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Psychosocial Impacts of Technology Training in Transitional-Aged Youth with Autism

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Psychosocial Impacts of Technology Training in Transitional-Aged Youth with Autism

by,

Collin D. Dean

Presented to the Faculty of the
Graduate Department of Clinical Psychology
George Fox University
in partial fulfillment
of the requirements for the degree of
Doctor of Psychology
in Clinical Psychology

Newberg, Oregon

April 2018

Approval Page

Functional Impacts of Technology Training Programs in Transitional-Aged Youth with Autism

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Graduate Department of Clinical Psychology

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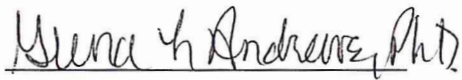
as a dissertation for the PsyD

Signatures:

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Functional Impacts of Technology Training Programs in Transitional-Aged Youth with Autism

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Abstract

The transition from adolescence to adulthood can be difficult to manage for any individual. In addition to typical adjustments, additional challenges for individuals with Autism Spectrum Disorder (ASD) have included living at home for longer, isolating themselves socially, and struggling to find the motivation to seek employment and/or education. Research suggests that these factors are influenced by deficits in adaptive functioning, social cognition, and emotional/behavioral functioning. For this reason, various programs have been implemented to support the adjustment of transitional-aged youth with ASD. Among such programs are post-secondary vocational organizations which seek to assist individuals on the Autism Spectrum by providing them technical training, community support, and employment skill development. The current study seeks to measure the impact of one such program on transitional-aged youth with ASD by measuring change in adaptive, social, and emotional/behavioral functioning as a result of participation.

Keywords: Transitional Aged Youth with Autism Spectrum Disorder (TAY-ASD), Autism Spectrum Disorder (ASD), Transitional Aged Youth (TAY).

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Chapter 1

Introduction

Typical Challenges in Transitioning to Adulthood

Transitioning to adulthood is an important step in the lifespan of an individual, and with it comes many challenges. Developmental psychologists have contributed significant scholarship to exploring the difficulties that take place during this developmental stage. Erikson (1982) characterized the major crisis in adolescence and emerging adulthood as the individual's ability to gain an understanding of her or his own identity. This crisis is described as the psychosocial stage of Identity versus Role Confusion (Erikson, 1982, p. 70). However, not everyone transitions through this stage in the same way. Why is it that some individuals have a more difficult time than others during this stage of transitioning to adulthood? Piaget (as cited in Cole & Packer, 2005) argued that the social environment is a key influence in the development of a person, even changing the identity structure of the individual. Therefore, attention to the social environment during this critical period of identity development is warranted, particularly for individuals who are at higher risk of maladjustment.

Challenges Specific to Transitional-Aged Youth with Autism Spectrum Disorder

Transitional-aged youth with Autism Spectrum Disorder (TAY-ASD) face their own unique challenges as they enter early adulthood. Billstedt et al. (2011) discovered that most TAY-ASD are still dependent upon their adult caregivers for their residential, occupational, and educational needs. These challenges are likely to leave parents of individuals with ASD

wondering what will happen to their child as they transition into adulthood. Similar to typical populations during this period of life, the development of independence for TAY-ASD is largely contingent on emotional/behavioral functioning, social functioning, and adaptive skills functioning.

Emotional and Behavioral Functioning

Typical Development. Emotion and behavior development continues until well after adolescence. Thompson and Winer (2005) highlights this assumption by explaining that the theme of emotional development in adulthood is integrating the adolescent experience of emotions with how those emotions influence one's daily life. Some young adults are able to appropriately navigate this integration, while others encounter significant difficulty in this endeavor.

Emotional development in early adulthood is also impacted by one's own identity formation. In a study of college student commitment development, Kunnen, Sappa, Van Geert, and Bonica (2008) discovered that young adults who explored important life decisions in depth and with increased commitment, were more likely to demonstrate higher self-esteem, better psychological wellbeing, and improved emotional adjustment. This was in contrast to young adults who explored life decisions in breadth and decreased commitment, and who experienced higher anxiety, higher depression, and increased adjustment difficulties. The study also discovered that individuals with decreased commitment to exploring life decisions were more likely to use drugs and alcohol, engage in casual and unprotected sex, and engage in other risky behaviors (Kunnen et al., 2008). These findings highlight the importance of approaching young adulthood life decisions with deep consideration and increased commitment.

Emotional and Behavioral Development in Autism. There are additional considerations in the development of emotional and behavioral functioning in transitional-aged youth with ASD. According to Piven, Harper, Palmer, and Arndt (1996, p. 527), autism is a “lifelong disorder whose features change with development.” Extensive research has been conducted over the past two decades examining the developmental changes to ASD that occur during transition to adulthood. Lounds, Seltzer, Greenberg, and Shattuck (2007) examined changes in overall ASD symptoms over a 4.5-year period among adolescents and adults ages 10 to 52 years old, and found that symptoms such as repetitive behaviors and stereotyped interests improved during the study period. These findings support the assumption that the presentation of ASD symptoms, much like in typically developing individuals, changes over time (Piven et al., 1996). In a larger longitudinal study, Taylor and Seltzer (2010) discovered a similar trend of overall improvements in ASD symptoms and internalized behaviors, but also found that the improvement rate slowed down significantly shortly after exiting high school. It appears that during the period of time in which most structured support is decreased or eliminated for individuals with ASD (post high school), ASD symptoms cease their improvement trajectory. The study further suggests that ASD symptoms may continue to improve if adequately structured support continued beyond this time period (Taylor & Seltzer, 2010).

In addition to ASD-specific symptom changes, individuals with ASD often experience significant impairments in emotional functioning. These impairments often result in co-morbid disorders such as depression and anxiety (Leyfer et al., 2006; Sterling, Dawson, Estes, & Greenson, 2008). Hillier et al. (2011) found that young adults with ASD demonstrated significantly lower depression and anxiety after taking part in an 8-week social and vocations

skills training program. These findings are relevant to the current study in that they demonstrate a positive impact of post-secondary training programs on TAY-ASD.

Social Functioning

Typical Development. Social support also has an important role in the transition to adulthood, including a supportive family, school, and community environment (Berk, 2010, p. 374). Rokach (2000) found that individuals report more loneliness during young adulthood than at any other time during the lifespan, outlining the important role of social functioning during this phase of life. Healthy social development in early adulthood involves developing friendships, creating meaningful romantic relationships, and forming social connections through institutions such as school, church, work, or community (Zarrett & Eccles, 2006). The importance of friendships is further underscored by the fact that young adults report having a closer relationship with their friends than their parents (Siegler, 2003), and that these friendships lead to greater self-esteem and psychological wellbeing (Collins & Madsen, 2006). Friendships are also found to be important avenues through which young adults can engage in personal sharing, which can be valuable to psychological health (Berk, 2010).

Social Functioning in ASD. TAY-ASD demonstrate a wide range of social impairment. Research indicates that young children and adolescents with ASD make fewer attempts to initiate social interactions when compared to typically developing children as well as children with other developmental disabilities (as cited in Orsmond, Krauss, & Seltzer, 2004). A follow up study by Howlin, Mawhood, and Rutter (2000), examined the outcomes of 19 individuals with ASD after transition to adulthood. The study discovered that almost half (47%) had no friends and only 16% had friends that were their similar age (Howlin et al., 2000). Furthermore, a later study by

Orsmond et al., (2004), using a sample of 407 adults and adolescents with ASD, discovered that close to 50% of the sample group did not have friendships with similar aged peers outside of arranged settings. These findings further suggest the social struggles that TAY-ASD face persist as they transition into adulthood. However, despite deficits in social functioning, many TAY-ASD maintain a desire for social connection through friendship, family relationships, or community involvement (as cited in Orsmond et al., 2004). Children with ASD have been shown to initiate interactions with adults at a frequency comparable to typically developing children (as cited in Orsmond et al., 2004). Additionally, Lord and MaGill-Evans (1995) discovered that success in social interaction and engagement with peers increases with age. In addition to age, higher levels of functioning is also an indicator of increased friendships for adolescents with ASD (as cited in Orsmond et al., 2004). However, these friendships are also focused on similar interests with limited social interaction involved (as cited in Orsmond et al., 2004).

A final note of interest from the Orsmond et al. (2004) study was the finding that individuals with ASD with higher internalizing problems were more likely to be involved in increased participation in social and recreational activities. Orsmond et al. (2004) hypothesize that internalizing problems may be describing passive withdrawal (versus active withdrawal), and that these individuals may be less likely to show resistance when taken to social activities. Further, when social activities were arranged by others, or were part of the structure of other activities, individuals with ASD were more likely to be involved.

Regarding parent child relationships, Taylor and Seltzer (2010) found that the mother-child relationship improved during adolescence for teens with ASD. However, this improvement

slowed or stopped completely post high school. These findings highlight the significance of developing close meaningful relationships outside the family system during this transitional age.

