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Measuring Adaptive Behaviors in Individuals with Autism Enrolled in Project-Based Therapy

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Measuring Adaptive Behaviors in Individuals with Autism
Enrolled in Project-Based Therapy

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A culminating Project Submitted in Partial Fulfillment of the Requirements for the
Degree Masters of Science Occupational Therapy
School of Health and Natural Sciences
Dominican University of California

PROJECT-BASED THERAPY ON ADAPTIVE BEHAVIORS IN ASD

This project, written under the direction of the candidate's' faculty advisor and approved by the chair of the Master's program, has been presented to and accepted by the Faculty of the Occupational Therapy department in partial fulfillment of the requirements for the degree of Master of Science in Occupational Therapy. The content, project, and research methodologies presented in this work represent the work of the candidates alone.

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Abstract

As the number of individuals with Autism Spectrum Disorder (ASD) entering adulthood increases, this population faces limited resources to foster independent living. Therefore, it is crucial to explore innovative interventions that help this population develop the skills necessary to live more independently. This exploratory prospective cohort study evaluated the effectiveness of Autistry Studios, which focuses on improving adaptive behavior skills for adults and adolescents with ASD using project-based therapy. The study used the Brief Adaptive Behavior Scale (BABS), a novel quantitative assessment, to track the development of adaptive behaviors in individuals with ASD within the domains of Executive Functioning (EF), Socialization (SOC), and Self-Regulation (SR). The BABS specifically measures Frequency of adaptive behaviors (FRQ), the Lowest Level of Assistance (LoALow) required, and the Highest Level of Assistance (LoAHigh) required while engaging in project-based therapy. Paired-samples *t*-tests compared the mean of BABS scores for 11 participants across nine sessions at Autistry Studios. LoALow and LoAHigh Total scores improved significantly from session one to nine. Additional analyses found significant differences in the LoALow and LoAHigh scores in the domains of EF and SOC. Cohen's *d* effect sizes for the difference between session one and nine for LoALow and LoAHigh scores were large to very large, suggesting practical improvement in all domains. The results indicate that Autistry's pre-vocational, project-based therapy program is effective in improving adaptive behavior skills in adults and adolescents with ASD, as measured by the BABS assessment.

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Introduction

Autism Spectrum Disorder (ASD) frequently results in functional deficits and poor adaptive behavior skills that persist throughout the lifespan. The Centers for Disease Control and Prevention (CDC) estimates that 1 in 68 children born will have autism (Centers for Disease Control and Prevention, 2014). While this developmental diagnosis is typically recognized in the early years of life, this growing population is rapidly aging into adulthood. As this population matures, individuals with ASD transition out of supportive educational programs. While there is an abundance of resources available to children with ASD, there are limited supports for adults with this diagnosis. Specifically, few programs address the unique challenges that adults with ASD face, including employment and independent living. It is important to examine the effectiveness of existing programs that aim to support employment opportunities for this population. The purpose of this study is to evaluate the effectiveness of Autistry Studios, a pre-vocational program for adults and adolescents with ASD, which focuses on improving adaptive behavior skills through participation in project-based therapy.

Literature Review

Features and Characteristics of Autism Spectrum Disorder

Autism is a complex neurodevelopmental disorder characterized by atypical behavior in socialization, communication, imagination, repetitive interests, and sensory sensitivity (Lowth, 2015). These atypical behaviors are often detrimental to functioning in daily life and to independent living. The functional deficits associated with ASD are, in large part, due to insufficient adaptive behaviors (Lowth, 2015). Adaptive behaviors can be described as the capacity of an individual to function independently in real life

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situations (Pugliese et al., 2014). Research has consistently shown that individuals with ASD have impaired or diminished adaptive behaviors as compared to typically developing peers (Kanne et al., 2010; Paul, Loomis & Chawarska, 2014). Additionally, researchers have argued that these impairments persist throughout the lifespan (Matthews et al., 2015).

Adaptive behaviors are essential for adults with ASD to initiate and bridge cognitive skills into daily activities, such as interpersonal relationships, education, employment, and independent living (Lowth, 2015). Researchers and practitioners cannot ignore the significant impacts of this diagnosis on independence and interactions within the community, for example, maintaining full-time employment or attending a higher education program (Pugliese et al., 2014).

Prevalence and Aging population of Individuals with ASD

According to the Centers for Disease Control and Prevention, prevalence rates of ASD have increased to 1 in 68 children born in the U.S. (CDC, 2014). Similar increases in the prevalence of ASD have been reported worldwide (CDC, 2014). As prevalence rates for autism continue to increase, so does the number of individuals transitioning into the adult age bracket. According to data from the United States Census Bureau, 26.7% of the U.S. population will mature into adulthood over the next two decades (U.S. Census Bureau, 2012). Students covered by the Individuals with Disabilities Education Act become ineligible for services once they reach the age of 22 or complete secondary school. As these individuals “age-out” of K-12 school programs, they face limited resources designed for adults with autism (McDonough & Revell, 2009). Often, the families of “aged-out” students with ASD find it difficult to identify, access, and finance

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adult-based ASD enrichment programs (McDonough & Revell, 2009). Available options for adults with ASD are limited and lack sufficient evidence in improving independence or skill building (Capo, 2001).

Although resources for adults with autism exist, the effectiveness of these resources on adaptive behaviors are unclear. Existing research on adaptive behavior programs for adults with ASD are controversial and offer mixed results (Bishop-Fitzpatrick, Minshew, & Eack, 2013; Gelbar, Smith, & Reichow, 2014). Additionally, studies of available resources for adults with ASD speculate that there is limited knowledge of the benefits of such available resources (Gelbar et al., 2014).

Effectiveness of Transitional Programs for Adults with ASD

Many treatment approaches focus on independence, such as employment and interpersonal skills, by addressing adaptive behaviors. Adaptive behaviors are addressed in these interventions because most employment positions demand some level of executive functioning, socialization, and self-regulation. It is reasonable to consider that as therapy improves adaptive behaviors, these skills may be translated into independent living and may potentially improve independence and employment rates for adults with ASD. However, it is unclear which interventions are most effective in improving adaptive behaviors for adults with ASD due to the mixed results in this area of research.

Behavioral therapy, such as Applied Behavior Analysis, is one intervention thought to improve adaptive behaviors necessary for independent living. Behavioral therapy proposes that behaviors can be changed over time with the use of reinforcements and consequences (Roane, Fisher & Carr, 2016). The intervention includes repeated practice of tasks with specific instructions, modeling, and prompting in order to

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encourage a desired behavioral outcome (Roane et. al., 2016). Behavioral therapy is commonly used for young children with ASD, and research has reported strong empirical evidence supporting the benefits of this treatment method.

A recent meta-analysis of behavioral therapy evaluated the benefits of interventions that address adaptive behavior skills in adults with ASD. The results of this meta-analysis showed that behavioral therapy had a medium effect size, meaning that a moderate amount of the participant's improvement can be attributed to the behavioral therapy intervention. Despite these findings, researchers could not conclude the overall benefits of behavioral therapy due to mixed results among the articles reviewed. For example, researchers concluded that 43% of the studies reviewed were categorized as "low confidence" or did not include treatment integrity data (Roth, Gillis, & Digennaro-Reed, 2014). Conversely, a systematic review conducted by Palmen, Didden, & Lang (2012) found that 66% of the studies examined demonstrated improvement in adaptive behavior skills in young adults with ASD. Based on the mixed results of this meta-analysis, it is unclear if behavioral therapy is effective in improving adaptive behavior skills in adults with ASD (Roth et al., 2014).

