

FINDING WAYS TO TEACH TO STUDENTS WITH FASD: A RESEARCH STUDY

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This study examines a unique educational program designed for youth with Fetal Alcohol Spectrum Disorder [FASD] in Alberta, Canada. Care was taken to include the participants' voice in this case study resulting in key insights and strategies for working with youth and/or students struggling with FASD. Using observation notes, survey and interview responses, and literature reviews, participants' perceptions were used as a lens to describe characteristics, experiences and learning needs of this population. Studying their ability and how these participants struggled unfolded specific needs in the program. Additionally, in exploring the impact of the program on the participants' learning, growth and progress, key strategies for teaching and learning were revealed. The appendix offers sample lesson plans and resources as used in this educational program. As a whole, this qualitative study offers those working in the field of FASD and learning disabilities insights and strategies from the perspective and feedback of the participants.

While teaching young adults with Fetal Alcohol Spectrum Disorder [FASD] is challenging, those working with FASD students know there is great potential for those students to lead meaningful lives. While these students often have difficulties learning in traditional educational settings, this study suggests they can learn in a supportive environment. This paper offers some insights, gained through participants' perceptions, during the development of a unique educational program designed specifically for youth with FASD in Calgary, Canada. The significance of this work is providing support people, of people with FASD, with the results of the educational program and effective strategies in helping these students to learn and prepare for a productive life.

Definitions

Fetal Alcohol Spectrum Disorder [FASD] is associated with functional disabilities and *related to prenatal exposure to alcohol* (Calgary Fetal Alcohol Network [CFAN], 2003, p.7). FASD is labeled as a spectrum disorder because of the diversity of possible effects on the child, which reside along a continuum, as well as the effects from different levels of prenatal alcohol exposure (CFAN, 2003; Ryan & Ferguson, 2006b; Sokol, Delaney-Black & Nordstrom, 2003). The apparent affects of FASD are facial morphology (small head and eyes, and thin upper lip), slow body growth, and neurobehavioural abnormalities (Nash, Rovet, Greenbaum, Fantus, Nulman & Koren, 2006; Ryan & Ferguson, 2006b; Sokol, Delaney-Black & Nordstrom, 2003). It is now recognized as a leading cause of mental retardation in Western regions (Ackerman, 1998). Aside from exposure to alcohol, this disorder can also be due to *genetics, nutritional history of the mother, number of previous pregnancies, length of time between pregnancies, polydrug use, and patterns of paternal drinking* (CFAN, 2003, p.7). The affects of prenatal drinking is apparent; in the United States and Canada, it is estimated 1 in 100 children are born each year with FASD, surpassing those with autism spectrum disorder (Harpur, Ryan & Ferguson, 2006a). Among Native populations in Alaska this number increases substantially to 5.6 affected children in 1000 (Ryan & Ferguson, 2006b). In Canada, over \$350 million is spent on affected youth, and in the United States and Canada, it is expected the lifelong cost of interventions for one person with FASD is \$1.4 million (Duquette, Stodel, Fullarton & Hagglund, 2006a; Nash et al., 2006).

FASD Diagnosis

Despite the magnitude of the problem there is limited knowledge on the effects of maternal substance abuse (Watson & Westby, 2003). There seems to be no consistent pattern to this disorder across individuals, lessening the ability to plan appropriate interventions services (Gessner, Bischoff, Perham-Hester, Chandler, & Middaugh, 1998). Kodituwakku, Coriale, Fiorentino, Aragon, Kalberg, Buckley et al. (2006) echo this by claiming, at this point, there is no defined behavioural characteristic pattern with FASD conditions. Adding to the difficulty of assessing for FASD, many children are adopted or fostered making it harder to obtain information on the biological mother's drinking pattern (Nash et al., 2006). Though there are parallels between learning disability and FASD characteristics, the former sheds little light on dealing with FASD due to its diverse, complex and interrelated difficulties that are often hidden and subtle (Alberta Department of Education, 1996; Johnson & Lapadat, 2000). As a result, it is difficult to properly determine the disorder and to help children with FASD. Nash et al. (2006) urgently call for a better way to identify children with FASD, as does Ryan and Ferguson (2006a), who warn many children with FASD are misdiagnosed with other disabilities, therefore overlooking their real conditions.