Adaptive Functioning

Typical Development. Matthews et al. (2015, p. 2349) defined adaptive functioning as “a multifaceted construct that includes the skills necessary for age appropriate independent living.” Relevant to the development of independence, research provides information on what factors lead to healthy adaptive functioning for emerging adults. Aquilino (2006) found that secure, affectionate relationships with parents are a predictor of favorable outcomes in adaptive functioning. These outcomes include increased self-esteem, more successful transition to living independently as a college student, higher academic achievement, better friendships, and a more positive psychological wellbeing (Aquilino, 2006, p. 201). Taylor, Barker, Heavey, and McHale (2013) suggests that there are also neuro-cognitive influences on adaptive functioning due to a rapid maturation of frontal networks that takes place in late adolescence and early adulthood. This maturation is likely to promote independent and autonomous behaviors during an individual’s transition to adulthood (Taylor et al., 2013). In addition to social factors, there are also emotional factors that influence adaptive functioning in early adulthood. Research has found that negative emotional experiences such as depression can greatly influence an individual’s daily life functioning (Lai et al., 2014). Additional studies have found that early depressive episodes in childhood and adolescence can increase the risk for depression in the future and impact an individual’s adaptive functioning in adulthood. Specifically, Zisook et al. (2007) found that early onset of depressive episodes in childhood and adolescence is often associated with more impaired social and occupational functioning, poorer quality of life, and more lifetime

depressive episodes and suicide attempts in adulthood. Furthermore, depression itself is widely considered a major public health issue and is among the leading causes of disability throughout the world (World Health Organization [WHO], 2010). With increased risk of a depressive episode during this period, and the related adaptive functioning difficulties that arise, properly supporting mood development through transition to adulthood is important.

Adaptive Functioning in ASD. Adaptive functioning in young adults with ASD is one of the most salient factors predicting a successful transition from adolescence to adulthood. Specifically, research suggests that higher adaptive functioning is directly correlated with better adult outcomes in individuals with ASD (Farley et al., 2009). However, it is also widely known that individuals with ASD possess significantly lower adaptive functioning skills than typically developing individuals (Hudepohl, Robins, King, & Henrich, 2015). Among the many factors influencing adaptive functioning, cognitive ability is one of the most widely researched. Matthews et al. (2015, p. 2356) found that “the gap between cognitive and adaptive functioning skills continues into adulthood and increases with age.” This provides further evidence that supports the need for adaptive functioning interventions during transition into adulthood and beyond for individuals with ASD, regardless of cognitive ability.

Current Study

While there is some evidence that supports the benefits of post-secondary training programs on young adults with ASD, there is more to be done in exploring ideal supports for this population during their transition into adulthood (Hiller et al., 2011). The current study seeks to further explore the impact of post-secondary education and skills training with TAY-ASD. Previous research has been conducted exploring how broad skills based programs have impacted

transition to adulthood for many individuals with ASD. With the growing interest on how to best serve the ASD population during transition to adulthood, the current study would add to previous research by examining the impact of a specific program targeting individuals with ASD who have a specific interest in computer programming. This will be done by examining the impact of an ASD-specific technical training program on adaptive, emotional, behavioral, and social functioning for TAY-ASD. The current research also seeks to provide an evidence base that will further bolster the development and improvement of such programs.

Portland Prep. Portland Prep is a 10-week summer training program, meeting once per week for three hours. The program is a collaborative effort through George Fox University and Park Academy aimed at providing computer and mobile game programming and app development training to TAY-ASD. The program includes individualized technology training, with opportunities toward group projects, team-building, social skill development, and employment skills training. The program does not require a college education, and is available for a range of intellectual abilities from the Borderline to the Superior ranges (IQ scores of 65 and above).

Chapter 2

Methods

Participants

Participants were 11 transitional-aged youth with ASD enrolled in post-secondary computer training at Portland Prep Institute. The 11 participants were between the ages of 17 and 25, with a mean age of 21.00 ($SD = 2.8$). Participant group was 81% male and 19% female. All participants were capable of providing their own verbal consent to participate. Of the 11 participants, 9 lived with parents and 2 lived alone.

The current study followed ethical guidelines as outlined by the American Psychological Association code of ethics. All participants and caregivers were required to provide written consent to be involved in the study (see Appendix B) and were provided opportunity to withdraw from the study at any time prior to data analysis. All collected data was de-identified, classified, and kept completely confidential. This study received a full review from the George Fox University Human Subjects Committee before any research was conducted.

Measures

Demographics. All participants completed a pre-training demographics form (see Appendix A). Information on the demographics form included variables such as age, gender, diagnostic comorbidities, social involvement, school/work involvement, and current living situation. The demographics form also inquired about previously acquired psychological assessment scores (i.e. IQ, ADOS, etc.) on assessments that have been completed within the past

3 years. If scores on relevant psychodiagnostic/neuropsychological measures are unavailable, the following assessments were conducted.

Adult Self-Report (ASR). The ASR is a 126-item self-report measure for adults (18-59 years old). It is used to assess features of adaptive functioning and difficulties. Items on the ASR are based on a 3-point Likert scale of 0 = *Not True*, 1 = *Somewhat or Sometimes True*, and 2 = *Very True or Often True*. The ASR provides syndrome scores for somatic complaints, thought problems, attention problems, anxious/depressed, withdrawn, aggressive behavior, intrusive behavior, and rule breaking behavior. Scores on the ASR were used to inform the subject's level of emotional/behavioral functioning before and after the 13-week training program. Reliability ranges on ASR scales is .79 to .96 on test retest studies (Achenbach et al., 2004). The ASR is reliable and valid assessment of pathology in adults ranging on the four scales from 0.70 to 0.85 reliability and 0.49 to 0.84 validity (Achenbach et al., 2004).

Adult Behavior Checklist (ABCL). The ABCL is a 126-item parallel measure used in conjunction with the ABCL and completed by an individual who knows the assessed subject well (i.e. spouse, partner, family member, or friend). Scores on the ABCL were used to further inform participants' emotional/behavioral functioning before and after the 13-week training program. Scales on the ABCL are parallel to those on the ABCL. The ABCL is valid and reliable measure in the general population (Achenbach et al., 2004). Cross informant Q correlation of the ABCL and the Adult Behavior Check List (observer report) is .69 (Achenbach et al., 2004).

Stanford-Binet Intelligence Scales, Fifth Edition (Abbreviated) (SB5). The SB5 is a comprehensive cognitive assessment that measures the five factors of cognitive ability: fluid reasoning, knowledge, quantitative reasoning, visual spatial processing, and working memory. It

is used to assess for strengths and weaknesses in these five cognitive domains. It is also used to assess for a wide range of intellectual, learning, and developmental disabilities. The SB5 is comprised of 10 subtests, all of which are used to produce the Full-Scale IQ (FSIQ). Scaled scores and FSIQ scores have a mean of 100, a standard deviation (SD) of 15, and a score range of 40-160. An abbreviation of this measure will be used as a screening tool to verify that the subject's FSIQ is greater than 75.

The normative sample of the SB5 included 4,800 people ages 2 to 85 years old. The reliability and validity of the SB5 is among the best of modern cognitive assessments with a reliability coefficient of .97 to .98 for FSIQ (Williams, McIntosh, Dixon, Newton, & Youman, 2010). Furthermore, tests of concurrent validity showed a correlation coefficient at or above .78 when comparing the FSIQ on the SB5 with other empirically validated full scale IQ scores (Williams et al., 2010).

Autism Diagnostic Observation Schedule, Second Edition (ADOS-2). The ADOS-2 is a standardized conversational assessment that is used to assess and diagnose individuals with ASD and other developmental disorders. It is strengths-based, providing the individual several opportunities to demonstrate key social behaviors. The absence of typical social behaviors is then scored and compared to norm references to determine whether or not the range of social functioning is consistent with Autism Spectrum Disorder. The ADOS-2 is divided into four modules, with module selection being based on language level and age. For the purposes of this study, ADOS-2 Module 4 will be used to verify a diagnosis of Autism Spectrum Disorder among participants. For the Module 4, items are divided into domains including Social Interaction, Communication, and Stereotyped Behaviors and Restricted Interests.

Vineland Adaptive Behavior Scales, Second Edition (VABS-2) – Parent Report. The VABS-2 is a measure of adaptive behavior used with individuals from birth to 90 years old. This assessment is broken down into five domains of adaptive behavior. These domains include communication, daily living skills, socialization, motor skills, and maladaptive behavior. Domains are used to form an adaptive behavior composite. The current study used the VABS-2 to measure the participant's overall level of adaptive functioning before and after the 13-week training program. Test-retest reliability on the Vineland II is demonstrated with average domain reliabilities between .88 and .92. However, inter-interviewer reliability averages from .48 to .92 for ages 0-6 years, and .70 to .74 for older individuals (Sparrow, Cicchetti, & Balla, 2005).

Procedure

Prior to administration of pre-training measures, informed consent and assent materials were outlined and signed by participants and their primary caregivers. After consent/assent was signed, all participants were administered pre-training measures which included the Stanford-Binet Intelligence Scales, Fifth Edition (SB5), module 4 of the Autism Diagnostic Observation Schedule (ADOS-2), and the Adult Self Report (ASR). Additionally, one parent of each participant completed pre-training parent-report measures which included the Vineland Adaptive Behavior Scales, Second Edition (VABS-2) and the Adult Behavior Checklist (ABCL). Participants also completed the pre-training demographics form.

Participants then participated in the Portland-Prep Technology training program. Following the 10-week training, participants were once again administered the ASR. Parents of participants also completed the VABS-2 and ABCL at this time. Post-training measures did not

include the SB5 or the ADOS-2, as these measures were used to confirm a diagnosis of ASD and current level of intellectual functioning.

Ethical guidelines were followed as outlined by the American Psychological Association. This study received full approval from the George Fox University Human Subjects Research Committee. All participants were informed that their participation is completely voluntary and that they could discontinue participation at any time prior to data analysis.

Chapter 3

Results

Normality

The Statistical Package for the Social Sciences (SPSS, version 23.0) was used for all analyses. Differences found in all analyses were considered significant and reported, if reaching at least the .05 level of confidence. Skewness and kurtosis of each of the variables were explored using the Shapiro-Wilk Test of Normality, and results are displayed in Table 1.

