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Results of a RCT on a transition support program for adults with ASD: Effects on Self Determination and Quality of Life

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Abstract

Few evidence-based services exist for people with ASD as they transition into adulthood, particularly those that foster appreciation of one's own goals and strengths. We developed a transition service for adults with ASD (without Intellectual Disability), and conducted an RCT focusing on self-report of Quality of Life and Self Determination outcomes. Thirty participants (aged 18 – 29) were randomized to immediate or delayed intervention, with 26 participants analyzed after 4 were lost to follow-up. Curriculum was tailored to participants' self-expressed needs in three areas: social communication, self-determination and working with others. Groups of four-to-six participants with ASD and two facilitators met weekly for 10 weeks. Positive intervention effects were observed on self-report of Quality of Life; the intervention group scored on average 2 points higher than the control group, 95% CI [-.2, 3.9], and on the Interpersonal Cognitive Problem-Solving subdomain of the Self Determination Scale the intervention group scored 2 points higher than control group 95% CI [.082, 3.4]. In addition, participants rated skills targeted by the curriculum 6 points higher after versus before intervention, 95% CI [3.7, 8.6]. This was echoed by a subset of parents rating their child's skills as 7 points higher after versus before intervention, 95% CI [1, 14]. ClinicalTrials.gov ID: NCT02439671

Lay Summary: These findings indicate that it is possible to increase Self-Determination and subjective Quality of Life in adults with ASD through a brief group-format service, and provide a model for doing so. Self-Determination abilities are linked to improved adult outcomes in individuals with other disabilities. These often overlooked factors should be incorporated in programming for adults with ASD as they transition to adulthood.

Introduction

Autism Spectrum Disorder (ASD) describes a range of conditions that overlap in regard to difficulties with social interactions, communication, and breadth of interests (APA, 2013). ASD is a lifespan diagnosis with related social interaction and self-regulation difficulties that continue to affect functioning in adulthood. Recent reviews indicate that adults with ASD have poor outcomes with respect to successful completion of academic programs, employment, independent living, social interaction and community participation (e.g., Howlin et al., 2004; Roux et al., 2015; Shattuck et al., 2012). Markedly, their outcomes are lower even when compared with peers who have other disabilities. These outcomes hold significant negative repercussions, not only for individuals with ASD and their families, but for society as a whole in terms of the financial burden of long-term adult care (Ganz, 2007). This situation is avoidable, given that, in the words of Wehman et al. (2014), young adults with ASD have "significant untapped potential that has been underappreciated."

Unfortunately, very few evidence-based services exist to support people with ASD in the crucial transition from secondary school into adulthood (see Spain & Blainly, 2015 for a review of social skills interventions; Wehman et al., 2014 for a review of the transition out of secondary school; Westbrook et al., 2015 for a review of interventions with employment outcomes). In fact, in the terminology of Roux et al. (2015, pg. 25), young adults with ASD face a "services cliff" where services decrease sharply after secondary school. This is particularly the case for individuals with ASD who do not have intellectual disability (ID), underscoring the crucial need for targeted services for this subpopulation. Taylor and Seltzer (2010) report that 75% of young adults with ASD and a comorbid ID participated in adult day services, whereas only 6% of those without ID did, due to lack of appropriate services. Leaving high school was accompanied by a significant

slowing in skill acquisition and behavioural improvement, most markedly for individuals with ASD without ID, who had fewer services available (Taylor & Seltzer, 2010).

Adult independence may be *the* most crucial area for a transition support program for adults with ASD to address (Hume et al., 2014; Wehman et al., 2014). Though adolescents with ASD value independence most in their perception and expectations of adulthood (Anderson, McDonald, Edsall, Smith & Taylor, 2016), recent work indicates that they report significantly lower levels of autonomy than peers with other disabilities (Chou, Wehmeyer, Palmer, & Lee, 2017). These are key components of *self-determination*, defined as "volitional actions that enable one to act as the primary causal agent in one's life and to maintain or improve one's quality of life" (Wehmeyer, 2005, p. 177), a set of behaviors and an approach that are central to successful transition to an active adult life. Wehmeyer and colleagues (2013) demonstrated in a RCT that self-determination can be effectively taught and lead to increased self-determination growth trajectories in high school students with disabilities (primarily learning or intellectual disability). Critically, participation in self-determination intervention was related to higher life-satisfaction 2 years after high school, and self-determination scores predicted positive employment outcomes (Shogren, Shaw & Little, 2016).

Intervention programs developed for transition-age people with ASD that promote aspects of self-determination include the pioneering competitive employment internship program Project SEARCH plus ASD Supports (Wehman et al., 2014, 2017 RCT), and a college transition support program STEPS (White et al., 2017, RCT ongoing). Both of these programs are embedded in the secondary/higher education systems, and Project SEARCH takes place through a 9-month job training program at a partnering community business; therefore they require substantial institutional resources and participation and do not apply to adults with ASD who have left high

school. Very recently, Oswald et al., 2017 reported a RCT (following a pilot session in 2015) on ACCESS, group intervention for adults with ASD with 19 weekly sessions, with a parallel group for social coaches/relatives. The program promoted adult transition by focusing on adaptive and social, stress coping, and self-determination skills. Positive intervention effects were found on social coach-reported measures of adaptive functioning and self-determination in participants with ASD, however self-report of self-determination was not obtained.

Our first objective in the current study was to develop curriculum for a brief (10 weekly sessions) group-format service to support young adults with ASD without ID in navigating the transition to adulthood. Our program requires relatively few resources and intentionally did not require caregiver involvement. While caregiver involvement may promote the maintenance of intervention gains (e.g., Laugeson et al., 2015), it is nevertheless not available or desirable to all adults with ASD[1] (see also program development section below). This design aspect was also chosen to foster the critical goal of adult independence. Our McGill Transition Support Program addressed three areas that are key to successful adult transition: social communication, self-determination and working with others (Schall, Wehman, & Carr, 2014; Wehman et al., 2014). Another unique feature of our program was participant-guided modularized intervention design, where curriculum content for each group was chosen based on the overlapping priorities expressed by participants on a needs assessment (see methods). Adapting content to participant needs in this manner has been likened to personalized medicine (Oswald et al., 2017).

Gathering evidence of the program's feasibility with data on preliminary efficacy via a randomized controlled trial with waitlist control group was our second objective. In particular, we

[1] For example, of the 34 participants initially enrolled, 5 did not provide to consent to contact their parent and 2 were not in touch with a parent.

were interested in the program's potential to improve self-determination, Quality of Life (QoL), and social problem-solving outcomes. While both self-determination and QoL can be measured by proxy report, or objective characteristics rather than subjective perceptions in the case of QoL, our choice of self-report measures of self-determination and QoL is novel in the intervention literature and represents an essential shift towards valuing the views of adults with ASD as experts on their own lives, rather than relying solely on others' judgments of their behavior (Felce & Perry, 1996; Schalock, 1996). Our self-determination measure addressed four essential SD characteristics: acting autonomously, exhibiting self-regulation, approaching events in a psychologically empowered manner, and acting in a self-realizing manner (Wehmeyer, Abery, Mithaug, & Stancliffe, 2003).

Our second primary outcome was Quality of Life (QoL). In the disability field, the most prevalent definition of QoL is "a concept that reflects a person's desired conditions of living related to eight core dimensions of one's life: emotional well-being, interpersonal relationships, material well-being, personal development, physical well-being, self-determination, social inclusion, and rights" (Schalock, 2000, p. 121). Several recent reviews demonstrate that QoL is significantly compromised in individuals with ASD, across the lifespan and when obtained by both objective and subjective measures (Chiang & Wineman, 2014; Van Heijst & Geurts, 2015; Tobin, Drager & Richardson, 2014). Importantly, this finding holds for young adults with ASD who do not have ID, even when compared to peers with other neurodevelopmental disorders (Barneveld, Swaab, Fagel, Van Engeland & de Sonneville, 2014).

Social Problem Solving ability was our third primary outcome. Managing daily interactions and conflicts with others poses significant challenges to individuals with ASD and is an obstacle to maintaining interactions with peers as well as employment (Bonete, Calero, Fernandez-Parra,

2015; Hochauser, Weiss & Gall, 2015; Schall & McDonough, 2010). Previous work has shown that adults with ASD without ID have difficulty generating appropriate solutions when presented with scenarios of everyday social problems (Channon et al., 2001; Channon, Crawford, Orlowska, Parikh & Thoma, 2014).

As part of our program evaluation, we collected participant and their parent's (where available) ratings of skills targeted by the intervention. This was a secondary measure collected after each participant completed the program; therefore there were no control data. Finally, we conducted a one-year follow up via online questionnaire to measure maintenance of any gains observed.

We predicted that participation in the RCT would increase *Hypothesis 1:* self-determination abilities, *Hypothesis 2:* QoL ratings, and *Hypothesis 3:* social problem solving ability, in the immediate intervention group relative to the waitlist control group. *Hypothesis 4* was that participant and parent ratings obtained prior to and after intervention would show skill improvement in the areas of social communication, self-determination and working with others.

Method

Participants

Thirty-four young adults with ASD were enrolled in the study after providing written consent (see Figure 1 to see participant flow resulting in 26 participants being analyzed). Participants were recruited via community autism organizations, the provincial social service agency, special needs newsletters, and via offices for students with disabilities at post-secondary institutions. Criteria for inclusion in the transition program were: 1) being between 18 and 32 years of age; 2) diagnosis of an ASD (later confirmed within the study using the procedure outlined

below); 3) absence of ID based on either non-verbal or verbal) IQ scores falling within 1 SD of the typical range; 4) and the ability to communicate in English. Participants were not eligible to participate in the study if they were enrolled in another similar transition support service (i.e., a group-format service that focused on social interaction and communication, self-determination, and professional skills), which was assessed at Time 1 and Time 3 in the timeline presented in Table 1.