Behavioural and Cognitive Characteristics

Yet, some neurobehavioural characteristics are common among this population. Behaviourally, people with FASD struggle with psychiatric and emotional dysfunctions causing inconsistent behaviour and performance; this is evident in their impulsiveness, trouble expressing themselves, inability to distinguish between public and private behaviors, difficulty in understanding social clues, and experiencing difficulties living independently (BC Minister of Education, 1996; CFAN, 2003; Green, 2007; Kodituwakku et al, 2006; O'Connor, Frankel, Paley, Schonfeld, Carpenter, Laugeson et al., 2006; National Organization on Fetal Alcohol Syndrome [NOFAS], 2004; Sokol, Delaney-Black & Nordstrom, 2003). Other behavioural problems with alcohol-exposed children are an inability to empathize with others, and coping with controlled environments and authority figures, thereby adding to delinquent behaviour and school failures (Harpur, 2001; O'Connor et al., 2006). FASD sufferers also struggle with hyperactivity and inattentive problems; however, those with Attention Deficit Hyperactivity Disorder (ADHD) on top of their FASD condition (approximately 70% have both conditions) show more signs of inattentiveness; as a result, their slow processing of information and comprehension abilities lead to lower mathematics and language performance as well as their experiencing physical and emotional drain (Kodituwakku et al, 2006; Nash et al., 2006; Raymond & Belanger, 2000; Sokol, Delaney-Black & Nordstrom, 2003). Nash et al. (2006) found in their study that though children with FASD were hyperactive and had attention deficit, unlike ADHD children, these ones lack any remorse for misbehaving, seem to act younger in age, and tend to lie and steal.

Furthermore, problems with understanding social clues and linking cause to effect in behaviour extends into adulthood as well as continued attention problems, executive functioning deficit, and coping with everyday life (Green, 2007; O'Connor et al., 2006; O'Malley & Nanson, 2002; Sokol, Delaney-Black & Nordstrom, 2003). During adolescence, secondary disabilities are more pronounced such as depression, addiction problems, and suicide ideation (Duquette, Stodel, Fullarton and Hagglund, 2006b). These behavioural difficulties lead to school expulsions, disruptive home experiences, illegal practices, substance abuse, and at times, imprisonment (Duquette, Stodel, Fullarton and Hagglund, 2006b; Ryan & Ferguson, 2006a). Harpur (2001) caution these concerns need to be addressed first in order for this population to progress academically or vocationally.

Cognitively, children with FASD show a number of difficulties such as intellectual deficits, poor information and number processing, impaired visual-spatial reasoning, disorganization, and poor memory and motor functions (Kodituwakku et al, 2006; O'Connor et al., 2006; O'Malley & Nanson, 2002). Streissguth, Barr, Olson, Sampson, Bookstein, & Burgess (1994) showed evidence that students with FASD have impaired abilities with both attention and executive functions (dysexecutive syndrome or executive dysfunction) – two critical impairments. The deficit in executive function affects academic skills, in particular mathematics studies and deductive reasoning (O'Malley & Nanson, 2002; Streissguth et al., 1994). In another study Kodituwakku et al. (2006) found evidence children with FASD have more difficulties with nonverbal reasoning, abstract thinking, language comprehension, and overall academic achievement; also the study participants showed more behavioural problems than normal children. More so,

difficulties with language comprehension affect social cognition and communication, causing them to wrongly appear defiant (Ackerman, 1998; Green, 2007; O'Malley & Nanson, 2002).