Table 1

Descriptives

Variable	Time One or Time 2	Mean/ Median*	SD	Shapiro-Wilk p-value (Normality)
Age	N/A	21.00	2.898	.271
Gender*	N/A	1.18	.405	.000
Frequency with Friends Online*	N/A	2.55	.688	.000
Frequency Leave House*	N/A	1.91	.944	.021
Frequency Out with Friends*	N/A	3.82	1.401	.025
Hours Working or Studying	N/A	16.27	14.451	.158
Lives with*	N/A	2.55	1.214	.000
FSIQ	N/A	94.09	14.405	.913
VIQ	N/A	91.55	17.363	.783
NVIQ	N/A	97.73	10.964	.646
ADOS Total Score	N/A	16.91	3.113	.428
ABCL Total Problems	Time 1	54.27	8.855	.141
	Time 2	56.27	7.926	.115

ABCL Internalizing Problems*	Time 1	56.18	11.409	.063
	Time 2	58.64	10.462	.028
ABCL Externalizing Problems	Time 1	45.91	7.842	.277
	Time 2	51.27	7.656	.277
ABCL SS Anxious/Depressed*	Time 1	51	-	.000
	Time 2	53	-	.001
ABCL SS Withdrawn	Time 1	62.636	2.704	.168
	Time 2	62.455	3.007	.119
ABCL SS Somatic Complaints*	Time 1	52	-	.002
	Time 2	56	-	.445
ABCL SS Thought Problems	Time 1	58.818	2.057	.452
	Time 2	60.091	2.184	.215
ABCL SS Attention Problems	Time 1	60.364	2.447	.180
	Time 2	61.909	2.722	.181
ABCL SS Aggressive Behavior*	Time 1	50	-	.000
	Time 2	52	-	.010
ABCL SS Rule-Breaking*	Time 1	50	-	.000
	Time 2	54	-	.057
ABCL SS Intrusive*	Time 1	50	-	.000
	Time 2	51	-	.014
ABCL DS Depressive Problems*	Time 1	59	-	.022
	Time 2	58	-	.024
ABCL DS Anxiety Problems*	Time 1	50	-	.000
	Time 2	51	-	.003
ABCL DS Somatic Problems*	Time 1	51	-	.000
	Time 2	52	-	.008
ABCL DS Avoidant Personality*	Time 1	65	-	.121
	Time 2	61	-	.038
ABCL DS ADH Problems*	Time 1	52	-	.007
	Time 2	63	-	.024
ABCL DS Antisocial Personality*	Time 1	50	-	.000
	Time 2	52	-	.010
ABCL DS SCT*	Time 1	55	-	.021
	Time 2	54	-	.048

ASR Total Problems	Time 1	54.273	2.67	.141
	Time 2	52.727	3.766	.115
ASR Internalizing Problems*	Time 1	47	-	.063
	Time 2	52	-	.028
ASR Externalizing Problems	Time 1	48.909	3.535	.277
	Time 2	46.455	3.699	.331
ASR SS Anxious/Depressed*	Time 1	50	-	.002
	Time 2	52	-	.001
ASR SS Withdrawn*	Time 1	56	-	.057
	Time 2	53	-	.030
ASR SS Somatic Complaints*	Time 1	56	-	.031
	Time 2	56	-	.054
ASR SS Thought Problems	Time 1	63	2.618	.452
	Time 2	63.727	3.417	.215
ASR SS Attention Problems	Time 1	57.909	1.970	.246
	Time 2	58.545	2.391	.308
ASR SS Aggressive Behavior*	Time 1	52	-	.006
	Time 2	50	-	.000
ASR SS Rule-Breaking*	Time 1	51	-	.000
	Time 2	51	-	.005
ASR SS Intrusive*	Time 1	50	-	.000
	Time 2	50	-	.000
ASR DS Depressive Problems*	Time 1	57	-	.007
	Time 2	57	-	.012
ASR DS Anxiety Problems*	Time 1	51	-	.000
	Time 2	50	-	.005
ASR DS Somatic Problems*	Time 1	50	-	.002
	Time 2	50	-	.000
ASR DS Avoidant Personality	Time 1	59.18	7.935	.269
	Time 2	56.18	6.853	.052
ASR DS ADH Problems*	Time 1	52	-	.014
	Time 2	55	-	.058
ASR DS Antisocial Personality*	Time 1	50	-	.000
	Time 2	50	-	.000

ASR DS SCT	Time 1	60.727	2.618	.441
	Time 2	59.727	2.446	.222
VABS Adaptive Skills Composite	Time 1	64.818	2.730	.761
	Time 2	66.909	2.451	.272
VABS Communication*	Time 1	68	-	.007
	Time 2	72	-	.904
VABS Daily Living Skills	Time 1	72.27	19.396	.085
	Time 2	71.91	15.655	.237
VABS Socialization*	Time 1	58	-	.787
	Time 2	58	-	.016
VABS Receptive*	Time 1	9.64	3.107	.058
	Time 2	11	3.162	.255
VABS Expressive*	Time 1	9	-	.002
	Time 2	9	-	.000
VABS Written*	Time 1	11	-	.126
	Time 2	10	-	.003
VABS Personal*	Time 1	9	-	.022
	Time 2	9	-	.021
VABS Domestic*	Time 1	10	-	.021
	Time 2	10	-	.010
VABS Community	Time 1	9.36	2.014	.601
	Time 2	10.55	2.806	.333
VABS Interpersonal Relationships*	Time 1	7	-	.021
	Time 2	8	-	.208
VABS Play and Leisure Time	Time 1	8.27	3.552	.222
	Time 2	8.73	2.494	.339
VABS Coping Skills	Time 1	10.73	1.104	.294
	Time 2	10.73	1.348	.111

Note. FSIQ = Full Scale Intelligence Quotient, VIQ = Verbal Intelligence Quotient, NVIQ = Nonverbal Intelligence Quotient, ADOS = Autism Diagnostic Observation Schedule, Second Edition, ASR = Adult Behavior Checklist, SS = Syndrome Scales, DS = Diagnostic Scales, ASR = Adult Self Report, ADH = Attention Deficit/Hyperactivity, SCT = Sluggish Cognitive Tempo, VABS = Vineland Adaptive Behavior Scales. *Median is shown for variables with non-normal distributions.

Correlation Analysis

Vineland Adaptive Behavior Scales, Second Edition (VABS2). A Pearson product-moment correlation coefficient was computed to assess the relationship between Full Scale IQ (FSIQ), Verbal IQ (VIQ), Nonverbal IQ (NVIQ), ADOS-2 total scores, age, answers to pre-treatment demographics form, and differences between pre- and post-training scores on the VABS2 (VABS2 change scores).

Results of the Pearson correlation indicated that the frequency of participant socialization with friends online was positively correlated with VABS2 change scores in the Expressive subdomain ($r = .73, p < .05$), Play and Leisure Time subdomain ($r = .82, p < .05$), and the Socialization Domain ($r = .78, p < .05$). These data suggest that participants who had more frequent experiences socializing with others online before the treatment program demonstrated more improvements in expressive communication skills, play and leisure skills, and overall socialization as a result of the training program.

Further analysis indicated that the frequency of participant socialization with friends outside of the home was moderately positively correlated with VABS2 change scores in the Interpersonal Relationships subdomain ($r = .67, p < .05$). This finding suggests that participants who endorsed more frequent social experiences outside of the home were more likely to demonstrate improvements in interpersonal relationships as a result of the training program.

Results also showed that higher ADOS-2 Total Scores were moderately positively correlated with VABS2 change scores in the Socialization domain ($r = .55, p < .05$). The ADOS-2 Total Score represents symptoms reflective of Autism Spectrum Disorder (representing a combination of number of symptoms and severity of symptoms). Thus, these findings indicate

that participants with higher ADOS-2 Total Scores were found to demonstrate increased improvements in overall socialization skills as endorsed by their parents on the VABS2.

Lastly, higher VABS2 change scores in the Personal subdomain were moderately positively correlated with NVIQ ($r = .55, p < .05$), ADOS-2 Total Score ($r = .50, p < .05$), the frequency participants left their house before the program ($r = .58, p < .05$), and the frequency participants went out with friends before the program ($r = .62, p < .05$). These findings provide descriptors of participants who gained the most in the VABS2 Personal subdomain, those with higher NVIQ scores, those with higher ADOS-2 Total Scores, those who left their house more frequently prior to the program, and those who were out with friends more frequently prior to the program.

Adult Self Report (ASR). A Pearson product-moment correlation coefficient was also computed to assess the relationship between Full Scale IQ (FSIQ), Verbal IQ (VIQ), Nonverbal IQ (NVIQ), ADOS-2 total scores, age, answers to pre-treatment demographics form, and difference between pre and post scores on the ASR (ASR change scores).

Participant age was negatively correlated with ASR change scores on the Withdrawn scale ($r = -.62, p < .05$), and the Anxious/Depressed scale ($r = -.62, p < .05$). These data suggest that older participants demonstrated more improvement in withdrawal anxious/depressed symptoms.

Correlation analysis also indicated that ASR change scores on the Somatic Problems scale was moderately negatively correlated with FSIQ ($r = .57, p = <.05$), and VIQ ($r = .63, p = <.05$). In addition, ASR change scores on the Attention Problems scale was also moderately negatively correlated with FSIQ ($r = .52, p = <.05$), and VIQ ($r = .66, p = <.05$). These findings

suggest that individuals with higher verbal and overall intelligence endorsed greater improvement in somatic and attention problems at the end of the training program.

Lastly, results indicated that the frequency participants left their house was positively correlated with ASR change scores on the Depressive Problems scale ($r = .73, p < .05$). This finding indicates that participants who left their house more frequently before the training program endorsed fewer symptoms of depression over the course of the training program.