ASD research criteria. Community diagnoses of ASD were confirmed in our study by administration of the ADOS-2 module 4 (Lord et al., 2012), using the revised algorithm for module 4 (Hus & Lord, 2014). The ADOS-2 was administered by one of two research-reliable administrators (an advanced doctoral student or a faculty member). We also administered the Social Communication Questionnaire (Rutter et al., 2003) in cases where participants allowed us to contact a parent and the parent returned the questionnaire to obtain evidence of ASD in early development. Twenty-eight of 34 participants met ASD criteria (scores of 8 or higher) on the ADOS-2. Three participants fell short of meeting ADOS-2 criteria based on current functioning, but did meet ASD criteria based on their early development, as reported by their parent on the SCQ (Rutter, Bailey, & Lord, 2003, scores of 15 or higher). The SCQ is a screening measure but is highly correlated with the Autism Diagnostic Interview-Revised (r = .83, Charman et al., 2007). In total, 31 participants had confirmed diagnoses of ASD.

Participatory program development

In summer 2012 we ran a pilot session of the program with 6 participants to collect data on the self-expressed transition needs of adults with ASD and to test out our curriculum, service-delivery format, testing procedures, and outcome measures. Attendance was high and needs

assessments from pilot participants confirmed that the choice of three curriculum domains was pertinent and appropriate. Some participants in the pilot session related conflictual relationships with their parents and the desire to participate in activities where their parents were not involved. Pilot data as well as program evaluations indicated positive effects on skills targeted by the program (White, Nadig & Flanagan, 2013). In November 2012 we shared these preliminary results at a stakeholder conference (including secondary and higher education, social services, advocacy groups, adults with ASD and families of people with ASD, policy makers). Stakeholder input also provided positive feedback on the domains of curriculum as well the modules being selected based on the groups' overlapping needs assessment results. The information gained from the pilot session and stakeholder conference led to a number of changes. The brief homework we had assigned to reinforce the ideas of each module proved unsuccessful due to lack of completion. In response we developed workbook questions to be administered during meeting time. Five questions on module content were administered at the beginning of session (2-3 questions) or at the end (remaining questions). The Vineland Adaptive Behavior Scales parent report measure was initially included at both pre- and post-assessment, but due to parents difficulty with returning this questionnaire even once within an approximately 3 month period it was dropped from post-assessment. We developed an abbreviated version of the QoL-Q for the reasons outlined under Measures below. A final stakeholder conference for program participants and stakeholder groups took place in January 2016; with video documentation available on our website: http://transitionsupport-adultsasd.scsd.mcgill.ca/.

RCT procedure and timeline

Recruitment was done in four waves from April 2013 to November 2015, before each of four sessions when the program was administered. A total of six small groups received the

intervention (two groups were run concurrently in two of the sessions). The trial was stopped after running groups over a 3-year period as planned.. See Figure 1 for a CONSORT participant flow diagram describing participant attrition through different phases of the study. All potential participants took part in an intake assessment visit (approximately 3 hours allowing for completion of the consent form and breaks). If they met inclusion criteria, they were invited to take part in a baseline measure assessment visit (approximately 2 hours) in the month prior to the next program session. See Measures section for details on when each measure was administered.

Enrolled participants at each cycle where then randomized to take part in the program in the next session (immediate intervention, n = 20), or to the waiting list for the following session (waitlist control, n = 10). Allocation was planned to be larger in the immediate intervention than waitlist group, because there was no waitlist group during the final session (as no service would be available following this semester). Allocation was also subject to the number of potential participants at each wave of recruitment. The RAND function in Microsoft Excel was used to generate a random allocation sequence. Participants were assigned a random number that was then sorted in ascending order; the first half were assigned to intervention and the second half to waitlist. The third author KW enrolled participants, generated this sequence, kept it concealed, and assigned participants to group. On one occasion randomization was not followed due to a specific request from a family, where two brothers requested to participate in intervention at the same time, and were only available in the summer. These two participants were allocated to immediate intervention.

Following recent guidelines on the prevention and handling of missing data in intervention research (Li et al., 2014; White, Carpenter & Horton, 2012), we report on missing data and perform an analysis that is valid under a plausible assumption about the missing data. Three participants in

the immediate intervention group and one in the waitlist control group did not complete post-testing despite repeated attempts to schedule them and sending postage-paid questionnaires by mail, resulting in an overall attrition rate of 13%. Importantly, the three participants in the immediate intervention group who were lost to follow up actually completed therapy, rather than failing to continue in their randomized group. To understand the nature of our missing data we compared demographic data for randomized participants who completed the study (n = 26) versus those who were lost to follow up (n = 4). These two groups did not differ reliably with respect to age (completers: 21.58 years (*3.76)*, lost to follow up: 21.50 years (*2.65)*), attendance (completers: 86.5%, lost to follow up (for the 3 in immediate intervention): 86.6%), verbal IQ (WASI standard score: completers: 111.31 (*13.95)*, lost to follow up: 113.00 (*20.51)*), or nonverbal IQ (Raven's percentile: completers: 54.12 (*23.16*), lost to follow up: 46.50 (*30.05*)). In this case, data is said to be missing completely at random (MCAR), i.e., missingness does not depend on the observed or unobserved response data. Under this assumption, the GEE models that we used, described in the results section, will provide valid and unbiased estimates (Diggle et al., 2002). The final sample size included in the RCT analysis was n = 17 (immediate intervention) and n= 9 (waitlist control).

Table 1 illustrates the timeline participants in each group followed. Participants in immediate intervention took part in 10 weekly 2-hour group meetings. Those in the waitlist control group were informed that they would participate in a following program session, and that they would be contacted for another assessment visit after ten weeks. One month to 6 weeks after the intervention session was complete, all participants from that cycle were invited for post-assessment. Participants in the waitlist group were then offered the program in the next session. They completed a third in-person assessment visit after program completion, where they completed the post-measures a second time (using different versions of stimuli where available).

Finally, after the trial commenced we added a 1-year follow up time point. Participants taking part in sessions after this point (n = 23) were contacted by email approximately one year after intervention to complete an online survey.

It was not possible for participants to be blinded as they knew if they participated in the program immediately or after a waitlist delay, thus primary RCT measures were not completed by blind informants. KW was the lead group facilitator, aside from her the other five facilitators were blind to participants' group status, unless participants disclosed this during group sessions. Research assistants who assessed outcomes were blind to group status; this was achieved by only providing assessors with participants' names and paperwork without indication of group status. KW ensured that assessors did not re-assess the same participant.

Intervention

Curriculum development. We developed five modules of curriculum materials in each of three domains: social communication, self-determination and working with others. These domains are supported in the literature (Ashburner, 2015; Hendricks & Wehman, 2009; Neary Gillmore; Wehman et al., 2014; White et al., 2017). Figure 2 provides an overview of the areas covered by the curriculum, and the module-by-module fidelity checklists available in supplementary materials provide more detail of the session structure and module content. Our curriculum was adapted to include multiple means of representation, engagement, and expression. Thus, we presented materials in different formats and at more and less complex levels.

Service delivery format and approach. Small groups of 4 to 6 participants with ASD and 2 graduate student facilitators met for 10 weekly, 2 hour long sessions. The curriculum was guided by self-expressed needs: nine of the 15 curriculum modules were selected for each group according overlap in participants' needs assessment results (administered at the intake visit). The tenth

session was a wrap-up celebration decided on collaboratively by the participants. The cornerstones of our service delivery approach included offering choices, encouraging assertiveness, being rights-based, valuing individual strengths, interests, and diversity, and creating a safe place for expression.

Fidelity checklists were used to ensure consistent delivery of the program across facilitators and sessions. Facilitators checked each item to indicate they had reviewed it before the session, and checked items off again as implemented after the session. Out of 9 sessions x 6 groups = 54 sessions, facilitators failed to complete a checklist for 2 sessions, and completed the review checklist but not the implemented checklist for an additional 2 sessions. For the remaining 50 sessions the checklists indicated 100% compliance. Attendance over the 10 sessions for the immediate intervention group was on average 86.5 % (SD = .15). Reasons for absences included college tests, family vacation, doctor's appointments. When the waitlist control participants were offered participation in the program in a following session, 7 of 9 control participants completed the program with a 78.6% attendance rate (SD = .15).

Measures

Data on the following measures (aside from the 1 year follow-up which was an on-line questionnaire) were collected in one-on-one assessment sessions where a member of our research team administered questionnaires. If requested or needed, written questionnaire items were verbally provided and each response was recorded by the research assistant.

Diagnostic and Characterization Measures (completed at intake assessment).

Needs Assessment. Questionnaire designed for this study on perceived needs and skills in the domains of communication, self-determination, and professional skills, available as Appendix A

Autism Diagnostic Observation Schedule-Generic **(ADOS-G, Lord, Rutter, DiLavore & Risi, 1999).** Semi-structured interview and observation of social interaction, communication, and circumscribed interests involved in a diagnosis of autism spectrum disorders. Module 4, for adolescents and adults with fluent language was administered.

Raven's Progressive Matrices **(RPM, Raven, Raven & Court, 2004).** A measure of nonverbal analytical reasoning comprising 60 items, where one of six options needs to be selected to complete a visual pattern. We used the RPM to estimate NVIQ. Raw total scores were used in the analyses, as standard scores are not available.

Wechsler Abbreviated Scales of Intelligence **(WASI; Wechsler, 1999).** A brief standardized IQ assessment consisting of four subtests (Vocabulary, Similarities, Block Design, and Matrix Reasoning), yielding estimates of Verbal IQ (VIQ), Performance IQ (PIQ), and a Full Scale IQ. We administered the two subscales (Vocabulary and Similarities) required to calculate VIQ.

Parent-Report Diagnostic and Characterization Measures (completed at intake or by mail, for subset of participants who gave consent to contact a parent).

Social Communication Questionnaire-Lifetime **(SCQ; Rutter, Bailey & Lord 2003).** 40-item parent report questionnaire concerning social communication behaviors and interests observed during early development.

***The Vineland Adaptive Behavior Scales, Second Edition* (VABS-II; Sparrow, Cicchetti & Balla, 2006).** Parent report questionnaire used to measure adaptive life skills in the domains of communication, socialization, and daily living skills/community.

RCT Measures (completed at Time 1, Time 3, and Time 5 (waitlist participants only).