Support and Education

Support for this population takes careful consideration (CFAN, 2003). Duquette, Stodel, Fullarton and Hagglund (2006a & 2006b) have found in their study that given the right environment, students with FASD can graduate from high school. Foremost, is it important to understand the prevalence of the FASD condition, and to consider it within a context of functioning ability and developmental history, translating this understanding into sensitive approaches (Duquette, Stodel, Fullarton and Hagglund, 2006b; Ryan & Ferguson, 2006a). In essence, it is important to know the strengths, weaknesses, and moods of these students (Harpur, 2001; Kalberg & Buckley, 2007). As well, a recurring theme in the literature is to coordinate diagnosis with intervention, and to further coordinate a number of services such as counselling, shelter, special education, family support, and caregivers. In short, it calls for direct support of the person's family, school and the community life (Green, 2007; Kalberg & Buckley, 2007; Ryan & Ferguson, 2006a). Green (2007), Ackerman (1998) and Duquette, Stodel, Fullarton and Hagglund (2006a) point out this population will need some level of support through their entire life, and to begin intervention services while the child is young to help them learn how to control themselves as they grow older.

Children and adults with FASD struggle academically, and their frustration with schooling increases their anxiety, thus blocking learning (Green, 2007; Harpur, 2001). Ackerman (1998) indicates *children with [FASD] who have a higher IQ may need programs more typical of children with learning disabilities or emotional and behavioural disorders* (p. 13). She furthers they will need uniquely designed curriculum as their age and abilities will vary. The most difficult areas of study for these learners is mathematics, or any subject that is abstract and sequenced in nature; for instance, most students do not advance beyond a second- or third-grade level understanding of mathematics (CFAN, 2003; NOFAS, 2004). Roebuck-Spencer (2004) tested students with FASD on their ability to learn verbal information; using lists of related and lists of unrelated words to recall; the study found children did better with grouped, related words indicating those with FASD did benefit from implicit learning strategies. Furthermore, a number of organizations and research studies offer essential teaching and learning strategies for students with FASD-based learning disabilities (Ackerman, 1998; Alberta Department of Education, 1996; BC Minister of Education, 1996; CFAN, 2003; Duquette, Stodel, Fullarton & Hagglund, 2006b; Green, 2007; Harpur, 2001; Kalberg & Buckley, 2007; Malbin, 1993; Osborne, 1994; Raymond & Belanger, 2000; Weiner and Morse, 1994; Zevenbergen and Ferraro, 2001). Strategies for best teaching and learning practices are: differentiated instruction; focus on vocational skills; consider all sensory modalities when teaching; use cognitive modeling and coaching; chunk information, break down tasks, and reduce lesson size; use hands-on activities and concrete examples; use visual and verbal prompts, cues, aids and demonstrations; provide one-on-one or small group assistance; help with the transfer of knowledge to other situations; teach self-directed speech and problem solving; help students to recognize personal learning style and challenges; and, due to struggles with poor memory, repeat instructions and slow down instructional pace for processing.

They further suggested strategies for working with students who struggle with behavioural problems. Recommended strategies are to handle behavioural problems constructively and with reinforcements; linking consequences to action; teach skills to regulate emotions and behaviours (i.e. coping skills, anger management, emotion identification, decision making); linking cause and effect relationships through visuals; teach communication, social and life skills; and, help with motivation and encourage perseverance. More important they recommend environmental considerations such as: structuring time and space, thus creating stability; providing daily routines and rules visually; and, effectively manage a quiet, non-distracting place.

Additionally, using technology with struggling learners is found to be beneficial due to its controlled pace, multimodalities, immediate and private feedback from activities, and potential for scaffolding learning (Edmonds & Li, 2005). More so, a key consideration for teaching participants with FASD is determining what constitutes success for them. To some extent intangible, success for these participants must be considered in a different light. It is important to focus learning successes more on personal growth than academic accomplishments, thereby helping participants to become independent and confident citizens. For

