exercise, and an increase of participants feeling accomplished when a task is completed in all participating groups.

The findings from this current study are consistent with previous studies. However, one of the most significant differences in the study was the educational levels among the control group and the experimental group. The experimental group consisted of having research participants with higher levels of education (master's degrees and Ph.D. degrees) compared to those in the control group (some college and bachelor's degrees). Since education is considered a social determinant of health, it can be argued that those participating in Ageless Play would not exhibit significant differences in health and wellbeing because of their high level of educational attainment, which is also in agreement with previous studies. Thus, future replicated studies should evenly distribute levels of education. The only caution for this study is the small sample size (n = 15).

Although there were significant results, a larger, more generalized sample size is needed to confirm significance in different measurement areas. Because of this, further research is needed to investigate active intergenerational programming and the impacts it has for older adults' health and wellbeing. Continued investigation can also contribute to research in different areas in the field of gerontology including healthcare, ageism, the built environment, aging in place, and more. The study demonstrates potential for intergenerational programming on a multi-generational play park to be beneficial for all ages. Furthermore, it adds support to continue building these establishments throughout communities. As the population continues to age, there is a need for more integrative programs and free access to establishments promoting physical activity for older adults to maintain a higher level of quality of life. Intergenerational programming, such as Ageless Play, occurring on multi-generational play parks can contribute to promoting these higher levels of health and wellbeing. Thus, starting a wave of innovative solutions for current and future older adult cohorts.

REFERENCES

(2014). *Humana and KaBOOM to build eight multi-generational playgrounds in eight weeks this fall.* Retrieved from http://press.humana.com/press-release/current-releases/humana-and-kaboom-build-eight-multi-generational-playgrounds-eight-we

(n.d.) *Nationwide physical fitness program.* Retrieved from http://www.china.org.cn/english/features/Brief/193374.htm

Aneshensel, C. S., Harig, F., & Wight, R. G. (2016). Aging, neighborhoods, and the built environment. In L. K. George & K. F. Ferraro (Eds.), *Handbook of aging and the social sciences* (pp. 315-335). London, UK: Elsevier.

Bandura, A. (1997). Self-efficacy. *Harvard Mental Health Letter, 13*(9), 4

Brenoff, A. (2015, June 4). Playgrounds for seniors improve fitness, reduce isolation. *Huffington Post.* Retrieved from http://www.huffingtonpost.com/2015/06/04/playgrounds-for-seniors_n_7452270.html

Caperchione, C., & Mummery, K. (2007). Psychosocial mediators of group cohesion on physical activity intention of older adults. *Psychology, Health & Medicine, 12*(1), 81-93. doi: 10.1080/13548500600768254

Christmas, C., & Andersen, R. A. (2000). Exercise and older patients: guidelines for the clinician. *JAGS, 48*(3), 318-324.

Centers for Disease Control and Prevention. (2015). Physical activity. Retrieved from https://www.cdc.gov/physicalactivity/basics/older_adults/index.htm

Centers for Disease Control and Prevention. (2015). Social determinants of health: Know what affects health. Retrieved from https://www.cdc.gov/socialdeterminants/faqs/index.htm

Cohen, A. (2010, August). Playgrounds for seniors popular in Europe, Asia, and North America. *Athletic Business.* Retrieved from http://www.athleticbusiness.com/fitness-training/playgrounds-for-seniors-popular-in-europe-asia-and-north-america.html

Cornwell, B., & Schafer, M. (2016). Social networks in later life. In L. K. George & K. F. Ferraro (Eds.), *Handbook of aging and the social sciences* (pp. 181-201). London, UK: Elsevier.

Davis, L., Larkin, E., & Graves, S. B. (2002). Intergenerational learning through play. *International Journal of Early Childhood, 34*(2), 42-49

Dutta, C., & Milner, C. (2015, September 10). Swings for grown-ups: Multigenerational fitness parks are the latest trend. *Daily Health News.* Retrieved from http://bottomlinehealth.com/swings-for-grown-ups-multigenerational-fitness-parks-are-the-latest-trend/

Dyrlund, A. K., & Wininger, S. R. (2006). An evaluation of barrier efficacy and cognitive evaluation theory as predictors of exercise attendance. *Journal of Applied Biobehavioral Research, 11*(1), 133 – 146.