***The ARC's Self Determination Scale* (SDS; Wehmeyer & Kelchner, 1995).** This is a 72-item self-report measure with four subscales. The first *Autonomy* section measures a person's level of independence and capacity to act based on their personal beliefs, values, and interests (32 likert-scale items). The second *Self-Regulation* section includes the subdomains of Interpersonal Cognitive Problem-Solving (6 items, rated on a scale from 0-2 depending on effectiveness of solution) and Goal-Setting (3 items, rated on scale of 0 -3 based on presence of goal and number of steps identified to reach that goal). The third *Psychological Empowerment* section measures a person's perceptions of control, efficacy, and outcome expectations (16 dichotomous response items). The final section measures *Self-Realization*, which includes self-awareness and self-knowledge (15 yes/no items). The SDS was normed with 500 high school students with and without disabilities (Wehmeyer & Kelchner, 1995) and separately with 400 adults with intellectual disabilities (Wehemeyer & Bolding, 1999), and has adequate construct validity, discriminative validity, internal consistency and factorial validity. Item and confirmatory factor analysis on SDS data from 95 high school students with ASD (63% of whom did not have ID) indicate reliability and validity for use with participants with ASD, albeit those younger than our sample (Chou, Wehmeyer, Shogren, Palmer, & Lee, 2017).

***Quality of Life Questionnaire, abridged version* (QOL-abridged, modified from Schalock & Keith, 1993).** The original 40-item questionnaire assesses the domains of satisfaction,

competence/productivity, empowerment/independence, and social belonging/community integration in people with disabilities. In our pilot phase we found that the QoL.Q, in its original form was heavily skewed by whether the respondent was employed (8/10 questions on the Competence scale are to be completed only if employed). Since changes in employment were not expected during the short timeframe of our program we developed an abridged 10- item version of QoL.Q, including four likert-scale items from the satisfaction scale and two items each from the remaining three scales. This questionnaire can be seen in Appendix B.

Social Problem Solving Task **(adapted from the Social Problem Resolution Task and Social Problem Fluency tasks of Channon & Crawford, 2010; Channon et al., 2014**). This task involves ten two-three sentence scenarios that present a social problem or situation that could occur in daily life, for example "Mark is organizing a concert for charity. His friend loves singing but cannot sing in tune. His friend offers to perform a solo in the concert." The 10 scenarios administered at pre-test were adapted from the Social Fluency task and 10 scenarios administered at post-test were from the Social Problem Resolution Task of Channon & Crawford (2010), therefore different scenarios were administered at each time point. Scenarios were modified to be appropriate for our study (e.g., British English terms were changed to North American English for comprehensibility, phrasing was made consistent across the 20 scenarios). Two basic comprehension questions were asked to establish that the participant had understood the scenario. Participants were then asked "What is the best thing for Mark to do in this situation?" Responses were scored independently by two trained raters, who were blind to RCT group membership, into four categories; not applicable, socially sensitive, practically effective, or both socially sensitive and practically effective (SP, the optimal type of response). All codes were checked for agreement

between raters and any disagreements were discussed and resolved with a consensus code. The proportion of SP responses out of total valid responses was entered into analyses.

Post program measures.

Participant rating of change own skills in program domains: A self-report questionnaire, modelled on our needs assessment, where participants retrospectively rated their skills (6 per each of the 3 domains covered by the program) as low, medium, or high, both BEFORE and AFTER program participation. Open-ended questions were included to collect feedback and determine if participant needs were met.

Parent rating of child's skills in program domains*:* A parent-report questionnaire where parents retrospectively rated their child's skills (6 per each of the 3 domains covered by the program) as low, medium, or high, both BEFORE and AFTER program participation. Open-ended questions were also included.

1 year follow up data. We contacted participants (23 of the 26 included in the RCT analysis) to complete an on-line survey approximately one year after program completion using aspects of Dillman (2000)'s method for conducting internet surveys. After a friendly initial email discussing the importance of participant feedback with a link to the survey, we sent an additional one or two email reminders to each group, thanking those who had completed so far. Included in this survey were a) educational, employment and residential outcomes, b) self-rating of skills in program domains, c) the abridged form of the QOL-Q, and d) the SDS.

RESULTS

RCT

Our primary aim was to evaluate the presence of an intervention effect on the Self-Determination Scale, the abridged QoL questionnaire, and the Social Problem-Solving Task. Descriptive data on primary outcome measures is provided in Table 3. We model the intervention effect with a marginal model fitted using generalized estimating equations (GEE) with an exchangeable working correlation structure (Liang & Zeger, 1986). We chose this approach for several reasons. First, it accounts for the correlation between pre and post responses from the same participant by using weighted combinations of observations. Ignoring this dependence within subjects can lead to incorrect standard errors of parameter estimates and consequently an overestimation of their significance. Second, marginal models are appropriate when the research question of interest lies in the population average, whereas mixed effect models provide a subject specific interpretation (Diggle, 2002). Thirdly, using both data points, as opposed to a difference score, can lead to an increase in efficiency, i.e., smaller standard errors for the parameter estimates because more information is being used (Wakefield, 2013). Finally, longitudinal models use all the data available; i.e., participants are included if they have data available at least one time point. This is not the case for ANOVA or difference score analyses, which completely remove participants who do not have complete data.

Model and Parameter Interpretation. QQ plots of standardized versus expected residuals from a normal distribution were used to assess normality. The correctness of the mean-variance relationships were assessed by plotting the squared of the standardized residuals against the fitted values. Overall, we did not observe any strong violations of model assumptions.

Let Y_{ij} denote the outcome score in the i^{th} subject at time t_{ij}, where the latter takes values 0 or 1; 0 representing the baseline assessment and 1 representing the post assessment. We consider the following linear model given in Equation 1:

$$Y_{ij} = \beta_0 + \beta_1 \cdot t_{ij} + \beta_2 \cdot t_{ij} \times \mathbb{1}_{\{\text{intervention}\}}(\text{arm}_i) + \varepsilon_{ij}$$

where

$$\mathbb{1}_{\{\text{intervention}\}}(\text{arm}_i) = \begin{cases} 1 & \text{if arm} = \text{intervention} \\ 0 & \text{if arm} = \text{control} \end{cases}$$

β_0 is the intercept, β_1 represents the effect of time, β_2 is the effect of intervention on the outcome score at time 1 (i.e. after intervention was given) and ε_{ij} is an error term. Note that we have excluded the main effect for treatment since in Table 2 we see that randomization was done appropriately, i.e., participants in the two arms did not differ on background or outcome variables at baseline. We are interested in the magnitude of the β_2 estimate which represents on average, how much higher (if positive) or lower (if negative) the outcome score is for the intervention group vs the control group. Following the recent recommendation by the American Statistical Association on the misuse of the p-value (Wasserstein & Lazar, 2016), we report effect sizes, standard errors and 95% confidence intervals to provide a more comprehensive view of intervention effects, precision, and clinical importance. Since we have a small number of clusters (subjects), we adjust the standard error estimates of the model parameters using the one-step jackknife estimate (Yan & Fine, 2004). All analyses were performed in R (R Core Team, 2016) using the *geepack* package version 1.2-0.2.

Self Determination Scale. Table 3 provides GEE estimates for the model given by Equation 1 for each of the primary outcome measures. Key results for the Time by Intervention interaction are presented for parameter β_2 in the "estimate" column, representing on average, how much higher (if positive) or lower (if negative) the outcome score is for the intervention group vs the control group. First, for the Self Determination Scale Total Score we see some evidence of a

positive effect, with the intervention group scoring on average 5 points higher than the control group, however the 95% CI is very broad and crosses 0. We then analyzed each section and subdomain of the SDS separately to see if some may demonstrate a strong intervention effect that was diminished when collapsed with other sections. Indeed, we see that there is strong evidence for a positive intervention effect on the subdomain of Interpersonal Cognitive Problem-Solving where the intervention group scored 2 points higher on average with the whole 95% CI [0.082, 3.4] being positive and a p-value of 0.04. This effect is depicted in Figure 3. The *Autonomy* β_2 = 2.5, 95% CI [-3, 8.1], *Psychological Empowerment* β_2 = -.051, 95% CI [-1.7, 1.6], and *Self-Realization* β_2 = -.34, 95% CI [-1.7, 1.1] sections did not demonstrate clear intervention effects. With a sample of approximately 70 adolescents (in each ASD, ID, and learning disability groups), Chou et al. (2017) found that differences as small as 1.2 points on subscales of the SDS resulted in significant group differences, which they interpreted as reflecting different self-determination profiles that warrant different approaches to instructional design.

Abridged Quality of Life-Questionnaire. Moving on to the abridged QoL Questionnaire, in Table 3 we see that there was evidence of a modest but positive intervention effect; on average, the intervention arm scored two points higher than the control group with the majority of the 95% CI [-0.2, 3.9] being positive and a p-value of 0.076. This effect is depicted in Figure 4. This abridged version has not been used in prior research; the potential clinical significance of such change is to be determined.

Social Problem-Solving Task. The proportion of optimal solutions that were both socially sensitive and practically effective (SP) were fit into a logistic regression model using GEE where the binominal proportion is defined as the total number of SP solutions divided by number of

questions with valid answers. The estimates in Table 3 do not provide evidence for an intervention effect on the social problem-solving task.

Post Program Measures

This data was only collected after participation in the intervention; there was no control data over a similar time period. Given this, all participants were analysed in one group. We fit the following linear model:

$$Y_{ij} = \beta_0 + \beta_1 \cdot t_{ij} + \varepsilon_{ij}$$

where Y_{ij} is the outcome score in the i^{th} subject at time t_{ij}. The parameter of interest is β_1 and represents the average increase (if positive) or decrease (if negative) in the outcome score, as rated after intervention.

Participant skill change self-ratings. Twenty-two participants completed ratings (20-22 were included per subsection given missing data). Results are provided in Table 4. We observe evidence of an intervention effect on the total score as well as each of the subdomains. Participants rated themselves on average 6 points higher after intervention with 95% CI [3.7, 8.6] and p-value < 0.001.

Parent skill change ratings. Responses were available from 11 parents who completed pre- and post- assessment ratings (at post-assessment subsections had complete data from 8-9 parents) Results are provided in Table 4. We again observe evidence of an intervention effect on the total score as well as each of the subdomains. Parents rated their child on average 7 points higher after intervention with 95% CI [1, 14] and p-value 0.02.