instance, one study examined the successful outcomes of support circles that help with transition to employment, independent living, transportation, financial independence, and self-esteem (Raymond & Belanger, 2000). Through education, participants can experience and develop many skills that affect them personally (Edmonds, 2005). As well, Duquette, Stodel, Fullarton and Hagglund (2006a) and Ackerman (1998) suggest allowing the student with FASD to learn how to work independently, to not control them, to help them manage their own behaviour, and to assign attainable workloads so they can successfully complete them. They further, this population want to succeed, want to participate in academic work, and want to graduate from high school, though they realize they may not go onto post-secondary; in essence, they want feel a sense of accomplishment. Duquette, Stodel, Fullarton and Hagglund (2006a) found that integrating adolescents with FASD into academic and social settings, and adding parental support and advocacy, gives them the perception of succeeding, and thus persisting at school studies. Thus, they conclude that protective factors, such as from supportive individuals, family or school, lessens the impact of risk factors with this population.

Perspectives

Yet, few studies have examined the perspectives of people with FASD, whereby the focus has been on the identification, diagnosis and effects of prenatal alcohol on children, and on learning strategies (Ryan & Ferguson, 2006b). Ryan and Ferguson (2006b) attempt in their study to determine the experiences of students with FASD and the challenges they face; their population sample was mainly Native learners in an Alaskan rural setting. They explored the unique characteristics and needs of these children, as well as their experience in coping with this condition; from this the researchers could better inform interventions and educational strategies. In their study that explored perspectives of students, teachers and parent, they found these children were foremost humans with special interests and gifts. Additionally, participants with FASD showed competence in hands-on outdoor activities, a need for stability and belonging, substance abuse problems, behavioural problems and petty crimes, unstable home lives, family deaths due to alcohol abuse, and living with a cultural stigma. Educationally, there was mixed results in outcomes, a need for full-time special support in school and after school, and an unlikelihood to graduate from high school. Exploring the perspectives of children and adults with FASD adds richness to data giving a personal reflection on their struggles and needs. Ryan and Ferguson (2006a) suggest future research should focus on the perspectives of students with FASD in order to assess and better plan support and interventions to help them live healthy and fulfilled lives. This study attempts to respond to that call.

Method

Purpose and Research Questions

The purpose of the research study was to review the impact of a customized educational program on student learning. The research questions were:

- What was the impact of the educational component of the program on the FASD learners?
- Was there an increase in skills and confidence?
- Did they grow in understanding and awareness?
- Were they ready to engage in further employment or studies?

Research Methods

A qualitative, interpretive approach was used to examine the impact of this program on student learning (Patton, 2002). In addition, drawing on ethnographic methods for analyzing and presenting the findings through cultural perspectives (Merriam, 1998), this study attempted to reveal the perspectives of the participants in their characteristics, experiences and learning needs. That is, findings were shaped by participants' reflections and responses taken from observations, surveys and interviews. Per the literature, using the perspectives of people with FASD is rarely done, giving this study a closer look into the world of youth with this disorder.

The Participants

Initially there were eight participants in the program and all were approached by a third party (the chartered psychologist in the program) to request their participation in the study. This avoided researcher coercion or bias. Two stopped coming to the program, and of the remaining six, five agreed to participate. The participants were between the ages of 16 and 20. All were diagnosed with Fetal Alcohol Spectrum Disorder and some FASD characteristics, and all were assessed with learning disabilities. None had completed high

school. There were three male and two female participants. Two participants had been adopted, and three had estranged relationships with birth parents. Two participants lived with a parent, and three lived on their own, though they struggled with paying rent and managing domestic affairs. All had been homeless at one time. Three of them experienced this during their participation in the program. More specifically, during the program, they continually struggled with life problems such as financial difficulties, joblessness, homelessness, behavioural problems, physical abuse, and drug problems, these struggles were addressed and supported by the counseling staff at the Centre.