Gamble, J. C. (2007, January). Multigenerational playgrounds. *Elevation.* Retrieved from http://www.landdesigncollaborative.com/news/newsArticle4.htm

Generations United. (2007). *The benefits of intergenerational programs.* Retrieved from http://www.gu.org/LinkClick.aspx?fileticket=71wHEwUd0KA%3D&tabid=157&mid=606

Griff, M., Lambert, D., Dellmann-Jenkins, M., & Fruit, D. (1996). Intergenerational activity analysis with three groups of older adults: Frail, community-living, and alzheimer's. *Educational Gerontology, 22*(6), 601-612. doi: 10.1080/0360127960220607

Hagestad, G. O., & Uhlenberg, P. (2005). The social separation of old and young: A root of ageism. *Journal of Social Issues, 61*(2), 343-360. doi: 10.1111/j.1540-4560.2005.00409.x

Hagestad, G. O., & Uhlenberg, P. (2006). Should we be concerned about age segregation? Some theoretical and empirical explorations. *Research on Aging, 28*(6), 638-653. doi: 10.1177/0164027506291872

Hawley-Hague, H., Horne, M., Campbell, M., Demack, S., Skelton, D. A., Todd, C. (2013). Multiple levels of influence on older adults attendance and adherence to community exercise classes. *The Gerontologist, 54*(4), 599-610. doi: 10.1093/geront/gnt075

Hawley-Hague, H., Horne, M., Skelton, D. A., & Todd, C. (2016). Older adults' uptake and adherence to exercise classes: Instructors' perspectives. *Journal of Aging and Physical Activity, 24*(1), 119-128. doi: 10.1123/japa.2014-0108

Hindman, S. (n.d.). *Fitness parks made with seniors in mind.* Retrieved from http://www.silverplanet.com/health/fitness/fitness-parks-made-seniors-mind/head-outdoors/42141#.Vs3pzn0rKUk

Jefferis, B. J., Sartini, C., Lee, I., Choi, M., Amuzu, A., Gutierrez, C., Casas, J. P., Ash, S., Lennon, L. T., Wannamethee, S. G., & Whincup, P. H. (2014). Adherence to physical activity guidelines in older adults, using objectively measured physical activity in a population-based study. *BMC Public Health, 14*(382), 1-9.

Kuehne, V. S. (1992). Older adults in intergenerational programs. *Activities, Adaptation & Aging, 16*(4), 49-68. doi: 10.1300/J016v16n04_05

McAuley, E. (1993). Self-efficacy and the maintenance of exercise participation in older adults. *Journal of Behavioral Medicine, 16*(1), 103-113.

McAuley, E., Katula, J., Mihalko, S. L., Blissmer, B., Duncan, T. E., Pena, M., & Dunn, E. (1999). *Journal of Gerontology: Psychological Sciences, 54B*(5), 283-292.

McAuley, E., Konopack, J. F., Motl, R. W., Morris, K. S., Doerksen, S. E., & Rosengren, K. R. (2006). Physical activity and quality of life in older adults: Influence of health status and self-efficacy. *The Society of Behavioral Medicine, 31*(1), 99-103.

McAuley, E., Mullen, S. P., Szabo, A. N., White, S. M., Wojcicki, T. R., Mailey, E. L., Gothe, N. P., Olson, E. A., Voss, M., Erickson, K., Prakash, R., & Kramer, A. F. (2011). Self-regulatory processes and exercise adherence in older adults: Executive function and self-efficacy effects. *American Journal of Preventive Medicine, 41*(3), 284-290. doi: 10.1016/j.amepre.2011.04.014

McPherson, M. (2011, July 29). Play area for elderly could be first in NZ. *The New Zealand Herald.* Retrieved from http://www.nzherald.co.nz/bay-of-plenty-times/news/article.cfm?c_id=1503343&objectid=11036572

Mejia, S. T., Ryan, L. H., Gonzalez, R., & Smith, J. (2016). Successful aging as the intersection of individual resources, age, environment, and experiences of well-

being in daily activities. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 72*(2), 279-289. doi: 10.1093/geronb/gbw148

Moorman, S. M., Stokes, J. E., & Morelock, J. C. (2015). Mechanisms linking neighborhood age composition to health. *The Gerontologist, 57*(4), 667-678. doi: 10.1093/geront/gnv687

National Council on Aging. (2017). About evidence-based programs. Retrieved from https://www.ncoa.org/center-for-healthy-aging/basics-of-evidence-based-programs/about-evidence-based-programs/

Perlmutt, D. (2015, October 17). New multigenerational playground on Tyvola Road keeps everybody moving. *The Charlotte Observer.* Retrieved from http://www.charlotteobserver.com/news/local/article39607821.html

Perry, C. K., & Weatherby, K. (2011). Feasibility of an intergenerational tai chi program: A community-based participatory research project. *Journal of Intergenerational Relationships, 9*(1), 69-84. doi: 10.1080/15350770.2011.544215

Plouffe, L., & Kalache, A. (2010). Towards global age-friendly cities: Determining urban features that promote active aging, *Journal of Urban Health: Bulletin of the New York Academy of Medicine, 87*(5), 733-739. doi: 10.1007/s11524-010-9466-0

Reisig, C. N., & Fees, B. S. (2007). Older adults' perceptions of well-being after intergenerational experiences with youth. *Journal of Intergenerational Relationships, 4*(4), 6-22. doi: 10.1300/J194v04n04_02

Ruthig, J. C. (2016). Health risk perceptions and exercise in older adulthood: An application of protection motivation theory. *Journal of Applied Gerontology, 35*(9), 939-959. doi: 10.1177/0733464814544214

