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# A functional life skills lab: optimizing functional independence for autistic high school-aged students

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BOSTON UNIVERSITY  
SARGENT COLLEGE OF HEALTH AND REHABILITATION SCIENCES

Doctoral Project

**A FUNCTIONAL LIFE SKILLS LAB:  
OPTIMIZING FUNCTIONAL INDEPENDENCE  
FOR AUTISTIC HIGH SCHOOL-AGED STUDENTS**

by

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Submitted in partial fulfillment of the  
requirements for the degree of  
Doctor of Occupational Therapy

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## **DEDICATION**

I would like to dedicate this work to my family. Thank you for your unwavering love and support along this journey.

## **ACKNOWLEDGMENTS**

I would like to express my sincere gratitude and appreciation to my academic mentor for providing invaluable supervision, support, and counseling during the creation of this dissertation. Her kind words of encouragement and patience with my last-minute submissions are extremely appreciated. Her insights and guidance were instrumental in helping me shape my research and writing of this thesis. The knowledge that she provided me throughout this process is immeasurable. It has been a great privilege and honor to collaborate with her through this process.

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**ABSTRACT**

High school students are currently transitioning out of an autism program at the author's school, without functional life skills. This impacts their ability to live independently and reduces their employment opportunities. Life skills are "skills or tasks that contribute to the successful, independent functioning of an individual in adulthood" (Cronin, 1996, p. 54). A review of the literature suggests autistic individuals are at a disadvantage compared to their same-aged peers when attempting to learn life skills. Their struggles with life skills could be partly due to their difficulties with executive functioning, motor skills, or a combination of their executive functioning and motor deficits.

Based on a review of the current practices that support and enhance learning for autistic students, while considering the need for support in executive functioning and motor skills, the author proposes an intervention outlined within this doctoral paper. The intervention is a Functional Life Skills Lab that will be offered as an elective class to autistic high school students where the author works. This proposed intervention would provide hands-on training with real-world materials with a multidisciplinary team

approach to teach life skills. It would provide opportunities for autistic students to improve their independence by preparing them for meaningful participation in everyday life skills. The author includes a funding plan that will assist in purchasing the necessary items to make the proposed intervention successful. In addition, this doctoral paper provides a comprehensive program evaluation plan highlighting the key stakeholders and a multiple baseline study designed to evaluate the effectiveness of the program.

## TABLE OF CONTENTS

DEDICATION .....	iv
ACKNOWLEDGMENTS .....	v
ABSTRACT.....	vi
TABLE OF CONTENTS.....	viii
LIST OF TABLES .....	x
LIST OF FIGURES .....	xi
CHAPTER ONE – Introduction .....	1
CHAPTER TWO – Project Theoretical and Evidence Base .....	5
CHAPTER THREE – Overview of Current Approaches and Methods .....	14
CHAPTER FOUR – Description of the Proposed Program .....	27
CHAPTER FIVE – Program Evaluation Research Plan.....	50
CHAPTER SIX – Dissemination Plan.....	73
CHAPTER SEVEN – Funding Plan.....	81
CHAPTER EIGHT – Conclusion .....	88
APPENDIX A – Folding Pants Lesson Plan .....	93
APPENDIX B – Folding Pants Presentation Slides .....	94
APPENDIX C – Folding Pants Visual Directions .....	95
APPENDIX D – Folding Pants Written Directions .....	96
APPENDIX E – Folding Pants Visual Comprehension Sheet.....	97
APPENDIX F – Folding Pants Written Comprehension Sheet .....	98
APPENDIX G – Folding Pants Visual Reflection Sheet.....	99

APPENDIX H – Folding Pants Written Reflection Sheet .....	100
APPENDIX I – Folding Pants Staff Data Sheet .....	101
APPENDIX J – Functional Life Skills Lab Flyer.....	102
APPENDIX K – Executive Summary .....	104
APPENDIX L – Fact Sheet.....	112
REFERENCES .....	114
CURRICULUM VITAE.....	129

## **LIST OF TABLES**

Table 5.1 Matrix for Organizing Stakeholder Information.....	54
Table 5.2 Stakeholder List with Proposed Program Evaluation Questions .....	59
Table 6.1 Long-term and Short-term Goals .....	72
Table 6.2 Dissemination Activities and Costs .....	79
Table 7.1 Required Items for the Functional Life Skills Lab .....	84
Table 7.2 Funding Options .....	86

## LIST OF FIGURES

<b>Figure 1.1</b> Explanatory Model .....	6
<b>Figure 4.1</b> Program Practice Scenario.....	29
<b>Figure 4.2</b> Full Logic Model .....	33
<b>Figure 4.3</b> Social Assessment .....	38
<b>Figure 5.1</b> Simplified logic model for the Functional Life Skills Lab Interventions.....	57

## **CHAPTER ONE – Introduction**

### **Definition of the Problem**

Students currently are transitioning out of the autism program at the school where the author works, without functional life skills. Life skills are “skills or tasks that contribute to the successful, independent functioning of an individual in adulthood” (Cronin, 1996 p. 54). Students with developmental disabilities, such as autism spectrum disorders, often need to have these skills taught through modeling, breaking them down into simpler tasks, and through repetition. The data from a validation study of the Vineland Adaptive Behavior Scales’, suggests that children with autism will continually fall behind in learning their life skills compared to their same-age peers as they age. (Matthews et al., 2017) Kanne and colleagues found that young adults had a greater gap between their mental age and adaptive skills than younger children (2011). This data suggests that autistic individuals may learn their life skills at a slower pace and would benefit from explicit training in a life skills lab. A Functional Life Skills Lab will provide opportunities for our students to increase their overall independence by preparing them for meaningful participation in their everyday life skills.

For this paper, the author will be using identity-first language. Although this is often debated, many people in the autism community prefer identity-first language, as they view autism as a central point that is an essential part of their identity and take pride in it (Wooldridge, 2023).

## **Importance of the Problem**

According to the American Occupational Therapy Association, the areas in which occupational therapy practitioners can support the individuals they service include activities of daily living, instrumental activities of daily living, health management, rest and sleep, education, work, play, leisure, and social participation (2020). All of these areas are relevant to supporting individuals with disabilities in the transition from the educational setting into adulthood. Additionally, occupational therapy practitioners possess an advanced understanding of task analysis, enabling them to simplify a task into its most basic steps, then build upon each step to facilitate learning. Occupational therapy practitioners can use these skills to improve the postsecondary outcome involving independent living for students with disabilities who are served under the Individuals with Disabilities Education Act (IDEA 2004). By educating our students on how to complete everyday functional life skills such as sorting clothes, doing laundry, folding towels/clothes, cleaning surfaces, vacuuming, loading the dishwasher, sorting silverware, washing hands or face, brushing teeth, etc., they will increase their overall independence and provide them with meaningful participation in everyday activities. Without the necessary life skills, our students will struggle with their overall independence, and others might miss out on opportunities for meaningful participation in their daily activities. The ability to complete functional life skills are necessary for independent living. Suppose these skills are not able to be completed by the individual student. In that case, others will have to perform these skills, limiting our students to either living in a group home or with

their families after graduation. As the students learn functional life skills, they can immediately be applied to the individual's environment.

### **Explanation of the Cause of the Problem**

Autistic students in the author's high school might be lacking functional life skills for a multitude of reasons. First, they might need more exposure to opportunities to practice their functional life skills. Due to the economic struggles some of our families experience, they might not have the opportunity to allow their child to experiment with skills due to financial burdens or time constraints parents feel from their work schedules. A second possible reason our students lack functional life skills could be their inability to understand the format in which the directions are given due to their cognitive abilities. Some of our students struggle with verbal directions or may require picture directions that the parents are not able to provide to enable understanding and recall of the steps necessary to complete a task. Research suggests that autistic individuals struggle with their functional life skills relative to their cognition. Another possible reason students lack functional life skills is that they currently have a caregiver performing all the skills for them. Often the parents or caregivers mean well and complete all of the necessary life skills for their children. They may, not realizing they are inhibiting their child from participating in their own life skills.

### **Proposed Intervention to Address the Problem**

Creating a functional life skills lab requires excessive task analysis skills to break

down each life skill activity into the most basic steps. Once the essential steps are identified, directions will be created utilizing real-life examples with a multi-modal approach targeting multiple learning styles. To accommodate various learning styles, each life skill module will have written guides, visual or picture directions, and video models to help teach each module's steps. As students begin working on life skills, their independence level and the amount of prompting necessary to complete their life skills will be collected as baseline data. While working in the functional, hands-on life skills lab, students will practice their targeted life skills with real-life items in a structured, safe, and supported environment allowing for prompting and positive reinforcement as needed to promote learning. Prompting and positive reinforcement will be reduced as a student demonstrates increased independence when completing their newly learned life skill. As students show an increase in independence, their parents will be notified, and the direction format that enables their child's success will be sent home to allow the student to incorporate the newly learned skills into their home routine. Once the student learns a life skill, the directions can be sent home so the parents of the students can incorporate the newly learned skills at home.

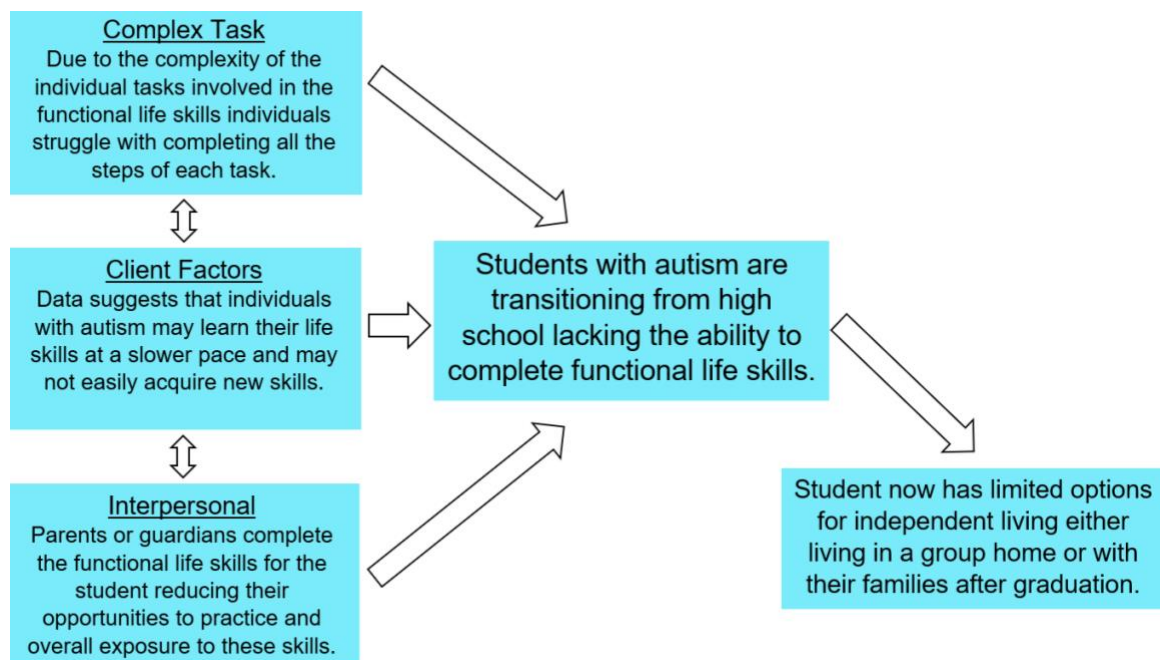
## **CHAPTER TWO – Project Theoretical and Evidence Base**

### **Theory**

The Acquisitional Frame of Reference focuses on how an individual learns specific skills required to perform the necessary activities in the individual's environment (Kaplan, M, p. 461). Using this theory helps guide interventions toward acquiring a new skill, which would best support the goal of a functional life skills lab. This theory believes change happens through continuous practice of the small steps of a task, using both positive and negative reinforcements to shape the learning of the desired skill. Within the Acquisitional Frame of Reference, a facilitator utilizes positive reinforcement to encourage the continuance of the desired skills. Positive reinforcement can be verbal praise, earning the desired object, a sticker, a piece of candy, etc. They will use negative reinforcement to distinguish an undesired behavior. Negative reinforcement can be removing the desired object, adding additional work, losing a sticker, or waiting for a set time before the next reward opportunity. Utilizing positive and negative reinforcements helps shape behaviors into what is acceptable in the individual's environment. Another focus of the acquisitional frame of reference is that continued practice of a skill or task leads to long-term memories forming. The acquisitional frame of reference requires a therapist to break learning into smaller steps through task analysis so that each task can then be built upon, based on the needs of the individual, resulting in the acquisition of a new skill. Because the theory focuses on simplifying the task so an individual can acquire new skills, the theory assumes the complex nature of the task or an individual's difficulty with learning is why an individual is not performing the skill. This fits with one factor

limiting our student's ability to learn how to complete their functional life skills. In the Functional Life Skills Lab, students will have opportunities to practice the basic steps to each life skill task to assist with understanding and then build upon each step until the life skill has been learned.

**Figure 1.1 Explanatory Model**



Autistic students are transiting from high school, lacking the ability to complete functional life skills. This visual model identifies three potential factors impacting a student's ability to learn how to complete functional life skills. The first factor identifies the complex nature as preventing individuals from understanding and meeting all the steps of each functional life skills task. The second identified factor states that autistic students may learn their life skills at a slower rate and not easily acquire new ones. The final factor identified is parents or guardians completing the student's functional life

skills, reducing the student's opportunities to practice and overall exposure to these skills. The identified factors can independently impact the student's ability, or they can co-exist and combined can affect skill acquisition, causing the functional life skills deficit. The overall impact of being unable to complete functional life skills causes students to have reduced independence. Opportunities for independent living would be limited, making it necessary for students to live with their families after graduation or in a group home until they are capable of independently caring for their own environment.

The explanatory model indicates that our high school autistic students are graduating lacking life skills and suggests that the lack of life skills could be due to learning the complex nature of functional life skills tasks due to executive functioning deficits, learning life skills at a slower pace due to struggles with motor components of the tasks, and autistic students lack exposure to life skills due to parents or guardians completing the tasks for them. In order to establish whether the Life Skills Lab methodology, as previously described, would be beneficial to our autism department and is supported by current research, an evidence search was conducted based on these areas. Four questions were created to guide the evidence search and thus support the explanatory model of the problem.

1. Is there evidence that autistic students lack functional life skills?
2. Is there evidence that autistic struggle to learn life skills because of the complex nature of the tasks due to their difficulties with executive functioning?

3. Is there evidence that autistic students learn life skills at a slower pace due to struggles with motor components associated with the tasks?
4. Is there evidence that autistic students lack exposure to life skills due to parents or guardians completing the tasks for them?

To determine how the questions were supported by current research, a literature review was conducted from databases with healthcare components from PubMed and Cumulated Index to Nursing and Allied Health Literature (CINAHL) and educational components from Educational Resources Information Center (ERIC).

Research does support that individuals with autism often struggle with learning functional life skills, such as doing laundry, folding clothes, loading a dishwasher, vacuuming, or sorting trash and recycling. Data from multiple validation studies of the Vineland Adaptive Behavior Scales', suggests that children with autism continually fall behind in learning their life skills compared to their same-age peers as they age (Matthews et al., 2017; Perry et al., 2009). Kanne and colleagues (2011) found that young adults with autism had a more significant gap between their mental age and adaptive skills than younger children. An additional study conducted by Duncan and Bishop (2013) found that of individuals diagnosed with autism spectrum disorder between the ages of ten and seventeen, 56.4% were classified as having deficits in their daily living skills compared to their full-scale IQ. Another study found that the daily living scores of students with a dual diagnosis of autism spectrum disorder and an intellectual disability were lower than students who were only diagnosed with an intellectual disability. This data suggests that individuals with autism may learn their life skills at a slower pace and

would benefit from explicit training in a life skills lab. Furthermore, when researchers looked at a wide age range of individuals diagnosed with autism spectrum disorder, they found that they continued improving their daily living skills until their late 20s (Smith et al., 2012). This supports the usefulness of a life skills lab in a high school setting. This research confirms that autistic individuals struggle with learning life skills without explicit instruction. This explains that school-aged students are transitioning from our high school autism program, lacking functional life skills.

### ***Executive Functioning***

Regarding whether or not autistic students struggle to learn life skills due to the complex nature of the tasks because they struggle with executive functioning, the literature indicates that autistic students struggle with executive functioning skills. According to Diamond (2013), executive functions allow individuals to play with ideas mentally, think before acting, work through unforeseen challenges, resist temptations, and stay focused. Diamond (2013) listed three core areas of executive functioning that are: inhibition and interference control, working memory, and cognitive flexibility. Within these core areas are skills that help people complete tasks, including a range of skills such as planning and organizing, concentrating and managing mental focus, analyzing and processing information, managing emotions and behavior, remembering details, managing time, multitasking, and problem-solving. Struggles with these skills can impact an individual's ability to complete functional life skills. A study of individuals with autism spectrum disorder found that weakness in functional life skills in individuals with autism spectrum disorder is likely influenced by executive functioning deficits

(Peterson et al., 2015). Another research study investigating executive dysfunction in three-year-old individuals with autism spectrum disorder found that they could detect executive dysfunction as early as three years of age and that executive dysfunction was directly linked to lower daily living skills (Powell et al., 2022). Additionally, Rosenthal and colleagues (2013) looked at changes in executive functioning skills in individuals with autism spectrum disorder from childhood to adulthood. They found that executive functioning skills in individuals with autism mature slower, specifically regarding working memory, initiation, and organization skills. These specific areas will impact the acquisition of functional life skills. Another study on individuals with autism and intellectual disabilities found working memory to be the most impaired executive functioning skill (McClain et al., 2022). This correlates with the previous research article and further supports that individuals with autism struggle to learn functional life skills because of their executive functioning deficits. Given these studies, we can conclude that to teach life skills successfully, we must incorporate executive functioning skills within our approach.