Adult Behavior Checklist (ABCL). A Pearson product-moment correlation coefficient was also computed to assess the relationship between Full Scale IQ (FSIQ), Verbal IQ (VIQ), Nonverbal IQ (NVIQ), ADOS-2 total scores, age, answers to pre-treatment demographics form, and difference between pre and post scores on the ABCL (ABCL change scores).

Specifically, the frequency participants left their home before the program was significantly negatively correlated with ABCL change scores on the Somatic Complaints scale ($r = -.79, p < .05$), as well as on the ACBL Somatic Problems scale ($r = -.87, p < .05$). These results indicate that participants who left the house more frequently before the program demonstrated decreased somatic symptoms over the course of the training program.

Next, ADOS-2 Total Scores were negatively correlated with ABCL change scores on the Externalizing Problems scale ($r = -.72, p < .05$). In addition, ADOS-2 Total Scores were moderately negatively correlated with ABCL change scores on the Intrusive scale ($r = -.72, p < .05$). Put differently, individuals with higher ADOS-2 Total Scores demonstrated improvements in Externalizing Problem and Intrusive Thoughts over the course of the training program.

Repeated-Measures Comparisons (Time One versus Time Two)

Multivariate Analyses of Variance (MANOVA) (and in one case, repeated-measures *t*-test) were used to compare Time One and Time Two ABCL and ASR Total Scores, Index Scores, Syndrome Scales, Diagnostic Scales, VABS Adaptive Behavior Composite, VABS Domains, and VABS Subdomains that demonstrated a normal distribution. For nonparametric scores, Time One and Time Two were compared using the Wilcoxon Signed-Ranks Test. Items on the ABCL, ASR, and VABS are factored into domain scores and index scores in such a way that domain scores aren't independent of index scores. Thus, for the normally-distributed scores, MANOVAs were run separately by grouping to maintain independence.

Overall composite score comparison. A one-way repeated-measures MANOVA was used to determine differences between Time One and Time Two on ABCL and ASR Total Scores, and on VABS Adaptive Behavior Composite. There was a significant difference between Time One and Time Two on ABCL Total Score ($F(1, 10) = 6.471, p < .05, \eta^2 = .393, \text{power} = .931$). There were no significant differences between Time One and Time Two found on the ASR Total Score or VABS Adaptive Behavioral Composite.

To check whether non-significant results were due to a lack of statistical power, post-hoc power analyses were conducted (see Table 2) using GPower (Erdfelder, Faul, & Buchner, 1996) with power ($1 - \beta$) set at 0.80 (Cohen, 1988) and $\alpha = .05$, two-tailed. Findings indicated that sample sizes would have to increase up to $N = 60$ (ASR) and 30 (VABS) in order for group differences to reach statistical significance at the .05 level, suggesting that results may indeed have been limited by sample size.

Table 2

Composite Score MANOVA Results

		Sum of Squares	df	Mean Square	F	Sig.	Effect Size (η^2)	Power
Mean Differences	ABCL-Total	22.000	1	22.000	6.471	.029	.393	.931
	ASR- Total	13.136	1	13.136	.573	.467	.054	.161
	VABS- Total	24.045	1	24.045	1.263	.287	.112	.309
Error	ABCL-Total	34.000	10	3.400				
	ASR- Total	229.364	10	22.936				
	VABS- Total	190.455	10	19.045				

Note. Computed using alpha = .05

ABCL and ASR externalizing and internalizing score comparisons. Next, a one-way repeated-measures MANOVA was conducted to determine differences between Time One and Time Two on ABCL and ASR Externalizing Problems. There was a significant difference between Time One and Time Two on ABCL Externalizing Problems ($F(1, 10) = 6.993, p < .05, \eta^2 = .412, \text{power} = .936$). There were no significant differences between Time One and Time Two found on ASR Externalizing Problems.

To check whether non-significant result on ASR Externalizing Problems was due to a lack of statistical power, post-hoc power analyses were conducted again. Findings indicated that sample size would have to increase up to $N = 28$ in order for ASR Externalizing group differences to reach statistical significance at the .05 level, suggesting that results may again have been limited by sample size (see Table 3).

Table 3.

Externalizing MANOVA Results

		Sum of Squares	df	Mean Square	F	Sig.	Effect Size (η^2)	Power
Mean Differences	ABCL-Ext	158.227	1	158.227	6.993	.025	.412	.936
	ASR- Ext	33.136	1	33.136	1.583	.237	.137	.386
Error	ABCL-Ext	226.273	10	22.627				
	ASR-Ext	209.364	10	20.936				

Note. Computed using alpha = .05

Because ABCL and ASR Internalizing Problems demonstrated a non-normal distribution, differences between Time One and Time Two were explored using the Wilcoxon Signed-Ranks Test. Neither test yielded significance (ABCL $Z = -1.63$, $p = 0.103$; ASR $Z = -.415$, $p = 0.678$). Indeed, median ratings for ABCL Internalizing were 56 for both Time One and Time 2, and median ratings for ASR Internalizing were 47 at Time One and 52 at Time 2. Power analyses indicated that while the ABCL-Internalizing results had sufficient power, the ASR-Internalizing Results did not. In the latter case, an N of 422 would have been required to demonstrate sufficient power (see Table 4).

Table 4

Internalizing Wilcoxon Signed-Ranks Test Results

	Z	Sig.	Effect Size (dz)	Power
ABCL Internalizing Problems	-1.63	0.103	0.494	0.998
ASR Internalizing Problems	-0.415	0.678	0.14	0.275

ABCL and ASR syndrome scale comparisons. A one-way repeated-measures MANOVA was conducted to explore differences between Time One and Time Two on the

normally-distributed ABCL Syndrome Scales (Withdrawn, Thought Problems, Attention Problems) and the normally-distributed ASR Syndrome Scales (Thought Problems, Attention Problems). No significant differences between Time One and Time Two were found for these scales. Post-hoc power analyses indicated insufficient power in this analysis, suggesting that lack of significance is likely related to sample size in these comparisons (see Table 5).

Table 5

Syndrome Scale MANOVA Results

		Sum of Squares	df	Mean Square	F	Sig.	Effect Size (η^2)	Power
Mean	ABCL-Withdrawn	.182	1	.182	.008	.930	.001	.279
Differences	ABCL-Thought Problems	8.909	1	8.909	.324	.582	.031	.1
	ABCL-Attention Problems	13.136	1	13.136	.724	.415	.068	.175
	ASR-Thought Problems	2.909	1	2.909	.398	.542	.038	.113
	ASR-Attention Problems	2.227	1	2.227	.204	.661	.020	.081
	Error	ABCL-Withdrawn	224.818	10	22.482			
	ABCL-Thought Problems	275.091	10	27.509				
	ABCL-Attention Problems	181.364	10	18.136				
	ASR-Thought Problems	73.091	10	7.309				
	ASR-Attention Problems	109.273	10	10.927				

Note. Computed using alpha = .05

Differences between Time One and Time Two on non-normally distributed ABCL Syndrome Scales (Anxious/Depressed, Somatic Complaints, Aggressive Behavior, and Rule-Breaking, Intrusive Thoughts) and the non-normally distributed ASR Syndrome Scales

(Anxious/Depressed, Withdrawn, Somatic Complaints, Aggressive Behavior, Rule-Breaking, and Intrusive Thoughts) were explored using the Wilcoxon Signed-Ranks Test. Of those Syndrome Scales, only Intrusive Thoughts yielded significance ($Z = -2.121$, $p < .05$, $dz = .517$, power = .075). Post-hoc power analyses indicated that differences between Time One and Time Two on ASR Withdrawn had the most power, suggesting an N of 50 to reach significance at the .05 level. However, the findings as a whole suggest that lack of significance may again be related to sample size (see Table 6).

Table 6

Syndrome Scale Wilcoxon Signed-Ranks Test Results

	Z	Sig.	Effect Size (dz)	Power
ASR-Anxious/ Depressed	-0.21	0.833	0.035	0.051
ASR-Withdrawn	-1.266	0.205	0.437	0.224
ASR-Somatic Complaints	-0.491	0.623	0.116	0.062
ASR-Aggressive Behavior	-0.631	0.528	0.17	0.08
ASR-Rule Breaking	-0.254	0.799	0.078	0.075
ASR-Intrusive Thoughts	-2.121	0.034	0.517	0.075

ABCL and ASR diagnostic scale comparisons. A one-way repeated-measures MANOVA was conducted to explore differences between Time One and Time Two on the normally-distributed Diagnostic Scales (ASR-Avoidant Personality, ASR- Sluggish Cognitive Tempo). No significant differences between Time One and Time Two were found, though power analyses indicated that differences between Time One and Time Two on ASR-Avoidant Personality neared significance (see Table 7).

Table 7

Diagnostic Scale MANOVA Results

		Sum of Squares	df	Mean Square	F	Sig.	Effect Size (η^2)	Power
Mean Differences	Avoidant	49.500	1	49.500	4.057	.072	.289	.742
	SCT	5.500	1	5.500	.270	.615	.026	.055
Error	Avoidant	122.000	10	12.200				
	SCT	204.000	10	20.400				

Note. Computed using alpha = .05.

The remainder of the ABCL and ASR Diagnostic Scales had non-normal distributions. Thus, differences between Time One and Time Two on the non-normally distributed ABCL and ASR Diagnostic Scales (Depressive Problems, Anxiety Problems, Somatic Problems, Avoidant Personality, ADH Problems, Antisocial Personality, and ABCL Sluggish Cognitive Tempo) were explored using the Wilcoxon Signed-Ranks Test. While no significant differences were found, post-hoc power analyses indicated that three comparisons neared significance (ABCL ADH Problems, ABCL Antisocial Personality, and ASR Avoidant Personality), with lack of significance likely impacted by sample size (see Table 8).