Sillito, D. (2006, February 8). Finns open playgrounds to adults. *BBC News.* Retrieved from http://news.bbc.co.uk/2/hi/europe/4691088.stm

Stolarz, S. (2010, April 6). London opens playground for the senior set. *Deutsche Well.* Retrieved from http://www.dw.com/en/london-opens-playground-for-the-senior-set/a-5642453

Summers, J. K., & Smith, L. M. (2014). The role of social and intergenerational equity in making changes in human well-being sustainable. *AMBIO, 43*(1), 718-728. doi: 10.1007/s13280-013-0483-6

Teater, B. (2016). Intergenerational programs to promote active aging: The experiences and perspectives of older adults. *Activities, Adaptation & Aging 40*(1), 1-19. doi: 10.1080/01924788.2016.1127041

Williams, P., & Lord, S. R. (1997). Effects of group exercise on cognitive functioning and mood in older women. *Australian and New Zealand Journal of Public Health, 21*(1), 45-52.

World Health Organization. (2002). Active ageing: A policy framework.

Xaverius, P. K., & Mathews, R. M. (2004). Evaluating the impact of intergenerational activities on elders' engagement and expressiveness levels in two settings. *Journal of Intergenerational Relationships, 1*(4), 53-69. doi: 10.1300/J194v01n04 05

APPENDIX A: AGELESS PLAY PROGRAM DESCRIPTION

Program Synopsis

Description of Program: The Ageless Play Program is a five-week summer program that will meet once a week in the morning. Ten participant pairs will take part of the program. This number will be significant enough to determine whether the multi-generational play park and the program will make an impact in different measurable areas associated with the participants. The research component of Ageless Play will include a pre-test and post-test for each older adult participant as well as to determine the success and need for modifications of the intergenerational activity for the future.

Hypothesis: Through the use of programming at a multi-generational play park, there will be an increase in the intergenerational interaction between older adults and younger children.

Brief Overview:

1. Location

Tyvola Senior Center at the Multi-Generational Play Park

2. Five week program

Date	**Day of the Week**

3. Partnership Site and 5 participant pairs (one or two children matched with one older adult)

4. 1 hour long

Start	End

Goals and Objectives

Goals	Outcome Objectives
To build positive and meaningful relationships between older adult and child participant pairs.	**By the third week of the program, participants dyads will have developed strong bonds with each other.**
To implement significant programs at a multi-generational play park that fosters intergenerational play.	**By the end of the five weeks, 80% of the activities will be evaluated as successful in promoting intergenerational play, which will be assessed by lead facilitators.**
Maximize communication, collaboration, and teamwork between participant pairs.	**By the end of the second week of the program 7 out of 10 pairs of participants will exhibit successful communication, collaboration, and teamwork.**
Teach ways to promote healthy, active lifestyles and ways of encouragement through intergenerational activities.	**Activities that teach promote healthy, active lifestyles and ways of encouragement will be finalized prior to the beginning of Ageless Play.**
Utilize the multi-generational play park as a component to increasing social interaction, educational attainment, and physical activity for older adult and child participants.	**By the end of the program, Ageless Play will be evaluated to determine the impact it had on older adults.**

Program Schedule

Week One

Introductions and Teamwork

Purpose: The purpose of day one of Ageless Play is to introduce each participant pair to each other. During this day, participants will learn about one another and begin to feel comfortable doing activities with them. The multi-generational play park will serve as a tool in fostering communication and engagement among participants.

Goals:

1. To introduce participants to each other.
2. Foster communication and begin building trusting relationships.
3. Allow participants to engage in active teamwork with their partner.

	Beach Ball Buzz
Description	Write a question on each color of the beach ball for participants to ask each other. Questions will serve as a way for participants to learn more about each other. Have music playing in the background so that when the music stops it will be an indicator to the participants to ask a question and provide answers. Whatever question is closest to the person when they catch it is the question that will be asked.
Materials	Beach ball, Music player, Permanent marker
Time	30 minutes
Adaptations	A place to sit for older adults might be necessary
Question Examples	• What is your favorite color? • If you could be any animal, what would it be? • What is your favorite food? • What is your favorite food? • What is your favorite spot? • Describe your perfect vacation. • If you could live in any period of history, when would it be?

	Introduction to the Multi-Generational Play Park
Description	This activity will serve as an introduction to the equipment at the multi-generational play park. An explanation of the exercise equipment will be given and a short time for each participant pair to explore the equipment will take place. Older adults will read the description of the exercise equipment to their partner and they can both test the equipment out. A facilitator will be present at all times.
Materials	Multi-Generational Play Park
Time	15 minutes
Adaptations	None

Free Play

Week Two

Teamwork

Purpose: Week two of Ageless Play will focus on collaboration and teamwork. This day will continue to build relationships among participant pairs and encourage an environment of trust and fun. The multi-generational play park activity will be evaluated to determine its effectiveness of implementing the area of teamwork among participant pairs.