### ***Motor Control***

There is ample research demonstrating that autistic individuals have motor deficits. In a study conducted by Green and colleagues (2009), they found that motor impairments were common among children diagnosed with autism. Another study by Whyatt and Craig (2012) examined how motor deficits in autistic individuals impact their ability to complete complex tasks. They found significant underlying motor deficits in complex tasks requiring both speed and accuracy, which is vital for producing controlled

movement. This area could impact one's ability to fold clothes, vacuum, or mop. Another study by Travers and colleagues (2017) found that deficits in motor skills related to both current and future abilities to complete functional living skills in autistic individuals. They even went so far as to suggest that motor performance in autistic individuals could be a limiting factor for developing independent living skills in adulthood. Travers and colleagues (2022) conducted another study investigating a direct link between motor and sensory difficulties and an individual's ability to complete functional life skills in both autistic and nonautistic children. They found that motor challenges in children are most strongly associated with challenges in functional life skills, specifically the areas of dressing, bathing, cleaning, education, safety, health, and meal preparation (Travers et al., 2022). This research confirms that autistic individuals can have motor impairments, which should be considered when creating a curriculum to teach life skills requiring complex motor movements.

### ***Lack of Exposure***

There is abundant research supporting that autistic students lack functional life skills, executive functioning deficits in autistic individuals impact their ability to complete life skills, and motor deficits in autistic individuals impact their ability to complete life skills. However, there is insufficient research to support that individuals with autism lack exposure to life skills due to their parents or guardians completing the tasks for them. This could be an area to investigate further using parent/guardian questionnaires to determine if they complete functional life skills for their children due to their children's struggles in completing them, time constraints, or other reasons. An

article investigating parenting styles with children with significant cognitive and motor developmental delays found that parents had low interactions aimed at directiveness and achievement (Van keer et al., 2017). They theorized that this could be due to the parent's previous experiences with their child causing them to think their child does not understand or because they have low expectations for developmental outcomes. Because the parents in this study did not allow or provide opportunities for developmental learning through interactions aimed at directiveness and achievement, they potentially limited learning opportunities. Similarly, if parents complete their children's life skills for them, they reduce their child's learning opportunities. More research is needed to determine if autistic individuals lack exposure to life skills because their parents complete these skills for them. If researching this area, it would also be essential to determine why the parents are completing the tasks for their child. If parents are completing life skills for their child, is it because of their child's lack of understanding on how to complete the skill, to save time during their morning or evening routines, to prevent undesired behaviors from their child, etc.?

The research confirms that autistic individuals struggle with learning life skills. These struggles could be partly due to their difficulties with executive functioning, motor skills, or a combination of their executive functioning and motor deficits. Although the research did not conclude that individuals with autism struggle with life skills due to a lack of exposure because the skills are being completed for them, this is an area where additional research needs to be completed. This research supports the need for a Functional Life Skills Lab that can explicitly teach life skills to autistic students targeting

their difficulties in executive functioning and motor skills.

## **CHAPTER THREE – Overview of Current Approaches and Methods**

### **Introduction**

Based on the current research, one can conclude that autistic individuals have difficulties learning to complete functional life skills (Duncan & Bishop, 2013; Kanne et al., 2011; Matthews et al., 2017; Perry et al., 2009). Functional life skills are “skills or tasks that contribute to the successful, independent functioning of an individual in adulthood” (Cronin, 1996). Literature suggests that this could be due in part to their challenges with executive functioning skills (Diamond, 2013; Peterson et al., 2015; Powell et al., 2022; Rosenthal et al., 2013) or their difficulties with motor skills (Travers et al., 2016; Travers et al., 2022; Whatt & Craig, 2012).

According to the Centers for Disease Control and Prevention (CDC), the prevalence of an autism diagnosis in 8-year-olds has increased from 1 in 150 children in the year 2000, to 1 in 36 children in the year 2020 (Maenner et al., 2020). As more and more children are being identified as having autism spectrum disorder and because life skills are a challenge for individuals with autism, it is essential to develop a plan to support the acquisition of functional life skills. Transition services for high school students with disabilities are also required under the Individuals with Disabilities Education Act (IDEA 2004). Following the guidelines of IDEA 2004, a Functional Life Skills Lab would provide additional transition services necessary for teaching autistic students to complete functional life skills independently. The functional life skills lab would be a hands-on intervention program using a multidisciplinary team approach to teach life skills. It would provide opportunities for autistic students to improve their

independence by preparing them for meaningful participation in everyday life skills.

### **Examining the Evidence**

To determine which interventions are best at teaching functional life skills to autistic students and are supported by current research, an evidence search was conducted. Four questions were created to guide the evidence search and the development of the Functional Life Skills Lab. The author aims to establish a Functional Life Skills Lab that would benefit the autism department at the author's place of employment and whose approach is supported by current research. The questions are as follows.

1. Do any programs exist for teaching functional life skills to autistic students?
2. What features or interventions were successful in teaching skills to individuals with autism?
3. Is there evidence about what types of interventions are most associated with positive outcomes when teaching individuals who struggle with executive functioning skills?
4. Is there evidence about what interventions are most associated with positive outcomes when teaching individuals who struggle with motor skills?

To determine how the questions were supported by current research, a literature review was conducted from databases with healthcare components from PubMed and Cumulated Index to Nursing and Allied Health Literature (CINAHL) and educational components from Educational Resources Information Center (ERIC). The keywords used included autism and independent living skills, independent living skills curriculum,

independent living skills programs, independent living skills programs, teaching methods and autism, autism interventions, executive functioning interventions, and motor skills interventions.

## **Summary of the Evidence**

### *Synthesis of Question #1*

A search for practice programs that teach functional life skills to the autistic population found that very few programs taught the life skills that will be targeted in the Functional Life Skills Lab. There are programs in the author's area that provide in-person learning for students at the high school level available such as Project Life, Life Skills Reimagined, and Pathways to the Future, that target life skills related to job readiness, including job applications or professionalism, personal finance such as banking or credit cards, communication skills, and briefly go over independent living skills such as getting an apartment or keeping a house clean. However, they do not teach all functional independent living skills needed for independent living. The Assessment of Functional Living Skills (AFLS) is an assessment tool that was created to monitor an individual's ability to complete over 1,900 skills across 66 areas of functional living skills (Partington & Mueller, 2015). As young adults with autism age out of the school systems in the St. Louis area, more community programs offering life skills training are available such as University of Missouri-St. Louis's Succeed Program, Next from St. Louis Arc, and Pathways to Independence. However, these organizations do not provide a specific curriculum or a manualized approach for teaching life skills.

A search for virtual learning programs that teach functional life skills led to Unique Learning Systems offered by n2y.com (n2y, 2023). This program offers an abundance of learning options for transition support and is specifically geared toward educating special education students to transition into life after high school. Although this program provides visuals and breaks the tasks down in a similar method as the Functional Life Skills Lab will, due to its virtual learning method, it does not provide hands-on training with real-world materials related to independent living.

Some studies investigated the success of teaching one specific life skill based on their identified intervention strategy (Bereznak et al., 2015; Bock, 2009; Cihak & Grim, 2008;), but there were no studies on the effectiveness of a specific curriculum that taught a multitude of functional life skills. It is possible that the studies completed on one specific life skill based on their identified intervention strategy were done to determine if their intervention would be successful before creating an entire curriculum. If that is the case, additional research would need to be completed once their curriculum is finalized. Based on the research found, either there is not a curriculum that teaches multiple functional independent living skills for individuals with autism or cognitive delays, or research determining the effectiveness of a functional independent living skills curriculum has not been completed yet.

### *Synthesis of Question #2*

Throughout the research, many common elements across the studies were noted to assist in successfully teaching skills to autistic students. One of the first common

elements to emerge in the research was using video modeling as an intervention method to teach life skills to autistic students (Cannella-Malone et al., 2011; Cihak, D., 2011; Galligan et al., 2020; Gardner et al., 2019; Wilson, K. 2013). A video model as an intervention involves watching the prerecorded interaction of an adult, peer, or themselves engaging in the positive behavior or skill being taught (Davies et al., 2002). Using the video model as a reminder or prompt on how to complete a specific aspect of a task is called video prompting (Cihak et al., 2006). Research has found that video prompting also benefits autistic students (Bereznak, 2015; Cihak et al., 2006).

Additionally, abundant research supports using direct instruction as a teaching method to teach a multitude of skills to individuals with autism (Cadette et al., 2016; Flores et al., 2009; Flores et al., 2013; Frampton et al., 2021; Ganz & Flores, 2009; Vidovic, 2021). Direct instruction occurs when the teacher/supervisor gives clear, concise instruction, which can be paired with a demonstration of the task or activity, with frequent opportunities for students to practice their skill while being given feedback from the teacher/supervisor and then on their own (Marchand-Martella, 2004). For example, teaching students how to fold their pants could be taught through direct instruction as the teacher uses clear, concise instructions paired with a demonstration of how to fold pants. After the students watch and listen to the instruction, they can practice folding pants.

Furthermore, research supports using the chunking methodology in the educational setting to teach complex information in many different subject areas to individuals with autism (Grossberg, 2013; Li et al., 2011; McDonald, 2011;). The chunking methodology requires breaking complex information into smaller, more

manageable sections to assist learning (Fountain & Doyle, 2012). For example, the chunking method could help support individuals in learning to do their laundry because doing the laundry has so many steps and things to consider, such as separating the laundry into dark and light clothes, towels, sheets, and clothes, monitoring the proper water temperature, using the correct laundry detergent and the correct amount, determining if the clothes can go in the dryer and at what temperature, etc.

In another study, Cavkaytar and Pollard (2009), investigated the success of a Parent and Therapist Collaboration Program in teaching functional life skills to three individuals with autism. They found that parents who had training directly from the child's therapist or training from previous work-related experience could teach their children how to complete the life skills. Similar to this study, students in the life skills lab will benefit from learning how to complete life skills in their home environment with the support of their parents. Therefore, the life skills lab will provide the necessary support to the parents/guardians to enable students to easily transfer the life skills learned at school to their home environment.

Although the research supports and defines methods that are best used to teach autistic individuals, the studies themselves use small sample sizes (Cavkaytar & Pollard, 2009; Cannella-Malone et al., 2011; Cihak, D., 2011; Galligan et al., 2020; Gardner et al., 2019; Wilson, K. 2013) and some did not use a control group (Cavkaytar & Pollard, 2009). In addition, because these studies were most often collecting data in the educational setting, they could have smaller samples due to the number of eligible students within their school setting.

### **Synthesis of Question #3**

As the previous research demonstrated, individuals with autism often experience significant challenges with their executive functioning skills. Some established interventions have been proven to support these learners. The first proven strategy is prompting, which can be implemented to assist students with task completion (Davis et al., 2002; Cihak et al., 2010; Mechling et al., 2008; Taber-Doughty, 2005). Prompting refers to any assistance provided to help an individual perform a given skill or task, typically through adult assistance or assistive technologies such as mobile devices (Ayres et al., 2013). In the functional life skills lab, the prompting will consist of gestural, verbal, or visual prompts in the form of pointing to an item, telling the student to remember a step, or demonstrating how to complete a task.

In the educational setting, visuals are commonly used as additional support for individuals with autism and are another proven strategy to assist with executive functioning (Banda & Grimmer, 2008; Banda et al., 2009; Lee & Sturmey, 2006). According to Knight and colleagues (2015), visual supports refer simply to any picture or graphic display of information that can assist an individual in completing a given skill, task, routine, or activity. Pictures of steps in tasks could be utilized to support the acquisition of life skills.

Another proven strategy to target executive functioning deficits in individuals with autism is using positive reinforcement to improve desired outcomes (Baltruschat et al., 2011; Baltruschat et al., 2011). Positive reinforcement is any desired object that is highly motivating for that individual, causing them to modify their behavior to work

towards a goal so they can receive that object. For example, positive reinforcement can be verbal praise, or earning a desired object such as a sticker, piece of candy, or free time. It ultimately is whatever is motivating for that individual. For example, in the Functional Life Skills Lab, students can receive positive reinforcement every session through verbal praise or earning their desired object. It can also consist of earning a free day once a month for hard work and determination while learning new skills.

The studies found that described the best interventions for individuals with difficulties in executive functioning skills also used small sample sizes when collecting data (Baltruschat et al., 2011; Banda & Grimmett, 2008; Banda et al., 2009; Cihak et al., 2010; Davis et al., 2002; Lee & Sturmey, 2006). This is probably due to needing to collect data from autistic students within a classroom and being limited by the number of students qualifying in each class. The data also lacked a control group not receiving the interventions listed. It bears noting that hand-over-hand prompting, which is using your hands to move the hands of the student, was a common form of prompting found in the literature. Hand-over-hand prompting may be necessary in some instances, but it would be inappropriate in the Functional Life Skills Lab for a few reasons. First, teaching a new skill with hand-over-hand prompting can teach a student that another person needs to move their hands to start a task or to be successful in completing a task, leading to a dependency on hand-over-hand prompting. Secondly, because autistic individuals already struggle with executive functioning skills, including task initiation, hand-over-hand prompting could blur the line between what is needed and when to start a task. Finally, this author believes that all students should be in charge of their own bodies.

#### **Synthesis of Question #4**

The research has demonstrated that individuals with autism often struggle with their motor skills, causing difficulties when completing their functional daily living skills (Travers et al., 2016; Travers et al., 2022; Whatt & Craig, 2012). There has been substantial research on the best interventions to support individuals with motor deficits, with many theories about the best treatment. The interventions can typically be placed into two categories the “bottom-up” or “top-down” approach. The “bottom-up” approaches focus on developing foundational motor skills leading to improved motor control and improved task (Missiuna et al., 1997). The “bottom-up” theories attempt to determine the underlying cause preventing the individual from learning a motor skill (Sugden & Dunford, 2007). According to Missiuna and colleagues (1997), the “top-down” approach focuses on the variability of motor requirements. This approach postulates that the individual’s motor control will become more efficient as they understand the expectations. In theory, following the “top-down” treatment approach would mean an individual with fine motor problems would receive more opportunities to practice the specific fine motor skills they struggle with. Even though this approach is often used to treat fine motor deficits, very few studies have been conducted with appropriate samples or control groups (Sugden & Dunford, 2007). Many interventions for motor deficits involve direct instruction in small groups or one-on-one settings, with a therapist demonstrating a skill or activity and ensuring the individuals practice that skill ((Bremer & Lloyd, 2016; Bremer et al., 2015; Ketcheson et al., 2016). The majority also involve directly teaching and strengthening a specific motor skill, such as locomotion or

object control, through extensive practice (Bremer et al., 2015; Busti et al., 2020; Ketcheson et al., 2016;).

The duration of the motor interventions varied among studies. Some studies found that interventions of one hour per week for 12 weeks had a similar effect as two hours per week for 6 weeks (Bremer et al., 2015). Another study found that intensive interventions around 20 hours per week had a positive result (Ketcheson et al., 2016). Srinivasan and colleagues (2015) found success in their motor interventions after eight weeks with four sessions per week.

### **Summary and Recommendations**

In order to support autistic students' goal of independent living, a school-based occupational therapist can help teach daily living skills. Unfortunately, no curriculum or manualized approach is supported by research to teach high school autistic students how to complete functional life skills. There is research supporting how to teach single areas, such as making purchases (Cihak & Grim, 2008), how to sort laundry (Bock, 1999), making noodles (Bereznak et al., 2012), or using a copier (Bereznak et al., 2012). However, there was no research on a curriculum systematically teaching numerous functional life skills necessary for independent living skills. Creating a curriculum that incorporates interventions that account for the executive functioning and motor skills deficits that commonly impact autistic students would be ideal. Once the curriculum is in place that provides the necessary interventions, a study should be conducted to determine the outcomes of the interventions.

Most of the research gathered to understand better-proven intervention strategies

for autistic individuals used ableist language. Ableism is “a system that places value on people’s bodies and minds based on societally constructed ideas of normality, intelligence, excellence, desirability, and productivity” (Lewis, 2021). Using ableism language causes people to view autistic individuals as inferior or as people who are disabled versus people with unique skills, talents, and learning styles. In research now, it is also more common and best practice to include autistic people in the research practices, enabling them to aid in research completed on autism (Botha & Cage, 2022).