The Program

The program called, Kaleidoscope, was delivered in January 2005, and ended in April 2006. This was a program with a whole person approach and tailored to meet the many needs of youth with FASD, such as food, shelter, money, assessment, counseling, education and employment. Though recently closed, the program was delivered through the Community Service Centre (the Centre), in the Faculty of Education at the University of Calgary. Staff in this program consisted of program coordinators, psychologists, counselors, client advocates, and educators. There were usually two university practicum students, from the applied psychology department, volunteering in the educational class each day. Along with the teacher this gave ample support for eight students, if all were present. Developed as a pre-employment program, one essential component focused on education. For the first six months, participants attended an intensive learning program [the program], which consisted of 12 hours of attendance per week to work on literacy, numeracy and technology skills. Table 1 in the Appendix offers typical weekly learning plans, individualized for participants. This educational component was delivered along side of the life skills workshops and employment training. Both were offered daily. In the educational component, customized curriculum covered learning for three levels of literacy skills as well as elementary-level mathematics and introductory technology lessons. The resources for the curriculum included individualized lesson plans (Kinsel & Crichton, 2002), literacy booklets, math worksheets, online resources, workplace documents, and student-chosen materials. More specifically, the program used literacy curriculum provided by the department of Manitoba Advanced Education and Training [MAET] (2006). Their curriculum ranged from Stage 1 to 3 in literacy abilities, with the highest level of reading skill being comparable to approximately Grade 8. Workplace documents, and instruction on their use, were offered by Human Resources and Skills Development Canada [HRSDC] (2004), and the Centre for Education and Work [CEW] (2005) at the University of Winnipeg. All literacy and workplace documents were free and accessible online. More important, students helped chose their reading materials and shape their lessons. Mathematics lessons followed curriculum for Adult Basic Education and Math 14 programs in Alberta. Technology was integrated into the curriculum and used as an information resource tool, to creatively express their ideas and knowledge, and to communicate with others. This curriculum was designed by the educator, a certified teacher, educational technologist and graduate student. Field trips to faculties of interest on the University of Calgary campus, the downtown Calgary Science Center, and places for future education were incorporated into the weekly plans. Table 2 in the Appendix shares curriculum resources and samples.

Data Collection

Data consisted of observations notes as well as participant responses to 3 surveys and an exit interview. First, observation notes were written by the teacher-researcher as a participant-observer. These notes consisted of weekly entries commenting on observations of each participant. Entries considered how each student was engaging, succeeding, struggling, and growing. As well, the notes recorded participants' specific needs, behaviour, work progress and direct feedback given by them. Additionally, observational notes consisted of weekly personal reflections by the teacher-researcher on the program and participants. Last, notes consisted of reflective comments will analyzing the data; this helped inform insights, patterns and noticeable points in the data.

Second, three surveys were given to participants during the term of the program. In the beginning, students with the help of the teacher-researcher, completed an online individual learning plan created by Kinsel & Crichton (2002). For instance, this online plan questioned participants' self description (i.e. to what point they felt ambitious, creative, etc.: very, average or not at all), the influence of their past education, three meaningful lessons they learned and the person that helped them learn, how they become motivated to learn, how they sustained this motivation, how people helped and did not help them learn, and skills they felt they still needed to acquire. Additionally, drawing on the questions by Kinsel & Crichton (2002), at

midpoint during the program an in-class activity was conducted to determine how participants' learned. On the computer, students entered their responses into a pre-designed survey that asked them what helped them learn, what two important lessons were learned in life and who helped them, what they hoped to be doing in the next 5-7 years, and what two things they valued. As well, at midpoint, participants were given a few questions on how they felt about the program and if they were learning in it. More specifically, they were asked what they liked and did not like about the program. Teaching assistants were asked to sit with participants to read the questions and help write responses. This gave an arms length distance from the teacher-researcher.

Third, an interview was conducted with all participants at the very end of the educational program, in the sixth month. Each interview was about 30 to 60 minutes in length, semi-structured, and held in privacy. All interviews were transcribed. The interview questions explored the participants' experience in the learning program, their feedback on materials used and teaching quality, perceptions on learning, the use of technology, experience with past educational programs, perceptions of work conducted in the program, likes and dislikes of the program, needs and struggles, and readiness to move on to employment or further studies.