Goals:

1. To build intergenerational relationships among participant pairs.
2. To communicate and work together to overcome obstacles in the planned activity.
3. Older adult and child participants will serve as encouragers for each other to try new activities.

Warm-Up Walk

	Capture the Flag
Description	This activity will utilize the capture the flag game installed on one of the pieces of equipment at the multi-generational play park. Partners will have to work together to gain the most points or "capture the flag". Two pairs will go against each other in order for the activity to be fulfilled like it was designed to do. A facilitator will be present to monitor the game, and stickers (or small prizes) will be given out at the end of the game to all participants with the winners being able to choose first.
Materials	Multi-Generational Play Park equipment and small stickers/prizes
Time	20 minutes
Adaptations	Possible other activity for other participant pairs to do while waiting.

	Beat the Clock
Description	This activity will allow older adults and children to be quick by hitting as many lit up buttons as they can. The goal of this game is to get as many points as pairs can before the clock runs out of time. A facilitator will be present to monitor the game, and stickers/prizes will be given out at the end of the game to all participants.
Materials	Multi-Generational Play Park equipment and small stickers/prizes
Time	20 minutes
Adaptations	Possible other activity for other participant pairs to do while waiting

Free Play

Cool Down

Week Three

Strength

Purpose: During week three participants will focus on strength activities and utilizing the multi-generational play park to promote this exercise technique. Participants will continue to encourage and motivate each other during these activities. Intergenerational collaboration will also be fostered during this week.

Goals:

1. Utilize the multi-generational play park for strengthening exercises or activities.
2. Intergenerational collaboration will ensue during the execution of activities.
3. Participants will learn new strength techniques.

Warm Up Walk

	Exercise Equipment Circuit
Description	The multi-generational play park's strength exercise equipment will be utilized for this activity. Participants will rotate on each equipment piece that is supposed to build upper and lower body strength. They will take turns on the equipment for a designated time and do their strength exercises. Music will also be playing in the background to be a signal for participants to start, stop, and switch partners or exercise equipment. A brief break will happen during the middle of the activity.
Materials	Exercise equipment and music
Time	30 minutes
Adaptations	Possible duration of the times needed on the equipment may need to fluctuate and increase or decrease repetitions

Free Play

Cool Down

Week Four

Balance

Purpose: Week four is dedicated to participants learning and partaking in balance related activities at the multi-generational play park. Participant pairs will continue to foster support and relationship building throughout this meeting time. The balance activities implemented will ensure younger children to learn unique best practices that they can use throughout their lifetime and older adults will adopt best practices to ensure safety from the risk of falling.

Goals:

1. Foster intergenerational support, teamwork, and relationship building.
2. Utilize the multi-generational play park for balance activities.
3. Develop best practices for balance that can be used in everyday life.

Warm Up Walk

Simple Balance Exercises (15-20 minutes)

	Supernova Wheel
Description	This activity will utilize the multi-generational play park's moving balance wheel. Child participants with the help of their partner will try to balance as long as they can on the balance wheel and begin walking on the wheel. Turns will be taken to allow all participants a chance to go on the balance. If an older adult feels comfortable, and would like to go on the balance wheel, then their partner will motivate them while they are on the supernova wheel. Music will be playing as this activity is implemented and facilitators will be present at all times.
Materials	Multi-Generational Play Park equipment and small stickers/prizes
Time	10-15 minutes
Adaptations	Possible other activity for other participant pairs to do while waiting.

Free Play

Cool Down

Week Five

Be Creative

Purpose: The last week of Ageless Play will consist of more of the creative multi-generational play park equipment. This will include the Explorer Dome. These activities will foster collaboration and creativity interaction among participants.

Goals:

1. Utilize the larger, creative multi-generational play park equipment.
2. Participants will collaborate creatively with each other.
3. Successfully transition to the close of the program.

Warm Up Walk

	Explorer Dome Safari
Description	Participants will pretend that they are on a safari in the jungle. They will have to work together and search for two items with the help of clues facilitators create on cards or pieces of "maps". These clues will include simple exercises (run in place, jumping jacks, etc.) participant pairs will have to do before searching for the other clues. Facilitators will encourage the theme of safari by providing participants with simple safari equipment like hats, binoculars, etc.
Materials	Safari equipment and clues
Time	30 minutes
Adaptations	Possible need to add additional clues or mini activities for participant pairs to be challenged.

Free Play

Cool Down

Goodbye/End of Program Wrap Up

APPENDIX B: CONSENT FORM

Informed Consent for
Intergenerational Programming on a Multi-Generational
Play Park and Its Impact on Older Adults

Project Purpose:

You are invited to participate in a research study exploring the effects intergenerational programming on multi-generational play parks has on older adults. This study will allow you to participate for free in one of three groups: a non-exercise control group, an intergenerational program called Ageless Play, or an on-going exercise class at Tyvola Senior Center called Fit After 55. You will have the opportunity to participate in physical activities in the Fit After 55 class or activities of the Ageless Play intergenerational program. The Fit After 55 class will offer a variety of cardio based exercises that can be completed either seated or standing led by a graduate assistant in UNC Charlotte's Kinesiology program. For Ageless Play, you will be paired with a child between the ages of six and eleven to execute fun activities involving the multi-generational play park near the senior center. Examples of activities include an exercise circuit for strength and learning balance techniques led by the Kinesiology graduate assistant as well as participating in an activity involving the supernova wheel designed for balance. It is the hope of this study to determine that intergenerational programming on multi-generational play parks will be more effective for older adults than an on-going exercise class offered at a senior center. It will also validate the multi-generational play park's establishment and assist other organizations in determining whether or not to build one at their location.