The Treatment and Education of Autistic and Related Communication Handicapped Children, or the TEACCH program, addresses adaptive behaviors necessary for independent living. TEACCH is an intervention that has gained support from the National Institutes of Health and the national advocacy organization, Autism Speaks (Virues-Ortega, Julio, & Pastor-Barriuso, 2013). A recent survey found that 30% of individuals with Autism are currently, or were previously, enrolled in the TEACCH Program worldwide (Green, Pituch, Itchon, Choi, O'Reilly, & Sigafos, 2006). A meta-

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analysis of this program evaluated its benefits on a variety of standardized outcomes for adults with ASD, including adaptive behaviors (Virues-Ortega et al., 2013). Analysis of sub-domains of adaptive behaviors included communication, activities of daily living (ADLs), motor function, social behaviors, and maladaptive behaviors (Virues-Ortega et al., 2013). Once again, results of this analysis were mixed. The benefits of the TEACCH program on adaptive behavior skills ranged from nonexistent to large, depending on the subdomain. The effect sizes of the TEACCH program were negligible for communication, ADLs, and motor function and moderate to large for social behaviors and modulating maladaptive behaviors (Virues-Ortega et al., 2013). The TEACCH program is also inconclusive for the development of adaptive behavior skills necessary for independent living for adults with ASD.

Similarly, vocational interventions have also aimed to increase independence through improved adaptive behaviors. Three of the most predominant vocation-specific treatment strategies for adults with ASD include sheltered workshops, technology-focused treatment, and community support. These three intervention strategies offer varying degrees of support to adults with ASD and must be evaluated individually.

Sheltered workshops train pre-vocational skills to individuals with disabilities and prepare them for employment in the community. These programs offer specific skill training, prevocational services, group work placements, and recreation and leisure activities to promote competitive participation in the job market (Cimera, Wehman, West, & Burgess, 2012). Cimera, Wehman, West and Burgess (2012) investigated the effectiveness of sheltered workshops in preparing individuals with ASD for independent living, including competitive community employment, and found no difference in

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employment rates between adults with ASD who participated in a sheltered workshop and those who did not. Researchers also reported that those who did not participate in the sheltered workshop earned significantly more money than those who did participate (Cimera et al., 2012). This may be because individuals with ASD who engage in sheltered workshops tend to be lower functioning, and higher functioning individuals with ASD may be able to gain employment with higher wages. Whatever the reasoning, these results indicate that despite being the most widely used form of vocational support, sheltered workshops may not be the most effective intervention strategy for improving the underlying adaptive behaviors necessary for independent living in higher functioning adults with ASD (Cimera et al., 2012).

Another vocational intervention for adults with ASD that seeks to increase independence through improved adaptive behaviors is technology-based employment training. As technologies worldwide continue to advance, researchers have examined the effectiveness of virtual-based employment training, such as computer games and videos. A study completed by Strickland, Coles, and Southern (2013) examined the effectiveness of computer training on improving interview skills. Results showed that adults with ASD who completed a computer-based interview program had significant improvements in the content of their answers; however, the delivery of their answers saw no improvement (Strickland et al., 2013). These findings indicate that this technology-based intervention failed to improve participants' adaptive behavior skills, specifically during social interactions. Similarly, Allen, Burke, Howard, Wallace, & Bowen, (2012) examined the interpersonal involvement of young adults with ASD and found that employee training videos did not improve their work performance. While past research has demonstrated

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the benefits of video modeling on individuals with ASD's behaviors, it is unclear if this intervention strategy addresses underlying adaptive behaviors (Hayes et al., 2015). These results further suggest that virtual training alone does not adequately address the necessary interpersonal skills required during interviews, employment performance, and independent living.

Another vocational intervention that aims to increase the underlying skills necessary for independent living is centered around community support. Community support includes, but is not limited to, individualized job placement support, supervisor and co-worker education, on-the-job training, and workplace modifications (Hendricks, 2010). Specifically, Project SEARCH Model, a community-based training program, includes on-site support from an autism specialist and intensive education regarding ASD diagnoses for staff located at the site. A study by Wehman et al., (2014) evaluated the benefits of Project SEARCH on employment rates in individuals with ASD. Results found that the Project SEARCH group showed a significantly higher rate of employment as compared to the control group. This glowing review suggests promise in community-based vocational treatment strategies; however, this strategy requires considerable time and financial resources. Furthermore, Project SEARCH is administered individually, limiting its impact on the community of adults with ASD. This suggests that while community support may successfully address the underlying adaptive behaviors necessary for independent living, it may not be a realistic resource for the population of adults with ASD.

A number of intervention strategies address the underlying barriers to independent living in adults with ASD; however, these interventions demonstrate varying success

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rates and feasibility. It remains unclear how many of these interventions are effective in improving the adaptive behavior skills necessary for independent living. Further research is necessary to explore innovative approaches to address these barriers. An example of such an innovative resource is a pre-vocational, project-based therapy program called Autistry Studios.

In a recent qualitative study, researchers interviewed Autistry clients and caregivers to evaluate their perceptions of the benefits of the Autistry program (Ives, Columbano, & Bava, 2015). Analytical review of these interviews found improvements in executive functioning, socialization, independence, self-esteem, and self-regulation. Although clients and family members report perceived benefits of Autistry Studios, improvements of clients' adaptive abilities has not been quantified.

Introduction to Autistry Studios

While there are limited resources available to adults with ASD in the San Francisco Bay Area, one innovative program offers a unique perspective on adult treatment. Autistry Studios is a private, non-profit, pre-vocational program in San Rafael, CA that utilizes "project-based therapy" for adults and adolescents with ASD. The clients at Autistry receive project-based therapy on a weekly basis. Project-based therapy is a novel approach that focuses on the acquisition of technical and social skills through hands-on projects that are individually driven and reflective of each client's interests. Autistry Studios was created by Janet Lawson and Dan Swearingen to promote independence in individuals with ASD by specifically addressing adaptive behavior skills (<http://www.autistrystudios.com/>). In contrast to other interventions, Autistry Studios aims to facilitate life skills readiness through various workshops, such as the College

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Support/Build Stuff Group and the Build Stuff Workshops. The College Support/Build Stuff Group offers academic and social support to Autistry clients currently enrolled in college-level courses. Services for this group include homework review, time management training, study training, and organizational training. The Build Stuff Workshops aim to improve technical skills, social participation, and communication through projects that require effective collaboration between clients and typically developing mentors for project design, project budget, and production schedule.

Autistry Studios also seeks to address the many deficits associated with ASD and to maximize independence of each client. Autistry Studios defines independence as “the ability to plan and make progress towards desired long-term goals while adequately handling immediate needs as they arise” (Lawson & Swearingen, 2015, p. 1).

Independence is reflected in the ability to challenge oneself, the ability to take care of oneself, the ability to choose a career and support oneself, the ability to educate oneself, and the ability to manage one’s behavior appropriately. A common theme throughout these assumptions is that functional independence requires individuals to be able to adapt to their surroundings through challenges, self-care, vocation, education, and self-control. Based on the format and outlined philosophies of this pre-vocational program, it is clear that the success of Autistry clients is measured by independence as seen through their adaptive functioning.