VABS domain score comparison. A repeated-measures t-test was used to determine differences between Time One and Time Two on VABS Daily Living Skills. Results showed no significant difference in scores for pre-training and post-training responses on VABS2 Daily Living Skills ($t(10) = .086, p = .933, d = .026, \text{power} = .051$). Power analysis indicated that 11,920 participants would be required for sufficient power for this analysis.

Table 8

Diagnostic Scale Wilcoxon Signed-Ranks Test Results

	Z	Sig.	Effect Size (dz)	Power
ABCL Depressive Problems	-.178	0.859	.139	.069
ABCL Anxiety Problems	-.105	0.917	.019	.05
ABCL Somatic Problems	-.526	0.599	.072	.055
ABCL ADH Problems	-1.863	0.063	.708	.54
ABCL Antisocial Personality	-1.947	0.051	.662	.487
ABCL Sluggish Cognitive Tempo	-.603	0.546	.164	.077
ASR Depressive Problems	-.494	0.621	.252	.114
ASR Anxiety Problems	-.169	0.866	.064	.054
ASR Somatic Problems	-.405	0.686	.174	.08
ASR Avoidant Personality	-1.892	0.058	.607	.424
ASR ADH Problems	.000	1	.166	.077
ASR Antisocial Personality	-.271	0.786	.015	.05

VABS Socialization and VABS Communication had non-normal distributions. Thus, differences between Time One and Time Two on those domains were explored using the Wilcoxon Signed-Ranks Test. Results showed no significant difference in scores for pre-training and post-training responses on the VABS2 Communication or Socialization ($Z(10) = -1.544$, $p = .123$, $dz = .564$, power = .377 and $Z(10) = -1.367$, $p = .172$, $dz = .471$, power = .28, respectively). Post-hoc power analysis indicated that sample size may have contributed to lack of significance in these comparisons (see Table 9).

Table 9.

VABS Domain Score Wilcoxon Signed-Ranks Test Results

	Z	Sig.	Effect size (dz)	Power
VABS-Communication	-1.544	0.123	0.564	0.377
VABS-Socialization	-1.367	0.172	0.471	0.28

VABS Subdomain Score Comparison. A one-way repeated-measures MANOVA was conducted to explore differences between Time One and Time Two on the normally-distributed VABS Subdomains (Receptive, Community, Play And Leisure Time, Coping Skills). No significant differences between Time One and Time Two were found, though power analyses indicated that Receptive Communication and Community were nearing significance (see Table 10).

Table 10

VABS Subdomain Score MANOVA Results

		Sum of Squares	df	Mean Square	F	p-value	Effect Size (η^2)	Power
Mean Differences	Receptive	10.227	1	10.227	3.617	.086	.266	.546
	Community	7.682	1	7.682	3.876	.077	.279	.575
	Play	1.136	1	1.136	.448	.518	.043	.067
	Coping	.000	1	.000	.000	1.000	.000	.05
Error	Receptive	28.273	10	2.827				
	Community	19.818	10	1.982				
	Play	25.364	10	2.536				
	Coping	2.000	10	.200				

Note. Computed using alpha = .05.

Differences between Time One and Time Two on non-normally distributed VABS Subdomains (Expressive, Written, Personal, Domestic, Interpersonal Relationships) were explored using the Wilcoxon Signed-Ranks Test. No significant differences were found, though VABS Interpersonal Relationships neared significance (see Table 11).

Table 11

VABS Subdomain Score Wilcoxon Signed-Ranks Results

	Z	Sig.	Effect size (dz)	Power
VABS Expressive	-.647	0.518	0.312	0.917
VABS Written	-.184	0.854	.122	.065
VABS Personal	-.850	0.395	.286	.133
VABS Domestic	-.365	0.715	.055	.053
VABS Interpersonal Relationships	-1.725	0.084	.571	.384

Chapter 4

Discussion

Young adults face many challenges as they transition to adulthood. For transitional-aged youth with Autism Spectrum Disorder (TAY-ASD), difficulties with social skills, emotional and behavioral regulation, and adaptive functioning often create many barriers that make the goal of assimilating to adulthood particularly challenging (Billstedt et al., 2011). These barriers often leave parents of individuals with ASD wondering how to define success in the individuation of their child, and about the best approach to use to transfer autonomy as they transition to adulthood (Howlin, 1997). Some research indicates that adolescents with ASD often demonstrate improved relationships with their parents. However, these improvements are found to be slowed or stopped completely when these individuals transition into adulthood (Taylor & Seltzer, 2010). A possible reason for these challenges is that most structured support is decreased or eliminated during this transitional phase (Taylor & Seltzer, 2010). Emerging evidence suggests that TAY-ASD experience better outcomes when additional structured supports are maintained after individuals with ASD have transitioned into adulthood (Taylor & Seltzer, 2010). These findings provide hope for parents of TAY-ASD and lead them to explore ways to supplement the structural support that they are no longer receiving at school. Over the past two decades, researchers, social activists, and government bodies have sought to explore these challenges and discover effective ways to support individuals with ASD during this developmental period. Researchers are discovering psychosocial benefits of participation in vocational skills training

programs that are tailored for TAY-ASD. Particularly relevant to the current study, Hiller et al., (2011) discovered that individuals with ASD experienced decreased depression and anxiety after taking part in an eight-week vocational training program. The current outcome study explored the psychosocial impacts of a ten-week summer training program developed to provide technology training and support in video game design and app development, within a structured environment tailored for TAY-ASD. This pilot study sought to explore potential benefits of the program in three main areas: social skills, emotional/behavioral functioning, and adaptive skills functioning.

Externalizing Behavior

While the small sample size of the current study limited the power of the comparisons, a few preliminary findings are worthy of discussion. First, parent ratings of externalizing behavior problems increased slightly over the training program, particularly in the domain of executive functioning (ABCL-ADH Problems, Externalizing Problems, Total Problems). This was certainly counter to what was expected, but makes more sense when understood in the context of the participants. For the most part, participants were largely homebound, post-high school aged, but not yet able to find gainful employment. Most lived with and were financially supported by their parents or by disability benefits. Some had chore responsibilities in their homes, and some did not. All of them were primarily alone at home during the day, with parents who worked outside the home. It is possible that with the increased demands of the training program as compared to regular life at home prior to the training program, difficulties with executive functioning became more apparent to parents. Increased demands may have also taxed the executive functioning resources available. Another possible explanation is that all but one student were transported to

and from training by their parents, who came in and observed toward the end of the training session in most cases. Given their observation, it is possible that parents who were able to directly observe their child involved in training activities noticed executive functioning difficulties that they would not have been noticed in prior non-school and non-work environments.

Next, correlation analysis suggested that change in parent-reported externalizing problems were significantly correlated with increased total symptoms of ASD on the ADOS-2, such that individuals who were more impacted by ASD were also more likely to show possible executive functioning or other behavioral decompensation through their participation in the training program. One hypothesis for this finding is its consistency with prior research that greater task demands elicit increased executive functioning (EF) involvement (Isingrini et al., 2015). Though they have a high likelihood of EF impairment, when TAY-ASD were primarily at home, alone, and doing preferable activities (e.g., video games, hobbies), their EF was less likely to be taxed. However, once these students began the training program and task demands were increased, EF functioning deficits became more apparent.

Social Avoidance and Internalizing

The next interesting (however preliminary) finding was the self-reported decrease in social avoidance (ASR-Avoidant Problems nearing significance) between Time One and Time Two of the training program. In fact, correlational analysis of participant responses on the ASR discovered that older participants demonstrated more improvements in withdrawal, as well as anxiety and depression over the course of the training. These findings are consistent with previous research from Hiller et al. (2011), who also discovered decreased anxiety and

depression among TAY-ASD taking part in an 8-week vocational training. Additionally, these findings agree with previous research that suggests success in social interaction is increased in age among individuals with ASD (Lord & MaGill-Evans, 1995). The current study provides further evidence suggesting positive outcomes in social and emotional functioning for TAY-ASD who are involved in vocational skills training programs.

Adaptive Functioning

Preliminary analyses outlined parent-reported adaptive functioning improvements in three subdomains neared significance (VABS Receptive Communication, Community Functioning, and Interpersonal Functioning). These findings are important because of the mounting evidence that suggests that higher adaptive functioning is directly correlated with better adult outcomes in individuals with ASD (Farley et al., 2009). Consequently, the discovered benefits in adaptive functioning indicated in the current study suggest that participation in programs like Portland Prep may lead to increased positive outcomes for TAY-ASD.

Social Functioning

Additionally, correlational analysis discovered that participant's improvement in multiple adaptive skill areas were largely influenced by the reported frequency of socialization with friends outside the home and/or online before the onset of the training program, such that those who socialized more prior to the program showed more improvement during the program. Additionally, correlational analysis indicated that participant improvement in socialization (VABS2 Socialization) was significantly correlated with increased symptoms of ASD on the ADOS-2. Put differently, participants who were most impacted by ASD demonstrated the most improvement on socialization between Time One and Time Two. This finding builds on the work

of Orsmond et al. (2004) describing that individuals with ASD who have increased internalizing problems (likely passive withdrawal) are better able to engage socially when social interaction is arranged for them or is part of the structure of their hobbies or other involvements.

Happiness

Finally, item-level analysis indicated that participants endorsed that they were happier at the end of the training program than when they began (ASR Item 123- "I am a happy person."). A possible reason for this outcome could be that the participants were able to experience increased life satisfaction through the additional interpersonal opportunities offered during the Portland Prep program. This hypothesis is supported by Kirchner, Ruch, and Dziobek, (2016) who discovered that character strengths of teamwork, social intelligence, and humor were indicators of increased life satisfaction among adults with ASD all of which were components of the Portland Prep training program. Findings of the current study could hypothesize that opportunities to further develop these character traits were provided during participation in Portland Prep and possibly led to increased happiness at the end of the eight-week training.