Investigator(*s*):

The primary investigator of this research study is Amanda Thomas, a graduate student at the University of North Carolina at Charlotte in the Master of Arts Gerontology Program. Dr. Michael J. Turner, the Research Coordinator and a Lead Faculty member of the Gerontology Program will be overseeing this research study.

Eligibility:

You may participate in this research study if you are 55 years and older, are considered a new participant at Tyvola Senior Center, and have not participated in either Fit After 55 offered at Tyvola Senior Center or Ageless Play.
You may not participate in this research study if you are under the age of 55, a regular participant at Tyvola Senior Center, and have participated in Fit After 55 or Ageless Play.

Due to the nature of this research project, and that you will be participating in a program with children, you also will not be able to participate in this study if you have a past history of child abuse or sexual predation or if your name appears on the NC Sex Offender Database.

Overall Description of Participation:

If you volunteer to participate in this study, you will be randomly placed into either a non-exercise control group, the Fit After 55 class, or Ageless Play program by randomly drawing numbers from a hat. 1-10 will indicate placement in the non-exercise control group, 11-20 will place you in Fit After 55, and 21-30 will indicate placement in Ageless Play. You must participate in the class or program for at least 80% of the time for the study if you are selected to participate in either the activity control group or experimental group. Research participants who are selected to participate in the free Fit After 55 class will partake in a variety of cardio based activities led by the graduate assistant in the Kinesiology program at UNC Charlotte that can be completed either seated or standing. The Fit After 55 class is executed in a group setting and is typically the senior center's most attended free exercise class. Ageless play is an intergenerational program that will take place at the multi-generational play park located beside the senior center. Research participants selected for this experimental exercise group will be paired with children to complete innovative physical exercise activities designed specifically for the multi-generational play park located at Tyvola Senior Center. They will be paired with an older adult to complete different activities focused on health and socialization with themes such as balance, strength, and teamwork. Examples of activities your child will be participating in with their older adult partner include an exercise circuit activity on the exercise equipment as well as capture the flag and beat the clock on a specific piece of equipment located on the multi-generational play park. The Principal Investigator will be present during the entirety of the Ageless Play sessions in addition to facilitating the activities being implemented on the multi-generational play park. Below are the details of each activity planned for the five consecutive weeks the program will occur:

1. **(1) Beach Ball Buzz -** Write a question on each color of the beach ball for participants to ask each other. Questions will serve as a way for participants to learn more about each other. Have music playing in the background so that when the music stops it will be an indicator to the participants to ask a question and provide answers. Whatever question is closest to the person when they catch it is the question that will be asked. **(2) Introduction to the Multi-Generational Play Park -** This activity will serve as an introduction to the equipment at the multi-generational play park. An explanation of the exercise equipment will be given and a short time for each participant pair to explore the equipment will take place. Older adults will read the description of the exercise equipment to their partner and they can both test the equipment out. The facilitator will be present at all times.
2. **(1) Capture the Flag -** This activity will utilize the capture the flag game installed on one of the pieces of equipment at the multi-generational play park. Partners will have to work together to gain the most points or "capture the flag".

Two pairs will go against each other in order for the activity to be fulfilled like it was designed to do. The facilitator will be present to monitor the game. **(2) Beat the Clock -** This activity will allow older adults and children to be quick by hitting as many lit up buttons as they can. The goal of this game is to get as many points as pairs can before the clock runs out of time. The facilitator will be present to monitor the game.

3. **Exercise Equipment Circuit -** The multi-generational play park's strength exercise equipment will be utilized for this activity. Participants will rotate on each equipment piece that is supposed to build upper and lower body strength. They will take turns on the equipment for a designated time and do their strength exercises. Music will also be playing in the background to be a signal for participants to start, stop, and switch partners or exercise equipment. A brief break will happen during the middle of the activity. The facilitator will be present to monitor the activity.
4. **(1) Simple Balance Exercises - T**hese exercises will be led either by the Principal Investigator or Graduate Assistant in Kinesiology. These balance exercises will consist of basic balance exercises like standing on one foot, quad stretches, and very basic yoga poses. Individuals not comfortable with these exercises can do a basic stretch or walk in place until the exercise is complete. The facilitator will be present to monitor the activity. **(2) Supernova Wheel -** This activity will utilize the multi-generational play park's moving balance wheel. Child participants with the help of their partner will try to balance as long as they can on the balance wheel and begin walking on the wheel. Turns will be taken to allow all participants a chance to go on the balance. If an older adult feels comfortable, and would like to go on the balance wheel, then their partner will motivate them while they are on the supernova wheel. Music will be playing as this activity is implemented and facilitators will be present at all times. The facilitator will be present to monitor the activity.
5. **Explorer Dome Safari -** Participants will pretend that they are on a safari in the jungle. They will have to work together and search for two items with the help of clues facilitators create on cards or pieces of "maps". These clues will include simple exercises (run in place, jumping jacks, etc.) participant pairs have to do before searching for the other clues. Facilitators will encourage the theme of safari by providing participants with simple safari equipment like hats, binoculars, etc. The facilitator will be present to monitor the activity.