Measuring Autistry Success

Prior to this study, there were three assessments that Autistry utilized to track progress of their clients: the Life Skills Inventory Independent Living Skills Assessment Tool (LSI), the Vineland Adaptive Behavior-II (Vineland-II), and the Daily Progress

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Report. The LSI and the Vineland-II were administered to Autistry clients once upon entry into the program, while the Daily Progress Reports were completed immediately after each group session.

The LSI evaluates the preparedness of life skills necessary for independent living. This threshold assessment consists of 15 categories and covers 4 levels of accomplishment. Individuals are rated at a “Basic,” “Intermediate,” “Advanced”, or “Expert” accomplishment level in each category of adaptive behaviors, including interpersonal, vocational, and safety skills. As clients acquire greater skills, their accomplishment level rises; however, multiple administrations are necessary in order to capture improvements.

Additionally, the Vineland-II is a measure of adaptive behavior skills that tracks progress from birth to adulthood (Sparrow, Balla, Cicchetti, & Doll, 2005). The Vineland-II assesses an individual’s development of personal independence and social responsibility by gathering information about the day-to-day activities necessary to take care of oneself and to get along with others. The five broad domains used to capture independence and social responsibility include communication, daily living skills, socialization, motor skills, and maladaptive behaviors. There are four forms included in the Vineland-II: two semi-structured interview forms to be completed with a parent/caregiver and two rating forms completed by a teacher or parent/caregiver. Autistry specifically utilizes the Parent/Caregiver Rating Form to establish baseline functioning of adaptive behavior skills (Sparrow et al., 2005). The assessment is completed by the parent/caregiver who best knows the individual’s performance of everyday activities. At Autistry Studios, the Parent/Caregiver Rating Form is

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administered once upon entry into the program to obtain the baseline of each client's level of independence and responsibility.

Prior to this study, Autistry mentors completed a Daily Progress Report at the end of each session. The Daily Progress Report was created by Autistry in order to document and assess each client's behavior, social engagement, and the ability to attend to tasks during the workshop session. The assessment consisted of three primary domains: social participation, progress towards project, and appearance. The behaviors in these domains included initiating conversations, engaging with peers and staff members, and attending to tasks. These behaviors were rated on a 10-point Likert scale, with higher numbers indicating better scores. Additionally, there was a comments section, where mentors could write qualitative observations of their clients. At the end of each session, mentors completed a Daily Progress Report on the client with whom they worked most closely during that day.

While these assessments may offer some valuable information, Autistry's Daily Progress Reports mostly yielded qualitative information, which could not quantitatively capture the dynamic improvements of adaptive behavior skills in Autistry clients. The only quantitative portion of the Daily Progress Report used a 10-point Likert scale without specifying anchors. Due to Autistry's lack of a systematic quantitative approach, client success has not been effectively measured.

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Problem Statement and Purpose

Autistry Studios offers a unique project-based therapy for individuals with ASD; however, the benefits of this innovative pre-vocational program have not been studied. The information provided by the LSI, Vineland-II, and the Daily Progress is limited and to date has not been used to measure the program's success. There has been no quantifiable analysis that demonstrates Autistry's effectiveness in improving adaptive behaviors in individuals with ASD due to the lack of a quantitative measure sensitive enough to capture those changes.

The LSI is comprehensive and addresses areas that are applicable to individuals with ASD; however, its current use at Autistry Studios fails to provide quantitative data that tracks improvements. The first issue associated with the LSI is its non-standardization. While the LSI can offer meaningful information regarding the life skills needed for independent living, this assessment has not been standardized for any setting or population and thus, has unclear implications for research. Additionally, this assessment is administered once to each Autistry client, but it is unclear if a second administration is sensitive enough to capture a client's subtle improvements. For example, in order for an individual to advance from a "Basic" to an "Intermediate" skill level, he/she must meet at least five of eight criteria. A client who improves from knowing only one "Intermediate" skill to knowing four "Intermediate" skills would still be scored at a "Basic" skill level, despite the fact that he/she has measurably improved. This is problematic because an individual's progress or improvement may not be captured sufficiently or may be dismissed simply because the client did not meet the end range of each threshold. Based on the LSI's limited administration and sensitivity, it is

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not an adequate measure to quantitatively capture the dynamic improvements of Autistry Studios' clients.

Similarly, while the Vineland-II is a well-established assessment of adaptive behavior skills, this single intake administration does not adequately capture improvements of Autistry clients. Although the Vineland-II does not have restrictions on administration frequency, it is not feasible to repeatedly administer this assessment due to its cumbersome nature. The Parent/Caregiver Rating Form is composed of 433 items and can take 20-60 minutes to complete (Sparrow et al., 2005). Repeated administration may cause unnecessary burdens on the caregivers (Sparrow et al., 2005). This protocol is not feasible in providing information regarding the client's dynamic improvements at Autistry Studios.

Additionally, there are several shortcomings of Autistry Studios' Daily Progress Reports. This assessment reports clients' weekly improvements in social participation, progress towards projects, and appearance. The assessment was prone to subjectivity and was not easily interpreted. These Daily Progress Reports used a 10-point Likert scale with no anchors and provided Autistry mentors with insufficient guidance in scoring clients. Also, there are no specific time frames in which the Daily Progress Reports are reviewed, meaning that even if the results were easily interpretable, no analysis was being conducted on the considerable data collected. The Autistry staff did not review the Daily Progress Reports and thus, they were completed only for documentation purposes.

While Autistry provides a creative approach to improving adaptive behaviors necessary for functional independence, this program did not have a systematic way to quantitatively track improvements in client's behaviors. This is particularly meaningful

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because clients, client's family members, and program staff have witnessed improvements in client behavior and have reported the benefits of Autistry's intervention (Ives et al., 2015).

The purpose of this study was to quantitatively measure improvement in adaptive behavior skills in clients with ASD enrolled in Autistry's pre-vocational, project-based therapy program using the Brief Adaptive Behavior Scale (BABS). The Brief Adaptive Behavior Scale (BABS) measures frequency and independence of adaptive behaviors in Autistry clients in Executive Functioning, Socialization, and Self-Regulation. Researchers hypothesize that individuals with ASD enrolled in Autistry Studios' project-based therapy will demonstrate improvements in adaptive behaviors over a period of nine treatment sessions, as measured by the BABS.

Theoretical Framework

Person-Environment-Occupation-Performance Model

This study was informed by the Person-Environment-Occupation-Performance (PEOP) model. This model, established in 1985 by Charles Christiansen and Carolyn Baum, examines four major components that impact occupational performance (Christiansen & Baum, 2005). The PEOP model observes the relationship and interactions of the Person, Environment, and Occupation and predicts that the more cohesively these factors interact, the better the individual's occupational outcomes (Occupational Performance) will be. This model defines Person as a being influenced by intrinsic factors, including physiological, psychological, cognitive, spiritual, and neurobehavioral components. Environment is defined as the extrinsic factors that include social, economic, cultural, technological, and natural elements. Occupations are defined as the tasks and skills that occupy an individual's time, while Performance is described as the ability to complete a task (Smith & Hudson, 2012). The PEOP model offers a top-down, client-centered approach in the evaluation of factors that impact everyday performance of functional activities. For example, if an individual (Person) decides to study (Occupation) in a quiet library (Environment), then he/she is likely to have improved material retention (Occupational Performance) as compared to studying in a loud cafe. Figure 1 provides a visualization of the relationship between the four main components of the PEOP Model.