Data Analysis

Data was analyzed inductively. The data from observation notes, surveys and interview transcripts were arranged in chronological order, using an electronic word processor, in order to view students' progress. Next, this was arranged further into each participant, using colour coding, thereby arranging the data pertaining to each participant in chronological order. All data was further organized into frames and codes (Creswell, 2003; Goffman, 1974). Two frames were used and were thematic in nature. These frames derived from first, the research questions and second, from literature on the culture of people with FASD. The research query frame gave a focus to gather data that reflected the impact of the program, and the cultural frame focused on characteristics and perspectives of those with FASD. Elements within each frame became the codes for which to analyze and sort the data. Under the research query frame, coding separated data into evidence of increases in the development of and confidence with literacy and numeracy skills, growth in general understanding, awareness and self-insight, progress in productivity, and readiness to enter the workplace or other educational program. Under the cultural frame, data was separately coded if it identified struggles, needs, abilities, desires, attitude, or personal perspective. Once data was organized electronically, chronologically, per person, and into frames and code, a thorough reading was conducted to interpret data and look for recurring patterns. From this emerged findings on the needs, struggles, abilities and hopes of participants' as seen through their perceptions. As well, findings showed evidence of participants' increase in skills, awareness, productivity and readiness to move on. All findings further provided insight for the development of potential teaching strategies for students with FASD. This subsequent step is provided to inform the audience of this research study, namely learning disability practitioners as well as supporters, caregivers and educators of those with FASD. The experience and strategies of the teacher-researcher in the program added to the richness of these teaching suggestions.

Credibility

This study was granted ethical approval by the Conjoint Faculties Research Ethics Board for the University of Calgary in Alberta. The credibility of the research study was enhanced by a number of strategies (Patton, 2002). These included conducting the study over a prolonged period of time, in this case six months. As well, to control researcher bias and increase validity, multiple data sources were triangulated such as observation notes, researchers' reflections, participants' feedback on surveys and during interviews, and major themes from the literature on the characteristics of people with FASD. More so, extrapolating and triangulating data from multiple sources increases *transferability as cumulative knowledge working hypotheses ... can be adapted and applied to new situations* (Patton, 2002, p.566). Furthermore, though helpful to increase validity, it was decided by the chartered psychologist and the teacher-researcher not to provide participants with a copy of the findings as they may become confused by it. Additionally, while analyzing the data, participants' survey and interview responses were taken verbatim and kept within the context of the thematic frames and codes. Instruments for data collection, namely the surveys and interview questions, were guided by the research questions as well as drawn from an existing research-based questionnaire to help develop personal and learning inventories (Kinsel & Crichton, 2002).

The research team comprised of the teacher and a faculty member from the Faculty of Education at the University of Calgary. The teacher was a doctoral student, certified teacher, and educational technologist. She had researched and published a number of studies on learning disabilities. The faculty member had a long history of researching, teaching and dealing with struggling learners / at risk youth. Both researchers, also educators, helped develop the learning program, reviewed the study's outcomes, and collaboratively worked on disseminating the findings to the funding agent, research conferences, and special education journals. In this study, the teacher was also a researcher, and was supervised and guided on methodological approaches by the faculty member. The richness of the study was enhanced by the researchers' participation and observation as the teacher and researcher (Merriam, 1998). For example, *to fully understand the complexities of many situations, direct participation in and observation of phenomenon of interest may be the best research method* (Patton, 2002, p.21). Patton concludes, a researcher is the instrument in a qualitative study; therefore by providing her insights, expertise and reflexivity, quality and trustworthiness is added to a study.

Results

Findings are presented in themes derived from the literature, study outcomes, and student perspectives. They are presented in chronological order to reveal the development of the participants during the program duration. The first section provides a view of the participants' abilities, perceptions, struggles and needs. The second section reviews the impact of the program from the context of the participants' progress and growth. The third section addresses potential teaching and learning strategies for youth struggling with FASD.