### **Application to the Project**

In order to support and promote learning, the Life Skills Lab curriculum will be based on methods proven to be successful for individuals with autism. Because video modeling has been proven to be an effective teaching strategy for autistic students, each life skills activity will have a video model to explain and demonstrate how to complete each task. The students can refer back to the video model if they forget or need an additional prompt on completing a portion of the life skill, enabling them to benefit from video prompting. The life skills lab will use direct instruction to teach each new life skill and also allow for frequent practice with feedback from the trained staff providing increased opportunities for structured learning. Breaking down each step of the functional life skills and teaching it to the students in smaller steps will allow for better understanding and supportive learning based on the chunking methodology. The life skills lab curriculum will also provide training and help parents implement the life skills in the home environment after the child has demonstrated success at school.

Knowing that individuals with autism struggle with executive functioning skills,

the life skills curriculum will utilize the strategies that effectively support them and promote learning while effectively managing their executive dysfunction. In the Life Skills Lab, a trained supervisor will be present and able to provide verbal or gestural prompts as needed to assist the students with their task initiation, task focus, and task completion. Students will follow a checklist to ensure they complete all the steps leading up to their task, including gathering their materials, looking over the directions, and asking a supervisor to ensure they complete all necessary tasks before beginning their life skill activity. They will also have written and picture directions for their task to ensure they complete all steps of their life skill task. Finally, a supervisor will utilize positive reinforcement to encourage the continuance of a desired skill.

Similarly, knowing individuals with autism struggle with motor skills, the life skills curriculum will implement strategies targeting their motor deficits. First, students will watch a demonstration from their supervisor in a small group or one-on-one setting and then practice that skill similar to direct instruction. It is often necessary to address the strengthening component of motor deficits. However, the life skills lab will not address the strengthening component unless extreme motor deficits impact a student's ability to complete a task.

When considering the most beneficial intervention schedule, one must consider that the life skills lab must fit into their high school class schedule. As such, students will participate in the life skills lab twice a week for ninety minutes each time, following the current block schedule. After a twelve-week semester, the student's participation needs will be assessed and decided based on the classes they need to graduate and the

remaining life skills they have left to learn. In conclusion, the life skills lab will incorporate the common features of interventions noted in the literature to effectively support autistic students in acquiring new skills.

## **CHAPTER FOUR – Description of the Proposed Program**

### **Basis of the Program and Intervention Approach**

Autistic students are transitioning from high school without functional life skills and will continually fall behind in learning their life skills compared to their same-age peers as they age (Duncan & Bishop, 2013; Kanne et al., 2011; Matthews et al., 2017; Perry et al., 2009). Life skills are “skills or tasks that contribute to the successful, independent functioning of an individual in adulthood” (Cronin, 1996, p. 54). The explanatory model (see Figure 4.1) depicts why autistic students struggle to complete life skills. Studies have found that it is due in part to their difficulties with executive functioning skills (Diamond, 2013; Peterson et al., 2015; Powell et al., 2022; Rosenthal et al., 2013) or their difficulties with motor skills (Travers et al., 2016; Travers et al., 2022; Whatt & Craig, 2012). Because high school autistic students are graduating from high school lacking independent life skills, they have decreased opportunities for independent living and employment. In addition, students with developmental disabilities, such as autism spectrum disorders, often need to have these skills taught using an explicit, systematic method with a slower pace (Kanne et al., 2011). Unfortunately, there is a lack of evidence-based programs addressing this population’s life skills deficits. Functional Life Skills Lab will provide opportunities for our students to increase their overall independence by preparing them for meaningful participation in their everyday life skills.

## **Program Description**

The author's proposed intervention creates a Functional Life Skills Lab with a curriculum and procedural manual that enables high-school-aged autistic students to learn how to complete daily living skills independently. The lab provides hands-on training with real-world materials. The Functional Life Skills Lab will be set up in a large classroom with multiple areas to resemble a home environment, including a full kitchen, a site to resemble a bedroom, a laundry area, and a half bathroom (there is not a tub or shower). The program will be composed of different modules for each life skills task, such as sorting clothes, doing laundry, folding towels/clothes, cleaning surfaces, vacuuming, loading the dishwasher, sorting silverware, washing hands or face, brushing teeth, etc. Utilizing task analysis, each life skills task was broken down into the most basic steps. Once the essential steps are identified, directions will be created using real-life examples with a multi-modal approach targeting multiple learning styles. Each life skill module has written guides, visual or picture directions, and video models to help teach each module's steps while accommodating various learning styles. Students will be provided opportunities to practice each task with checklists to ensure they complete each step and use prompting as needed to promote learning. Sample teaching resources can be found in Appendix A.

**Figure 4.1 Program Practice Scenario**

Kevin is a 16-year-old high school student who lives with his mom and grandmother. In a typical week, Kevin's mom or grandmother are responsible for sorting clothes to prepare for laundry, doing the laundry, folding towels and clean clothes, hanging up necessary clothing items, putting away the cleaned clothes, cleaning surfaces around the house, including the bathroom, vacuuming the floors, washing the dirty dishes, and loading the dishwasher, putting away the clean dishes, and sorting the clean silverware to put them away. Kevin can wash his face, shave his face, brush his teeth, and shower independently. During an IEP meeting, Kevin and his mom expressed interest in Kevin becoming more independent with additional life skills at home. The IEP team discussed the Functional Life Skills Lab with Kevin's mom. They agreed that Kevin would participate in the life skills lab for an hour twice weekly to focus on learning new life skills. Kevin first observed the Functional Life Skills Lab's supervisor complete the task and then used the video model to complete each step of a functional life skill. He began to learn each skill and eventually an entire life skills task. He transitioned to written directions, which were sent home to his mom so they could incorporate his newly learned skill into their home routine. Kevin could apply the knowledge and skills learned in the life skills lab to his home routine, thus increasing his independence and relieving his mom and grandmother from having to help. Kevin, his mom, and his grandmother were thrilled with his increased independence at home.

## **Key Features of the Functional Life Skills Lab**

The author's proposed intervention aims to bridge the gap in the literature for programs that address life skills. The Functional Life Skills Lab will teach autistic high school-aged students to complete independent functional living skills using researched-supported intervention procedures and curriculum. The Functional Life Skills Lab's resources will be accessible via shared files for all picture directions, written directions, video models, reflection sheets, comprehension sheets, and questionnaires created for each life skill. It will be taught by the Life Skills Lab Team of implementers, including an occupational therapist, a speech and language pathologist, and a special education teacher. The Occupational Therapist will be the lead implementer, the author of the curriculum, the author of the procedural manual, and the trainer for the implementers.

## **Program Objectives**

The primary objectives of the Functional Life Skills Lab are:

- To provide an evidence-based manualized intervention method to teach functional life skills to autistic high school students.
- Promote positive student outcomes as observed through acquiring a new skill by learning to complete a functional life skill.

## **Program's Logic Model**

The logic model (see Figure 4.3) visually demonstrates how the author's proposed program will reach its intended outcomes. In addition, it includes the clients, program

resources, nature of the problem, theories guiding the intervention, activities, and the intervention. The Acquisitional Frame of Reference and Cognitive Theory of Multimedia Learning (CTML) were chosen due to their teaching practices, such as breaking complex tasks into smaller steps, repeating a task to support learning, using positive/negative reinforcement, and using video modeling. Fundamental principles from the theories will guide the development of the Functional Life Skills Lab.

Using the Acquisitional Frame of Reference as a theory of change to guide the life skills lab interventions, each life skill will be broken down into smaller steps through task analysis so that each task can then be built upon based on the needs of the individual, resulting in the acquisition of a new skill. The Acquisitional Frame of Reference also views change as happening with repetition, using positive and negative reinforcements to shape the learning of the desired skill (Kramer & Hinojosa, 2010). To address these areas of concern, the Functional Life Skills Lab will utilize the Acquisitional Frame of Reference as a guide to promote learning. The theory proposes that continuous practice of a skill and using positive and negative reinforcements will aid in acquiring a new skill. The Acquisitional Frame of Reference requires a therapist to break learning into smaller steps through task analysis so that each task can then be built upon, based on the needs of the individual, resulting in the acquisition of a new skill. This process coincides with the chunking methodology, which research has proven is an effective teaching method for individuals with autism. The Acquisitional Frame of Reference also supports motor learning deficits as it promotes and requires the continuous practice of a new skill to promote learning (Bremer, 2014; Bremer et al., 2015; Ketcheson et al., 2016; Kramer &

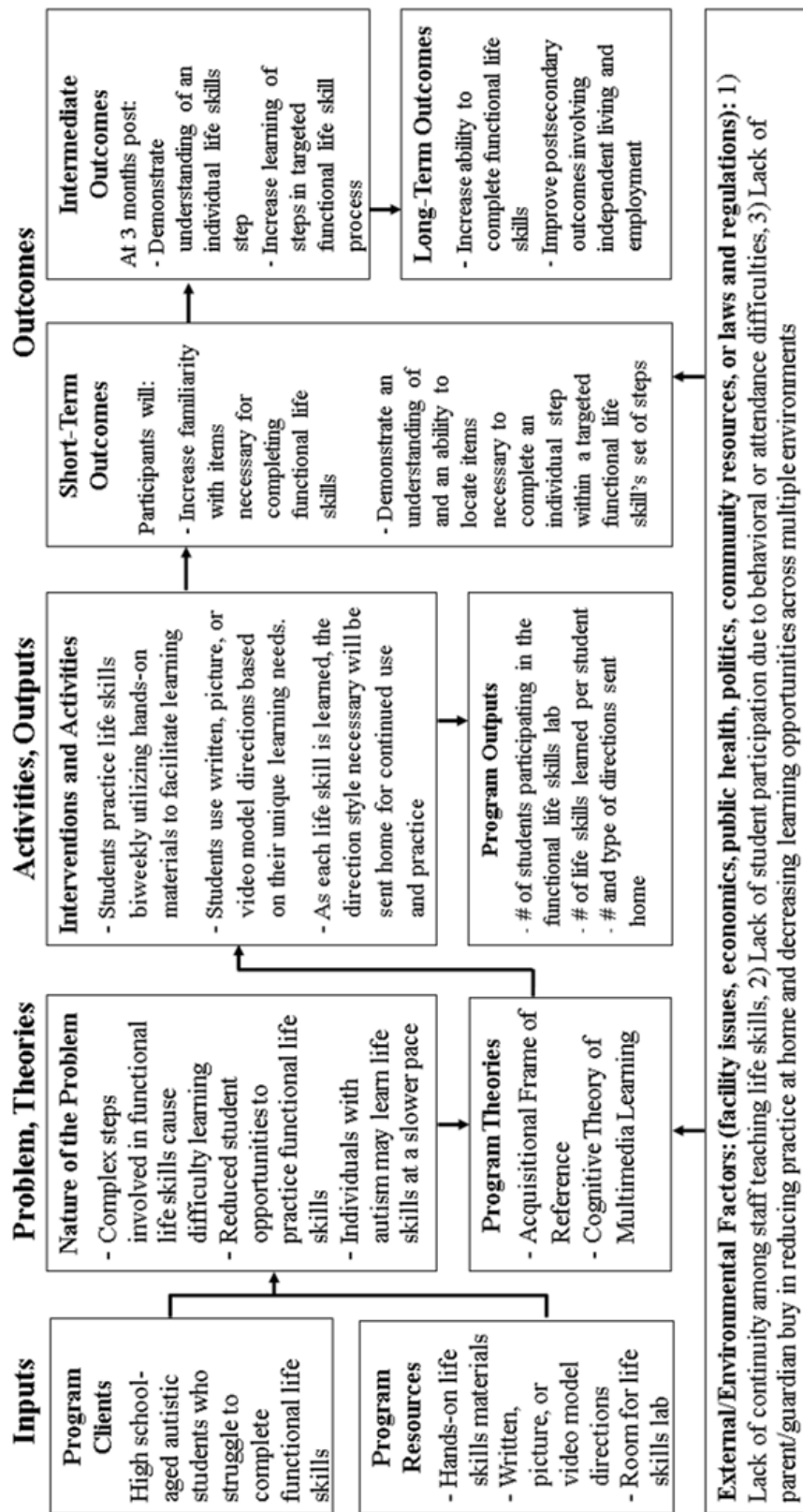
Hinojosa, 2010).

An additional theory that aided in developing the Functional Life Skills Lab is the Cognitive Theory of Multimedia Learning (CTML). The basic idea behind CTML is that people learn better from combining words and a visual than just from words alone (Canda, 2019; Davis & Norman, 2016; Sorden, 2013). Utilizing aspects of this theory to promote learning, the Functional Life Skills Lab will provide learning that pairs a visual with an auditory explanation of each step. First, a Life Skills Lab supervisor will demonstrate a life skill task pairing it with an auditory explanation of the action that they need to complete their task. Secondly, each task will have a video model, providing a visual demonstration with an auditory explanation of the action needed to complete the task. Finally, students will have access to picture directions of each step they need to complete their life skills with wording to describe each step. Using video models to promote learning in individuals with autism is also a research-supported successful intervention practice (Cannella-Malone et al., 2011; Cihak, D., 2010; Galligan et al., 2020; Gardner et al., 2019; Wilson, K., 2013). As a student learns a skill, the direction format that is most beneficial for them will be provided to their parent/guardian to allow for continued practice in their home environment. Parents, guardians, or other family members will then be able to encourage the student to continue completing their life skills at home.

Figure 4.2 Full Logic Model

**Full Logic Model for the Functional Life Skills Lab Intervention**

*Program title: Functional life skill acquisition for high school-aged students with developmental or cognitive delays who are participating in a transition program.*



### **Overview of Key Stakeholders**

At the micro level are the primary intended users, the autistic high school-aged students who need additional support to learn how to complete the functional life skills that will be taught in the Functional Life Skills Lab. These students will actively participate in the Functional Life Skills Lab twice weekly. In addition, they will provide feedback on their experiences with the lab to demonstrate their understanding and satisfaction with their learning and overall performance while utilizing the Functional Life Skills Lab.

In addition, the key stakeholders at the meso level include the Functional Life Skills Lab team of supervisors or implementers consisting of an occupational therapist, a speech and language pathologist, and a special education teacher. The Functional Life Skills Lab team will follow the intervention procedural manual with all participants to ensure the intervention remains faithful to the underlying theory. In addition, this team will gather data to determine if the intervention effectively bridges the gap and teaches autistic students how to complete their functional life skills.

The key stakeholders at the macro level are the building principal, the school district's autism process coordinator, and the special education process coordinator. They will look at the data gathered to ensure the life skills lab supplements our students' goals and improve possible outcomes related to their transition needs per the IEPs.

### **Program Participants and Resources**

The Functional Life Skills Lab's primary participants will be the autistic students participating in the lab and the Functional Life Skills Lab supervisors working with the

students. The Functional Life Skills Lab supervisors will implement the intervention. The author will be the lead supervisor on the Life Skills Lab team of supervisors implementing the intervention and the primary investigator. Additional participants include parents/guardians, school administrators, district administrators, and other related services providers or special education teachers within the district interested in exploring how the Functional Life Skills Lab enables autistic students to learn functional life skills.

To gain interest among primary and secondary participants, the author will share a flier with information for families and students in the autism department of the author's primary place of employment and schools within the author's school district of employment. The flier can be seen in Appendix J. In addition, the flier can be emailed to parents/guardians and students. It will also be available during student enrollment and parent-teacher conferences when parents are in the buildings.

There has already been buy-in from the speech and language pathologist, autism department head, and principal in the building where the author works. A space has been designated for creating the Functional Life Skills Lab. The district's autism process coordinator has heard about the interest in creating a lab and has offered her support in purchasing items and making maintenance requests for repair. To ensure the support of all staff and school personnel, the flier will also be shared with them. Once the lab is functional, the autism department head, the building principal, the district's autism process coordinator, and the district's special education process coordinator will be invited to observe the lab in practice. Time will also be allotted after their observation, allowing them to discuss the lab with the students and the implementers.

After the program has been introduced, the formal measures of data in the form of pre-test and post-test from students and parents/guardians on their ability to complete functional life skills and data tracking from staff using the data sheets will be analyzed. The data will then be presented to the building and district administrators, students, parents/guardians, and staff to encourage and promote additional interest. With the support of the district administrators, the author would consider expanding the Functional Life Skills Lab to other high schools and middle schools within the school district.

### **Description of Program Elements**

The author proposes to launch the Functional Life Skill Lab in three phases. Phase 1 will include curriculum development, procedural manual development, promoting awareness to parents/guardians and autistic high school students at the author's high school, and completing social assessments by parents/guardians and students to determine student eligibility. Figure 4.6 provides additional details regarding the social assessment. Phase 2 will consist of the implementation of the Functional Life Skills Lab and a formal research study to determine the effectiveness of a manualized approach to teaching a life skills curriculum to teach students. Finally, Phase 3 will consist of expanding the Functional Life Skills Lab to other high schools or even middle schools within the author's school district. Activities within Phases 1 & 2 will be addressed for this doctoral project.