Open-ended feedback on program. Participants' responses to open-ended questions were summarized into the themes presented in Table 5.

1 year follow up data. Six of the 23 RCT participants contacted (26%) responded to email requests to complete a follow up on-line survey. This is consistent with the relatively low response rate reported for online surveys (Scott et al., 2011; Sheehan, 2001). Two participants were enrolled in university, one was enrolled in technical college, two had completed at least one year of Quebec's post high school college program (equivalent to grades 12-13), and one was enrolled in a special needs high school. Four participants were employed in part-time jobs (grass cutting, receptionist, research assistant, data entry specialist), one was doing an internship at a retail store, one was unemployed. One participant was doing volunteer work at a hospital. All 6 respondents were living with their parents. We did not directly assess at 1-year follow-up whether participants may have participated in other transition support programs since ours; however, in the larger study there was only one occasion when a participant brought another transition program available locally to our attention.

Figure 6 shows line graphs each of these six participants' scores at the pre and post assessment visits, and 1 year following program completion. We provide descriptive information on individual participant's scores over time but caution is warranted in generalizing the results given the very small sample size. Panel (a) shows scores on the SDS Total score, where participant 2 showed gains from post-test to 1 year follow up, participant 3 appears to maintain a gain during the intervention period, participants 1, 4 and 6 have relatively stable scores at the 3 assessment points, and participant 5 shows a decrease in score from post assessment. Panel (b) shows data from the abridged QOL-Q, where participants 2 and 5 showed gains from post-test to 1 year follow up, participant 6 showed maintenance of a gain during the intervention period, and the other three participants displayed slight decreases. Panel (c) shows data on self-rating of skills in program domains. Participants 2 and 4 reported gains from post-assessment to 1 year follow up, whereas

the other four participants report decreases that left them similar to their pre-test level.

Discussion

In this article we present the results of a small-scale RCT on a 10-week-long group-format transition support program for adults with ASD without ID, targeting self-expressed needs in the domains of social communication, self-determination, and working with others. Our study is novel in aiming to improve independence as well as flexible skills needed for transition to productive adult life, in "personalizing" curriculum by choosing modules based on group overlap in needs assessment results, and in prioritizing the perceptions of adults with ASD themselves in outcome measures.

Our curriculum promoted self-determination via its content but also through several aspects of service delivery. Though self-determination has been heavily studied in the disability field more broadly, there is a particular paucity of information regarding adults with ASD who do not have ID. Chou et al., (2017a) provided the first descriptive data on self-determination in students with ASD and corroborated this statement, calling for the application of self-determination measures as an intervention outcome for individuals with ASD. We present the first results on this key outcome, as obtained by self-report. We found preliminary support for *Hypothesis 1*, that participation in the transition program increased self-determination abilities in adults with ASD. GEE model results for showed the SDS total score to be higher for the intervention than waitlist control group, but this result lacked precision. Considering the data observed in our sample, the SDS total score at outcome was higher in the immediate intervention group (90, *SD* = 21.09), than in the waitlist control group (82.67, *SD* = 23.90), *d* = .33. This range of scores is consistent with the mean SDS total score of 86.4 Chou et al. (2017) reported for 70 adolescents with ASD. To put this into

context, in norms obtained from 500 14 – 22-year-olds in the US (Wehmeyer & Kelchner, 1995), the mean SDS total score for students without disabilities was 106.58 (*SD* = 15.67), for those with learning disabilities was 101.87 (*SD* = 16.04), and for those with ID was 89.02 (*SD* = 21.92). This underscores the particularly low scores of individuals with ASD and the need to develop their self-determination skills.

When individual sections and subdomains of the SDS were examined only the Interpersonal Cognitive Problem-Solving subdomain was found to demonstrate a strong positive effect of intervention in our model, with the intervention group scoring higher than the control group, 95% CI [0.082, 3.4]. At outcome this score was higher in the immediate intervention group (8.31, *SD* = 2.30), than in the waitlist control group (7.44, *SD* = 3.54), *d* = .29. It is interesting that the effect was found on this subdomain because it has few items relative to other sections. The interpersonal problem-solving content as well as the response format (open-ended responses as opposed to likert scale or yes-no items) may have contributed to this finding. This intervention effect demonstrates that a brief intervention can have positive effects on insights into solving social problems which is a critical skill to navigating the transition to adulthood.

Oswald et al., (2017) recently reported an RCT on a transition program for adults with ASD nearly double the number of sessions as our program and a parallel group for caregivers. These authors also report self-determination gains in their intervention group, on a different, caregiver-report measure (Seven Component Self-Determination Skills Survey, Carter et al. 2013), as well as gains in adaptive skills by caregiver report. It should be noted that, as caregivers also participated in the intervention, they are subject to potential bias and cannot be considered objective informants, as was the case for self-report in our study. Taken together, these findings are very promising with respect to the potential to improve perceived self-determination in adults

with ASD through relatively brief programs, both in the presence (Oswald et al., 2017) and absence of caregiver involvement as in our program. From the very small sample of 1 year follow up data available on our sample 2/6 participants showed continued improvement or maintenance of SDS total score gains experienced from pre to post 1 year later.

We also found preliminary evidence for *Hypothesis 2,* that participation in intervention would increase QoL ratings in adults with ASD. Results indicated that scores on our abridged version of the Quality of Life – Questionnaire were 2 points higher on average (of a maximum of 30) in the intervention group relative to the waitlist control group, and here precision was fairly good with the majority of the 95% CI being positive [-.2, 3.9]. Considering our sample means, the abridged QoL-Q at outcome was higher in the immediate intervention group (22.53, *SD* = 3.83), than in the waitlist control group (20.89, *SD* =4.17), *d* = .42. It is important to note that we employed an abbreviated version of the QoL-Q at posttest that has not previously been employed. The items we included were personal rather than environmental factors (e.g., access to employment) that were not expected to change in the timeframe of our program. This finding is modest but promising in that change was observed over 3-4 months on such a broad and significant outcome. Improving one's perceived QoL can be considered the epitome of positive outcomes, especially in a population known to have significant decrements in this construct (Barneveld et al., 2014; Chiang & Wineman, 2014; Tobin et al., 2014; Van Heijst & Geurts, 2015). Future work should investigate whether such effects generalize to more comprehensive measures of QoL. At the 1 year follow up 3/6 participants showed maintenance or continued increases in QoL, suggesting that for some participants this was a longer term improvement.

We did not find support for *Hypothesis 3*, that participation in intervention would increase performance on our Social Problem Solving task adapted from Channon & Crawford, 2010. The

intervention and waitlist control groups did not differ in their ability to generate solutions to social problems that were both socially sensitive and practically effective (SP). This measure was included because prior work indicated that people with Asperger's provide fewer SP solutions for these scenarios than do neurotypical comparison participants (Channon et al., 2014), however it has not previously been employed to measure treatment change. The bar to obtain optimal SP responses in this task was set quite high, the response had to be both practically effective and socially sensitive. In contrast, a group-format intervention that uniquely targeted social problem-solving in the workplace over 10 weeks (Bonete et al., 2014) did report gains in the ability to provide solutions to social problems presented in visual scenes in a pre-post design, though the nature of these solutions and the scoring system employed were not described. Similarly, a separate study from our lab (Trudel & Nadig, 2016) on a drama-based social skills program for adults with ASD found gains in role-play enactments of social conflict resolution pre- to post-intervention. Future research should explore whether targeted and focused instruction of social problem solving, which was not included in our curriculum, is required to observe positive effects.

Aside from the RCT measures, post-program data provided secondary evidence of its efficacy. Specifically, *Hypothesis 4*, which held that both participant and parent ratings would show improvement in the three curriculum domains: social communication, self-determination, and working with others skills, was supported. Participants retrospectively rated their skills higher after than before program participation (data available for 85% of final sample). Ratings were also confirmed objectively by a subset of parents who returned program evaluations (data available for 42% of final sample). No control data was available for these measures and it is possible that the results are biased in that only participants who viewed the program positively contributed responses. Bearing that in mind, these results suggest acquisition of skills taught in the curriculum.

Two of six participants reported gains on these skills one year after intervention was complete. Skill ratings, along with the open-ended program evaluation comments provided in Table 5, confirm that the transition program addressed needs and used an approach that was beneficial for young adults with ASD.

There were a number of limitations to the current study, foremost the small sample size, which limits power and generalizability of findings. Accordingly we employed a conservative analysis approach and focus on the consistency and importance of our results rather than statistical significance. We had unbalanced groups across the intervention and waitlist control arms of the study, due to having a limited number of sessions to run the program and lack of control over when we received interest from participants (e.g., just before the last session). We requested one year follow-up data via online survey and obtained a 26% response rate. Thus, results must be interpreted with caution and generalization regarding maintenance limited. Finally, some of our primary outcome measures were previously unvalidated in the modified form we employed them. Despite these limitations, our study provides much needed evidence on the efficacy of a transition support program for adults with ASD using rigorous RCT methodology.

Implications for practice

The program described here is innovative in promoting the independence and self-expressed needs of young people with ASD transitioning into adulthood, and differs in this way from the vast majority of services available for this population. Importantly, our choice of self-report of self-determination and quality of life marks a fundamental shift by prioritizing the perspectives of adults with ASD themselves when evaluating intervention outcomes. Our transition program demonstrates the proof of concept that a service guided by participants' needs can have positive effects on aspects of self-determination abilities and perceived QoL, as well as

on skills related to social communication, self-determination, and working with others. These changes are impressive given that this was a brief (10 week) small-group format intervention that did not require caregiver involvement. This design aspect was motivated by the wishes of participants in our pilot session to have activities without their caregiver involved, and aligns with the critical need to foster autonomy in adults with ASD (Chou et al., 2017). Needs assessment data indicated that the domains targeted were pertinent to participants, and the most common themes in open-ended feedback (Table 5) suggest that in addition to gaining skills, the opportunity to make friends through the program, and benefit from a positive and accepting environment were viewed as helpful. To improve on the service, participants suggested having longer or ongoing programs, more practice or a practical component, and more homogeneous groups with respect to participant functioning and behavior.