Limitations

There are several limitations of the current study that must be considered when interpreting these findings. First, the number of participants ($n = 11$) was significantly low and consequently statistical power estimates were small. In sum, power analysis indicated that an N of 50 would be necessary to yield sufficient power. Therefore, follow up studies would be greatly enhanced by having an experimental group of at least 50 participants.

Second, the current study was unable to access a control group, decreasing clarity on the specific effect of the training program as opposed to developmentally typical life

activities/changes during the course of the study. Including a control group will allow for a more effective accounting of confounding variables (e.g., demographics, living situation, age, previous experience, etc.). There were many barriers to finding participants for experimental and control groups during the current study. One such barrier was that the Portland Prep program was in its infancy when the experiment was conducted, having just been established earlier that year. The experimental group of the current study was the first cohort of the Portland Prep program since its establishment. This caused significant difficulties in recruiting community participants not yet aware of the training program. Future studies would benefit from examining these outcomes among similar training programs that are more established and have increased number of participants (e.g., nonPareil Institute).

Secondly, opportunities for recruiting control group participants was difficult due to the highly specific demographic this study examined. One future solution to this barrier would be to examine participants of training programs that are more well-known or in higher demand, with a potential for a wait-list control group. This approach could also lead to potential follow up studies that examine outcomes of individuals before and after their participation in the training program.

Another barrier to the current study was observed difficulty that participants had completing the ASR questionnaire. Specifically, questions on the ASR have several items that are possibly too abstract for the population being studied and therefore likely presented many challenges in the participants' ability to provide accurate responses. For example, it is widely known that individuals with ASD struggle with insight, impacting their ability to provide accurate estimations of their role in social relationships. Therefore, the accuracy of responses to

ASR questions regarding social and interpersonal skills may be in question. Therefore, future research may benefit from collecting more qualitative information through interviews with participants and their parents, direct observation, and personal written accounts.

Lastly, the current study could have been enhanced by additional data collection regarding the amount of training that participants had completed before taking part in the current training program. Some of the participants of the current study were reported to have had previous computer training experience, while other participants were reported to have had little-to-no experience. Anecdotal observation of participants during training indicated that participants with decreased background in technology training had more difficulties keeping up with classroom instruction. This suggests that these individuals might have experienced fewer positive outcomes after the training program as a result. Therefore, future research would benefit from collecting this information as an additional variable in examining anticipated outcomes.

In conclusion, the current study provided evidence regarding some of the benefits of the Portland Prep program in helping TAY-ASD develop social, emotional, and adaptive skills during their transition to adulthood. However, given the previously discussed limitations of the current study, it is suggested that future research be conducted to further examine these benefits. Continued research involving a control group and larger sample size could advance understanding of the efficacy of these programs and the overall impact on these individuals. Longitudinal studies as well as follow up research should also be conducted to shed further light on the long-term benefits of programs like Portland Prep on TAY-ASD.

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Appendix A

**Portland Prep
Demographics Questionnaire**

Age _____ years
Gender M F

How often do you interact with friends online?

- a. 28 or more hours/week (around 4 hours/day)
- b. 7-28 hours/week (between 1 and 4 hours/day)
- c. Less than 7 hours/week

Where online do you interact with friends (what sites or games)? List your top three.

How often do you leave your house?

- a. Multiple times daily
- b. 4-7 times per week
- c. 1-3 times per week
- d. 1-3 times per month
- e. Once a month or less

How often do you go out with friends (not via electronic devices)?

- a. Multiple times daily
- b. 4-7 times per week
- c. 1-3 times per week
- d. 1-3 times per month
- e. Once a month or less

Are you currently in a romantic relationship? Yes No

How many hours per week do you spend either studying or working?
_____ hours

With whom do you live?

- a. with friends
- b. with parents
- c. with extended family
- d. with romantic partner
- e. alone

Appendix B

Informed Consent

Research on a Technology Training Program for Transitional Aged Youth with
Autism Spectrum Disorder
-a collaboration of Portland Prep and George Fox University-

Primary-Investigator: Celeste Flachsbart, Psy.D., ABPP
Research Assistant: Collin Dean, M.A.

Consent/Assent

Thank you for your interest in the Portland Prep program, and associated research through George Fox University. We are interested in exploring the impacts of the Portland Prep technology training program on skill areas of social, emotional, independent living, and employment skills. This research study is funded by Portland Prep, completed through the efforts of volunteer researchers from George Fox University.

INFORMATION

Involvement

Through participation in Portland Prep screening, crewmembers will complete the following assessments. Data collection in the program includes four steps:

1. For the first step, the Portland Prep crewmember will complete of 3 hours of independent psychological evaluation, including a standardized cognitive assessment and a conversational assessment of social communication skills. The social communication assessment will be videotaped.
2. For the second step, the parent of the Portland Prep crewmember will complete two questionnaires about their child's daily living skills, which will be brought to the first night of the technology training program.
3. The third step occurs the first night of the technology training program. At the end of the night, the Portland Prep crewmember will be asked to complete a questionnaire about their current emotional and behavioral functioning, as well as a demographics questionnaire.
4. Finally, at the end of the 10week session of Portland Prep, both the parent reported questionnaires and the Portland Prep crewmember questionnaires will be completed again.

While this data is used to inform appropriate placement and planning for each Portland Prep crewmember, researchers associated with Portland Prep are also interested in using the data collected for research purposes.

Foreseeable risks or discomfort

Participation in this study involves no extra time commitment than that involved in the program outlined above. Efforts will be made to protect identifying information, and the confidentiality of research participants.

Benefits

There is no financial compensation for participation in this study. However, you may receive cognitive and social communication test results, with the assessments completed at no cost to the crewmember or family.

Confidentiality

Confidentiality of personal information and data collected will be protected through use of participant ID numbers on forms collected, and with a separate secure file that contains the links between subject names and ID numbers. All electronic data will be password protected. Physical data (test protocols, forms) will be stored in a locked filing cabinet in a locked office.

Voluntary Involvement

Your agreement to allow this data that is being collected to be used for research purposes is voluntary. Refusal to participate will involve no penalty or loss of program benefits to which the crewmember is otherwise entitled. You may also discontinue participation at any time up until data analyses are completed.

AGREEMENT

I, the undersigned, agree to complete a series of psychological assessments that will assess my ability to put ideas into words, reason without words, remember things, problem solve, and engage in social communication. I also understand that I will need to complete pre and post questionnaires about my social and emotional functioning lately.

I understand that the first day of testing will take approximately 3 hours, and questionnaires will take additional time during the Portland Prep session.

I understand that this information is being gathered and testing completed for research purposes, and that the person administering the tests and gathering records will protect my identity and privacy in any and all ways in which this information is used. I also understand that some or all of the testing may be videotaped for research purposes.

I understand that I will have the opportunity to take part in a discussion with the person administering the tests regarding the procedures involved. I understand that I may receive cognitive assessment and social communication assessment test results, but I will not receive questionnaire results until the study is completed.

I understand that I may stop my involvement at any point, with no explanation necessary. If I have any questions that the person administering this test cannot answer or concerns about the testing process, I can contact Dr. Celeste Flachsbart of the George Fox University Graduate Department of Clinical Psychology. Dr. Celeste Flachsbart is available at cflachsbart@georgefox.edu or (503) 5542384.

I understand that I will receive a copy of this consent and by signing indicate that I am at least 18 years of age, and understand and accept the conditions described above.

Printed Client Name Client's Signature

Client's Signature

Date: _____

Test Examiner's Signature

Appendix C

Curriculum Vitae

Collin Dean

(702) 275-7573

email: cdean13@georgefox.edu

EDUCATION

- 8/2013 - present **Student of Doctor of Psychology, Clinical Psychology**
 George Fox University *Newberg, OR*
 Graduate Department of Clinical Psychology: APA Accredited
Emphasis: Child & Adolescence
 Dissertation Title: Functional Impacts of Autism-Specific Technology
 Training in Transitional Aged Youth with Autism Spectrum Disorder
 Current GPA: 3.92
- 8/2013 – 5/2015 **Masters of Arts, Clinical Psychology**
 George Fox University *Newberg, OR*
 Graduate Department of Clinical Psychology (APA Accredited)
- 8/2009 to 5/2012 **Bachelor of Science, Behavioral Science** (Psychology Emphasis)
 Utah Valley University *Orem, UT*
 Overall GPA at Institution: 3.92

HONORS AND AWARDS

- 5/2012 **Summa Cum Laude- Undergraduate Honors**
 Utah Valley University, *Orem, UT*
- 3/2012 **Phi Kappa Phi Honor Society Member**
 Utah Valley University Chapter *Orem, UT*
 Membership: 2012 - 2013
- 8/2009 – 5/2012 **Deans List** (every semester)
 Utah Valley University *Orem, UT*

SUPERVISED CLINICAL EXPERIENCE

- 7/2017 – Present **Internship**
Nebraska Internship Consortium of Professional Psychology
University of Nebraska Medical Center- Munroe Meyer Institute
 Rural Integrated Care Track- *Norfolk, NE*

Description: Providing clinical treatment and assessment services within a rural integrated care setting.

Population: Children, adolescents, and families from a wide range of rural areas in northeastern Nebraska. Working with clients from diverse cultural, ethnic, and socioeconomic backgrounds.