During Phase 1, the author will begin to develop the resources for the Functional Life Skills Lab curriculum, which includes a lesson plan, a class presentation, written directions, picture directions, a video model, a picture comprehension sheet, a written

comprehension sheet, picture reflection sheet, written reflection sheet, and a staff data sheet for each of the life skills targeted in the lab. The curriculum will be created to target the learning needs through research-supported methods of direct instruction (Cadette et al., 2016; Flores et al., 2009; Flores et al., 2013; Frampton et al., 2021; Ganz & Flores, 2009; Vidovic, 2021), chunking (Li et al., 2011; McDonald, 2011; Grossberg, 2013), prompting, (Davis et al., 2002; Cihak et al., 2010; Mechling et al., 2008; Taber-Doughty, 2005), positive reinforcement (Baltruschat et al., 2011a; Baltruschat et al., 2011b), visuals such as picture directions or checklists (Banda & Grimmett, 2008; Banda et al., 2009; Lee & Sturmey, 2006), and video models (Cannella-Malone et al., 2011; Cihak, D., 2011; Galligan et al., 2020; Gardner et al., 2019; Wilson, K. 2013).

During Phase 2, the Functional Life Skill Lab will require resources created for the Functional Life Skills Lab curriculum, which includes a lesson plan, a class presentation, written directions, picture directions, a video model, a picture comprehension sheet, a written comprehension sheet, picture reflection sheet, written reflection sheet, and a staff data sheet for each of the life skills targeted in the lab. In addition, students will need access to technology to watch the video model if necessary, materials necessary to complete their life skills, and time built into their schedule to participate in the Functional Life Skills Lab.

### Figure 4.3 Social Assessment

*Description of the social assessment used for the primary and secondary participant groups*

<b>Social Assessment for the Participant Group</b>	<b>Social assessment tool for this participant group</b>	<b>List(s) of questions for each social assessment tool</b>
<p><b>Participant Group 1:</b> The primary participate group is the priority population members, or the high school autistic students participating in the functional life skills lab.</p>	<p>The social assessment tool will be a survey with a Likert scale to rate their ability to complete functional life skills related to specific rooms within a house. In addition to a Likert scale, the survey will have multiple-choice and fill in the blank to determine what areas need to be addressed and how they are impacted by being unable to complete functional life skills. The survey will use an online format that can be completed on their school laptop. To assist the students that struggle with reading, there will be pictures, and the form will have the option to read each question out loud. The students will also have the opportunity to complete the survey with the support of a staff member to ensure understanding of each question.</p>	<ul style="list-style-type: none"> <li>○ How satisfied are you with your ability to complete functional life skills?</li> <li>○ How satisfied are you with the current resources available to learn how to complete functional life skills?</li> <li>○ Are you ready and willing to learn how to complete functional life skills?</li> <li>○ How does completing your functional life skills change your family's routines or impact your family?</li> <li>○ Is there any additional information you would like to share related to your ability to complete functional life skills?</li> <li>○ Likert Rating Scale rating their ability to complete specified functional life skills in the bedroom, kitchen, bathroom, laundry, and garbage/recycling</li> </ul>
<p><b>Participant Group 2:</b> The secondary participant groups are</p>	<p>The social assessment tool will be a survey with a Likert scale to rate their</p>	<ul style="list-style-type: none"> <li>○ How satisfied are you with your child's ability to complete their life skills?</li> </ul>

<p>the parents/guardians of the student participating in the functional life skills lab. They are the experts and will have the most to add to their child's ability to complete functional life skills.</p>	<p>ability to complete functional life skills related to specific rooms within a house. In addition to a Likert scale, the survey will have multiple-choice and fill in the blank to determine what areas need to be addressed and how they are impacted by being unable to complete functional life skills. The social assessment tool will be a survey with a Likert scale to rate their ability to complete functional life skills related to specific rooms within a house. In addition to a Likert scale, the survey will have multiple-choice and fill in the blank to determine what areas need to be addressed and how they are impacted by being unable to complete functional life skills. The survey will use an online format that can be completed on their phone, tablet, or computer. A paper copy will also be sent home to assist those who do not have internet access at home.</p>	<ul style="list-style-type: none"> <li>○ How satisfied are you with the current resources available to teach your child how to complete functional life skills?</li> <li>○ Do you feel your child is ready and willing to learn how to complete functional life skills?</li> <li>○ How would your child's ability to complete functional life skills change your routines or impact you?</li> <li>○ Is there any additional information you would like us to know related to your child's ability to complete functional life skills?</li> <li>○ Likert Scale rating their child's ability to complete specified functional life skills in the bedroom, kitchen, bathroom, laundry, and garbage/recycling</li> </ul>
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**Interventions and Activities**

During Phase 1 of program development, the author will collaborate with the identified circle of advisors who will become the Life Skills Lab Team to ensure the language used will most support the students, paying specific attention to reading levels

and comprehension. The Life Skills Lab Team will consist of the author, an occupational therapist, a speech and language pathologist, and a special education teacher. Finally, the author will create a procedural manual to ensure continuity among the supervisors and maintain faithfulness to the underlying theories.

The Life Skills Lab Curriculum will include a lesson plan, a class presentation, written directions, picture directions, a video model, a picture comprehension sheet, a written comprehension sheet, a picture reflection sheet, a written reflection sheet, and a staff data sheet for each of the life skills targeted in the lab. Details for the targeted life skills are outlined below.

### **1. Bedroom**

- a. Make their bed
- b. Put dirty clothes in the laundry basket
- c. Put clean clothes in the correct drawers
- d. Hang up clean clothes in the closet
- e. Organize and remove clutter
- f. Dust bedroom furniture
- g. Sweep floors

### **2. Kitchen**

- a. Sort and put away groceries (pantry, refrigerator, and freezer)
- b. Identify and throw away expired food
- c. Put dirty dishes in the sink
- d. Wash dishes by hand

- e. Load and start the dishwasher
- f. Put away clean dishes
- g. Sort silverware
- h. Clean countertop

**3. Laundry**

- a. Sort dirty laundry (colors, water temperature, towels, etc.)
- b. Load and start the washing machine
- c. Move clothes from washer to dryer and start
- d. Match socks
- e. Fold shirts
- f. Fold pants
- g. Fold towels
- h. Put clothes on hangers

**4. Bathroom**

- a. Wash their face
- b. Brush their teeth
- c. Wash their hands
- d. Clean the toilet
- e. Clean the sink/countertop
- f. Clean the tub/shower
- g. Clean the mirror
- h. Sweep the floor

- i. Mop the floor

## 5. **Garbage and Recycling**

- a. Sort garbage or recycling (trash, plastic, glass, paper products)
- b. Take out the trash
- c. Recycle items
- d. Clean and sanitize trash and recycling areas

In this phase, the Life Skills Lab Team will work to ensure that the resources created will best support the students. There will not be any formal measurements collected during this phase but will include student and parent surveys to determine which students would be most appropriate to participate in the Functional Life Skill Lab. The surveys will be electronic and use the district's Microsoft Teams platform and data collection method to record the data. Then, the Life Skills Lab Team will look at the survey data to determine which students are ready, willing, and in need of learning to complete life skills.

During Phase 2, the Life Skills Lab Team will implement the interventions created in Phase 1 with the students identified in Phase 1. Prior to implementation, IRB approval or exemption will have to be determined. According to a Federal regulation IRB Review of Research, exemptions can be granted if,

research conducted in established or commonly accepted educational settings, specifically involving normal educational practices that are not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction. This includes most research on

regular and special education instructional strategies, and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods (2018).

Based on this regulation, the Life Skills Lab will likely be granted an exemption as it will involve everyday educational practices that are not likely to adversely impact students' opportunity to learn the required academic content. After collecting the pre-test information from the parents/guardians, the team will determine what students will participate in the Life Skills Lab. A consent form detailing the data collection process will be sent to the parents of the students selected to participate in the lab. In addition, the students selected to participate in the Functional Life Skill Lab will be given an assent form to sign acknowledging their consent to participate in the study. Once the approval has been received, a schedule will be created involving up to 6 students participating in the Life Skills Lab for 90-minute sessions. Students might be excluded from the life skills lab based on their responses or their parents/guardians' responses to the pre-test, scheduling conflicts related to required classes, or off-campus worksite experiences they are already enrolled in.

During Phase 2, The Functional Life Skills Lab team will participate in training and have weekly consulting time to enable them to follow the intervention procedural manual with all participants to ensure the intervention remains faithful to the underlying theories. The intervention procedural manual will assist the Life Skills Lab team to ensure that each student has the necessary materials and proper instruction to facilitate and promote learning. Once assigned a life skills task, an implementer will demonstrate

how to complete all the individual steps of that life skill, utilizing the same method as in the video model, picture directions, or written directions. The student will then be given the direction format that best supports their learning: a video model to play, pause, and rewind as necessary to watch the individual steps, picture directions, or written directions to reference as they complete their task. After the demonstration, the implementer will confirm that the student understands the directions and the steps to their task. The implementer will also ensure the student has gathered all the necessary items to complete their life skill and then permit them to begin their task. As students begin working on life skills, their independence level, and the amount of prompting necessary to complete their life skills will be collected as baseline data. While working in the functional, hands-on life skills lab, students will practice their targeted life skills with real-life items in a structured, safe, and supported environment allowing for prompting and positive reinforcement to promote learning. Prompting and positive reinforcement will be reduced as students demonstrate increased independence when completing their newly learned life skills. As students show an increase in independence, their parents will be notified. The direction format that enables their child's success will be sent home to allow the student to incorporate the newly learned skills into their home routine. For example, once the student learns, a life skill, the directions can be sent home so the parents of the students can incorporate the newly learned skills at home.

Phase 2 will also include formal measures in the form of pre-test and post-test from students and parents/guardians on their ability to complete functional life skills and data tracking from staff using the data sheets created for each life skill.

## **Program Outputs and Outcomes**

The following sections will provide an overview of the Functional Life Skills Lab's intended program outputs. There will be three program outputs that will be measured in number or percentage. The first program output is the number of students participating in the functional life skill lab per semester. The second program output is the number of life skills learned per student. The final output is the number and type of directions sent home. Two short-term outcomes are expected to occur within one month of beginning the intervention process. The first short-term outcome is that students will increase familiarity with items necessary to complete functional life skills. The second short-term outcome is that students will demonstrate an understanding of and an ability to locate items necessary to complete their targeted functional life skills. There will be two intermediate outcomes that will be expected within three months of beginning the intervention. First, the student will demonstrate an understanding of their targeted life skills process. Second, the student will increase the learning of the steps in their targeted functional life skills module. Finally, two long-term outcomes are expected at the end of their semester/school year. First, the student will increase their ability to complete functional life skills. Second, the student will improve postsecondary outcomes involving independent living and employment. The main goals of the curriculum in the Life Skills Lab are to maximize autistic students' occupational engagement, improve health outcomes, and increase overall independence by enabling them to complete their functional life skills. The Life Skills Lab will promote occupational engagement by providing high school autistic students opportunities to increase their overall

independence, provide additional employment opportunities, and prepare them for meaningful participation in everyday life skills. In addition, by learning how to complete functional life skills, our students will have additional opportunities to connect with others in the community through work or volunteering opportunities. This will allow them to engage in their community through meaningful work, which could also provide financial freedom to live independently. Another area of occupational engagement that is encouraged through this initiative is to provide support for family members who have been completing these skills for them or assist family members who need support to complete these skills. In considering Wilcock and Hocking's Occupational Perspective of Health, the functional life skills lab helps promote health by targeting three of the four main components doing, belonging, and becoming (2015). Doing is targeted as students can complete their functional life skills and will have additional opportunities to seek employment in areas that use those skills. Belonging is targeted as students can join the community workforce, volunteer, or help family members by completing functional life skills. Finally, becoming can be targeted as learning life skills can help students become employed, independent, or beneficial to others needing assistance with their life skills.

Overall, the desired outcomes of the Functional Life Skills lab are (1) an increase in self-reported abilities to complete life skills by the students, (2) an increase in parent-reported child's ability to complete life skills, and (3) improve student's post-secondary outcomes involving independent living and employment.

### **Anticipated Barriers and Challenges**

The Functional Life Skills Lab aims to provide an optimal learning environment

and experience for autistic students to acquire life skills. Even though every precaution can be taken in advance to mediate anticipated barriers, unexpected situations or challenges that will prohibit learning can occur. Some practical issues that could interfere with data collection include unforeseen student absences or days off due to inclement weather, student illness, or student moving out of the district. In addition, there could be distractions or interruptions to the intervention, such as a fire drill, an unforeseen person entering the life skills lab, or an announcement on the school intercom system. If possible, the implementer will need to stop the stopwatch, which measures the student's time on a life skills activity, and resume the time when the student is back at their assigned location and ready to work. The implementer will also make a note of the distraction. If the student cannot finish their life skills activity for whatever reason, a note will be put on the data for that day explaining the cause of the interruption. Even with weekly training and consultation among the implementers, there could still be a lack of continuity among those teaching the life skills. In order to account for different results from different implementers, they could vary who will teach each group of students monthly. Finally, even with the surveys and flyers sent home to elicit buy-in from parents and encourage practicing life skills at home, students could still struggle with their life skills in their home environment.

### **Summary and Conclusions**

The author's proposed intervention creates a Functional Life Skills Lab curriculum and procedural manual enabling autistic students to learn how to complete functional life skills. The curriculum development will include research-supported

methods and strategies that address autistic students' executive functioning and motor deficits while promoting learning through a safe, nurturing environment. This initiative also promotes health by assisting high school students and their families in realizing their aspirations for independence and possible employment, satisfying their needs for independence, and adapting to changes in their needs as they transition from high school. The functional life skills lab will promote health and wellness by increasing the students' overall independence creating opportunities for independent living, providing additional employment opportunities, and preparing them for meaningful participation in their everyday life skills. As the students learn functional life skills, they can immediately be utilized in the individual's environment. The directions that enable the students to be successful will be provided to their families for them to practice their newly learned skills at home to encourage generalization across environments. These life skills can also be beneficial when seeking employment. For example, students who know how to fold laundry, vacuum, clean surfaces, etc., can utilize their skills learned to seek jobs in the hotel industry, office buildings, schools, a maid service, or a dry-cleaning facility. As students gain employment, they can contribute financially to further their independence or aid in their family's living situations.

The educators and learners will be working in a functional life skills lab. This life skills lab will include a curriculum that will assist in educating and preparing autistic students transitioning out of high school for meaningful participation in their daily activities. To accomplish this, the life skills lab will be a hands-on intervention program that will provide opportunities for students to improve their independence by preparing

them for meaningful participation in everyday life skills.

To assist an autistic student's goal of independent living, a team of individuals can help teach daily living skills in a Functional Life Skills Lab. Utilizing a manualized approach supported by research incorporating interventions that account for executive functioning and motor skills deficits will promote learning. Gaining support from students, staff, parents/guardians, and school administrations will encourage and enable learning. Using previous experience and current knowledge to mitigate potential barriers and challenges will further promote a thriving learning environment.

## **CHAPTER FIVE – Program Evaluation Research Plan**

### **Introduction**

The Functional Life Skills Lab is an educational intervention program designed to improve the performance of high school students with autism to complete their functional life skills. The program will provide hands-on training with real-world materials, detailed instructions for each task, and use proven methods to promote learning. In addition, the Functional Life Skills Lab team will follow the intervention procedural manual to guarantee continuity amongst all staff. The Functional Life Skills Lab program will occur in three phases. Phase 1 will include curriculum development, procedural manual development, promoting awareness to parents/guardians and autistic high school students at the author's high school, and completing social assessments by parents/guardians and students to determine student eligibility. Phase 2 will consist of the implementation of the Functional Life Skills Lab and a formal research study to evaluate the effectiveness of a manualized approach to teaching a life skills curriculum to teach students. Finally, Phase 3 will consist of possibly expanding the Functional Life Skills Lab to other high schools or even middle schools within the author's school district.

### **Intended Users of the Program Evaluation Research**

When considering who will benefit the most from the life skills lab, it is easy to identify the primary stakeholders as the high school students participating in the functional life skills lab and their parents/guardians. Additional stakeholders include staff working with the life skills lab: the occupational therapist, speech and language pathologist, special education teachers, autism department head, ABA implementers, the

principal in the building where the life skills lab will be developed, and our district's Autism Process Coordinator. All of these individuals will be interested in the results of the program evaluation research to determine the appropriateness of further implementation and expansion of the Functional Life Skills Lab.

### **Vision for the Program Evaluation Research**

In the short term, the program's evaluation research findings will demonstrate the extent to which using various direction formats, positive and negative reinforcement, and breaking learning into smaller steps through task analysis, results in acquiring a new skill. As students begin working on a life skill, the number of steps they can complete will be recorded as baseline data. The implementers will also record the prompting necessary to complete their life skills. The time it took to complete each task will also be collected as baseline data. While working in the functional, hands-on life skills lab, students will practice their targeted life skills with real-life items in a structured, safe, and supported environment. Prompting and positive reinforcement will be provided to promote learning. The short-term vision is that prompting and positive reinforcement will be reduced as students demonstrate increased independence when completing their newly learned life skills.