Length of Participation:

This research will last approximately eight weeks. Participants selected to be a part of the non-exercise group will meet only when the pretest and posttest surveys are administered. Fit After 55 is offered on Tuesdays and Thursdays from 11:00am to 11:30am each week at Tyvola Senior Center, and Ageless Play will be offered once a week at for approximately one hour. If you are placed in Fit After 55, you must attend both sessions each week for five consecutive weeks. Similarly, if you are selected to participate in Ageless Play, you must attend all one hour weekly sessions for five weeks. Surveys, which will take about 20 minutes to complete, must be completed prior to beginning the

class or program and afterwards. There will be thirty older adult research participants engaging in this research study, ten in each group as stated above.

Risks and Benefits of Participation:

Risks: Possible low amount of discomfort, which is common for participants of exercise programs to experience. Research participants who are selected to be a part of either Fit After 55 or Ageless Play will be accommodated to reduce as much risk of injury as possible. With both of these programs occurring at Tyvola Senior Center, staff and program instructors are obligated to modify programs for any individual level of ability. Instructors are also trained in their area of expertise, including the lead research investigator. Research participants may also choose what to do and what not to do, if they fill that the activity will put them at risk for any injury.

Benefits: Research participants will be able to work towards the proper amount exercise required for older adults outlined by the Centers for Disease Control and Prevention. There is also an opportunity to work with children and socialize with other older adults participating in the research or exercise classes at Tyvola Senior Center.

Possible Injury Statement:

All research involves a chance that something bad might happen to you. This may include the risk of personal injury. In spite of all safety measures, you might develop a reaction or injury from being in this study. If such problems occur, the researchers will help you get medical care, but any costs for the medical care will be billed to you and/or your insurance company. UNC Charlotte has not set aside funds to pay you for any such reactions or injuries, or for the related medical care. You do not give up any of your legal rights by signing this form.

Volunteer Statement:

You are a volunteer. The decision to participate in this study is completely up to you. If you decide to be in the study, you may stop at any time. You will not be treated any differently if you decide not to participate in the study or if you stop once you have started.

Confidentiality Statement:

Confidentiality will be ensured at all times during this research study. The primary investigator, Amanda Thomas, and her overseer, Dr. Michael Turner, will be the only ones who can connect research participant names to data being gathered. However, each research participant name will be randomly assigned a number, and saved to a password-protected file on a USB disk, to ensure further confidentiality. Folders holding research

participant numbers and documents (consent form and surveys) will be kept in a locked file that only primary investigators can obtain. As documents are obtained, they will be scanned and saved to research participant files on the password-protected USB disk. At the end of the research study, all paper copies of any data connected to research participants will be shredded and there will only be the electronic version on the USB disk. This USB disk will be kept with Dr. Michael Turner in a locked drawer until data is no longer needed for other researchers to use or the primary investigator, Amanda Thomas, does not need it. Please note that research participants will have to write their name for attendance purposes per Tyvola Senior Center's required daily count for Mecklenburg County's Park and Recreation Department, but research participants' names will not be connected for the purposes of this research study.

Any identifiable information collected as part of this study will remain confidential to the extent possible and will only be disclosed with your permission or as required by law.

Statement of Fair Treatment and Respect:

UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the Office of Research Compliance at 704-687-1871 or uncc-irb@uncc.edu if you have questions about how you are treated as a study participant. If you have any questions about the actual project or study, please contact Amanda Thomas (704-692-7187, athom193@uncc.edu) or Dr. Michael J. Turner (704-687-0867, miturner@uncc.edu)

Approval Date

This form was approved for use on *Month, Day, Year* for use for one year.

Participant Consent:

I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction. I am at least 18 years of age, and I agree to participate in this research project. I understand that I will receive a copy of this form after it has been signed by me and the principal investigator of this research study.