The PEOP model is often used to guide research and practice because it allows clients to effectively conceptualize health literacy and make informed decisions regarding health care (Smith & Hudson, 2012). Not only is this model utilized in health care

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settings, but it is also actively incorporated into research through assessment development. PEOP has been integral to the development and validation of several widely used occupational therapy measures, including the Activity Card Sort, Pediatric Activity Card Sort, and the Kitchen Task Assessment (Lee, 2010). Due to its holistic approach, the PEOP model provides a solid foundation for the development of evaluations and assessments in occupational therapy.

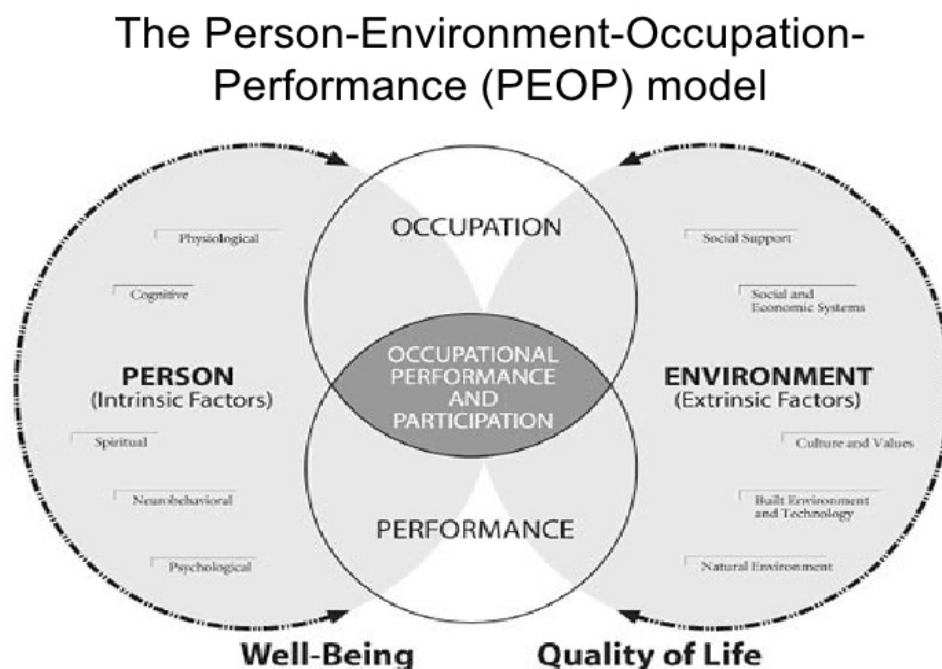


Figure 1. PEOP Model

PEOP and Autistry

The PEOP model's emphasis on meaningful occupations as a form of intervention made it the most appropriate theoretical framework for this study. In this study, the Autistry clients represented the Person component of the model, while Autistry Studios fulfilled the role of the Environment component. Furthermore, the projects created at

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Autistry represented the Occupation component of the PEOP model, and the level of success of Autistry clients defined the Performance component. Autistry Studios offers project-based therapy by effectively employing meaningful occupations, such as building, constructing, designing, and creating, to support the clients' overall functioning. This study aimed to quantitatively capture the adaptive behavior skills (Occupational Performance) of each client (Person) as they completed projects (Occupation) at Autistry Studios (Environment).

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Methodology

Design

This study was an exploratory prospective cohort design, which collected data over nine treatment sessions at Autistry Studios. The independent variables were the Autistry Studios treatment sessions, while the dependent variables were the participants' adaptive behaviors, as measured by the Brief Adaptive Behavior Scale (BABS). The BABS was administered immediately after each weekly session in order to quantitatively measure each participant's progress throughout the program. The BABS was designed to be an efficient and manageable assessment to measure adaptive behavior skills that quantitatively captured the dynamic adaptive behavior improvements in adults with ASD as they engaged in Autistry's pre-vocational, project-based therapy program.

Participants

Participants consisted of individuals with ASD enrolled in Autistry Studios. Ages for the population ranged from adolescence to middle age. All individuals enrolled in the Autistry Studios program were invited to participate in the study regardless of their demographics. For detailed information on the enrolled participants, refer to Table 1.

All participants of Autistry Studios were sent an "Invitation to Participate" via e-mail, which also included a consent form and the Dominican Demographic Information form. Staff members at Autistry also printed consent forms for convenient distribution. Additionally, researchers provided clients with pre-stamped and pre-addressed envelopes so completed consent forms could be sent directly to the principal investigator.

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Table 1

Participant Demographics

Characteristics	Frequency	%
Gender		
Male	9	82%
Female	2	18%
Race		
White	9	82%
Asian	2	18%
Highest Level of Education		
Some High School	7	64%
Some College	3	27%
College Graduate	1	1%
School Enrollment		
Enrolled	6	55%
Not Enrolled	3	27%
Not Reported	2	18%
Employment		
Not Employed	8	73%
Employed <10 hours	1	9%
Employed 20-30 hours	1	9%
Not reported	1	9%
Treatment Enrollment		
None	3	27%
Individual Therapy	5	45%
Group Therapy	1	1%
Pre-Vocational Workshop	2	18%
Multiple Additional Treatment	3	27%

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All consent forms and recruitment materials were approved by Dominican University of California's Institutional Review Board. Participants/guardians returned both the consent form and the demographic form to Autistry's program directors.

Measures

Dominican Demographic Information Form. (Appendix A) All participants/guardians completed the demographic questionnaire. The information captured included name, gender, date of birth, race, ethnicity, participant's level of education, parents'/guardians' level of education, school and/or employment status, and additional treatment enrollment.

Brief Adaptive Behavior Scale. (Appendix B) The BABS was developed to replace Autistry's Daily Progress Reports. The BABS is a quantitative assessment that measures frequency and independence of adaptive behaviors in Autistry clients. The purpose of this assessment was to quantify adaptive behaviors.

The BABS uses a five-point Likert scale to track Frequency of adaptive behaviors and a seven-point Likert scale to track Level of Assistance with adaptive behaviors. Raters identify a single Frequency (FRQ) score and two Level of Assistance scores, which indicate the Lowest Level of Assistance (LoALow) and the Highest Level of Assistance (LoAHigh) that the participants required throughout a single session. Frequency scores and LoAHigh scores were indicated by circling the Likert number, while the LoALow score was indicated by crossing out the Likert number. For more information about the Likert scales included in the BABS see Figure 2. The BABS yields the following domain scores: Executive Function (EF), Socialization (SOC), and Self-Regulation (SR). For more information regarding the items and domain scores of this assessment see Table 2.

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Frequency					Level of Assistance											
1	2	3	4	5	1	2	3	4	5	6	7					
Never	Rarely	Sometimes	Often	Almost Always	Dependent	Maximum Assistance	Moderate Assistance	Minimum Assistance	Verbal Cues	Supervision	Independent					
Client manages frustration well.					1	2	3	4	5	1	2	3	4	5	6	7
Client keeps comfortable distance between self and others.					1	2	3	4	5	1	2	3	4	5	6	7
Client remains on task while working on his/her project.					1	2	3	4	5	1	2	3	4	5	6	7

Figure 2. Sample BABS Items and Anchors. Higher scores indicate better adaptive behavior skills.