The ability to complete functional life skills is necessary for independent living. Being unable to complete life skills impacts our student's ability to live independently. They will need someone to perform these skills, limiting our students to living in a group home, an assisted living facility, or with their families after graduation. With the necessary life skills acquired as a result of participation in the Functional Life Skills Lab

and noted in the program evaluation research, our students can improve their overall independence. As the students learn functional life skills, they can immediately be utilized in that individual's home environment. The directions that enable the students to be successful will be provided to their families for them to practice their newly learned skills at home to encourage generalization across environments.

These life skills can also be beneficial when seeking employment. The findings from the program evaluation can be used to help direct a student toward an employment opportunity. By demonstrating the ability to complete life skills, they might have access to additional opportunities for meaningful participation in their daily activities and potential employment opportunities. For example, employment opportunities could be available for students who know how to fold laundry, vacuum, clean surfaces, etc. The students can utilize their skills learned in the Functional Life Skills Lab to seek jobs in the hotel industry, office buildings, schools, a maid service, or a dry-cleaning facility. As students gain employment, they can contribute financially to further their independence in their family's living situations.

### **Engagement of Stakeholders**

Stakeholder engagement will vary based on each stakeholder's interests, involvement, and needs associated with the life skills lab. The high school students with autism and their parents/guardians are the primary intended users of the Functional Life Skills Lab. They will be asked to provide feedback on their experience with the life skills lab as part of the qualitative data collection for the evaluation of the program.

Other key stakeholders in the program will be those related to making the

program available and sustainable. This will include the team of individuals responsible for ensuring the intervention follows the protocol created for the program and collecting the data for the program evaluation research which includes an occupational therapist, speech and language pathologist, and special education teachers. This team of individuals will work together to implement the life skills interventions. They will be interested in demonstrating that the Functional Life Skills Lab is relevant to the needs of the students receiving special education services in the high school setting. To do so, the program evaluation research must demonstrate that participation in the lab supplements students' goals and improves possible outcomes related to their transition needs per the IEPs.

Additional stakeholders are the school district's autism process coordinator and the district's special education process coordinator. If the program evaluation research demonstrates positive outcomes, it may then be considered to discuss with the district's administration and other building principals recreating additional life skills labs around the district for transition-aged autistic students. For the program to be sustainable, it must demonstrate its usefulness to the coordinators in increasing students' ability to learn to complete life skills through participation in the Functional Life Skills Lab based on observations and data collection. Table 5.1 provides additional information on the involvement, roles, and specific interests of the stakeholder or group of stakeholders.

**Table 5.1***Matrix for Organizing Stakeholder Information*

<b>Stakeholder or Stakeholder Group</b>	<b>Type of Involvement</b>	<b>Possible Role(s)</b>	<b>Specific Interests</b>
Researcher	Planning, implementing, reflecting	Overseeing and coordinating logistics	Successful implementation, usable data, evaluation questions answered
Primary intended users: autistic high school-aged students and their parents/guardians	Reflecting	Participation in the life skills lab	Experience of success, increase in independence
People involved in program delivery: occupational therapists, speech and language pathologists, and special education teachers	Planning, implementing, reflecting	Administering program activities and data collection	Design rigor and robust outcomes, successful implementation, satisfaction
Administration and Funding: building principal, autism process coordinator, special education process coordinator	Reflecting	Consultation on methodology, analysis, and possible reproduction in additional settings	Design rigor and robust outcomes

**Strategies of Engagement**

To engage all stakeholders, meetings will be held to promote an understanding of the life skills curriculum and the need for a hands-on life skills lab. The meetings will be both in-person and virtual. The background information and supporting documentation that needs to be included before and during these meetings will consist of the author's logic model, evidenced-based research demonstrating the importance of functional life skills, an evidenced-based study showing individuals with autism lack functional life

skills compared to their same-aged peers, and the negative implications of not being able to complete their functional life skills independently. An explanation of the quantitative evaluation methods that will evaluate the effectiveness of the life skills lab will be provided to the stakeholders. Additionally, a description of the evaluation methods for qualitative data that will determine their perceptions of the life skills lab based on the participants and their parents/guardians will also be provided to the stakeholders.

Additional data must be shared with all stakeholders to encourage buy-in to create a Functional Life Skills Lab with a life skills curriculum and encourage participation in the lab. First it would be essential to provide data demonstrating that students with developmental disabilities, specifically students with autism, continually fall behind in learning their life skills compared to their same-age peers. Then explain how not addressing life skills negatively impacts our students' overall independence. Without the necessary life skills, our students will struggle with their overall independence, and others might miss out on opportunities for meaningful participation in their daily activities. Finally, explaining that the ability to complete functional life skills is necessary for independent living will help to demonstrate further the importance of creating a life skills curriculum/lab.

There has already been buy-in from the speech and language pathologist, autism department head, and principal in the building where the author works. As a result, a space has been assigned to create a life skills lab. In addition, the district's autism process coordinator has heard about our interest in creating a life skills lab and has already offered her support in purchasing items and making maintenance requests for repairs.

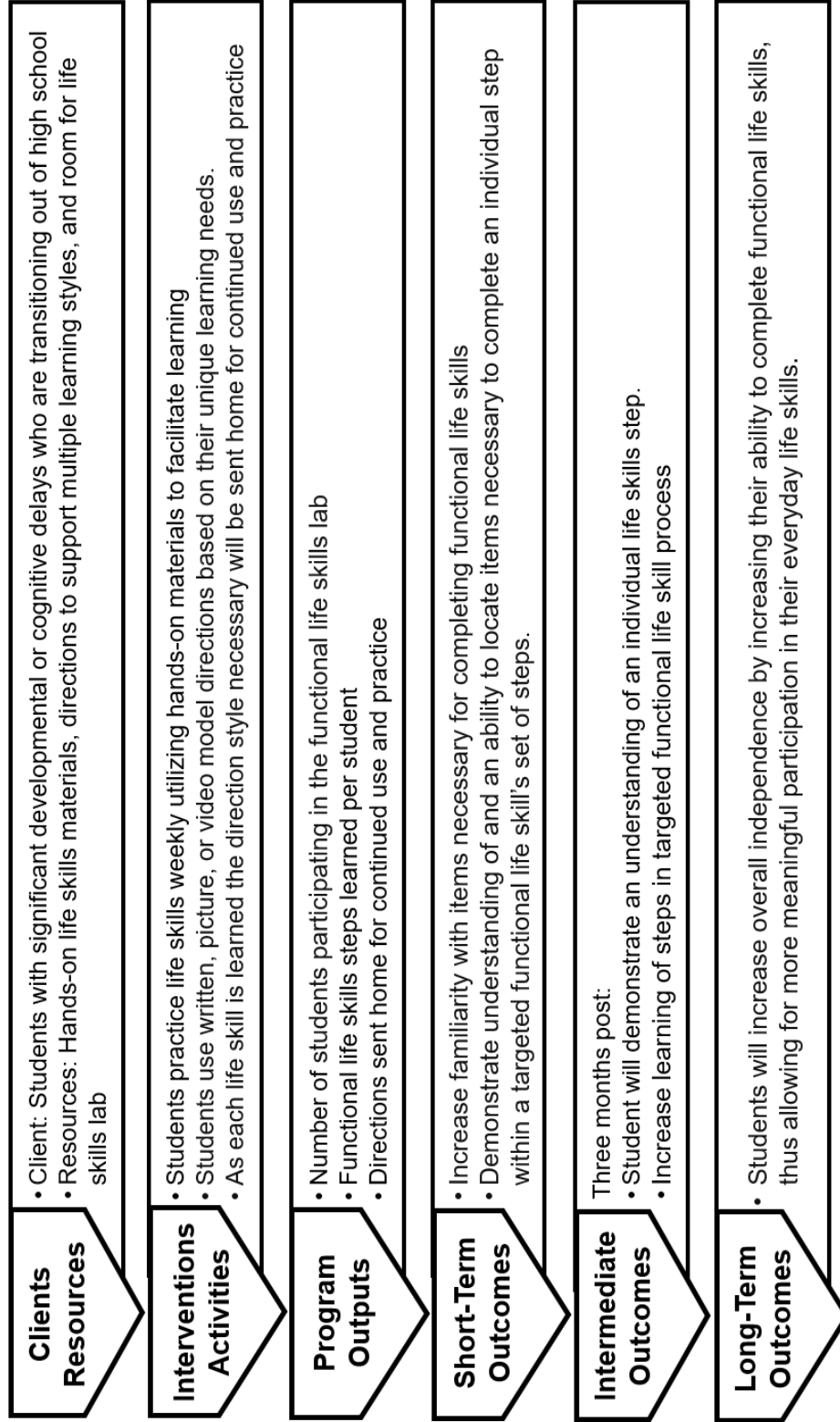
Once the Functional Life Skills Lab becomes functional, feedback from the various stakeholders would be gathered. The administrators would benefit from being immersed in the life skills lab to demonstrate the functionality and usefulness of the hands-on Functional Life Skills Lab. They could see, touch, and experience the lab as the students would during their regular school day and share their thoughts. After observing the students participate in the lab, time will be allotted to encourage discussion with the students to hear from them what they perceive to be beneficial about the Functional Life Skills Lab. Changes could then be made with the lab itself.

### **Simplified Logic Model**

The stakeholders will receive a simplified version of the logic model for designing the Functional Life Skills Lab. The logic model will assist the stakeholders in understanding the learning process in the Functional Life Skills Lab and how it could benefit the students we serve in both the short and long term. In addition, the model identifies the outcomes that will be measurable based on the desired results of the Functional Life Skills Lab. Figure 5.2 is the simplified logic model for the stakeholders.

**Figure 5.1**

*Simplified logic model for the Functional Life Skills Lab Interventions*



### **Preliminary Exploration and Confirmatory Process**

The author will obtain support from the stakeholders during data collection and meetings with the different groups of stakeholders. Information gathered during the data collection will be relevant to the stakeholders' interests and include summative and formative questions. Table 5.2 below contains a list of potential questions that will interest the stakeholders and will be answered through informal observations, open-ended survey questions, and semi-structured interviews. The stakeholders have been grouped into four categories: (1) the primary researcher, who is the author and an occupational therapist, (2) the program's participants, who are the primary stakeholders and their parents, (3) people involved in program delivery of the program which includes an occupational therapists, speech and language pathologists, and special education teachers, and (4) additional stakeholders are the administration who include building principal, autism process coordinator, and special education process coordinator. While in the stakeholder's meeting, it will be essential to encourage consensus by reminding all participants that we are all working collaboratively to ensure the betterment of our students. As long as we all share the same goal of improving the students' independence, we should remain positive and encourage each other to use our unique skill sets to make the program as successful as possible.

**Table 5.2***Stakeholder List with Proposed Program Evaluation Questions*

<b>Stakeholder or Stakeholder Group</b>	<b>Types of Program Evaluation Research Questions</b>
The researcher	<p><b>Summative</b></p> <ul style="list-style-type: none"> <li>● Will the parents/guardians report increase independence in their child’s ability to complete functional life skills at home?</li> <li>● Will the parents/guardians be satisfied with their child’s outcome after they finish the program?</li> <li>● Will the students report an increase in their sense of confidence after participating in the life skills lab?</li> <li>● Will the students report increased independence after participating in the life skills lab?</li> </ul> <p><b>Formative</b></p> <ul style="list-style-type: none"> <li>● Were the multiple directions for each task too easy or too complicated?</li> <li>● Was the structure of the life skills lab and multiple delivery options for directions of each task sufficient for the students to understand and complete each task?</li> <li>● Was the implementation delivered at an optimal pace?</li> <li>● Was the program duration adequate, or should it be shorter or longer?</li> </ul>
Primary intended users: students and their parents.	<p><b>Summative</b></p> <ul style="list-style-type: none"> <li>● Will the students be able to actively participate or complete their functional life skills after participating in the program?</li> <li>● Will the students participating in the life skills lab report increase confidence and independence when completing functional life skills?</li> <li>● Will the parents/guardians report increase independence in their child’s ability to complete functional life skills at home?</li> </ul> <p><b>Formative</b></p> <ul style="list-style-type: none"> <li>● Are there any elements of the life skills lab that you would change to improve learning?</li> </ul>
People involved in program	<p><b>Summative</b></p>

<p>delivery: occupational therapists, speech and language pathologists, and special education teachers</p>	<ul style="list-style-type: none"> <li>● Were the students able to transfer knowledge of their life skills taught throughout the program to an alternate location (home or work)?</li> </ul> <p><b>Formative</b></p> <ul style="list-style-type: none"> <li>● Were some aspects of the program more versus less valuable or practical?</li> <li>● Is there anything that should be changed to improve program content or delivery?</li> <li>● What other key issues or problems were not addressed by participants in the program?</li> <li>● Does the structure of the program meet the program's goals?</li> <li>● Were the multiple directions utilized to teach each task-relevant and conducive to learning?</li> </ul>
<p>Administration and Funding: building principal, autism process coordinator, special education process coordinator</p>	<p><b>Summative</b></p> <ul style="list-style-type: none"> <li>● Does the program's outcomes support the continued implementation of the life skills lab?</li> <li>● Based on the program's outcomes, should the life skills lab be replicated in other buildings?</li> <li>● To what extent has the student's participation in the life skills lab led to an increase in their abilities to independently complete functional life skill activities at home or possibly at a place of employment?</li> </ul>

### Research Question

The research question for this single-subject multiple baseline design is: Will students with developmental or cognitive delays be able to independently complete more functional life skills more quickly following participation in the Functional Life Skills Lab as measured by the number of independently completion of steps of a life skill and the amount of time necessary to complete the specified life skill? A follow-up question would be whether the new ability to complete a functional life skill translates to increased independence in the home environment.

## **Research Design**

The study will be a single-subject multiple baseline design with additional qualitative measures. The quantitative data will be collected through repeated weekly measurements of the dependent variables of the number of steps that they can complete in a life skill task and the time needed to complete the life skill task. The repeated measurement of the dependent measures will allow the team to determine the amount of change and any theoretical associations between the life skills lab's key components and the observed outcomes (Thyer, 2012). The qualitative data will be collected through semi-structured interviews of the students following their participation in the life skills lab. Additional qualitative data will include a rating scale sent to parents/guardians to determine overall satisfaction with learning and comfortability with the life skills taught and changes in independence in life skills at home. Their responses to the interviews and rating scale will provide feedback detailing their perceptions of the program's usefulness in increasing independence in completing or participating in their functional life skills.

## **Methods**

Before the life skills lab initiation, IRB approval or exemption will have to be determined. After collecting the pre-test information from the parents/guardians, the team will determine what students will participate in the Life Skills Lab. A consent form from parents and a student assent form must be signed to participate in the Functional Life Skills Lab. Confidentiality will be ensured by using codes identifying the parents/guardians for the parent surveys. The only person who will have access to the corresponding code-to-interviewee will be the researcher. That information will be

publicly inaccessible and locked in a secured location. The research team will not use their identifiable information when storing data on staff input. The report will only be separated based on profession (OT, SLP, and special ed teacher), which will not be linked to the students participating in the life skills lab. All information on the computer will be locked, requiring a code to open the data file. The computer and the file cabinet that will house the paper surveys and data sheets will always be stored in a locked office.

### **Setting**

The Functional Life Skills Lab will be created in an urban high school. It will be set up in a large classroom with multiple areas to resemble a home environment, including a full kitchen, an area set up to resemble a bedroom, a laundry area, and a half bathroom (there is not a tub or shower). The functional life skills lab will have real-life materials paired with a multi-modal direction format targeting multiple learning styles.

### **Study Participants**

The students chosen to participate in the single-study design will have similar levels of cognition and physical abilities and be enrolled in the autism program of the high school with the functional life skills lab. They also must be recommended at their IEP meeting because they are struggling or unable to complete their functional life skills, as reported by parents, staff, or the student. For students to participate in this study, they must meet three criteria. First, they must be enrolled in the autism program at the author's high school. The Functional Life Skills Lab will be created in the high school where the author works. As such, the students must be enrolled there to participate. Secondly,

students must have an IQ score of 70 or higher. Finally, based on parent and student surveys, the students are identified as struggling to complete or unable to complete their functional life skills yet are interested in learning how to complete them. Students may be excluded from the study based on their parents'/guardians' responses. For example, if the student is uninterested in completing life skills or the parents feel there is no need for their child to learn how to complete them. Students will also be excluded if they have a scheduling conflict related to required classes for graduation purposes or off-campus worksite experiences they are already enrolled in, which would prevent them from full participation in the lab. For purposes of this study, students with a behavior intervention plan would also be excluded so potential interfering behaviors would not skew results. The first three students to meet the inclusion and exclusion criteria will be selected to participate in the study.