_____ _____

Participant Name (PRINT) DATE

_____

Participant Signature

_____ _____

Investigator Signature DATE

APPENDIX C: PARENTAL CONSENT FORM

Informed Consent for
Intergenerational Programming on a Multi-Generational
Play Park and Its Impact on Older Adults

Project Purpose:

Your child is invited to participate in a research study entitled. The purpose of this study is will measure variables in regards to health and overall wellbeing between a non-exercise control group, the intergenerational program, Ageless Play, and an on-going exercise class at Tyvola Senior Center called Fit After 55. For Ageless Play, your child will be paired with an older adult research participant to execute fun activities involving the multi-generational play park near the senior center. Examples of activities include an exercise circuit for strength and learning balance techniques led by the Kinesiology graduate assistant as well as participating in an activity involving the supernova wheel designed for balance. It is the hope of this study to determine that intergenerational programming on multi-generational play parks will be more effective for older adults than an on-going exercise class offered at a senior center. It will also validate the multi-generational play park's establishment and assist other organizations in determining whether or not to build one at their location.

Investigator(*s*):

This study is being conducted by Amanda Thomas, a graduate student at the University of North Carolina at Charlotte in the Master of Arts in Gerontology Program. Dr. Michael Turner, the Research Coordinator and a Lead Faculty member of the Gerontology Program will be overseeing this research study.

Description of Participation:

Your child will be asked to participate in an intergenerational program with older adults called Ageless Play. This program is designed to take place at a multi-generational play park located at Tyvola Senior Center. They will be paired with an older adult to complete different activities focused on health and socialization with themes such as balance, strength, and teamwork. Examples of activities your child will be participating in with their older adult partner include an exercise circuit activity on the exercise equipment as well as capture the flag and beat the clock on a specific piece of equipment located on the multi-generational play park. The Principal Investigator will be present during the entirety of the Ageless Play sessions in addition to facilitating the activities being implemented on the multi-generational play park. Your child will not miss any instructional time due to Ageless Play occurring during a time that school does not meet.

Below are the details of each activity for the five consecutive weeks the program will occur:

1. **(1) Beach Ball Buzz -** Write a question on each color of the beach ball for participants to ask each other. Questions will serve as a way for participants to learn more about each other. Have music playing in the background so that when the music stops it will be an indicator to the participants to ask a question and provide answers. Whatever question is closest to the person when they catch it is the question that will be asked. **(2) Introduction to the Multi-Generational Play Park -** This activity will serve as an introduction to the equipment at the multi-generational play park. An explanation of the exercise equipment will be given and a short time for each participant pair to explore the equipment will take place. Older adults will read the description of the exercise equipment to their partner and they can both test the equipment out. The facilitator will be present at all times.
2. **(1) Capture the Flag -** This activity will utilize the capture the flag game installed on one of the pieces of equipment at the multi-generational play park. Partners will have to work together to gain the most points or "capture the flag". Two pairs will go against each other in order for the activity to be fulfilled like it was designed to do. The facilitator will be present to monitor the game. **(2) Beat the Clock -** This activity will allow older adults and children to be quick by hitting as many lit up buttons as they can. The goal of this game is to get as many points as pairs can before the clock runs out of time. The facilitator will be present to monitor the game.
3. **Exercise Equipment Circuit -** The multi-generational play park's strength exercise equipment will be utilized for this activity. Participants will rotate on each equipment piece that is supposed to build upper and lower body strength. They will take turns on the equipment for a designated time and do their strength exercises. Music will also be playing in the background to be a signal for participants to start, stop, and switch partners or exercise equipment. A brief break will happen during the middle of the activity. The facilitator will be present to monitor the activity.
4. **(1) Simple Balance Exercises - T**hese exercises will be led either by the Principal Investigator or Graduate Assistant in Kinesiology. These balance exercises will consist of basic balance exercises like standing on one foot, quad stretches, and very basic yoga poses. Individuals not comfortable with these exercises can do a basic stretch or walk in place until the exercise is complete. The facilitator will be present to monitor the activity. **(2) Supernova Wheel -** This activity will utilize the multi-generational play park's moving balance wheel. Child participants with the help of their partner will try to balance as long as they can on the balance wheel and begin walking on the wheel. Turns will be taken to allow all participants a chance to go on the balance. If an older adult feels comfortable, and would like to go on the balance wheel, then their partner will motivate them while they are on the supernova wheel. Music will be playing as this activity is implemented and facilitators will be present at all times. The facilitator will be present to monitor the activity.

5. **Explorer Dome Safari -** Participants will pretend that they are on a safari in the jungle. They will have to work together and search for two items with the help of clues facilitators create on cards or pieces of "maps". These clues will include simple exercises (run in place, jumping jacks, etc.) participant pairs have to do before searching for the other clues. Facilitators will encourage the theme of safari by providing participants with simple safari equipment like hats, binoculars, etc. The facilitator will be present to monitor the activity.

Length of Participation:

Your child's participation in this project specifically Ageless Play will begin sometime in 06/2017. The study will end approximately around 08/2017. The group activities for Ageless Play will take place for one hour for five-consecutive weeks. If you decide to grant consent for your child to participate, your child will be one of a maximum of 10 participants in this study.

Risks and Benefits of Participation:

Risks: There is no risk associated with this study. However, there may be risks, which are currently unforeseeable.