Table 2

Number of BABS Items and Domains

Domain	Total FRQ Items	Total LoALow	Total LoAHigh	Total Items per Domain
Self-Regulation	4	3	3	10
Executive Functioning	11	10	10	31
Socialization	4	3	3	10
Total	19	16	16	51

FRQ = Frequency, LoA = Level of Assistance.

The BABS specifically addresses three adaptive behaviors, including EF, SOC, and SR. Executive Functioning evaluated each participant’s ability to plan, initiate, and attend to a single project. Socialization observed each participant’s adherence to social norms and appropriate behaviors during interpersonal relationships. Finally, Self-Regulation skills measured each participant’s ability to control emotions and tolerate frustration during project completion.

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This assessment was created based on findings from a recent qualitative study of Autistry Studios conducted by Dominican University of California occupational therapy master's degree students (Ives et al., 2015). This study indicated improvements in executive functioning, socialization, independence, self-esteem and self-regulation (Ives et al., 2015). The BABS was created for the purposes of this study and was based on questions from two highly regarded and commonly used standardized assessments: the Vineland-II and the Behavior Rating Inventory of Executive Function-II (BRIEF-II). Researchers sent the preliminary version of the BABS to Autistry program directors for review, and revisions were made to satisfy program needs. A finalized version of the BABS was created, and administration began February 2016.

Because the BABS was a novel assessment for Autistry, staff members attended a BABS training session and were provided with a manual for reference as needed (Appendix C). Researchers trained Autistry staff on location and answered any questions at that time. Additionally, a researcher attended Autistry Studios workshops weekly and was available to answer questions regarding scoring. The BABS was administered weekly over the course of nine Autistry treatment sessions.

Procedures

Clients were contacted through email and asked to complete the consent and demographic forms. Participants continued to complete all typical tasks customary to the Autistry Studios program during the study period. Autistry mentors completed the BABS assessment weekly for each client regardless of the client's enrollment status in the study.

During a typical day at Autistry, clients engage in three hours of project-based therapy with a one-hour lunch break to practice table manners and social skills. During

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each session, Autistry clients are paired 1:1 with trained peer mentors, who provide prompts and guidance as needed. Clients' projects are selected based on their interests and workshop capabilities. Data collection occurred between February 2016 and August 2016. Following data collection, researchers performed a series of statistical analysis.

Data Analysis

Data was collected over the course of nine Autistry treatment sessions. Raw data was entered into an Excel file by trained research assistants. The completed and cleaned data file was inputted into SPSS. Prior to analysis, researchers identified any missing BABS values and replaced them with the domain mean imputation. Descriptive statistics were evaluated to identify any outliers or confounding variables. Inferential analysis included a series of paired-sample *t*-tests to evaluate the Frequency and Level of Assistance scores in the domains of Executive Functioning, Socialization and Self-Regulation. A Bonferroni correction was performed to protect against Type I error.

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Results

Data was collected for 11 participants over nine treatment sessions during Autistry's Spring 2016 and Summer 2016 semesters. The participant's consisted of predominantly white (n=9) males (n= 9) with a mean age of 22.73 and a standard deviation of 9.83 years. Demographic data for all participants are reported in Table 1.

Each participant's session one and session nine BABS scores were compared to examine progress over time. In order to be included in the final analyses, a BABS had to be completed in its entirety. Occasionally, items were left blank due to rater error. Any missing BABS data was replaced with the mean imputation, resulting in 24 BABS items being replaced by the domain means for the purposes of statistical analyses. Analyses focused on the BABS' Frequency (FRQ), Level of Assistance Low (LoALow), and Level of Assistance High (LoAHigh) scores for each domain, including Executive Functioning (EF), Socialization (SOC), Self-Regulation (SR), and Total scores.

Table 3

Descriptive Statistics for BABS Scores

Domain	Session 1			Session 9		
	Frq M (SD)	LoALow M (SD)	LoAHigh M (SD)	Frq M (SD)	LoALow M (SD)	LoAHigh M (SD)
Executive						
Functioning	3.45 (0.58)	3.95 (1.69)	5.18 (1.40)	3.65 (0.61)	5.23 (0.83)	6.28 (0.77)
Socialization	4.30 (0.71)	4.52 (2.41)	5.21 (2.53)	4.55 (0.44)	6.48 (0.52)	6.97 (0.10)
Self-						
Regulation	4.48 (0.72)	4.45 (2.22)	5.33 (2.08)	4.45 (0.71)	5.91 (1.38)	6.52 (0.78)
BABS Total	3.85 (0.48)	4.15 (1.87)	5.21 (1.66)	4.01 (0.46)	5.60 (0.75)	6.45 (0.61)

Frequency (FRQ) scores on a five-point scale. Level of Assistance (LoA) scores on a seven-point scale

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A series of paired-sample *t*-tests evaluated changes in the mean FRQ, LoALow, and LoAHigh scores between session one and session nine. Mean BABS scores for the Total and domain scores at each timepoint are reported in Table 3. LoALow Total and LoAHigh Total scores improved significantly between session one and session nine, meaning that the participants on average required a lower level of assistance after nine sessions of project-based therapy at Autistry Studios. LoALow and LoAHigh scores for Executive Functioning (EF) and Socialization (SOC) domains specifically improved. No significant changes between session one and nine were found for the Frequency of adaptive behaviors in Total scores and domains scores. The results of paired-samples *t*-tests are reported in Table 4.

Table 4

Results of t-tests Comparing Week 1 and Week 9 BABS Scores

Variable	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
BABS Total				
Frequency	-1.093	10	.300	.34
LoALow	-2.405	10	.037*	1.02†
LoAHigh	-2.421	10	.036*	.99†
Executive Functioning				
Frequency	-1.079	10	.306	.34
LoALow	-2.362	10	.040*	.95†
LoAHigh	-2.637	10	.025*	.98†
Socialization				
Frequency	-1.203	10	.257	.42
LoALow	-2.617	10	.026*	1.13†
LoAHigh	-2.292	10	.045*	.98†
Self-Regulation				
Frequency	.086	10	.933	.03
LoALow	-1.752	10	.110	.79
LoAHigh	-1.645	10	.131	.75

**p*<.05; † = Cohen's *d* large effect size.

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When the significance level was adjusted for multiple analyses using a Bonferroni correction, changing the significance level from $p < .05$ to $p < .0125$, the results of the t -tests all became non-significant. However, the Cohen's d effect sizes for most LoALow and LoAHigh scores are in the large range, as seen in Table 4. These scores indicate that much of the change in scores seen in all LoALow and LoAHigh domain and Total scores can be attributed to participation in project-based therapy. For example, means of the LoALow Total scores improved from four to five between timepoints. This indicates that when participants were functioning at their lowest, they improved from requiring minimum assistance to requiring verbal cues.

As can be seen in Table 5, most participants improved in their overall adaptive behaviors between session one and session nine. Of the 11 participants, six showed good to excellent improvement ($> 5\%$ change in scores), two had small or no improvement, and three had a minor decline ($< 5\%$ change in scores).