### **Independent Variable and Measurement**

The intervention involves teaching various functional life skills via the Functional Life Skills Lab and its associated curriculum. The curriculum will be composed of different content areas focusing on specific requirements for independent living within different rooms within a home. For example, in a kitchen, one would need to know how to wash dishes, put away dishes, sort silverware, identify then dispose of expired food, put away groceries properly, etc. Students selected to participate in the life skills lab and whose parents/guardians agreed to allow them to participate in the functional life skills lab will be added to a life skills lab schedule. They will participate in the life skills lab twice weekly for one-hour sessions over six weeks. The team of implementers will

include an occupational therapist, a speech and language pathologist, and a special education teacher, all knowledgeable of the life skills lab's design and interventions. Students will be taught different modules or life skills that make up the curriculum of the life skills lab (i.e., sorting clothes, doing laundry, folding towels/clothes, cleaning surfaces, vacuuming, loading the dishwasher, sorting silverware, washing hands or face, brushing teeth, etc.). Task analysis will aid in identifying the most basic steps of each task. Using real-life examples, directions consisting of video models, picture format, and written will be created to target various learning styles. Each student will participate in baseline measurement to determine their level of independence in a designated life skill before participating in the life skill lab intervention. Once they have successfully completed all of the modules, their set task directions will be sent home to their parents or guardians for continued practice at home.

All materials necessary for the targeted life skill will be set up in the student's workspace. Then, an implementer will demonstrate how to complete all the individual steps of the life skill, utilizing the same method as the video model. The student will next be given the direction format that will best support their learning, either a video model to play, pause, and rewind as necessary to watch the individual steps, picture directions, or written directions to reference as they complete their task. After the demonstration, the implementer will confirm that the student understands the directions and that they are ready to begin their task. Once the student confirms they are ready to work on their task, the implementer will start the stopwatch and monitor as the student works on completing each step, recording if they can perform each step. Once the student completes or

attempts all the steps of the life skill task or indicates they do not know how to proceed, the implementer will stop the stopwatch and record the time necessary to complete the task. If the student can complete the life skill using the direction format provided, the implementer will record the data and stop the trial for that session. However, if the student cannot complete all the steps in the life skills task, the implementer will demonstrate a second time how to complete the individual steps of the life skill and allow the student to reattempt their life skills task. During this second attempt, the student will be prompted to check their directions if they are not accurately completing an individual step of the life skill. After the second attempt, the implementer will again stop the stopwatch and record the data once the student has completed or attempted all the steps of the life skill task or indicates they do not know how to proceed. Regardless of the accuracy in completing the life skill task on the second attempt, the implementer will stop the trial for this session, wait for the next session before providing another demonstration, and have the student attempt the life skill task another time.

To establish internal validity, the life skills lab team will create a procedural manual to describe the procedure that will be followed during an intervention. This manual will explain in detail the setup for the materials in the life skills area, the demonstration of the life skill, the process for determining the direction format for each student, the level of prompting to be given to the student, the positive and negative reinforcement options, etc. The team of implementers will follow the manual to ensure all students receive the same interventions to produce change. The internal validity should not be affected by maturation because the study will occur over only six weeks. However,

a student's ability to complete functional life skills could be affected by their history if they experience a traumatic family event such as losing a loved one, specifically a caregiver. Multiple students in our program have experienced loss or seen a change in their primary caregiver, especially during COVID. If this were to happen with a student selected to participate in the life skills lab single-study research design, the implementers would note the student's history and potentially need to exclude them from the continued study.

### **Dependent Variables and Measurements**

The dependent variables will be measured by the trained life skills lab team of implementers as they compare the student's ability to complete a functional life skill at baseline before participating in the life skills lab intervention and weekly while participating in the Functional Life Skill Lab. The intervention phases will take place over six consecutive weeks. Following a manualized method of the life skills lab intervention process, the occupational therapist will provide the life skills lab intervention twice weekly. The acquisition of a new skill will be measured by comparing the number of steps completed and the time necessary to complete the specified life skill in both the baseline and the intervention phases.

Two dependent variables will measure the change in the student's ability to complete their assigned functional life skill. The first dependent variable will be the number of steps a participant can complete for each life skill. Each functional life skill will be broken down into the most basic steps, allowing us to measure the number of steps the student can complete independently before and after the intervention. For

example, it may take six steps to fold a t-shirt. Before the intervention, the student can complete 1 out of 6 steps independently. After the intervention, they may complete 4 out of 6, and with continued practice, they could master folding a t-shirt. To measure the number of steps completed in each task, the implementers will record if the student can perform/complete each step in the specified life skill versus being unable to perform/complete each step in the targeted life skill every week. The number of steps completed out of the total number of steps for the specified task will be turned into a percentage of steps completed for that specific life skill task to remain consistent among all life skill modules regardless of the number of steps in each module.

The second dependent variable will measure the time needed to complete their functional life skill. At first, the student may take 20 minutes to complete their task, and over time they will become more proficient, as demonstrated by a decreased amount of time needed to complete the task. The time it takes to complete the specified life skill will be measured using a stopwatch that will start after an implementer has demonstrated how to complete that particular life skill. Based on the student's learning needs, they will have access to either a video model that they could play, pause, and rewind as necessary to watch the individual steps as they complete them, picture directions, or written directions to reference as they complete their task. The stopwatch will be stopped when the student finishes the life skill task or indicates they are unsure how to complete their task. The amount of time it takes to complete the life skill will be charted.

**Timing**

The timing of multiple baselines with intervention has three participants starting the intervention phase at different times. The single-subject design will run for six consecutive weeks, with students attending the Life Skills Lab twice weekly. Participant 1 collects baseline data in the first session of Week 1 and begins the Functional Life Skills Lab intervention in the first session of Week 2. Participant 2 collects baseline data in both sessions of Week 1 and the first session of Week 2 and then begins the Functional Life Skills Lab intervention in the first session of Week 2. Participant 3 collects baseline data in both sessions of Weeks 1 and 2 and then begins the Functional Life Skills Lab intervention in the first session of Week 3. During their hour in the life skills lab, they will at least attempt their life skill once, with a max of two attempts per session. The team will gather 3-8 data points for the baseline data phase and 8-12 data points for the intervention phase. During the baseline phase, staff will collect information on the participants' current knowledge and ability to complete functional life skills by measuring the number of steps they can complete. Additionally, qualitative measures will be gathered by analyzing the differences using a paired sample *t*-test on the parent/guardian and student responses for the Likert rating scale pre-test and post-test surveys.

**Additional Measurements of Progress**

To evaluate how well the students could transfer their skills from the life skills lab to their home environment and measure their overall satisfaction with the lab and their ability to complete functional life skills, the team will administer a student interview and

parent/guardian survey. The trained staff operating the life skills lab will conduct semi-structured interviews with the students in each life skills class to gather information related to the student's opinions on the direction format provided, their satisfaction with the learning style offered in the life skills lab, and their overall satisfaction with participating in the life skills lab. The questions will consist of open-ended questions allowing for limitless feedback. In addition, they will administer a rating scale to the parents/guardians to determine overall satisfaction with learning and comfortability with the life skills taught. The parent surveys will consist of a Likert rating scale using a 5-point scale to assess their overall satisfaction with their child's participation in the life skills lab. Their responses to the interviews and surveys will provide feedback or suggestions about how to improve the life skills lab.

### **Approach to Data Analysis**

Regarding the data collected from the multiple baseline study, each student's data will be collected and graphed to determine if a change can be observed within the data. The graphs will first be analyzed visually to see if an observable change occurred between the baseline and intervention phases. Then the data will be analyzed using C and Z statistics to determine if there was a significant trend in the baseline and intervention phases. Finally, a celeration line will be generated to determine the slope of the line in both the baseline and intervention phases. If there is a clear difference in the slope of the baseline data and the intervention data, then the data will be compared with the trends of the C and Z statistics.

The semi-structured interviews with students will be recorded through Zoom to assist with transcription. This information will be processed with NVivo to assist in analyzing the transcripts and identifying themes amongst responses. Parents'/guardians' surveys will be measured using a 5-point Likert scale and compared at the conclusion of their involvement with the lab. Additional therapists will analyze the data to ensure the rigor of the analysis.

### **Anticipated Strengths and Limitations**

The biggest strength of the Functional Life Skills Lab is the research used to create the Functional Life Skills Lab curriculum. An extensive amount of research supports the deficits autistic individuals have in their life skills, executive functioning skills, and motor skills. There is also a wealth of research on the practices and strategies that best support learning in autistic individuals. Interestingly some of the best learning methods for autistic individuals align with the research-driven practices to best support deficits in executive functioning and motor skills. In addition, the guiding theories, the Acquisitional Frame of Reference, and the Cognitive Theory of Multimedia Learning have considerable current research supporting both theories' use and methodology.

The most significant limitation is that the participants selected for the program's evaluation are limited to students attending the author's high school. Those students are typically African American males aged 15–21. In addition, several factors could interfere with the study results within a school-based setting. The first factor is student attendance. A student could be sick, have a family emergency, or move out of the district, impacting the study results. A second factor specific to a school setting is school-related

cancelations. Classes could be canceled for reasons such as a school assembly, standardized testing, emergency drills, or even canceling an entire school day for weather-related concerns. All of these could also negatively impact the evaluation process. Another limitation that could affect the program's evaluation is the potential for bias. The program's author and the Life Skills Lab Team are invested in the program's success and will need to put safeguards in place to reduce the influence of bias. Other professionals within the district will review and analyze the data to reduce the possibility of bias and enhance the accuracy of the analysis.

## CHAPTER SIX – Dissemination Plan

### Summary

Individuals with autism struggle to learn functional life skills, hindering their ability to live independently and potentially eliminating different job prospects. Their difficulties with learning functional life skills can be attributed to their challenges with executive functioning skills and motor deficiencies. To best support learning in autistic students, evidence-based practices that utilize proven interventions to teach motor and executive functioning skills have been incorporated into the development of the Functional Life Skills Lab and curriculum.

### Dissemination Goals

The author hopes to accomplish two long-term and two short-term goals by disseminating the Functional Life Skills Lab Curriculum results and implementing the Functional Life Skills Lab. Both long-term and short-term goals can be seen in Table 6.1.

**Table 6.1**

*Long-term and Short-term Goals*

Long-term Goals:	Short-term Goals:
1. Due to the successful outcomes of the Functional Life Skills Lab, the author's high school administration will continue to offer the Functional Life Skills Lab as an elective for high school autistic students.	Based on the successful outcomes of the Functional Life Skills Lab the author will compose a presentation for the stakeholders that demonstrates the outcomes and benefits of the Functional Life Skills Lab. <ul style="list-style-type: none"> <li>○ Compare the pre and post-tests of the parents, the students, and the staff to determine the amount of change in independence, confidence, and learned skills</li> </ul>

	<ul style="list-style-type: none"> <li>○ Compile shared experiences from parents, students, and staff regarding the outcomes of the lab.</li> </ul>
2. Due to the success reported by staff, the author's school district administration will implement the Functional Life Skills Lab in other high schools with an extensive special education population.	As the district decides to open additional Functional Life Skills Labs, the author will assist in training and demonstrating the method of the Functional Life Skills Lab to the staff at the school where the new Functional Life Skills Lab will be.

### **Target Audience**

The primary stakeholders of the Functional Life Skills Lab are high school-aged autistic students and their parents or guardians. This group of individuals is directly impacted by their participation in the Functional Life Skills Lab, and their gains will help determine the program's overall success. The secondary stakeholders' holders are the individuals involved in the program's implementation: the author and occupational therapist, a speech and language pathologist, and a special education teacher. The tertiary stakeholders are the building and district administration, some of whom supported the creation of the Functional Life Skills Lab, and additional administrators who may want to implement a Functional Life Skills Lab in their building. Regarding the dissemination report, the tertiary stakeholders become the primary target audience, and the primary stakeholders become the secondary target audience. It is most important to demonstrate the effectiveness of the Functional Life Skills Lab to the building and district administration as they are the individuals who can add the Functional Life Skills Lab to the curriculum as an elective class. The secondary target audience comprises autistic high school students and their parents/guardians. Once the administration agrees to offer the

Functional Life Skills Lab as an elective, autistic high school students or their parents need to sign up for the class.

### **Key Messages of the Dissemination**

Each target audience will have different areas of interest that must be addressed.

The messages are written to address those other interests.

#### *Key Message for Autistic Students*

Are you ready for what awaits you after high school? Do you feel prepared to live independently? Can you make your bed, clean your room, do the laundry, make food, wash the dishes, or even go grocery shopping? These are some of the skills you need to have to live independently. Knowing how to do these skills can also help you get a job or help out your family. If you want to learn how to do these skills and many more, add the Functional Life Skills Lab class to your class schedule. The Functional Life Skills Lab class teaches you to care for your home or apartment.

#### *Key Message for Parents and Guardians of Autistic Students*

Do you feel your student is ready for what awaits them after high school, or do you want them to help out more around the house? Do you think your student is prepared and able to live independently? Can they make your bed, clean their room, do the laundry, make their food, clean the dishes, or even go grocery shopping? These are some of the skills they will need to live on their own. Knowing how to do these skills can also help them get a job or help out their family. If you want them to learn how to complete these skills and many more,

you need to add the Functional Life Skills Lab class to their class schedule. The Functional Life Skills Lab class will teach them to care for their home or apartment in a structured, supportive environment focusing on their unique learning styles. To ensure they can successfully transfer their newly learned skills to their home environment, written, picture, or video directions will be given to the student to help them practice their skills at home.

*Key Message for Occupational Therapists, Speech and Language Pathologists, Special Education Teachers, and Administrators*

We are preparing our students for life after high school, which is challenging. We constantly wonder if we have done enough to prepare them for employment and living independently. Our autistic students are graduating from high school and lack the skills necessary for independent living. The Functional Life Skills Lab provides a manualized curriculum driven by current evidence-based practices that support the learning of autistic students. Utilizing the Functional Life Skills Lab to provide education and interventions will also meet the need to support our special education students with their transition services as required by IDEA 2014.

**Dissemination Sources and Messengers**

To disseminate the findings to the stakeholders, it will be essential to compose a report with the data comparing the pre and post-tests of the parents, the students, and the staff to determine the amount of change in independence, confidence, and learned skills. The data should be easy to understand, with a bar graph used to compare the pre and

post-test results to demonstrate the growth or change in an easy-to-understand visible format. This data could be prepared for a broad audience: the students and their parents or guardians, the team of implementors, and the building or district administrators. This information could justify the creation of additional life skills labs within the district. In addition to the mentioned data report, when targeting the administrators within the school district, it would be essential to include a compelling statement explaining how the increase in independence has created opportunities for the students in the area of employment and independent living that, without the life skills lab they would not have had a chance to explore. This information would justify the district's need to create additional life skills labs.

For each stakeholder group identified in tables 6.2-6.4, key spokespersons who will best assist in presenting the necessary information to the stakeholder group will be identified. The author and creator of the program will be the primary spokesperson for all groups to share her knowledge and expertise of available support the Functional Life Skills Lab offers. A presentation will provide the data demonstrating the change in their ability to complete life skills and the time it takes them to complete the life skill. That change can be shown through data collected by staff as well as the pre-and post-tests that would have been submitted from the students and their parents or guardians.

Communication with students, parents, and caregivers is essential to disseminating the program's results. The author will collaborate with students and parents or guardians of students who have completed the Functional Life Skills Lab and are willing to share their experience through a quick email or short video call that can be recorded through Zoom.

Their emails or videos will be shared during the author's presentation.

When presenting the information to the primary target audience, both building and district administration, it would be beneficial to use the entire presentation and have the team of implementers present to answer questions and provide clarification on their way to enhance the current practices and make service provision easier and more evidence-driven using the Functional Life Skills Lab curriculum and methods.

When disseminating information to new prospective students, it would be beneficial to use a simplified presentation and have some of the students who have participated in the Functional Life Skills Lab can also be present to answer any questions and talk to the prospective students to encourage their participation in the Functional Life Skills Lab. The students who participated in the Functional Life Skills Lab could discuss their daily routines in the lab and their likes and dislikes in the class.

When presenting the information to the parents and guardians of potential students, it would be beneficial to use the entire presentation and have the team of implementers present to answer questions and provide clarification on how to enhance the program for their prospective students.

### **Dissemination Activities**

To disseminate this information, it would be necessary first to provide it to the building and district administration. With their approval, the Functional Life Skills Lab could continue to be offered as a class for students within the autism department. Then again, with permission, the author could email the parents and guardians of students within the autism department and provide them with an informational brochure regarding

the effectiveness of the Functional Life Skills Lab. There could be an in-person or virtual meeting with interested parents where the full presentation could be shared. Finally, disseminating the information to the students could be done in person during a scheduled during their breakfast morning meeting with the students within the autism department. The meeting would have to be brief, lasting only about 15–20 minutes, enabling them to get to class on time.

### **Budget for the Dissemination**

The author will volunteer her time to create the presentation and share it with the spokespeople. Because the people and staff necessary for the meetings will already be paid for their work within the district, they will not need to pay an additional fee for their services. Any printing necessary can be done within the district at no additional cost. The virtual meeting for the parents or guardians could be held when staff is already in the building to avoid working extra hours, like parent-teacher conference nights. Any materials can be made into a PDF for emailing or printing using the resources provided by the district at no additional cost. Table 6.2 represents the cost associated with each of the activities to disseminate the findings.