1) Insights about the Learners

Abilities and Perceptions

In the beginning, most participant learners took to simple and fun exercises such as reading an interesting novel aloud, working with math games, and creating a business flyer in Word that followed advertising and design principles. These were small but attainable projects. They responded to simple, game-like math activities that covered concepts such as place values and rounding numbers. Learners engaged well with math tasks, though they resisted the topic. One participant commented, *I wasn't that great at math when we got into divisions, stuff like that. I was having a bit of trouble. But how you put it, I felt a lot more confident in myself with my math skills* (JN). Another stated *And quizzes, like the math drills and stuff like that. It was more challenging, because I never learned math* (SE). In general, they seemed to respond well to creative type work, along with encouragement. Once comfortable with the teacher, program activities, and other participants, they were able to concentrate and produce something.

However, participants seemed to be lost in who they were and how they fit into society. Evidence of this could be drawn from their perception of education. This was revealed through dialogue and observations noting their dislike for schooling, their need to be accepted, their wanting to be perceived as mature, their wanting to have adult things, like cell phones, and their choice of a business category for their flyers (i.e., basketball coach, store owner, and band manager). One participant commented, *It is hard for a person with FASD to be in the work industry or even be in society. Is (sic) they look at us like, 'Okay, well you are a slow, you're different. We are just going to put you in this corner and leave you there'* (JN).

As well, there was a noticeable difference in those who were 18 and under (n=2), and those nearing 20 years old (n=3). This spread of a few years showed a difference in maturity when applying themselves to their work. For example, the older participants were focused on *trying to slowly get my academics* (TC); *to be a mentor ... doing things to [be] helpful* (MG); and wanting, *books more on brain power and self encouraging books, which is something that I need help with* (JN). The two younger students seemed to struggle more with coping skills and communication with others. Yet, it appeared all these youth dealt with the same issues and attitudes as normal teenagers. Like every young person, this population enjoyed music; many wore headsets to listen to their CDs while working. This was effective in having them focus on a task. As well, their input into the individualized learning plans showed a number of personal interests, such as desires to work with plants, animals or children, revealing some plausible careers for this group.

Halfway through the program when asked, through a survey and then verbally, what they valued the most in life, all stated themselves, others and their ability to cope. This was revealed in comments such as, I

value *my life, my education and the world* (JN); *my life, my pets and my family* (LB); *my friends, attitude and myself* (SE); and that *I don't cheat, lie or steal* (MG). When asked what important things they had learned in life, it was their learning from tough experiences, such as *not to let your dog off its leash by a busy road* (LB); and, *watching my mom smoke crack and cocaine [and] living on the streets* (MG). It became evident through surveys and stories, these participants had survived rough life conditions since they were born. Three of the five participants were adopted at an early age, and the fourth resigned living with her grandmother. They struggled with their disabilities and addictions, even those participants living with caring adoptee parents. When asked what they thought about their ability to comprehend and their overall intellectual ability, 4 out of 5 participants saw themselves as average. More important, three participants deemed their previous education as somewhat helpful to a career, but only two found it helpful to lifelong learning.

When asked to recall some instances that involved learning, four referred to sports and leisure activities; as well, two mentioned life hardships as in living on the streets, and two mentioned smoking cigarettes and using drugs as a learning activity. When asked what skills they would need to pursue their interests, which were mostly about recreational activities and healthy relationships, two suggested eye-hand coordination, and three suggested learning how to focus and listen when dealing with people. Another participant desired more artistic skills. When asked what helps them learn they responded with *interests [and] people that can teach me with hands-on as well as text* (JN); *self-directed start [and] to find out what's going on* (SE); *something interesting to me [and] to stay out of my face!! I don't like to be asked if I need help* (LB); *thoughts of the future ... great work [and] personal success within assignment* (TC); and *my low self esteem and wanting to do something for myself* (MG). When reviewing what they wanted to be doing in the next 5-7 years, two talked about a job in a field and attaining success in life. One wanted to be important and to have an effect on others' lives. One younger participant wanted to cope with his problems, and generally, achieve in life.