Finally, researchers examined overall change in adaptive behaviors in relationship to key demographic factors. Analysis found that there was no clear pattern of relationships between BABS scores and demographic factors of age or duration of enrollment at Autistry. Those correlations were small and non-significant. The number of supplemental treatments received outside of Autistry Studios had a moderate negative, but non-significant correlation to participants' percentages of change ($r_s = -.428, p = .19$). This means that participants who received fewer supplemental treatments showed greater improvements in adaptive behaviors between the session one and session nine timepoints. See Table 5 for more information on participant characteristics and individual outcomes.

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Table 5

Participant Characteristics and Individual Outcomes

Participant	Total Change Scores	Percentage of Change*	Duration of Autistry Enrollment (Years)	Age (Years)	Number of Supplemental Treatments
1	38.33	12%	3.9	16	1
2	-14.33	-4.5%	2.6	17	2
3	-15	-4.7%	1.8	15	2
4	119	37%	4.6	19	0
5	12.07	3.8%	1.2	18	1
6	44	14%	3.1	15	2
7	147	46%	0.8	18	0
8	27.46	8.6%	2.2	48	1
9	148	46%	5.9	31	1
10	12	3.8%	7.8	23	1
11	-11	-3.4%	6.5	26	0

*A change >5% indicated improvement and < -5% indicated regression

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Discussion

Adaptive behaviors are essential for adults with ASD to bridge cognitive skills into daily activities, such as interpersonal relationships, education, future employment, and independent living (Lowth, 2015). The results of this study indicate that Autistry Studios' pre-vocational, project-based therapy improves adaptive behavior skills in adults with ASD, as measured by the BABS assessment. The results of this study have emphasized three major findings regarding the effectiveness of project-based therapy at Autistry Studios. First, results indicated that Autistry participants required less assistance to engage in adaptive behaviors while participating in project-based therapy. Second, no meaningful changes in the Frequency of adaptive behaviors were observed. Third, demographic factors did not predict participant change scores. These three findings are discussed further below.

The first major finding of this study was the participants' decreased need for assistance while engaging in project-based therapy. Specifically, the Total scores for adaptive behaviors and scores in the domains of Executive Functioning and Socialization improved. Improvements in Executive Functioning and Socialization translate to increased capacity for independence while engaging in adaptive behaviors. Improvements in the Level of Assistance Low scores (LoALow) indicate that when participants functioned at their lowest, they required a lower Level of Assistance while engaging in adaptive behaviors from session one to session nine. Similarly, improvements in Level of Assistance High scores (LoAHigh) indicate that when participants functioned at their best, they required less assistance from session one to session nine. For example, participants' mean Total Level of Assistance Low scores

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improved from 4.15 to 5.60 between the two timepoints. These results indicate that participants improved, on average, from requiring “Minimum Assistance” to requiring only “Verbal Cues” when they were functioning at their lowest. Similar improvements occurred across all domains of Level of Assistance scores. These results demonstrate that Autistry’s project-based therapy may reduce the Level of Assistance required as individuals with ASD engage in adaptive behaviors necessary for independent living.

In addition to demonstrating significant results in the Level of Assistance Low and Level of Assistance High scores, most domains had a large or very large effect size. Even the Level of Assistance domain scores that did not significantly improve between timepoints still demonstrated a large effect size. Large effect size values indicate that a substantial amount of change in participants’ adaptive behaviors across the timepoints can be attributed to Autistry’s project-based therapy as measured by the BABS assessment. These results suggest that Autistry’s project-based therapy improves adaptive behaviors in adolescents and young adults with ASD.

The results of this study support the previous qualitative research conducted by Ives et al. (2015), which identified that Autistry’s pre-vocational, project-based therapy is an effective intervention to promote independence in young adults with ASD. Ives et al. (2015) conducted interviews with Autistry’s participants and families and found that participation in project-based therapy was effective in “increasing areas of generalized independence via a variety of behavioral changes (Ives et al., 2015, p. 29).” Several key themes emerged from the qualitative analysis of the interviews indicating changes in executive functioning, socialization, independence, self-esteem, and self-regulation. The quantitative results from the current study refined Ives’s et al. (2015) qualitative findings

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that Autistry's project-based therapy is successful in improving overall independence, specifically in executive functioning and socialization, in young adults with ASD.

The second major finding of this study was the absence of change between the session one and session nine Frequency scores. The Frequency scores intended to capture how often participants engaged in adaptive behaviors during a single session at Autistry Studios. Autistry mentors consistently reported that mean Frequency scores for Executive Function were in the "Sometimes" anchor range, while all other Frequency scores were in the "Often" anchor range. The reason for unchanged Frequency scores is not clear; however, the researchers suspect three possibilities. The first possibility is that the study had insufficient power to capture changes in Frequency scores. The second possibility is that project-based therapy does not increase the frequency in which this population engages in adaptive behaviors. This may be better explained by the nature of the program itself. The program is structured to elicit adaptive behaviors through prompting. As mentors prompt the behaviors, it occurs regularly and consistently between treatment sessions. Thus, the most critical factor is the kind of prompting, which is captured in the participants' Level of Assistance scores. The final possibility is that the BABS' five-point Likert scale was not sensitive enough to capture subtle changes in Frequency scores. However, this third option is unlikely, because the BABS was modeled after assessments that exclusively use three-point Likert scales.

The third major finding of this study was that changes between the session one and session nine timepoints could not be predicted by demographic factors. Differences in improvement in adaptive behaviors between participants could not be accounted for by their age or duration of enrollment at Autistry. There was a moderate negative but non-

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significant relationship between the number of supplemental treatments and the percent change scores between the session one and session nine BABS. This indicates that participants who received the most supplemental treatment may have been lower functioning than participants who had no supplemental treatment. However, because this study did not include a measure of severity of each participant's ASD diagnosis, this explanation is speculative. The varying results indicate that improvements with project-based therapy are individualized. Future research is required to address this issue.

Limitations

There are a number of promising results in this study; however, there are some limitations that must be taken into account during interpretation of the results. One limitation of this study is the small sample size, resulting in low power. A larger sample may have resulted in a sustained level of significance following the Bonferroni correction. Another limitation of this study was the relatively short intervention and data collection period. The benefit of a short intervention period is its protection against maturation effects; however, it is impossible to negate the possibility of a maturation effect due to the absence of a control group.

Additionally, participants' attendance at Autistry Studios' workshops was sporadic, resulting in an uneven timeline during data collection. Participants' BABS were collected each time they attended a workshop; however, participants may have had several weeks between two consecutive BABS administrations. Participants' inconsistent attendance may account for the variability in improvements between the session one and session nine timepoints. For example, a participant who had completed the nine session

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intervention in nine consecutive weeks may have seen more steady improvement than a participant who completed nine sessions over 15 weeks.

Another limitation of this study was the high level of functioning of some of the participants, which may have resulted in a near-ceiling score on the BABS in session one. For example, the highest possible Total score on the BABS is 319, yet participant 11 scored 304 on his/her session one BABS, meaning that he/she was already showing a high level of adaptive behaviors and independence. Future revisions of the BABS may be necessary to address the ceiling effect of the assessment in order to capture changes in high functioning individuals with ASD. Similarly, this study had no instrument to measure the severity of ASD or intellectual functioning. Thus, it is unclear if participant 11 was higher functioning than his/her peers or if this is an inherent issue associated with the BABS assessment.

Another limitation of this study was that raters were not blinded. As a result, BABS scores may have been inflated and may have had a Halo effect. This means that raters may have scored participants higher in anticipation of expected positive change. In order to control for Halo effects, future research should implement a blind rating system and a longer data collection period.