Duties:

- Manage day to day clinic responsibilities (e.g., scheduling, session preparation, note writing, etc.).
- Provide behavioral support using short-term solution focused CBT with children, adolescents, and families.
- Conduct initial intake evaluation and determine appropriate level of care that meets the client's needs.
- Conduct psychological assessments, interpret assessment results, provide assessment feedback, and write comprehensive reports.
- Collaborate with other health professionals to provide coordinated care for clinic patients.
- Participate in ongoing research with fellow intern, post-doctoral fellows, and faculty members.

Site Supervisor: Josh Turek, PhD

Pre-Internship

8/2016 – 6/2017

Providence Children's Development Institute (PCDI)

Providence Portland Medical Center *Portland, OR*

Description: Performed psychodiagnostic and neurodevelopmental evaluations on a multidisciplinary team comprised of developmental pediatricians, occupational therapists, speech pathologists, and other health professionals.

Population: Children and adolescents (ages 2-18 years old) presenting with suspected developmental, behavioral, or emotional disorders.

Duties:

- Administer 1-2 comprehensive psychodiagnostic/ neurodevelopmental evaluations per week.
- Participate in monthly school aged Autism Diagnostic Screening Clinic conducting diagnostic evaluations for children and adolescents suspected of having ASD.
- Conduct structured intake interviews with parents of children being assessed.
- Administer, score, and interpret results of cognitive, personality, achievement, and behavioral measures.
- Write weekly comprehensive psychological reports.
- Coordinate care with on-site medical professionals.

- Attend monthly department consultation meetings to discuss complex cases with the goal of providing collaborative care to patients and families.
- Acquire skills in evaluating individuals with Autism Spectrum Disorders using the Autism Diagnostic Observation Schedule-Second Edition (ADOS-2)

Site Supervisor: Darryn Sikora, Ph.D.

6/2016 – 5/2017

The Children's Clinic, Tualatin, OR

Description: Provided behavioral health consultation and liaison services to children and families in a pediatric primary care clinic.

Population: Children and adolescents (ages 0-18 years old)

Duties:

- Provide behavioral support using short-term solution focused CBT with children, adolescents, and parents.
- Provide consultation services to medical personnel including the following:
 - Psychodiagnostic clarity
 - Referral to long term therapy
 - Suggestions for behavioral intervention
 - Crisis consultation and risk evaluations
- Use psychodiagnostic screening tools to assess for possible ADHD, anxiety, depression, and other mental health related conditions that are commonly noticed in primary care clinics.
- Collaborate with other health professionals to provide coordinated care for clinic patients
- Accompany pediatricians during routine well child checks and sick visits for children with mental health difficulties.

Site Supervisor: Kristin Valerius, Ph.D.

6/2016 – 9/2016

Supplemental Practicum, Newberg, OR

Description: Served as a behavioral aid for a 17-year-old male high school student with high functioning autism spectrum disorder.

Duties:

- Assist client with in-home behavior modification strategies
- Employ solution focused CBT techniques to increase motivation for involvement in extra-curricular activities
- Assist client in developing useful strategies for transitioning to adulthood including:
 - Developing resume for potential job-search
 - Learning to use public transportation
 - Learning to shop and cook for himself
 - Learning how to budget money

- Obtaining driver's license permit

Supervisor: Celeste Flachsbart, Psy.D.

Practicum II

6/2015 – 5/2016

Olson Pediatric Clinic, Lake Oswego, OR

Description: Served as a behavioral health consultant providing consultation and liaison services in a pediatric primary care clinic.

Population: Worked with patients ages 0-21 years old and their parents (parent training).

Duties- Olson Pediatric Clinic

- Met with pediatric patients referred by their primary care providers for 20-30 minute consultations to provide brief, focused intervention and liaison services.
- Assisted primary care providers in recognizing, treating, and managing mental health issues.
- Provided primary care providers with feedback regarding their client's care, treatment recommendations, and progress
- Provided brief ADHD evaluations via an ADHD screening clinic for patients seeking diagnostic clarification for ADHD.
- Assisted pediatric patients by introducing evidenced based strategies for anxiety, depression, chronic pain, behavior, toileting, and various other mental health and medical conditions.

Supervision: Tabitha Becker, Psy.D. & Erika Doty, Psy.D.

8/2015 – 5/2016

360 Pediatric Psychology, Lake Oswego, OR

Description: Provided individual therapy as well as Psychodiagnostic and psychoeducational evaluations within a private practice pediatric assessment clinic.

Population: Children ages 5-18 years old and their parents. Patients often came from middle to high socioeconomic status and diverse cultural backgrounds.

Duties:

- Provide psychodiagnostic testing to clients with a variety of mental health related disorders including ADHD, anxiety, depression, learning disability, oppositional defiance, and adjustment disorder
- Conduct intake interviews with parents and children
- Administer, score, and interpret assessments for comprehensive psychodiagnostic and psychoeducational evaluations
- Provide individual therapy to children and parents ages 3 to 17 using cognitive behavioral psychotherapy, parent-child interaction training, and collaborative problem solving

Supervisor: Tabitha Becker, Psy.D. & Erika Doty, Psy.D.

- 9/2014 – 5/2015 **Practicum I**
Rural School District Consortium, St. Paul Elementary School,
St. Paul, OR
Description: Worked within a multidisciplinary team providing individual and group therapy for elementary school students with trauma, emotional/behavioral problems, and educational challenges.
Population: Students in a rural elementary school setting. Students often came from low socioeconomic status and diverse cultural backgrounds. Primarily worked with children ages 6-12 years old.
Duties:
- Conduct comprehensive psychoeducational evaluations used in determining special education eligibility.
 - Provide individualized treatment through CBT and Client Centered psychotherapeutic interventions.
 - Conduct intake interviews and develop treatment plans to implement empirically supported intervention strategies
 - Help connect students with internal and external resources
 - Provide consultation to parents or primary caregivers
 - Ran group sessions and taught psychoeducational classes on developing social and emotional skills
 - Participated in interprofessional collaboration with staff to reduce problem behaviors in the classroom
- Supervisor: Elizabeth Hamilton, Ph.D.
- 1/2014 – Present **Pre-Practicum**
George Fox University, Graduate Department of Clinical Psychology,
Newberg, OR
Description: Provided 10 one-hour therapy sessions with two George Fox University undergraduate students.
Population: Worked with a mostly Christian student population
Duties:
- Implemented Rogerian psychotherapy practices in each session
 - Reviewed videotaped sessions with advanced level graduate student
 - Obtained competency in Person Centered approaches to Psychotherapy
- Supervisor: Carlos Taloyo, Ph.D.

ASSESSMENT EXPERIENCE

16 Personality Factor Questionnaire, Fifth Edition (16PF Fifth Edition)
Adaptive Behavior Assessment System, 3rd Edition (ABAS-3)

Autism Spectrum Diagnostic Observation Schedule-Second Edition (ADOS-2)
Autism Spectrum Rating Scales (ASRS)
Behavior Assessment System for Children and Adolescents, Second Edition (BASC-2)
Behavior Assessment System for Children and Adolescents, Third Edition (BASC-3)
Behavior Rating Inventory of Executive Function (BRIEF)
Child Behavior Checklist (CBCL)
Children's Depression Inventory 2 (CDI 2)
Comprehensive Test of Phonological Processing, 2nd Edition (CTOPP-2)
Conners 3rd Edition (Conners 3)
Delis-Kaplan Executive Function System
Denver Developmental Screening Test
Expressive One-Word Picture Vocabulary Test, Fourth Edition
Generalized Anxiety Disorder Screener (GADS 7)
Grip Strength Test
Grooved Pegboard Test
Gray Oral Reading Tests - Fifth Edition (GORT-5)
NICHQ Vanderbilt Parent Assessment Scale
Multidimensional Anxiety Scale for Children-2nd Edition (MASC-2)
Millon Clinical Multiaxial Inventory, Third Edition (MCMI-III)
Minnesota Multiphasic Personality Inventory, Second Edition (MMPI-2)
Minnesota Multiphasic Personality Inventory- Adolescent (MMPI-A)
Minnesota Multiphasic Personality Inventory, Restructured Form (MMPI-2-RF)
Patient Health Questionnaire (PHQ)
Patient Health Questionnaire for Depression (PHQ-9)
Peabody Picture Vocabulary Test, Fourth Edition (PPVT-4)
Personality Assessment Inventory-Adolescent (PAI-A)
Receptive One-Word Picture Vocabulary Test-Bilingual
Rey-Osterrieth Complex Figure
Roberts-2
Stanford-Binet Intelligence Scale-Fifth Edition (SB5)
Teacher Rating Form (TRF)
Test of Memory Malingering (TOMM)
Test of Non-Verbal Intelligence, 4th Edition (TONI-4)
Vineland Adaptive Behavior Scales, Second Edition (VABS-2)
Vineland Adaptive Behavior Scales, Third Edition (VABS-3)
Wechsler Adult Intelligence Scale, Fourth Edition (WAIS-IV)
Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV)
Wechsler Intelligence Scale for Children, Fifth Edition (WISC-V)
Wechsler Individual Achievement Test, Third Edition (WIAT-III)
Wide Range Achievement Test (WRAT-4)
Wide Range Intelligence Test (WRIT)
Wide Range Assessment of Memory and Learning, Second Edition (WRAML2)
Woodcock-Johnson Test of Achievement, Fourth Edition (WJ IV ACH)

Woodcock-Johnson Test of Cognitive Abilities, Fourth Edition (WJ IV COG)

RELATED WORK EXPERIENCE

- 6/2016- Present **YMCA of Columbia Willamette – Teen Center/Youth Basketball**
Sherwood, OR
- Supervised youth ages 12-18 in after school program
 - Planned and organized activities for patrons
 - Coached youth basketball for boys & girls ages 8-12
 - Mentored Youth
- 2/2013- 9/2013 **Home on the Range Youth Ranch- Campus Director**
Ely, NV
- Supervised employees and residents in a youth residential treatment setting
 - Trained employees in developing skills beneficial to their interaction with residents
 - Assisted residents with treatment program set by on-site therapists, encouraging proper program behavior while motivating them to achieve personal growth
 - Helped the residents develop a strong work ethic, learn the connection between choice and accountability, and understand the benefits of personal responsibility through a token economy
- 4/2012 – 2/2013 **Discovery Ranch Residential Treatment- Youth Mentor**
Mapleton, UT
- Helped teens struggling with behavioral and emotional issues
 - Watched over residents to ensure a safe environment
 - Assisted youth in following the treatment plan created by their on-site therapists

TEACHING EXPERIENCE

- 9/2016 **Teaching Assistant- Cognitive Behavioral Psychotherapy (Fall 2016)**
Graduate Department of Clinical Psychology, George Fox University
Newberg, OR
Faculty: Mark McMinn, Ph.D.
Course: Cognitive Behavioral Psychotherapy
Duties: Assist in mentoring 2nd year graduate students as they develop an understanding of CBT methods. Attend weekly class meetings, supervising students during small group discussions and role plays.