Benefits: Children will benefit from participating in this research study by being able to build relationships with older adults. They will also be participating in active programming that involves exercise and unique activities specifically designed for the multi-generational play park located at Tyvola Senior Center.

Volunteer Statement:

Your child is a volunteer. The decision to participate in this study is completely up to you and your child. If you decide for your child to be in the study, your child may stop at any time. Your child will not be treated any differently if you and your child decide not to participate, or if your child stops once your child has started. The investigators also have the right to stop your child's participation at any time. This could be because your child has had an unexpected reaction, has failed to follow instructions, or because the entire study has been stopped.

Confidentiality:

Confidentiality will be ensured at all times during this research study. The primary investigator, Amanda Thomas, and her overseer, Dr. Michael Turner, will be the only ones who can connect research participant names to data being gathered. While, each older adult research participant name will be randomly assigned a number, and data will be saved to a password-protected file on a USB disk, to ensure further confidentiality, **data on children will not be gathered**. Surveys will include general questions about physical activity and measurements on older adults' wellbeing, the inclusion of

intergenerational programming (Ageless Play) or any questions about children are not included.

Fair Treatment and Respect:

UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the Office of Research Compliance at 704-687-1871 or uncc-irb@uncc.edu if you have any questions about how you are treated as a study participant. If you have any questions about the project, please contact Amanda Thomas (704-692-7187, athom193@uncc.edu), or Dr. Michael J. Turner (704-687-0867, miturner@uncc.edu).

Participant Consent:

I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction. I am at least 18 years of age, and I agree for my child to participate in this research project. I understand that I will receive a copy of this form after it has been signed by me and the Principal Investigator.

_____

Student Name (print)

_____

Parent Name (print

_____ _____

Parent Signature DATE

_____ _____

Investigator Signature DATE

This form was approved for use on *Month, Day, Year* for a period of one (1) year.

APPENDIX D: PRETEST AND POSTTEST

SF-12 Health Survey

This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities. **Answer each question by choosing just one answer.** If you are unsure how to answer a question, please give the best answer you can.

1. **In general, would you say your health is:**

☐1 Excellent ☐2 Very good ☐3 Good ☐4 Fair ☐5 Poor

The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

	YES, limited a lot	YES, limited a little	NO, not limited at all
2. **Moderate activities** such as moving a table, pushing a vacuum cleaner, bowling, or playing golf.	☐1	☐2	☐3
3. Climbing **several** flights of stairs.	☐1	☐2	☐3

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

	YES	NO
4. **Accomplished less** than you would like.	☐1	☐2
5. Were limited in the **kind** of work or other activities.	☐1	☐2

During the past 4 weeks, have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

	YES	NO
6. **Accomplished less** than you would like.	☐1	☐2
7. Did work or activities **less carefully than usual.**	☐1	☐2

8. **During the past 4 weeks, how much did pain interfere with your normal work (including work outside the home and housework)?**

☐1 Not at all ☐2 A little bit ☐3 Moderately ☐4 Quite a bit ☐5 Extremely

These questions are about how you have been feeling during the past 4 weeks.
For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the past 4 weeks…

	All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
9. Have you felt calm & peaceful?	☐1	☐2	☐3	☐4	☐5	☐6
10. Did you have a lot of energy?	☐1	☐2	☐3	☐4	☐5	☐6
11. Have you felt down-hearted and blue?	☐1	☐2	☐3	☐4	☐5	☐6

12. **During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?**

☐1 All of the time ☐2 Most of the time ☐3 Some of the time ☐4 A little of the time ☐5 None of the time

Patient name: Date: PCS: MCS:

Visit type (circle one)
Preop 6 week 3 month 6 month 12 month 24 month Other:_____

Research Survey: Pre-Test/Post-Test ID:

Please complete the following survey in full and return it to Amanda Thomas, the primary investigator of this research study. For the first part of the survey, fill in or circle your answers. Check the box that relates the most to you for the second part.

Age: _____

Gender: Male Female

Race and Ethnicity: American Indian or Alaska Native Asian Black or African American Hispanic or Latino Native Hawaiian or Other Pacific Islander White

Other (please specify):_____

Highest Level of Education: Less than High School High School Graduate Some College Associates Degree Bachelor's Degree Some Graduate School Master's Degree Doctoral Degree

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Physical Activity					
I consider myself active.					
I exercise frequently.					
I feel I do not get enough exercise.					
I participate in exercise classes outside the senior center.					
I am able to do more things because I exercise.					
I have better health because I exercise.					
I am hesitant to try new things when I exercise.					
Wellbeing					
I consider myself to have an active social life.					
I am generally happy.					
I am cautious when learning new things.					
I look forward to participating in new opportunities.					
If I concentrate to finish a task, I can complete it.					
I feel accomplished when I complete a task.					
I believe in myself to overcome obstacles I might encounter.					

As I get older, I can imagine myself taking on new roles.					
When I participate in new programs, I grow in different areas in my life.					
I value myself and the accomplishments I make.					