The final limitation of this study is associated with the creation of the BABS. The BABS is a new, non-standardized assessment created for the purposes of this study and thus, there is no validity or reliability in this measure. Although the creation of the BABS was informed by the BRIEF-II and Vineland-II, which are two of the most widely used measures worldwide, its non-standardization implies that results must be interpreted

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with caution. Further research is necessary in order to validate this measure and assure its accuracy.

Despite the potential limitations of this study, it highlighted the growing need for research on interventions for adults with ASD. The results of this study offer some insight into the benefits of Autistry Studios and may provide an opportunity for pre-vocational, project-based therapy programs to receive much needed federal, private, or state funding. Based on this research, it is clear that interventions for adults with ASD, such as Autistry Studios' project-based therapy, may significantly impact adaptive behaviors and improve this population's ability to obtain employment and live independently.

Conclusion

The purpose of this study was to measure changes in adaptive behavior skills of individuals diagnosed with ASD enrolled in Autistry Studios' pre-vocational, project-based therapy program. The hypothesis that enrollment in Autistry Studios' project-based therapy would improve adaptive behaviors in individuals with ASD was supported. Additionally, the results from this quantitative study also supported previous qualitative findings that Autistry's pre-vocational, project-based therapy is effective in improving adaptive behavior skills in this population. While further research is necessary to explore the validity and reliability of the BABS assessment, as well as the long-term benefits of pre-vocational, project-based therapy, this study offered valuable insight into the effects of Autistry Studios on adaptive behavior skills in adults and adolescents with ASD.

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APPENDIX A

Dominican University of California
Demographic Information Form

Name of Participant:		
Gender (Check One):	1. <input type="checkbox"/> Male 2. <input type="checkbox"/> Female	
DOB:	___ / ___ / ____	
Race: (Check One)	1. <input type="checkbox"/> White 4. <input type="checkbox"/> Asian 2. <input type="checkbox"/> Black or African American 5. <input type="checkbox"/> Native Hawaiian or Pacific Islander 3. <input type="checkbox"/> American Indian or Alaska Native 6. <input type="checkbox"/> Other: _____	
Ethnicity:	1. <input type="checkbox"/> Non-Hispanic or Latino 2. <input type="checkbox"/> Hispanic or Latino	
Highest Level of Education:	1. <input type="checkbox"/> Some High School 4. <input type="checkbox"/> College Graduate 2. <input type="checkbox"/> High School Graduate or GED 5. <input type="checkbox"/> Some Graduate 3. <input type="checkbox"/> Some College 6. <input type="checkbox"/> Graduate Degree	
Parent's Level of Education	MOTHER: 1. <input type="checkbox"/> Some High School 2. <input type="checkbox"/> High School Graduate or GED 3. <input type="checkbox"/> Some College 4. <input type="checkbox"/> College Graduate 5. <input type="checkbox"/> Some Graduate 6. <input type="checkbox"/> Graduate Degree	FATHER: 1. <input type="checkbox"/> Some High School 2. <input type="checkbox"/> High School Graduate or GED 3. <input type="checkbox"/> Some College 4. <input type="checkbox"/> College Graduate 5. <input type="checkbox"/> Some Graduate 6. <input type="checkbox"/> Graduate Degree
Student Status:	1. <input type="checkbox"/> Currently enrolled in school <input type="checkbox"/> Not currently enrolled in school	
Employment Status:	1. <input type="checkbox"/> Not Currently Employed 2. <input type="checkbox"/> Part Time Employment, Less than 10 hours per week 3. <input type="checkbox"/> Part Time Employment, 10-20 hours per week 4. <input type="checkbox"/> Part Time Employment, 20-30 hours per week 5. <input type="checkbox"/> Full Time Employment	
Current Treatment & Service Enrollment (What other treatments or services is this participant enrolled in, besides Autistry?)	1. <input type="checkbox"/> Individual Therapy 2. <input type="checkbox"/> Group Therapy 3. <input type="checkbox"/> Pre-Vocational workshop 4. <input type="checkbox"/> Other Please briefly describe all additional treatments and services: _____ _____ _____ _____ _____ _____	

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APPENDIX B

Client Initials: _____
 Workshop Date: _____
 Project: _____

ID#: _____
 Mentor: _____

Brief Adaptive Behaviors Scale (BABS)
 Weekly progress report, Record scores for TODAY's session alone

Frequency					Level of Assistance						
1 Never	2 Rarely	3 Sometimes	4 Often	5 Almost Always	1 Dependent	2 Maximum Assistance	3 Moderate Assistance	4 Minimum Assistance	5 Verbal Cues	6 Supervision	7 Independent
(0% of the time)	(25% of the time)	(50% of the time)	(75% of the time)	(>75% of the time)	Client completed 0% of the task	Client Completed 25 % of the task	Client Completed 50% of the task	Client Completed 75% of the task	Client only requires verbal cueing	Client able to work with only staff supervision	Client completed task independently

	Question	Frequency	Level of Assistance
➤	1. Client initiates conversations with staff.	1 2 3 4 5	1 2 3 4 5 6 7
➤	2. Client initiates conversations with peers.	1 2 3 4 5	1 2 3 4 5 6 7
☺	3. Client is able to focus on big picture of project (Does not get caught up in the details).	1 2 3 4 5	1 2 3 4 5 6 7
☺	4. Client is able to act upon ideas that he/she has.	1 2 3 4 5	1 2 3 4 5 6 7
☺	5. Client plans ahead and during a project (Ex. anticipates next step).	1 2 3 4 5	1 2 3 4 5 6 7
☺	6. Client easily able to adjust or modify plan as needed.	1 2 3 4 5	1 2 3 4 5 6 7
☺	7. Client responds appropriately to problems.	1 2 3 4 5	1 2 3 4 5 6 7
☺	8. Client is able to regulate negative emotions (Does not become tearful or angry easily).	1 2 3 4 5	1 2 3 4 5 6 7
◇	9. Client demonstrates appropriate manners during mealtime.	1 2 3 4 5	1 2 3 4 5 6 7
♥	10. Client demonstrates appropriate manners during social interactions, including not interrupting and maintaining proper distance.	1 2 3 4 5	1 2 3 4 5 6 7
+	11. Client manages frustration well.	1 2 3 4 5	1 2 3 4 5 6 7
◇	12. Client keeps comfortable distance between self and others.	1 2 3 4 5	1 2 3 4 5 6 7
⊕	13. Client remains on task while working on his/her project.	1 2 3 4 5	1 2 3 4 5 6 7
➤	14. Client takes initiative while working on project.	1 2 3 4 5	
⊕	15. Client remains on task with few reminders or redirections.	1 2 3 4 5	
🗑	16. Client maintains clean workspace.	1 2 3 4 5	
🗑	17. Client is able to easily find objects needed for project (tools, material)	1 2 3 4 5	
☺	18. Client's mood is appropriate to situation and setting.	1 2 3 4 5	
♥	19. Client stays on topic and participates in conversations.	1 2 3 4 5	
➤	20. Client retrieves his/her own project box at the start of session		1 2 3 4 5 6 7
➤	21. Client cleans up project materials at the end of the workshop.		1 2 3 4 5 6 7
🗑	22. Client clears his/her own dishes at lunch. (If Applicable)		1 2 3 4 5 6 7 N/A

Number of Push-Ups Today: _____

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PROJECT-BASED THERAPY ON ADAPTIVE BEHAVIORS IN ASD

BABS Symbol Key

Self-Regulation	Executive Functioning	Socialization
☹ = Emotional Control	➤ = Initiating	♥ = Interpersonal Relationships
✦ = Frustration Tolerance	🏠 = Planning/Organizing	◇ = Social Norms
	📁 = Organizing Materials	
	⊕ = Attention	

PROJECT-BASED THERAPY ON ADAPTIVE BEHAVIORS IN ASD

APPENDIX C

Brief Adaptive Behavior Scale (BABS) Manual

This assessment was created to replace the weekly progress reports completed at Autistry Studios. The BABS is designed to be administered for every client immediately following every workshop session. This assessment should be completed outside of the presence of Autistry participants.