Directions for further research

This initial step opens many doors for further investigation. We employed a "personalized" curriculum where modules were selected in response to the overlap in the groups' needs assessment results. Our small sample size did not allow for an evaluation of whether the variability in modules affected the outcomes, which is an important question for future work. Our study was conducted in a university setting where it is not viable to offer the service on an ongoing basis. We are in discussions with our provincial social service provider to transfer the program to community settings and conduct an effectiveness study. Self-determination is empirically supported as one of eight core domains that contribute to an individual's overall well-being or QoL, and level of self-determination has been identified as a mediating factor of quality of life outcomes in people with disabilities (Schalock, Verdugo, Gomez & Reinders, 2016). The potential of self-determination in

driving change in QoL in adults with ASD should be explored in larger-scale intervention studies and through statistical models of mechanistic change (e.g., Frielink, Schuengel & Embregts, 2018).

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Figure Legends

Figure 1. CONSORT participant flow diagram

Figure 2. Transition Support Program Curriculum Modules

Figure 3. RCT results for SDS: Interpersonal Cognitive Problem-Solving subdomain

Figure 4. RCT results for abridged Quality of Life Questionnaire

Figure 5. Participant self-ratings of skills in three domains addressed by the program

Figure 6. Individual participants' maintenance of skills at 1 year follow up. Note: 1 year follow-up data was collected approximately 12 months following program completion for all participants. Participant 1 shown here was in the waitlist control group, therefore post data reflect an assessment after the waiting period but prior to intervention. Participants 2-6 were in the intervention group, therefore post data was obtained after intervention.

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Table 1. Timeline of study participation by RCT arm

Table 2. Participant demographics and baseline scores on outcome measures

Table 3. Post-assessment scores on primary outcome measures

Table 4. GEE model estimates for RCT outcome measures

Table 5. GEE model estimates for Post Program measures

Table 6. Summary of open-ended feedback from participants on the program

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	TIME 1	**TIME 2** (10 weeks)	**TIME 3**	**TIME 4** (10 weeks)	**TIME 5**	**TIME 6** (1 year after program)
Intervention	pre-test	transition program	post-intervention test post-program measures	---	---	follow-up online survey
Wait list control	pre-test	no intervention	post-WL test	transition program	post-intervention test post-program measures	follow-up online survey

Table 1. Timeline of study participation by RCT arm

Table 2 Participant demographics and baseline scores on outcome measures

	Intervention (n = 17) M *(SD)*, Range	Waiting List Control (n = 9) M *(SD)*, Range	*p*	*d*	*95% CI of d*
Demographics					
Age in years	20.65 *(3.28)*, 18-27	23.33 *(4.18)*, 18-29	0.12	-0.75	(-1.55 - 0.11)
Percent male	58.8 %	77.8 %	0.42	NA	
Characteristics					
NVIQ (Raven's percentile)	8.53 *(3.41)*, 3-14	10.56 *(4.61)*, 1-15	0.27	-0.53	(-1.33 - 0.31)
VIQ (WASI percentile)	70.18 *(22.81)*, 16-98	71.67 *(29.31)*, 21-99	0.90	-0.06	(-0.87 – 0.75)
Vineland Socialization†	56.20 *(18.46)*, 20-80	42.75 *(26.42)*, 20-69	0.29	0.65	(-0.58 – 1.78)
Vineland Daily Living Skills†	68.56 (*10.06)*, 50-81	59.25 *(11.96)*, 47-75	0.17	1.22	(0.16 – 2.16)
Vineland Communication†	68.44 (*28.36)*, 21-103	53.00 (*25.29)*, 21-93	0.30	0.75	(-0.24 – 1.67)
Baseline scores on outcome measures					
Self Determination Scale Total Score	81.06 *(17.02)*, 50-109	79.11 *(22.96)*, 50-124	0.83	0.10	(-0.71 – 0.91)
abridged Quality of Life-Q	20.47 *(4.78)*, 12-28	20.78 (3.80), 16-27	0.86	-0.07	(-0.88 – 0.74)
Social Problem Solving, proportion of SP responses	0.39 *(0.21)*, 0.00 - 0.78	0.40 *(0.31)*, 0.00 – 1.00	0.94	0.04	(-0.85 – 0.77)

†Parent report of adaptive functioning on the Vineland was only available for approximately half of the sample:
Intervention group: Socialization (n= 10), Daily Living Skills and Communication (n = 9)
Wait List control group: Socialization and Daily Living Skills (n= 4), Communication (n = 6)

Table 3 Post-assessment scores on primary outcome measures

	Intervention		Waiting List Control				
	n	M *(SD)*, Range	n	M *(SD)*, Range	*p*	*d*	*95% CI of d*
Self Determination Scale -Total Score	14*	90.00 *(21.09)*, 52- 118	9	82.67 *(23.90)*, 59 - 137	0.46	0.44	(-0.42 – 1.27)
abridged Quality of Life-Q	17	22.53 *(3.83)*, 17 - 29	9	20.89 *(4.17)*, 15 – 29	0.34	0.52	(-0.31 – 1.33)
Social Problem Solving, proportion of SP responses	16†	0.51 *(0.22)*, 0.12 - 0.90	9	0.45 *(0.26)*, 0.11 - 0.88	0.57	.16	(-0.66 – 0.97)

*One participant did not respond to any SDS items, despite attending the post-assessment session and completing other measures; a second participant failed to respond to one item in Section 1, and a third left 1 item in section 5 blank. Therefore the Total Score was not available for 3 participants, however all complete section scores were included in the analysis.

†One participant responded to only 2 of 10 Social Problem Solving scenarios, therefore his data was not included.

Table 4. GEE model estimates for RCT outcome measures

	Parameter	Estimate (SE)	95%CI	*p*	d_r
Self-Determination Scale-Total Score					
(Intercept)	β_0	81 (3.6)	[74, 88]	0	
Time	β_1	3.3 (2.8)	[-2.3, 8.9]	0.2472	
Time:int	β_2	4.8 (4.3)	[-3.5, 13]	0.2594	0.047
Self-Determination Scale-Interpersonal Cognitive Problem-Solving					
(Intercept)	β_0	7.7 (0.62)	[6.5, 8.9]	0	
Time	β_1	-0.63 (0.61)	[-1.8, 0.56]	0.2976	
Time:int	β_2	1.8 (0.85)	[0.082, 3.4]	0.03982	0.867
Abridged Quality of Life Questionnaire					
(Intercept)	β_0	21 (0.79)	[19,22]	0	
Time	β_1	0.17 (0.85)	[-1.5, 1.8]	0.8444	
Time:int	β_2	1.9 (1.1)	[-0.2, 3.9]	0.0763	0.76
Social Problem Solving Task-Proportion of SP responses					
(Intercept)	β_0	-0.46 (0.21)	[-0.87, -0.05]	0.02654	
Time	β_1	0.22 (0.31)	[-0.39, 0.84]	0.4762	
Time:int	β_2	0.31 (0.33)	[-0.34. 0.96]	0.3529	n/a

Note: Cohen's d_r was calculated for GEE estimates as follows =

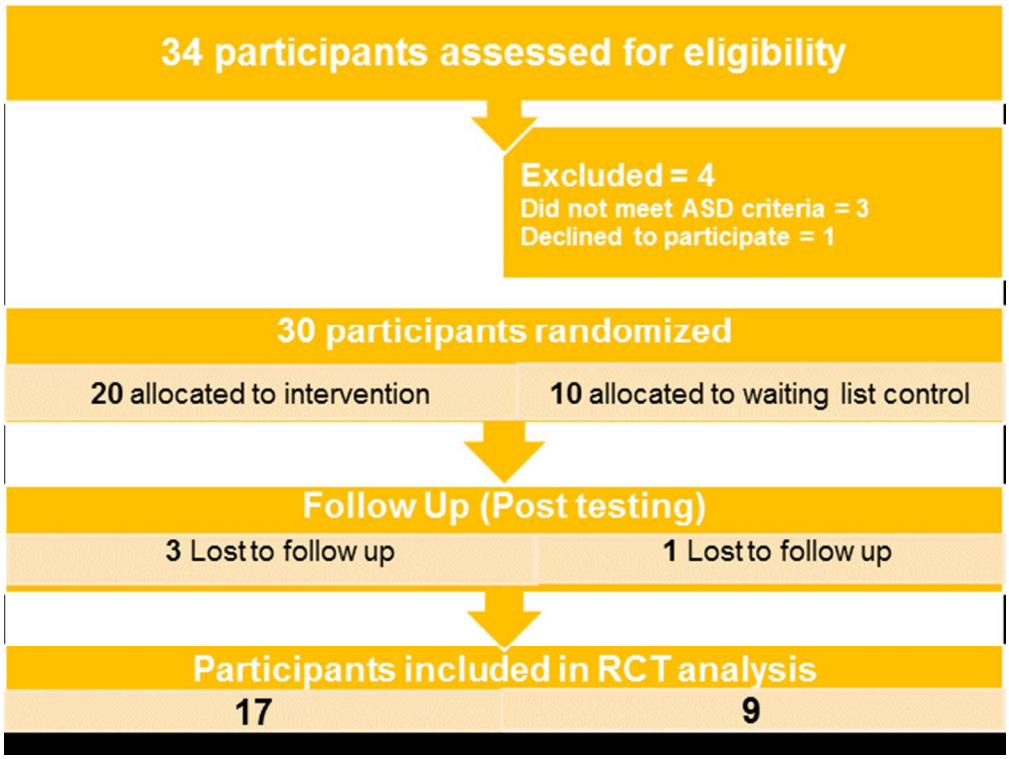
(Predicted Intervention score - Predicted Control Score) / standard deviation of residual variance