**Table 6.2***Dissemination Activities and Costs*

Category	Activity	Target Audience	Year 1 Cost	Year 2 Cost
Presentation creation	<ul style="list-style-type: none"> <li>gathering parent/guardian, student, and staff testimonials</li> <li>Create PowerPoint</li> </ul>	<ul style="list-style-type: none"> <li>District administration</li> <li>Building administration</li> <li>OTs, PTs, and</li> <li>Special Education teachers</li> <li>Parents/Guardians</li> <li>Students</li> </ul>	\$0	\$0
Live Presentation	<ul style="list-style-type: none"> <li>Live in-person presentations at the author's high school and district offices</li> <li>Live Zoom meeting presentation</li> </ul>	<ul style="list-style-type: none"> <li>District administration</li> <li>Building administration</li> <li>OTs, PTs, and</li> <li>Special Education teachers</li> <li>Parents/Guardians</li> <li>Students</li> </ul>	\$0	\$0
Electronic/Print Materials	<ul style="list-style-type: none"> <li>Fact Sheets</li> <li>Brochures</li> <li>Video testimonials</li> </ul>	<ul style="list-style-type: none"> <li>District administration</li> <li>Building administration</li> <li>OTs, PTs, and</li> <li>Special Education teachers</li> <li>Parents/Guardians</li> <li>Students</li> </ul>	\$0	\$0

**Evaluation of the Dissemination**

The first factor determining the success of the dissemination is receiving approval from the building and district administration to continue using the Functional Life Skills Lab and to incorporate it into a class offered for students within the autism department. If the dissemination efforts were highly successful, the district administration would implement a similar model at other buildings within the district. To determine if the dissemination efforts were successful in the eyes of the students and their parents and

guardians, the author would assess the percentage of students and their parents and guardians who became interested in the Functional Life Skills Lab after hearing the presentation.

### **Conclusion**

The Functional Life Skills Lab will provide autistic students with a structured, supportive environment to learn skills necessary to increase their independence. The manualized curriculum created for the Functional Life Lab is supported by evidence-based interventions that target learning based on the individual needs of autistic students. This chapter helped explain the goals of disseminating the research and how the information would be presented to each targeted audience, including the key messages for each audience group. By meeting the long-term goals, the author's district will implement the Functional Life Skills Lab in multiple high schools offering the Functional Life Skills Lab as an elective for high school autistic students helping them to successfully achieve their goals by fostering independence and enabling employment opportunities as they acquire new life skills.

## **CHAPTER SEVEN – Funding Plan**

### **Introduction**

High school autistic students struggle to learn and complete functional life skills, impacting their overall independence. By not knowing how to complete their functional life skills, they may miss out on opportunities for work or independent living after high school. Because IDEA 2004 requires schools to provide transition services that prepare students for life after graduating high school, providing functional life skills training through the Functional Life Skills Lab would fulfill or supplement this federal requirement. The Functional Life Skills Lab will provide hands-on learning opportunities using real-life objects and materials in a large classroom that looks like a home environment with a family room, bedroom, laundry room, and bathroom. There will be a life skills lab team of implementers comprised of an occupational therapist, a speech and language pathologist, and a special education teacher, all of whom work in the high school where the Functional Life Skills Lab is being created. Together they will follow a manualized curriculum that utilizes proven methods to enhance learning in individuals with autism while focusing on their executive functioning and motor planning skills deficits. The curriculum will include written, visual, and video model supports for the students based on their learning needs. It will also incorporate written and visual comprehension and reflection sheets for students based on their learning needs after each life skills task. The occupational therapist and creator of the Functional Life Skills Lab curriculum will provide training for the team of implementers. In addition, the life skills lab team of implementers will meet weekly to discuss implementation, progress, and any

potential problems within the lab or curriculum to optimize student outcomes.

### **Available Local Resources**

As a staff member in the high school where the Functional Life Skills Lab will be created, the life skills team of implementers will have access to numerous resources. Those resources include computers, a smartboard, Microsoft Office 365, a classroom designated for creating the Functional Life Skills Lab, internet access, paper, and printing service with color or black and white options. In addition, the apps in Microsoft Office 365 will enable the creation of a lesson plan, a class presentation, written directions, picture directions, a picture comprehension sheet, a written comprehension sheet, a picture reflection sheet, a written reflection sheet, and a data sheet for the staff to track the student's performance for each of the life skills targeted in the lab. Because the Functional Life Skill Lab will target transitional services, which is necessary per IDEA 2004, the team of implementers can utilize their unique skill set to support student learning while performing their daily duties as staff members within the high school setting. The occupational therapist and creator of the Functional Life Skill Lab curriculum will volunteer time outside of school to create the resources necessary for the curriculum. In addition, staff within the school can donate items necessary to create modules for the life skills lab. With the school principal's permission, an email was sent out asking for donations. We first asked for clothing and cleaning items such as t-shirts, dress shirts, shorts, pants, and socks. towels, rags, and hangers. We then asked for empty food containers, such as cereal boxes, ice cream containers, milk containers, egg cartons, etc., that could be used for recycling or sorting into the pantry, refrigerator, or freezer.

Initial training for the team of implementers will occur during the school's professional development days at the beginning of the school year. Further consultation will take place during staff planning times throughout the school year. The school district will purchase the materials necessary for each life skills module.

**Needs Resources: Budget**

The Autism Process Coordinator heard about the Functional Life Skills Lab and offered her support in buying the items required to create the lab. Some items have already been donated by staff and supporters of the program. An itemized list will be provided to the process coordinator, which can be seen in Table 7.1. The table shows all items needed and specifies which items have been received. The cost for year 1 only includes the bolded items in the items needed column, as they are all left to be purchased for year 1. In year two, the cost is associated with replacing items and possibly servicing items.

**Table 7.1***Required Items for the Functional Life Skills Lab*

<b>Functional Life Skills Lab Required Items</b>				
<b>Module/Life Skill Area</b>	<b>Items Needed</b>	<b>Items Received</b>	<b>Year 1 Cost</b>	<b>Year 2 Cost</b>
<b>Bedroom</b>	<b>Twin mattress and bed frame</b> , twin sheets set, t-shirts, dress shirts, shorts, pants, socks, towels, rags, dresser with drawers, and 50 hangers	twin sheets set, t-shirts, dress shirts, shorts, pants, socks, towels, rags, dresser with drawers, and 50 hangers	\$150	\$100
<b>Kitchen</b>	Oven, microwave, dishwasher, 5 sets of 4-piece place settings, <b>60-piece silverware set</b> , silverware organizer, imitation groceries	Oven, microwave, dishwasher, 5 sets of 4-piece place settings, silverware organizer, imitation groceries	\$50	\$0
<b>Laundry</b>	washer and dryer, <b>laundry detergent, dryer sheets</b> , t-shirts, dress shirts, shorts, pants, socks, towels, rags, sheets, and 50 hangers	washer and dryer, t-shirts, dress shirts, shorts, pants, socks, towels, rags, sheets, and 50 hangers	\$150	\$300
<b>Bathroom</b>	individualized face towels, toothbrushes, toothpaste, deodorant, and hairbrush		\$250	\$250
<b>Garbage and Recycling</b>	Trashcan, recycling can, <b>trash bags</b> , items to sort	Trashcan, recycling can, items to sort	\$50	\$50
<b>Cleaning supplies</b>	vacuum, vacuum bags, <b>glass cleaner</b> , dust rags, broom, dustpan, scrub brush, rubber	Vacuum, vacuum bags, dust rags, mop, mop bucket, dust rags, broom,	\$350	\$350

	gloves, <b>furniture polish</b> , mop, mop bucket, <b>all-purpose floor cleaner</b> , <b>disinfectant cleaner</b> , <b>toilet bowl brush</b> ,	dustpan, scrub brush, and rubber gloves		
<b>Classroom, Curriculum, and Data Collection Materials</b>	A classroom designated for creating the Functional Life Skills Lab, pencils, smartboard, binders, file cabinet, file folders, computers, a smartboard, Microsoft Office 365, internet access, paper, and printing service with color or black and white, and the curriculum	A classroom designated for creating the Functional Life Skills Lab, pencils, smartboard, binders, file cabinet, file folders, computers, a smartboard, Microsoft Office 365, internet access, paper, and printing service with color or black and white	\$0	\$0
<b>Total</b>			\$900	\$1050

If the district cannot purchase some items, the creator of the life skills lab will seek out additional funding options to ensure the Functional Life Skills Lab will function as designed. Funding sources are listed in Table 7.2.

**Table 7.2***Funding Options*

<b>Funding Source</b>	<b>Requirements</b>	<b>Amount</b>
<b>IDEA Funds</b>	This is a federal fund for schools that may be used for programs that support transition services such as teaching life skills.	The district receives about, \$4,000,000
<b>ARP ESSER</b>	This is COVID-19 relief funding that schools can use to promote learning, such as to create a life skills program.	The district receives about, \$18,000,000
<b>Title I Funds</b>	This federal fund is for schools with high percentages of children from low-income families that can be allocated for a life skills program.	The district receives about, \$8,000,000
<b>DonorsChoose</b>	This is crowdsourcing funding where public school teachers post requests for classroom resources.	Varies
<b>Donations from the Building</b>	Quite a few items were donated by staff within the building if given permission, additional items could be listed based on the need.	Unknown

**Conclusion**

This funding plan provides an overview of the items necessary to run the Functional Life Skills Lab. The available and current resources and the avenues the school district can use to purchase the remaining items are described in Table 7.1. Fortunately, the administration within the author's school and school district are supporting the development of the Functional Life Skill Lab. With their help in advocating and allocating available funds from IDEA, ARP ESSER, and Title I, towards the purchase of the required items, the Functional Life Skills Lab will be able to run as intended. Alternative options are also provided to ensure all items are ready and available

when the Functional Life Skills Lab commences. The potential funding sources are outlined in Table 7.2. The author aims to provide autistic students learning opportunities that maximize occupational engagement through participation in the Functional Life Skills Lab. The author believes student involvement in the lab will ultimately improve their overall independence by teaching them independent living skills, providing them with additional employment opportunities, and preparing them for meaningful participation in their everyday life skills.

## **CHAPTER EIGHT – Conclusion**

This doctoral project represents a proposed intervention plan to support autistic high school-aged students and their educators, all within the author's place of employment. The resource will be accessible to designated school staff assigned to teach the students in a Life Skills class.

### **The Problem**

This proposed intervention first outlines the problem, theories of the problem, and current approaches to addressing the problem. The problem is that students within an autism department of an urban high school are transitioning from high school without functional life skills, causing decreased opportunities for independent living and employment. Life skills are “skills or tasks that contribute to the successful, independent functioning of an individual in adulthood” (Cronin, 1996, p. 54). Without the necessary life skills, these students will struggle with their overall independence, and they might be deprived of different employment opportunities or lose out on meaningful participation in their daily activities. The theories used to shape this intervention are the Acquisitional Frame of Reference and the Cognitive Theory of Multimedia Learning. The proposed intervention uses evidence-based methods that focus on three main components. The first area is proven teaching methods that support autistic students. This proposed intervention will use video modeling (Cannella-Malone et al., 2011; Cihak, D., 2011; Galligan et al., 2020), direct instruction (Cadette et al., 2016; Flores et al., 2013; Frampton et al., 2021; Vidovic et al., 2021), and the chunking methodology (Grossberg, 2013; Li et al., 2011; McDonald, 2011). The following targeted component is strategies that mitigate

difficulties with executive functioning. The proposed intervention will use prompting (Cihak et al., 2010; Davis et al., 2002; Mechling et al., 2008; Taber-Doughty, 2005), visual supports (Banda & Grimmert, 2008; Banda et al., 2009; Lee & Sturmey, 2006), and positive reinforcements (Baltruschat et al., 2011a; Baltruschat et al., 2011b). The final component is strategies to mitigate difficulties with motor skills. The proposed intervention will use a “top-down” approach (Missiuna et al., 1997), a “bottom-up” approach (Missiuna et al., 1997), and direct instruction (Bremer, 2014; Bremer et al., 2015; Ketcheson et al., 2016). This knowledge guided the proposed design and development of this intervention.

### **The Intervention**

Next, the proposed intervention is described in detail, including its process, all its created content, an evaluation plan, a dissemination plan, and a funding plan. The proposed intervention creates a Functional Life Skills Lab with a curriculum and procedural manual that enables high-school-aged autistic students to learn how to complete daily living skills independently. The lab provides hands-on training with real-world materials and will be offered as an elective class enabling autistic high school-aged students will participate in the life skills lab twice weekly for one-hour sessions. The Functional Life Skills Lab will be set up in a large classroom with multiple areas to resemble a home environment, including a full kitchen, a site to resemble a bedroom, a laundry area, and a half bathroom (there is not a tub or shower). It will be taught by the Life Skills Lab Team of implementers, including an occupational therapist, a speech and language pathologist, and a special education teacher. Each life skill module has written

guides, visual or picture directions, and video models to help teach each module's steps while accommodating various learning styles. The curriculum will include a lesson plan, class presentation, written directions, picture directions, a video model, a picture comprehension sheet, a written comprehension sheet, a picture reflection sheet, a written reflection sheet, and a staff data sheet for each of the life skills targeted in the lab. The procedural manual will describe the procedure to be followed during an intervention and explain in detail the setup for the materials in the life skills area, the demonstration of the life skill, the process for determining the direction format for each student, the level of prompting to be given to the student, the positive and negative reinforcement options, etc.

To evaluate the effectiveness of the intervention, quantitative data will be collected through repeated weekly measurements of the dependent variables of the number of steps they can complete in a life skill task and the time needed to complete the life skill task. The repeated measurement of the dependent variables will allow the team to determine the amount of change and any theoretical associations between the life skills lab's key components and the observed outcomes (Thyer, 2012). Qualitative data will be collected through semi-structured interviews of the students and their parents or guardians before and after participating in the life skills lab. To evaluate how well the students could transfer their skills from the life skills lab to their home environment and measure their overall satisfaction with the lab and their ability to complete functional life skills.

To disseminate the findings, it is most important to demonstrate the effectiveness of the Functional Life Skills Lab to the building and district administration as they are the

individuals who can add the Functional Life Skills Lab to the curriculum as an elective class. The secondary target audience comprises autistic high school students and their parents/guardians. Once the administration agrees to offer the Functional Life Skills Lab as an elective, autistic high school students or their parents need to sign up for the class. The main goals of dissemination would be for the author's high school administration to continue to offer the Functional Life Skills Lab as an elective for high school autistic students and for the author's school district administration will implement the Functional Life Skills Lab in other high schools with an extensive special education population. A presentation will be created to compare the pre and post-tests of the parents, the students, and the staff to determine the amount of change in dependent variables and the students' independence, confidence, and learned skills. The presentation will also include shared experiences from parents, students, and staff regarding their experiences and outcomes of the lab.

Funding can be provided by the school district using IDEA, ARP ESSER, or Title 1 funds that are available within the author's school. Luckily school personnel heard about the Functional Life Skills Lab and offered her support in buying the items required to create the lab. Staff and supporters of the program have already donated some items. Suppose the district cannot purchase some items. In that case, the creator of the life skills lab will seek out additional funding options to ensure the Functional Life Skills Lab will function as designed through DonorsChoose, a crowd-sourced funding option or donation within the author's building.

It is believed that the Life Skills Lab will maximize autistic students' occupational engagement, improve health outcomes, and increase overall independence by enabling them to complete their functional life skills. The Life Skills Lab will promote occupational engagement by providing high school autistic students opportunities to increase their overall independence, provide additional employment opportunities, and prepare them for meaningful participation in everyday life skills. In addition, by learning how to complete functional life skills, our students will have additional opportunities to connect with others in the community through work or volunteering opportunities. This will allow them to engage in their community through meaningful work, which could also provide financial freedom to live independently. Another area of occupational engagement that is encouraged through this initiative is to provide support for family members who have been completing these skills for them or assist family members who need support to complete these skills.

## **APPENDIX A – Folding Pants Lesson Plan**

Duration: The entire lesson can be completed in one session of the life skills lab and repeated each session for 4–6 sessions to allow for practice and to assist in learning.

During this lesson, students will learn the following:

- Reasons to fold pants
- The best time to fold pants to reduce wrinkles
- The steps to folding pants

Materials

- Student learning survey
- Folding Pants Presentation
- Picture Directions for folding pants
- Written Directions for folding pants
- Teacher data sheet/checklist
- Student comprehension sheet
- Student reflection sheet
- Laundry basket with clean clothes, including pants
- Video Model

Procedure

1. Have students complete the student survey to assess their ability, motivation, and learning style.
2. Show the folding pants presentation to the class, discuss reasons to fold clothes, the best time to fold clothes, and go over the steps to folding pants.
3. Take a student to the life skills lab and walk through the steps of getting the clean clothes out of the dryer and putting them in the laundry basket.
4. Using the visual or picture directions, demonstrate how to follow the step of folding pants.
5. Ask the student if they have any questions and confirm they understand what they need to do to fold pants.
6. Allow the student to practice getting their materials, setting up their workstation, and completing their life skills tasks.
7. Use the checklist to monitor their success and offer support.
8. Once the student is finished with their skill, have them complete their comprehension and reflection sheets.
9. Repeat steps 3-8 daily in the life skills lab for a week or until the student has demonstrated mastery of their skill.