We are measuring two main domains in this assessment: *Frequency* and *Level of Assistance*.

Frequency refers to the number of times a client completed a task or action when given the opportunity to do so.

Level of Assistance refers to the extent to which an Autistry mentor or staff had to intervene in order to for the client to perform a task or action successfully.

In order for this assessment to be valid, you must put an answer for EVERY question. Do NOT skip any questions during your scoring.

If you have questions: Please feel free to contact us!
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How to Score for Frequency

For the purposes of the BABS we would like you to reflect on all instances that you witnessed during the session. While it is almost impossible to recall exact percentages for each participant, demonstrate your impression of the client's overall completion of these various items.

Frequency				
1 Never	2 Rarely	3 Sometimes	4 Often	5 Almost Always
(0% of the time)	(25% of the time)	(50% of the time)	(75% of the time)	(>75% of the time)

PROJECT-BASED THERAPY ON ADAPTIVE BEHAVIORS IN ASD

Meaning of Frequency Scores:

1 (NEVER): This indicates that the client did not complete the item in question at any point during this session. In order to receive a score of 1, the client must have had an opportunity to complete this item, however, for whatever reason, they NEVER completed it.

2 (RARELY): This score indicates that the client completed the item in question at about 25% of the time.

3 (SOMETIMES): This score indicates that the client completed the item in question at about 50% of the time.

4 (OFTEN): This score indicates that the client completed the item in question at about 75% of the time.

5 (ALMOST ALWAYS): This score indicates that the client completed the item in question greater than 75% of the time. This means that the client rarely failed to complete the item when given the opportunity.

How to Score for Level of Assistance

Level of Assistance						
1 Dependent	2 Max. Assist	3 Mod. Assist	4 Min. Assist	5 Verbal Cues	6 Supervision	7 Independent
Clients completed 0% of the task	Clients complete 25 % of the task	Clients complete 50% of the task	Clients complete 75% of the task	Clients only require verbal cueing	Clients able to work with only staff supervision	Clients complete task with independence

Meaning of Scores:

1 (Dependent): This score indicates that the client completed NO PART of the the item in question.

2 (Maximum Assistance): This score indicates that, at the client's highest level of involvement, they were only able to complete 25% of the task independently. The Autistry mentor or staff were 75% responsible for the task completion.

PROJECT-BASED THERAPY ON ADAPTIVE BEHAVIORS IN ASD

3 (Moderate Assistance): This score indicates that, at the client's highest level of involvement, they were only able to complete 50% of the task independently. The Autistry mentor or staff were 50% responsible for the task completion.

4 (Minimum Assistance): This score indicates that, at the client's highest level of involvement, they were only able to complete 75% of the task independently. The Autistry mentor or staff were 25% responsible for the task completion.

(KEEP IN MIND: The moment that a mentor or staff is required to touch the project or the client in order to facilitate task completion, then the client must be scored a 4 or lower)

5 (Verbal Cues): This score indicates that, at the client's highest level of involvement, they were able to complete a task with verbal cues alone from the Autistry mentors and staff. This score indicates that the client did not require any physical prompting to complete an item or a task.

6 (Supervision): This score indicates that, at the client's highest level of involvement, they were able to complete a task with no physical or verbal prompting, however, supervision was required. The reasoning for supervision may vary. For example, a client may require supervision for safety while using machinery, or while the client engages in a new unfamiliar task. Supervision implies that while the client may be able to complete an item or a task independently, the Autistry staff or mentors do not feel 100% comfortable leaving the room during task completion.

7 (Independent): This score indicates that the client is 100% independent in a task and the mentors and staff would feel comfortable leaving the client alone to complete the item or task.

PROJECT-BASED THERAPY ON ADAPTIVE BEHAVIORS IN ASD

Details of Scoring the Level of Assistance:

The “Level of Assistance” is scored TWICE for each item. The mentors should reflect on two instances that they witnessed during today’s session. Mentors should contemplate when the client required the MOST and LEAST amount of assistance for any given item.

BEST scores should be documented by **CIRCLING** the number.

WORST Scores should be document by **CROSSING OUT** the number.

For example, for Item 1 (Client initiates conversations with peers or staff) if the client has one instance where they require verbal cuing in order to initiate a conversation with a peer (score of 5), but another instance where they initiate a conversation with a peer independently (Score of 7), then the client’s score should be documented as 7 for item 1 because the mentors should always be reporting the clients highest possible score.

Client initiates conversations with peers and staff.	1	2	3	4	5	6	7
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In the event that a client consistently requires the same amount prompting for a particular item, then the BEST and the WORST scores may be the same.

Example 1: A client who consistently required verbal prompting to complete initiate conversations may be scored as follows...

Client initiates conversations with peers and staff.	1	2	3	4	5	6	7
--	---	---	---	---	--------------	---	---

Example 2: A client who consistently requires NO prompting to initiate conversations may be scored as follows...

Client initiates conversations with peers and staff.	1	2	3	4	5	6	7
--	---	---	---	---	---	---	--------------

It is imperative that you indicate BOTH scores on every Level of Assistance Items!

The ONLY Item that may be left blank is #21, which may be scored as N/A in the event that a client does not attend lunch or the dirty dish bin is not placed out in time.

PROJECT-BASED THERAPY ON ADAPTIVE BEHAVIORS IN ASD

EXAMPLE OF COMPLETED BABS

Question	Frequency					Level of Assistance														
	1	2	3	4	5	1	2	3	4	5	6	7								
Client initiates conversations with peers and staff.		2							4											
Client is able to focus on big picture of project (Does not get caught up in the details).				4								7								
Client is able to act upon ideas that he/she has.					5						6									
Client plans ahead and during a project (Ex. anticipates next step).			3									7								
Client easily able to adjust or modify plan as needed.		2						3												
Client responds appropriately to problems.			3						4											
Client is able to regulate negative emotions (Does not become tearful or angry easily).	1											5								
Client takes initiative while working on project.	1					[Hatched Area]														
Client remains on task with few reminders or redirections.					5															
Client maintains clean workspace.			3																	
Client is able to easily find objects needed for project (tools, material)				4																
Client's mood is appropriate to situation and setting.			3																	
Client stays on topic and participates in conversations.					5															
Client retrieves his/her own project box at the start of session	[Hatched Area]																	6		
Client cleans up project materials at the end of the workshop.																				
Client clears his/her own dishes at lunch. (If Applicable)	[Hatched Area]												1	2	3	4	5	6	7	N/A

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