- 9/2016 **Guest Lecturer**
Graduate Department of Clinical Psychology, George Fox University
Newberg, OR
Faculty: Celeste Flachsbart, Psy.D.
Course: Cognitive Assessment
Topic: Wechsler Adult Intelligence Scale, 4th Edition
- 9/2016 **Guest Lecturer**
Graduate Department of Clinical Psychology, George Fox University
Newberg, OR
Faculty: Celeste Flachsbart, Psy.D.
Course: Cognitive Assessment
Topic: Effective Strategies for Assessment Report Writing
- 9/2015 **Teaching Assistant- Child & Adolescent Assessment (Summer 2016)**
Graduate Department of Clinical Psychology, George Fox University
Newberg, OR
Faculty: Elizabeth Hamilton, Ph.D.
Course: Child & Adolescent Assessment
Duties: Assist in mentoring 2nd & 3rd year graduate students as they develop competency in administering, scoring, and interpreting child and adolescent assessment measures. Consult with students on integrated report.
- 10/2015 **Guest Lecturer**
Graduate Department of Clinical Psychology, George Fox University
Newberg, OR
Faculty: Celeste Flachsbart, Psy.D.
Course: Cognitive Assessment
Topic: Effective Strategies for Assessment Report Writing
- 9/2015 **Teaching Assistant- Cognitive Assessment (Fall 2015)**
Graduate Department of Clinical Psychology, George Fox University
Faculty: Celeste Flachsbart, Psy.D.
Course: Cognitive Assessment-Writing Assistant
Duties: Help students to develop professional writing skills through writing workshops and individual feedback. Grade course assignments and assist students in learning how to write comprehensive psychological reports.

SELECTED PROFESSIONAL EXPERIENCE

- 1/2014-2016 **Student Interviewer**
George Fox University, Newberg, OR

Description: Co-interviewed applicants for admissions alongside faculty professors.

9/2014-2016

Peer Mentor

George Fox University, Newberg, OR

Description: Provided mentoring to incoming GDCP graduate students.

9/2013 to Present

Clinical Team

George Fox University, Newberg, OR

Supervisors: Wayne Adams, Ph.D., Elizabeth Hamilton, Ph.D., Kristine Kays, Psy.D., Bill Buhrow, Psy.D.

DESCRIPTION: Presented and discussed clinical cases and psychological assessments from various clinical perspectives. Provided feedback and support to team members from other cohorts and varying levels of training.

RESEARCH EXPERIENCE AND PRESENTATIONS

8/2013 – 5/2018

Dissertation Research

Current Status: Fully Defended and Approved by Committee

Title: *Functional Impacts of Autism-Specific Technology Training in Transitional Aged Youth with Autism Spectrum Disorder*

Dissertation Chair: Celeste Flachsbart, Psy.D.

1/2014 – 5/2018

Research Vertical Team Member

Description: Meet bi-monthly to evaluate progress, methodology, and design of research projects and presentations

Duties: Assist team in design, data collection, and analysis of research

Chair: Celeste Flachsbart, Psy.D.

Payne, T., **Dean, C.**, Lam, P., Flachsbart, C., (April 2015) *Emotional Functioning in Transitional-Aged Youth with Autism Spectrum Disorder*. Research presented at the 2015 Oregon Psychological Association Conference, Eugene, Oregon

Haigh, J., Flachsbart, C., Wendler, D., **Dean, C.** (May, 2016) *Characteristics of Vocational Environments That Support Young Adults with ASD*. Poster session presented at the annual meeting of the Western Psychological Association, Long Beach, CA.

Winterrowd, M., **Dean, C.**, Cha, J., & Flachsbart, C. (August, 2016) *Participant-Perception of Process Group Therapy for Young Adults with Autism Spectrum Disorder*. Poster presented at the American Psychological Association Annual Convention, Denver, CO.

Draper, M., Weaver, P., Anderson, M., **Dean, C.**, Ogilvie, J., Spencer, J., (November 2012). *The Morality of Compassion in Clinical Forensics: Expanding the Cultural Context*. Research presented at the Annual Conference for the American Society of Criminology, Chicago, IL.

Anderson, M., **Dean, C.**, Ogilvie, J., Nagaishi, C., Weaver, P., (March, 2012). *A Phenomenological Critique of Morality in the Juvenile Justice System*. Research presented at the 2012 National Conference of Undergraduate Research, Ogden, Utah

PROFESSIONAL AFFILIATIONS

2016 - Present **Division 54 American Psychological Association**
Student Affiliate

2014 -Present **Pediatric Psychology Student Interest Group**
George Fox University
Founder and Student Member

2013 - Present **American Psychological Association**
Student Affiliate

ACADEMIC SERVICE AND LEADERSHIP

9/2014 – Present **Co-President- Pediatric Psychology Student Interest Group**
George Fox University
Founded the Pediatric Psychology Student Interest Group to enhance student led dialogue and research collaboration as it pertains to the field of pediatric psychology. Held bi-quarterly meetings to discuss research, advances in the field, training opportunities, and engage in workshops related to pediatric psychology.

9/2010 – 4/2011 **Vice President-Utah Valley University Behavioral Science Club**
Organized various club activities and service projects. Assisted fellow club members in organizing graduate school preparation workshops for behavioral science majors.

9/2010 – 4/2011 **Utah Valley University Baby Care Cupboard Committee**
Worked with a team to organize a University fundraiser that collects donations of baby items (diapers, formula, etc.) for less fortunate families in the community.

Volunteer Experience

- 9/2010 – 4/2012 **Baby Care Cupboard Fundraiser**
Utah Valley University-Orem, UT
 Volunteered to help collect donations for less fortunate families with infants in the community.
- 1/2010 – 4/2010 **Utah Valley University ESL Program**
Orem, UT
 Tutored Utah Valley University student in the ESL program. Helped students from various cultures around the world learn basic conversational English skills.

CERTIFICATIONS, CONFERENCES, AND TRAININGS

- October 2017 **QLI Didactic Presentation- Strokes**
 Quality Living Inc.
 PRESENTER: Jeff Snell PhD
- October 2017 **Rural Behavioral Health Conference**
 Minnesota Psychological Association
 PRESENTER: Jean Chagnon, J. David Bull, Johnathan Neufeld, Dani Rosenkrantz, and Melissa Zook.
- October 2016 **Integration Symposium**
 George Fox University
 PRESENTER: Brooke Kuhnhausen, Ph.D.
- February 2016 **Neuropsychology: What Do We Know 15 Years After the Decade of the Brain?**
 Oregon Health Sciences University
 PRESENTERS: Trevor Hall, Psy.D. & Darren Janzen, Psy.D.
- October 2015 **Let's Talk About Sex: Sex and Sexuality with Clinical Application**
 Childhood Health Associates of Salem
 PRESENTER: Joy Mauldin, Psy.D.
- September 2015 **Relational Psychoanalysis and Christian Faith**
 PRESENTER: Marie Hoffman, Ph.D.
- November 2014 **Face Time in an Age of Technological Attachment**
 PRESENTER: Dorren Dodgen-McGee, Psy.D.

- August 2014 **Integrated Health Boot Camp**
George Fox University
Instructor: Joel Gregor, Psy.D.
- June 2014 - Present **CPR Certification**
George Fox University: Newberg, OR
- March 2014 **Evidence Based Treatment for PTSD in Veteran Populations:
Clinical and Integrative Perspectives**
PRESENTERS: David Beil-Adaskin, Psy.D.
- January 2014 **DSM-5**
George Fox University
PRESENTERS: Jeri Turgesen, Psy.D., and Mary Peterson, Ph.D.
- September 2013 **Primary Care Behavioral Health**
Salud Medical Center
PRESENTERS: Brian Sandoval, Psy.D., and Juliette Cutts, Psy.D.
- November 2013 **African American History, Culture, and Addition and Mental
Health Treatment**
PRESENTERS: Danette Haynes, LCSW, and Marcus Sharpe, Psy.D.

REFERENCES

Kristen Valerius, Ph.D.
Clinical Child Psychologist
Clackamas, OR
Sundstrom Clinical Service
KsValerius@sundstromclinic.com

Josh Turek, Ph.D.
Assistant Professor
Munroe Meyer Institute
University of Nebraska Medical Center
Josh.turek@unmc.edu

Celeste Flachsbart, Psy.D., ABPP
Associate Professor
George Fox University
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Elizabeth Hamilton, Ph.D.
Assistant Professor
Director of School-Based Health and Assessment
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