**APPENDIX B – Folding Pants Presentation Slides**

The folding pants online presentation can be viewed using the QR code below.



APPENDIX C – Folding Pants Visual Directions

# Folding Pants

 <p><b>Step 1:</b> Get clean clothes from the dryer and put them in the laundry basket.</p>	 <p><b>Step 2:</b> Find and pick up a pair of pants.</p>	 <p><b>Step 3:</b> Lay the pair of pants on a flat surface like a bed or a table</p>	 <p><b>Step 4:</b> Make sure pants are zipped, buttoned, and pockets are tucked in</p>
 <p><b>Step 5:</b> Fold pants in half at the waist and line up the pant legs</p>	 <p><b>Step 6:</b> Fold the pants in half at the knee by bringing the bottom of the pants to the waist</p>	 <p><b>Step 7:</b> Fold the pants in half again by bringing the knee of the pants to the waist</p>	 <p><b>Step 8:</b> Set folded pants to the side to make a pile</p>

**APPENDIX D – Folding Pants Written Directions**




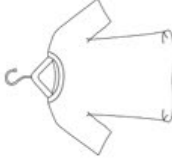


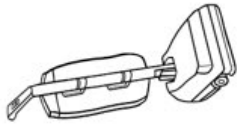

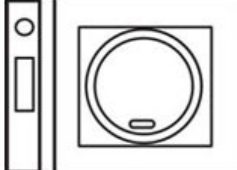



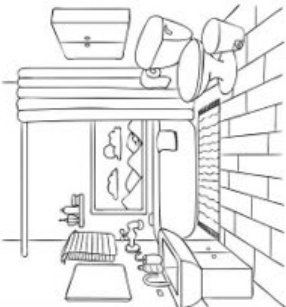
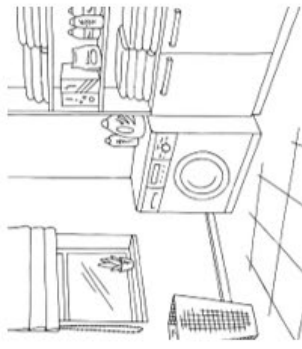
# Steps to Folding Pants

1. Get clean clothes from the dryer and put them in the laundry basket.
2. Find and pick up a pair of pants.
3. Lay the pants on a flat surface like a bed or a table.
4. Make sure the pants are zipped, buttoned, and the pockets are tucked in.
5. Fold pants in half at the waist and line of the pant legs.
6. Fold the pants in half at the knee by bringing the bottom of the pants to the waist.
7. Fold the pants in half again by bringing the knee of the pants to the waist.
8. Set folded pants to the side to make a pile.

APPENDIX E – Folding Pants Visual Comprehension Sheet



# What did I learn today?

<p>What skill did you practice today?</p>  <p>Match Socks</p>  <p>Fold Pants</p>  <p>Hang up Shirts</p>	<p>How long does it take to complete the skill one time?</p> <p><b>3</b> Minutes</p> <p><b>10</b> Minutes</p> <p><b>4</b> Hours</p>
<p>What supplies did you use?</p>         	<p>Where can you complete this task?</p>  <p>Bathroom</p>  <p>Laundry Room</p>

## What did I learn today?

1. What skill did you practice today?

---

2. How long did it take to complete the skill one time?

---



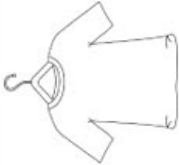







3. What supplies did you use?

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4. Where can you complete this task?

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# Learning Reflection

<p>What skill did you practice today?</p> <div data-bbox="544 1129 662 1260"><p>Match Socks</p></div> <div data-bbox="500 856 678 940"><p>Fold Pants</p></div> <div data-bbox="495 441 673 604"><p>Hang up Shirts</p></div>
<p>Did you do your work and try your best?</p> <div data-bbox="755 745 885 871"><p>Yes</p></div> <div data-bbox="755 399 885 525"><p>No</p></div>
<p>Learning today was...</p> <div data-bbox="958 1197 1112 1344"><p>Good</p></div> <div data-bbox="958 787 1112 934"><p>Okay</p></div> <div data-bbox="958 399 1112 546"><p>Hard</p></div>
<p>Today I was able to do my work...</p> <div data-bbox="1193 892 1356 1102"><p>By Myself</p></div> <div data-bbox="1177 399 1356 577"><p>With help</p></div>

## Learning Reflection

1. What skill did you learn about today?  
\_\_\_\_\_
2. Did you participate in learning the skill and try your best?  
\_\_\_\_\_
3. Learning today was...  
\_\_\_\_\_
4. Today, I was able to independently...  
\_\_\_\_\_



## APPENDIX J – Functional Life Skills Lab Flier

*Front of the Informational Flyer for students and their parents/guardians*

# Creating Independence... ⇒ A Functional Life Skills Lab ⇒

### The Problem

Students are transitioning from our high school's autism program without functional life skills. Life skills are "skills or tasks that contribute to the successful, independent functioning of an individual in adulthood" (Cronin, 1996 p. 54).

Without the necessary life skills, our students will struggle with their overall independence, and others might miss out on opportunities for gainful employment.





### Life Skills Statistics

- Students with autism struggle with learning life skills
- Life skills are necessary for independent living
- Life skills can be requirements for specific employment opportunities
- Transition planning which can include life skills, is required under IDEA
- Caregiver burnout is associated with children having lower daily living skills

*Back of the Informational Flyer for students and their parents/guardians*

## The Solution

- Students will participate in hands-on training at the Life Skills Lab twice a week, where they will practice and learn how to complete functional daily living skills
- Each skill will be broken down into its most basic steps, and each step will have detailed instructions with video models, visual directions, or written directions to address the multiple learning needs.
- The functional Life Skills Lab will take place in a large classroom with multiple areas that resemble a home environment, including a full kitchen, a site to resemble a bedroom, a laundry area, and a half bathroom to encourage and promote learning



## Creating Change

- To maintain a calm and supportive learning environment, there will be a check-in before beginning the lesson for the functional daily living skill.
- To prepare for increased independence we will create problem-solving activities to get our students thinking about situations and how they would handle them if they were home alone or living independently.
- To ensure that we can provide the best support at home, parents will inform us of what materials they need to support their child at home when practicing/transferring their life skills to their home.
- By teaching students how to complete their functional daily living skills, their parents or guardians will no longer need to complete these skills for their child thus reducing caregiver burnout.



Adding a functional life skills lab to the curriculum for students with Autism will be of tremendous benefit. By allowing time for collaboration between the OT, SLP, and Special Education teacher, and providing us with the space to create a Functional Life Skills Lab we can collectively support our students and their families in meeting their independence goals!

## **APPENDIX K – Executive Summary**

### **Introduction: The Problem**

For this paper, the author will be using identity-first language. Although this is often debated, many people in the autism community prefer identity-first language, as they view autism as a central point that is an essential part of their identity and take pride in it (Wooldridge, 2023). Autistic individuals struggle with executive functioning skills (Powell et al., 2022) and motor skills (Travers et al., 2022) which could impact their ability to complete life skills. Difficulty completing functional life skills can negatively impact their ability to live independently and limit their employment opportunities. Autistic individuals require additional assistance to learn to engage and perform their functional life skills (Matthews et al., 2017).

Skills for independent living can also be beneficial when seeking employment. For example, students who know how to fold laundry, vacuum, clean surfaces, etc., can utilize their skills learned to seek jobs in the hotel industry, office buildings, schools, a maid service, or a dry-cleaning facility. As students gain employment, they can contribute financially to further their independence or aid in their family's living situations.

IDEA 2004 recognized the need for all students to prepare for life after their educational career, making it mandatory for schools to teach special education students the skills necessary to transition into life after school successfully. Therefore, creating opportunities for autistic high school students to enhance their ability to learn how to engage and perform their functional life skills will improve students' overall

independence and well-being.

### **Project Overview**

The author's proposed intervention creates a Functional Life Skills Lab curriculum and procedural manual enabling autistic students to learn how to complete functional life skills. The curriculum development will include research-supported methods and strategies that address autistic students' executive functioning and motor deficits while promoting learning through a safe, nurturing environment.

The Functional Life Skills Lab is an educational intervention program designed to improve the performance of autistic high school students enabling them to complete their functional life skills. The Functional Life Skills Lab will target improving postsecondary outcomes involving independent living and employment for students with disabilities. The Functional Life Skills Lab Team consists of an occupational therapist, speech and language pathologist, and a special education teacher, who will follow the intervention procedural manual to guarantee continuity amongst all staff supervising the intervention. High school students will participate in the lab as an elective course twice weekly, enabling school-based occupational therapists to collect and track student progress based on their independence level, the number of steps completed, the time it took to complete the task, and the direction formatted needed for successful completion of a task using the data sheets included in lab's curriculum. The Functional Life Skills Lab will promote health and wellness by increasing autistic students' overall independence as they transition from the high school setting. This initiative also promotes health by assisting high school students and their families in realizing their aspirations for independence and

possible employment, satisfying their needs for independence, and adapting to changes in their needs as they transition from high school. As the students learn functional life skills, they can immediately be utilized in the individual's environment. This will create postsecondary opportunities for independent living, provide additional employment opportunities, and prepare them for meaningful participation in their everyday life skills.

The Functional Life Skills Lab bridges the gap by creating a curriculum that provides hands-on training with real-world materials, detailed instructions for each task, and uses proven methods to promote and enhance learning. The Life Skills Lab curriculum consists of lesson plans, class presentations, visual directions, written directions, video models, visual comprehension sheets, written comprehension sheets, visual reflection sheets, written reflection sheets, and staff data sheets for each life skill targeted in the lab. The Functional Life Skill Lab will utilize a manualized approach supported by research by incorporating interventions for executive functioning and motor skills deficits in autistic individuals to promote learning. The lab will take place in a large classroom with multiple areas that resemble a home environment, including a full kitchen, a site to resemble a bedroom, a laundry area, and a half bathroom to encourage and promote learning. Each of the targeted life skills will be broken down into its most basic steps, and each step will have detailed instructions with video models, visual directions, or written directions to address the multiple learning needs. Students will participate in hands-on training at the Life Skills Lab twice weekly to practice and enhance the learning of functional life skills. As students become successful with a new life skill, the directions that enable them to be successful will be provided to their

families to practice their newly learned skills at home to encourage generalization across environments.

### **Program Goals**

The main goals of the curriculum in the Life Skills Lab are:

1. To maximize autistic students' occupational engagement, improve health outcomes, and increase overall independence by enabling them to complete their functional life skills.
2. To promote occupational engagement by providing autistic high school students opportunities to increase their overall independence, provide additional employment opportunities, and prepare them for meaningful participation in everyday life skills.
3. To create additional opportunities for our students to connect with others in the community through work or volunteering opportunities.
4. To support employment opportunities for our students so they can contribute financially to further their independence enabling them to have the financial freedom to live independently or aid in their family's living situations.
5. To enable our students to support family members who have been completing these skills for them or assist family members who need support to complete these skills.

**Key Messages**

- Students are transitioning from our high school's autism program without functional life skills. Life skills are “skills or tasks that contribute to the successful, independent functioning of an individual in adulthood” (Cronin, 1996, p. 54).
- IDEA 2004 requires schools to teach transition services, including life skills, to high school students with disabilities served under the Individuals with Disabilities Education Act (IDEA 2004).
- Without the necessary life skills, our autistic students may struggle with overall independence, and others might miss out on opportunities for meaningful participation in their daily activities. The ability to complete functional life skills is necessary for independent living.
- These life skills can also be beneficial when seeking employment. Students who know how to fold laundry, vacuum, clean surfaces, etc., can utilize their skills learned to seek jobs in the hotel industry, office buildings, schools, a maid service, or a dry-cleaning facility.
- The Functional Life Skills Lab will utilize proven teaching methods that best support learning for autistic individuals incorporating strategies that mitigate their known difficulties with executive functioning and motor skills.

**Recommendations**

Once the Functional Life Skills Lab has proven successful, the author recommends that the lab become part of the high school curriculum where implementation took place and be offered as an elective for autistic high school students. In addition, the author's school district administration, in recognizing the success of the Functional Life Skills Lab, will create and implement the lab in other high schools with an extensive special education population.

**General Conclusions**

The Functional Life Skills Lab provides high school-aged autistic students with a structured, supportive learning environment that will teach the necessary functional life skills to increase their overall independence. The Functional Life Lab curriculum was created using evidence-based interventions that target the learning needs of autistic individuals. Participating in the Functional Life Skills Lab will significantly enhance students' independent living abilities. Learning life skills will also open new employment opportunities. The Functional Life Skills Lab will support autistic high school students in meeting their goals of independence!

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## APPENDIX L – Fact Sheet



## A Functional Life Skills Lab: Optimizing Functional Independence for Autistic High School-Aged Students

Erin Simeone, MS, OTR/L  
OTD Candidate

**The Problem:** The ability to complete functional life skills is necessary for independent living. Autistic students are transitioning from high school without functional life skills, causing decreased opportunities for independent living and employment.

### Facts and Statistics

- The CDC estimates that about 1 in 44 8-year-old children have been identified with having autism, or 23.0 per 1,000 8-year-olds (Maenner et al., 2023).
- Children born in 2014 were 50% more likely to receive an autism spectrum disorder diagnosis by the age of 4 compared to children born in 2010 (Maenner et al., 2023).
- Autistic students fall behind in learning their life skills compared to their same-age peers as they age (Matthews et al., 2017).
- Autistic individuals struggle with executive functioning skills (Powell et al., 2022) and motor skills (Travers et al., 2022) which could impact their ability to complete life skills.
- Parents, guardians, or other family members are completing their functional daily living skills for them, which can cause caregiver burnout (Green & Carter, 2014).



### Addressing the Problem

- The Functional Life Skills Lab will promote health and wellness by increasing autistic students' overall independence as they transition from the high school setting. This will create postsecondary opportunities for independent living, provide additional employment opportunities, and prepare them for meaningful participation in their everyday life skills.
- The Functional Life Skills Lab bridges the gap by creating a curriculum that provides hands-on training with real-world materials, detailed instructions for each task, and uses proven methods to promote learning.
- The Life Skills Lab curriculum consists of lesson plans, class presentations, visual directions, written directions, video models, visual comprehension sheets, written comprehension sheets, visual reflection sheets, written reflection sheets, and staff data sheets for each life skill targeted in the lab.
- The Functional Life Skills Lab will use teaching methods proven successful for autistic students, such as video modeling, direct instruction, and chunking methodology.
- Due to known deficits in executive functioning skills, the lab will use prompting, visual supports, and positive reinforcement, which are known to support executive dysfunction.
- To mitigate difficulties autistic individuals have with motor skills, the lab will use the evidence-based strategies of the "top-down" approach, "bottom-up" approach, direct instruction, and repetition.



### Targeted Life Skills

- **Bedroom:** make the bed, put dirty clothes in the laundry basket, put clean clothes in correct drawers, hang clean clothes in the closet, organize and remove clutter, dust bedroom furniture, and sweep floors
- **Kitchen:** sort and put away groceries (pantry, refrigerator, and freezer, identify and throw away expired food, put dirty dishes in the sink, wash dishes by hand, load and start the dishwasher, put away clean dishes, sort silverware, clean countertop)
- **Laundry:** sort dirty laundry (colors, water temperature, towels, etc.), load and start washing machine, move clothes from washer to dryer and start, match socks, fold shirts, fold pants, fold towels, put clothes on hangers
- **Bathroom:** wash face, brush teeth, wash hands, clean toilet, clean sink/countertop, clean mirror, sweep floors, and mop floors
- **Garbage and Recycling:** sort garbage or recycling, take out trash and put in a new trash bag, and clean/sanitize trash and recycling areas



### Impact on Provisions of Occupational Therapy Services

- According to the American Occupational Therapy Association (2020), occupational therapists can support individuals with activities of daily living, instrumental activities of daily living, health management, rest and sleep, education, work, play, leisure, and social participation. All these areas are relevant to supporting autistic students as they transition to their postsecondary setting.
- Utilization of the Functional Life Skills Lab provides school-based therapists with data-driven, effective, efficient, and evidence-based interventions for providing OT services in a high school setting.
- Implementation of the Functional Life Skills Lab will target the acquisition of functional life skills that enable school-based therapists to provide educational interventions that meet the requirement set forth by IDEA 2014 to provide transition services that prepare students for life after graduating high school.
- High school students will participate in the lab as an elective course which easily allow for school-based occupational therapists to collect and track student progress based on their independence level, the number of steps completed, the time it took to complete the task, and the direction formatted needed for successful completion of a task using the data sheets included in lab's curriculum.
- This data can also be used to support communication with the student's parent or guardian to transfer the learned skill to the home environment successfully.

### School Funding Sources

- **IDEA Funds:** federal funding for schools that may be used for programs teaching life skills.
- **ARP ESSER:** COVID-19 relief funding that schools can use to create life skills programs.
- **Title I Funds:** federal funds for schools with high percentages of children from low-income families that can be allocated for life skills programs.

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