Table 4. GEE model estimates for Post Program measures

	Parameter	Estimate (SE)	95%CI	*p*
Participant Skill Change Ratings –Total Score				
(Intercept)	β_0	37 (1.8)	[34, 41]	0
Time	β_1	5.9 (1.2)	[3.6, 8.2]	3.701e-07
Participant Skill Change Ratings – Communication and Interaction				
(Intercept)	β_0	12 (0.63)	[11, 13]	0
Time	β_1	2 (0.39)	[1.2, 2.8]	4.058e-07
Participant Skill Change Ratings – Self-Determination				
(Intercept)	β_0	13 (0.63)	[11, 14]	0
Time	β_1	1.9 (0.44)	[1, 2.8]	1.521e-05
Participant Skill Change Ratings – Working with Others				
(Intercept)	β_0	13 (0.64)	[11, 14]	0
Time	β_1	1.8 (0.44)	[.91, 2.6]	5.262e-05
Parent Skill Change Ratings –Total Score				
(Intercept)	β_0	26 (1.7)	[23, 30]	0
Time	β_1	7.3 (3.2)	[1, 14]	0.02259
Parent Skill Change Ratings – Communication and Interaction				
(Intercept)	β_0	9 (0.69)	[7.7, 10]	0
Time	β_1	2 (0.96)	[0.11, 3.9]	0.03794
Parent Skill Change Ratings – Self-Determination				
(Intercept)	β_0	8.7 (0.58)	[7.6, 9.9]	0
Time	β_1	2.7 (1.1)	[0.57, 4.8]	0.01311
Parent Skill Change Ratings – Working with Others				
(Intercept)	β_0	9.1 (0.65)	[7.8, 10]	0
Time	β_1	2.9 (0.96)	[1.1, 4.8]	0.002167

Table 5. Summary of open-ended feedback from participants on the program

In what ways was the McGill Transition program helpful to you?	*Suggestions for improving the McGill Transition program*
Improved social skills knowledge (6)	More sessions/longer (3)
Meeting people/making friends, or a specific friend (5)	More homogeneous groups with respect to functionality and behavior (expression of discomfort due to discrepancies in individuals' participation and challenging behaviors) (3)
Understanding and support received from facilitators/group, feeling appreciated for who I am (4)	More practice/practical component (3)
Increased self-reflection (3)	Larger groups, more friend opportunities (2)
Boosted confidence, ability to express oneself (3)	Focus more on (topic of interest) e.g., overcoming sensory perception obstacles, communication skills (2)
General skill improvement, self-improvement (3)	Harder material (1)
Learning how to engage in conversation, improve communication (3)	Be allowed to discuss interests more exclusively (1)
Way to regularly spend time out of the house (3)	
Provided methods for dealing with certain problems (2)	



CONSORT participant flow diagram

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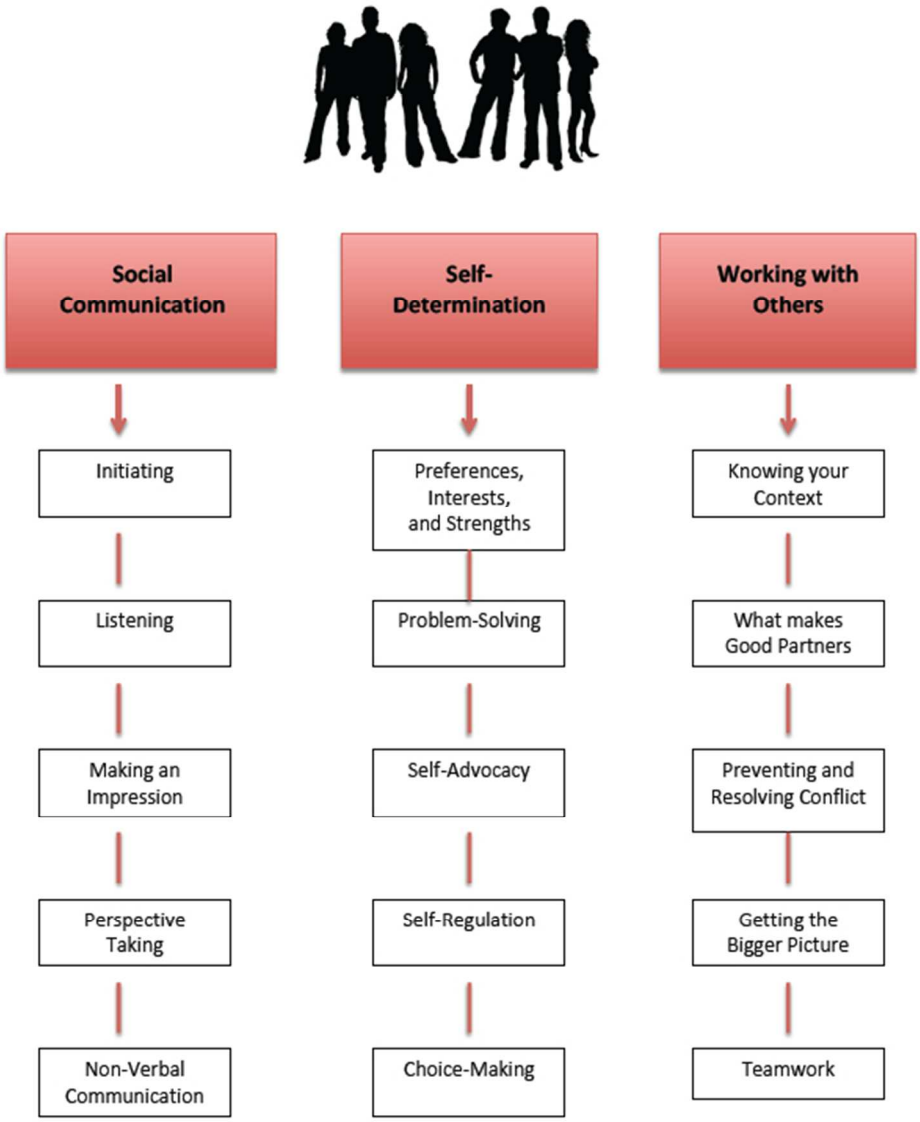

Transition Support Program Curriculum Modules

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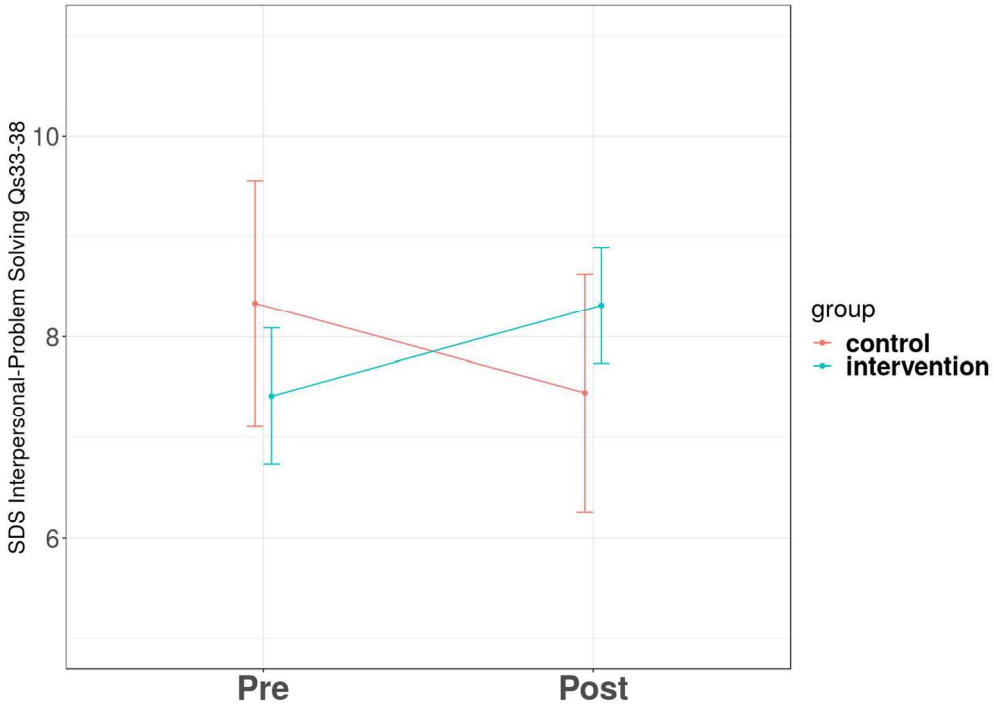

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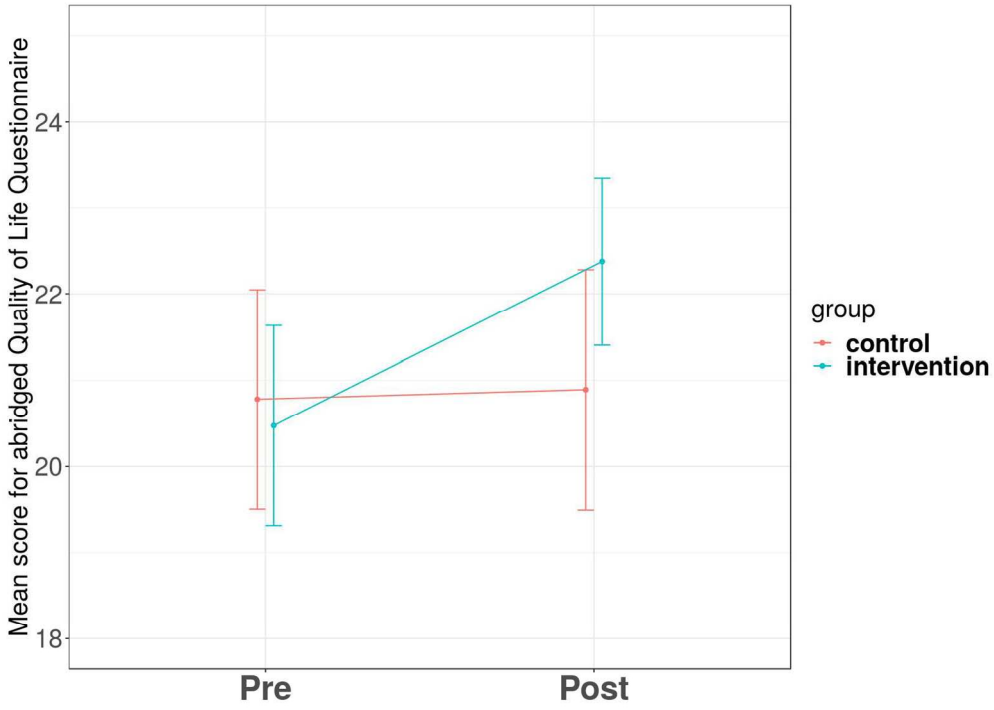

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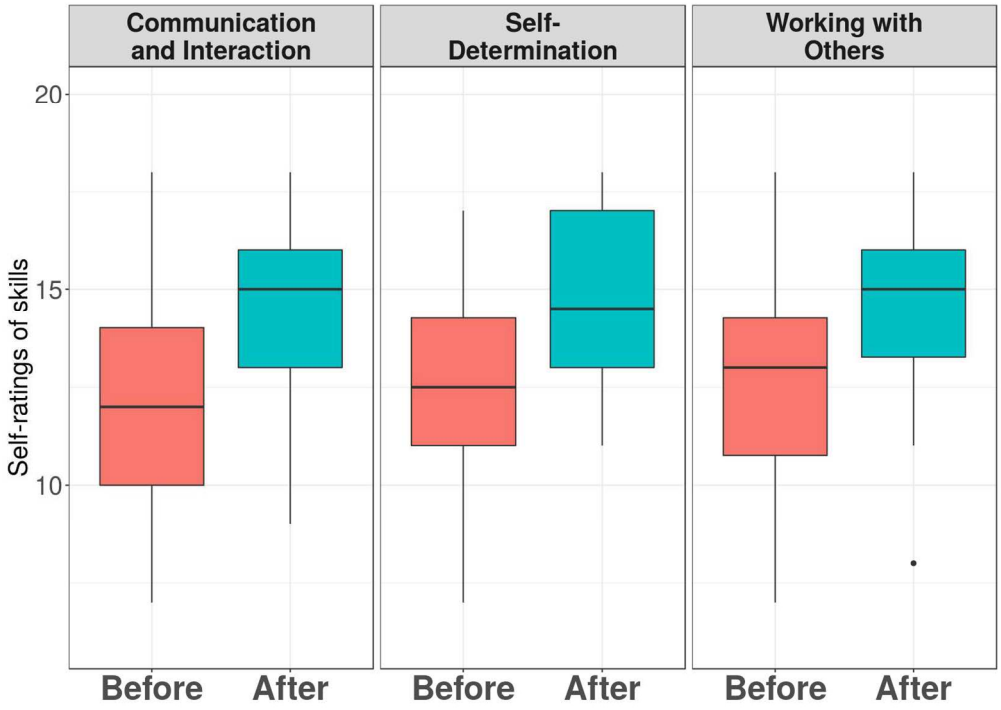

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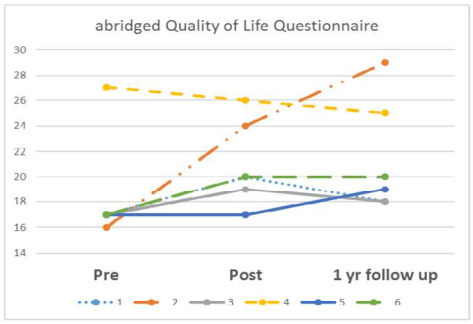

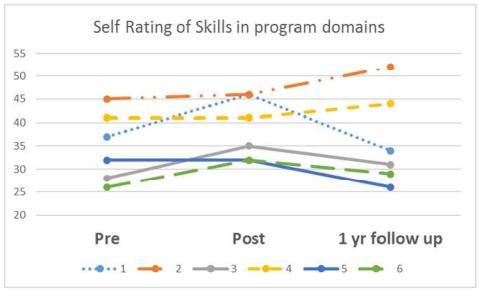

215x279mm (175 x 175 DPI)

NAME: _____ **DATE:** _____

Transition Needs & Interests Questionnaire

Please read each question carefully and answer each to the best of your ability. Your responses will be used to guide the curriculum for the McGill Transition Support Program that will be based on the identified needs and interests of the group. The information gathered will remain confidential.

Topics and Learning Supports

Please write your answers in the textboxes below each question.

What topics would you like us to cover in the McGill Transition Support Program? (E.g., daily social situations, communication with others, academic and work-related problems and support, managing change or unexpected situations, etc.).

What format of group meetings would be most beneficial to you based on how you learn best? (E.g., group discussions, visual presentations, role playing, etc.)

What could we do to make the group sessions as comfortable and supportive as possible?

Other suggestions/comments?

Perceived Needs and Skills

For each of the areas listed below, please check the response that best represents a) your need to learn about the area (low, medium, high), and b) your skills in the area (poor, average, high).

Area	Need to learn	Skill level
Communication and interaction:		
Initiating conversation and asking for help	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
How to be a good listener	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Understanding the perspective of others	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
How to make the impression you want	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Non-literal language (sarcasm, sayings, jokes)	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High

Area	Need to learn	Skill level
Understanding non verbal language (gestures, intonation	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Self-determination:		
Problem-solving skills	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Managing sensory issues, emotions, and anxiety	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Choice-making	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Self-advocacy	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Identifying and developing your interests	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Accessing resources	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Working with others:		
Getting the context: distinguishing public from private	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Preventing and resolving conflict	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Identifying good partners for communication	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Get the big picture/ being organized with work	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Teamwork and how to have your contributions acknowledged	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High
Safe use of electronic communication and media	☐ Low ☐ Medium ☐ High	☐ Poor ☐ Average ☐ High

Quality of Life Questionnaire-Abridged Version
(modified from Shalock and Keith, 1993)

Person's Name_____ Age_____ Gender_____
Person's Program_____ Evaluator_____ Test Date_____

ANSWER ALTERNATIVES (CIRCLE ONE)

QUESTIONS	3 POINTS	2 POINTS	1 POINT
(QOLQ 1): Overall, would you say that life:	Brings out the best in you?	Treats you like everybody else?	Doesn't give you a chance?
(QOLQ 2): How much fun and enjoyment do you get out of life?	Lots	Some	Not much
(QOLQ 7): How many times a month do you feel lonely?	Seldom, never more than once or twice	Occasionally, at least 5 or 6 times a month	Frequently, at least once or twice a week
(QOLQ 8): Do you ever feel out of place in social situations?	Seldom or never	Sometimes	Usually or always
(QOLQ 11): How well did your educational or training program prepare you for what you are doing now?	Very well	Somewhat	Not at all well
(QOLQ 12): Do you feel your job or other daily activity is worthwhile and relevant to either yourself or others?	Yes, definitely	Probably	I'm not sure, or definitely not
(QOLQ 24): How much control do you have over things you do every day, like going to bed, eating, and what you do for fun?	Complete	Some	Little
(QOLQ 30): Overall, would you say that your life is:	Free	Somewhat planned for you	Cannot usually do what you want
(QOLQ 36): How often do you attend recreational activities (homes, parties, dances, concerts, plays) in your community?	3-4 per month	1-2 per month	Less than 1 per month
(QOLQ 40): Overall, would you say that your life is:	Very worthwhile	Okay	Useless

Fidelity Checklist: Choice Making

The Facilitators should take 5 minutes to review this fidelity checklist prior to starting the session module (i.e., Reminder) and post-session (i.e., Implemented) to make sure that all components of the Initiation Module will be and has been implemented accordingly. Please initial the checkbox.

Date of Session: _____

Facilitators: _____

Reminder	Component	Implemented	Notes
Structure, Setting and Materials			
☐	▪ Attendance of participants and facilitators	☐	
☐	▪ Facilitator PowerPoint slides are finalized	☐	
☐	▪ Facilitator manual is available	☐	
☐	▪ Participant workbook/worksheets are printed	☐	
☐	▪ Classroom setting with computer	☐	
☐	▪ Duration of session is 2 hours	☐	Start: Finish:
☐	▪ Provide a break (with choices of snacks/drinks)	☐	
Facilitators			
☐	▪ Facilitators reviewed module content/slides	☐	
☐	▪ One facilitator takes notes during session	☐	
☐	▪ Facilitator reflections are completed post-session	☐	
☐	▪ Record incident report (if needed)	☐	
Delivery			
☐	▪ Facilitation of group discussions and activities	☐	
☐	▪ Video demonstration of content	☐	
☐	▪ Didactic instruction with active practice (e.g., role playing, modeling)	☐	
☐	▪ Provide feedback	☐	
☐	▪ Social reinforcement (praise)	☐	
☐	▪ Participant workbooks (including two questions and take home messages) were completed	☐	
☐	▪ Participants were treated in a positive and empowering manner	☐	
☐	▪ Participants were called on to contribute to the	☐	

	group		
☐	▪ Participants' strengths were highlighted	☐	
☐	▪ Participants were provided with choices when opportunities were available	☐	
☐	▪ Material from other sessions were incorporated as appropriate	☐	
Module Content			
☐	▪ Social exchange: weekly highlights	☐	
☐	▪ Outline of session	☐	
☐	▪ Review previous session content (short summary)	☐	
☐	▪ Ask participants to complete 1 workbook question prior to starting the module.	☐	
☐	▪ Discuss what choice making is and it's importance.	☐	
☐	▪ Discuss small and big choices and how our values influence our choices.	☐	
☐	▪ Discuss the SODA framework: Situation, Options, Disadvantages, Advantages, & Solution.	☐	
☐	▪ Ask participants to complete 1 workbook question after completing the module.	☐	
Review Take Home Messages			
☐	▪ Making choices is our human right!	☐	
☐	▪ We make choices based on our values.	☐	
☐	▪ Making good choices helps us think for ourselves, take responsibility for our actions and get closer to our goals and dreams.	☐	
☐	▪ The SODAS framework and a decision tree helps us with difficult decisions	☐	
☐	▪ The choices we make when dealing with others can impact our relationships in the short-term and in the long-term.	☐	

Fidelity Checklist: Conflict

The Facilitators should take 5 minutes to review this fidelity checklist prior to starting the session module (i.e., Reminder) and post-session (i.e., Implemented) to make sure that all components of the Initiation Module will be and has been implemented accordingly. Please initial the checkbox.

Date of Session: _____

Facilitators: _____

Reminder	Component	Implemented	Notes
Structure, Setting and Materials			
☐	▪ Attendance of participants and facilitators	☐	
☐	▪ Facilitator PowerPoint slides are finalized	☐	
☐	▪ Facilitator manual is available	☐	
☐	▪ Participant workbook/worksheets are printed	☐	
☐	▪ Classroom setting with computer	☐	
☐	▪ Duration of session is 2 hours	☐	Start: Finish:
☐	▪ Provide a break (with choices of snacks/drinks)	☐	
Facilitators			
☐	▪ Facilitators reviewed module content/slides	☐	
☐	▪ One facilitator takes notes during session	☐	
☐	▪ Facilitator reflections are completed post-session	☐	
☐	▪ Record incident report (if needed)	☐	
Delivery			
☐	▪ Facilitation of group discussions and activities	☐	
☐	▪ Video demonstration of content	☐	
☐	▪ Didactic instruction with active practice (e.g., role playing, modeling)	☐	
☐	▪ Provide feedback	☐	
☐	▪ Social reinforcement (praise)	☐	
☐	▪ Participant workbooks (including two questions and take home messages) were completed	☐	
☐	▪ Participants were treated in a positive and empowering manner	☐	
☐	▪ Participants were called on to contribute to the	☐	

	group		
☐	▪ Participants' strengths were highlighted	☐	
☐	▪ Participants were provided with choices when opportunities were available	☐	
☐	▪ Material from other sessions were incorporated as appropriate	☐	
Module Content			
☐	▪ Social exchange: weekly highlights	☐	
☐	▪ Outline of session	☐	
☐	▪ Review previous session content (short summary)	☐	
☐	▪ Ask participants to complete 1 workbook question prior to starting the module.	☐	
☐	▪ Discuss what conflict is and it's importance.	☐	
☐	▪ Discuss direct and indirect conflict.	☐	
☐	▪ Discuss describing, recognizing, preventing, and resolving conflict.	☐	
☐	▪ Ask participants to complete 1 workbook question after completing the module.	☐	
Review Take Home Messages			
☐	▪ Conflict can be indirect or direct.	☐	
☐	▪ We need to look out for signs of conflict.	☐	
☐	▪ Preventing conflict is a great skill to possess.	☐	
☐	▪ Disagreeing respectfully is one way to prevent conflict.	☐	
☐	▪ There are different ways to resolve a conflict and practice makes perfect.	☐	
☐	▪ Communicating, listening, and apologizing are essential to conflict resolution.	☐	

Fidelity Checklist: Initiation

The Facilitators should take 5 minutes to review this fidelity checklist prior to starting the session module (i.e., Reminder) and post-session (i.e., Implemented) to make sure that all components of the Initiation Module will be and has been implemented accordingly. Please initial the checkbox.

Date of Session: _____

Facilitators: _____

Reminder	Component	Implemented	Notes
Structure, Setting and Materials			
☐	▪ Attendance of participants and facilitators	☐	
☐	▪ Facilitator PowerPoint slides are finalized	☐	
☐	▪ Facilitator manual is available	☐	
☐	▪ Participant workbook/worksheets are printed	☐	
☐	▪ Classroom setting with computer	☐	
☐	▪ Duration of session is 2 hours	☐	Start: Finish:
☐	▪ Provide a break (with choices of snacks/drinks)	☐	
Facilitators			
☐	▪ Facilitators reviewed module content/slides	☐	
☐	▪ One facilitator takes notes during session	☐	
☐	▪ Facilitator reflections are completed post-session	☐	
☐	▪ Record incident report (if needed)	☐	
Delivery			
☐	▪ Facilitation of group discussions and activities	☐	
☐	▪ Video demonstration of content	☐	
☐	▪ Didactic instruction with active practice (e.g., role playing, modeling)	☐	
☐	▪ Provide feedback	☐	
☐	▪ Social reinforcement (praise)	☐	
☐	▪ Participant workbooks (including two questions and take home messages) were completed	☐	
☐	▪ Participants were treated in a positive and empowering manner	☐	
☐	▪ Participants were called on to contribute to the	☐	

	group		
☐	▪ Participants' strengths were highlighted	☐	
☐	▪ Participants were provided with choices when opportunities were available	☐	
☐	▪ Material from other sessions were incorporated as appropriate	☐	
Module Content			
☐	▪ Social exchange: weekly highlights	☐	
☐	▪ Outline of session	☐	
☐	▪ Review group needs and privacy contract	☐	
☐	▪ Ask participants to complete 1 workbook question prior to starting the module.	☐	
☐	▪ Discuss what initiation is and it's importance.	☐	
	▪ Discuss how initiation is context specific		
☐	▪ Discuss the value of small talk and the use of friendly files in conversations	☐	
☐	▪ Ask participants to complete 1 workbook question after completing the module.	☐	
Review Take Home Messages			
☐	▪ Choose the right timing for initiation	☐	
☐	▪ Adapt initiation to the kind of people you're talking to	☐	
☐	▪ Small talk: Exchange general information at the beginning	☐	
☐	▪ A conversation is a back and forth exchange	☐	
☐	▪ Friendly files: Store information about a person	☐	

Fidelity Checklist: Listening

The Facilitators should take 5 minutes to review this fidelity checklist prior to starting the session module (i.e., Reminder) and post-session (i.e., Implemented) to make sure that all components of the Initiation Module will be and has been implemented accordingly. Please initial the checkbox.

Date of Session: _____

Facilitators: _____

Reminder	Component	Implemented	Notes
Structure, Setting and Materials			
☐	▪ Attendance of participants and facilitators	☐	
☐	▪ Facilitator PowerPoint slides are finalized	☐	
☐	▪ Facilitator manual is available	☐	
☐	▪ Participant workbook/worksheets are printed	☐	
☐	▪ Classroom setting with computer	☐	
☐	▪ Duration of session is 2 hours	☐	Start: Finish:
☐	▪ Provide a break (with choices of snacks/drinks)	☐	
Facilitators			
☐	▪ Facilitators reviewed module content/slides	☐	
☐	▪ One facilitator takes notes during session	☐	
☐	▪ Facilitator reflections are completed post-session	☐	
☐	▪ Record incident report (if needed)	☐	
Delivery			
☐	▪ Facilitation of group discussions and activities	☐	
☐	▪ Video demonstration of content	☐	
☐	▪ Didactic instruction with active practice (e.g., role playing, modeling)	☐	
☐	▪ Provide feedback	☐	
☐	▪ Social reinforcement (praise)	☐	
☐	▪ Participant workbooks (including two questions and take home messages) were completed	☐	
☐	▪ Participants were treated in a positive and empowering manner	☐	
☐	▪ Participants were called on to contribute to the	☐	

	group		
☐	▪ Participants' strengths were highlighted	☐	
☐	▪ Participants were provided with choices when opportunities were available	☐	
☐	▪ Material from other sessions were incorporated as appropriate	☐	
Module Content			
☐	▪ Social exchange: weekly highlights	☐	
☐	▪ Outline of session	☐	
☐	▪ Review previous session content (short summary)	☐	
☐	▪ Ask participants to complete 1 workbook question prior to starting the module	☐	
☐	▪ Discuss what listening is and its importance.	☐	
☐	▪ Discuss various listening strategies (e.g., active and non-verbal)	☐	
☐	▪ Discuss how the impression you make can be context specific	☐	
☐	▪ Discuss how you can always work on improving your listening abilities	☐	
☐	▪ Ask participants to complete 1 workbook question after completing the module.	☐	
Review Take Home Messages			
☐	▪ How you listen and show how you listen affects how others feel about you	☐	
☐	▪ Reading the context is important to understanding listening expectations	☐	
☐	▪ There are various strategies (e.g., active, non-verbal) to show that you're a good listener	☐	
☐	▪ Listening is a skill. It takes practice and work to improve your listening skills. Keep working on your listening skills!	☐	

Fidelity Checklist: Making an Impression

The Facilitators should take 5 minutes to review this fidelity checklist prior to starting the session module (i.e., Reminder) and post-session (i.e., Implemented) to make sure that all components of the Initiation Module will be and has been implemented accordingly. Please initial the checkbox.

Date of Session: _____

Facilitators: _____

Reminder	Component	Implemented	Notes
Structure, Setting and Materials			
☐	▪ Attendance of participants and facilitators	☐	
☐	▪ Facilitator PowerPoint slides are finalized	☐	
☐	▪ Facilitator manual is available	☐	
☐	▪ Participant workbook/worksheets are printed	☐	
☐	▪ Classroom setting with computer	☐	
☐	▪ Duration of session is 2 hours	☐	Start: Finish:
☐	▪ Provide a break (with choices of snacks/drinks)	☐	
Facilitators			
☐	▪ Facilitators reviewed module content/slides	☐	
☐	▪ One facilitator takes notes during session	☐	
☐	▪ Facilitator reflections are completed post-session	☐	
☐	▪ Record incident report (if needed)	☐	
Delivery			
☐	▪ Facilitation of group discussions and activities	☐	
☐	▪ Video demonstration of content	☐	
☐	▪ Didactic instruction with active practice (e.g., role playing, modeling)	☐	
☐	▪ Provide feedback	☐	
☐	▪ Social reinforcement (praise)	☐	
☐	▪ Participant workbooks (including two questions and take home messages) were completed	☐	
☐	▪ Participants were treated in a positive and empowering manner	☐	
☐	▪ Participants were called on to contribute to the	☐	

	group		
☐	▪ Participants' strengths were highlighted	☐	
☐	▪ Participants were provided with choices when opportunities were available	☐	
☐	▪ Material from other sessions were incorporated as appropriate	☐	
Module Content			
☐	▪ Social exchange: weekly highlights	☐	
☐	▪ Outline of session	☐	
☐	▪ Review previous session content (short summary)	☐	
☐	▪ Ask participants to complete 1 workbook question prior to starting the module.	☐	
☐	▪ Discuss what impression making is and its importance.	☐	
☐	▪ Discuss impression making including what you do, say and how you look	☐	
☐	▪ Discuss how the impression you make can be context specific	☐	
☐	▪ Discuss how you can always work on improving the impression people have of you	☐	
☐	▪ Ask participants to complete 1 workbook question after completing the module.	☐	
Review Take Home Messages			
☐	▪ We make impressions by what we say, what we do, and how we look	☐	
☐	▪ The things you do with your body when you talk to another person are more important than the things you do with your words	☐	
☐	▪ Don't lose your individuality - Express your individuality appropriately within the context	☐	
☐	▪ We all make the wrong impression sometimes; so don't be hard on yourself. You can improve the impression people have by updating it	☐	