Struggles

When this group of participants arrived they had underdeveloped academic skills. Through assessments and direct observations, it was found their reading, handwriting, comprehension, and math skills were quite poor and well below the normed values of their age level. They had troubles reading new words or proper names, their handwriting was terse and messy, and they had difficulties completing a sentence or paragraph. Most had not learned math. Based on school transcripts, they had not applied themselves to studies for quite some time, 3 years on average. Only one participant had almost finished Grade 12, including pure math. However, he struggled with drug use, causing instability in his life. Three participants had completed some Grade 10 courses, but within a modified program that offered limited credit courses, and one had no academic education past Grade 5. More notably, one participant, who had ADHD, did not take to the learning program outlined in this study. He considered *the whole class was just the same as what I have been through before ... [and] sitting in the chair doing something that I don't even understand* (SE). This he loathed. Though he felt the teacher tried in many ways to explain the content or lesson, he just did not understand and found that *once I sit down and I don't understand it, that is when I start to get rowdy* (SE). This was evident with others who were hyperactive affecting them quite negatively to the point of acting out.

Soon their unstable personal lives spilled into the program. They had problems with drug use, homelessness, and hunger. This added to their not being able to focus on assigned tasks. As mentioned, three of the participants also struggled with ADHD, aggravating their ability to focus and produce work. Their life struggles were addressed in the other part of the program (life and employment preparations). In those sessions they learned how to talk about their problems and take steps towards solutions, while working as a group. In the beginning, two of the participants talked about future learning plans, such as post-secondary programs. This was encouraging, yet all but one, had low education levels impeding this desire. This required finding other ways the participants could engage in their field of interest. The gap between their dreams for an interesting and productive career, and their life struggles seemed to be widening. Moving on academically was probably unrealistic for most of them, but could include training, apprenticing, or on-the-job training guided by understanding people.

As time moved on, more than half the group stopped coming to the program. They were either homeless or struggling with drug use. However, case counselors and psychologists within the program attempted to deal with these problems through ongoing interventions and supports. As a result, most participants returned with a few interesting shifts in perception. Two decided to change their views about the program, such as *maybe because I figured this is a job. This is an occupation and if I want to stick around I have to keep my cool, right?* (SE), and *rethinking everything and set up a meeting with everybody and talk with them to get their understanding of me how I am in the program and what I need to do to where we should be* (JN). Another tolerated the learning program as below his educational level, but enjoyed coming and *thought it was a great program all together. Like, you know, the way you worked individually, and the way you tried to cater to everyone's needs* (TC). Yet, the two participants that had remained consistent in the program, before others returned, were starting to be less interested in their work and the program, and resorted to only socializing.

Later in the six-month program, another participant became homeless, whereas previous ones had found a place to live. One participant voluntarily entered a drug rehabilitation centre. It seemed that with disruptions and struggles in their lives, they were not able to build effectively on their newly developed skills from the program. When they were absent, which could be up to two or three weeks, they had to start back on learning what they left undone. It took another week to reacclimatize them to the program. Attempts at skill building were highly affected by their unstable lives. A participant commented on this by saying, *I wasn't always there. I was there but I was not always there. Like considering I missed a lot I wish I would have been more attention to duties. That would have helped me* (TC). As well, one participant struggled with not being liked or popular in the program but committed himself at a high level to learn. Two other participants also mentioned not being liked or respected. Their sense of belonging was strong and affected their confidence and involvement. Additionally, there were still problems with health (bronchitis, pneumonia, drug use, and hunger). Their lives were not healthy and they continued to struggle with less energy and poor nutrition.

Interestingly, all participants commented on having difficulties learning because of their poor memories. For example, three participants made reference to this by saying, *even if I read, a page, after it I don't remember what happened?* (MG), *my memory ... like, affects learning* (TC), and *I usually forget what I am doing after awhile* (LB). They could not remember what they read or learned days, if not hours, before. This frustrated them. One participant commented on the tools offered to help with this. She found simple note taking or drawing diagrams after reading short passages helpful. With this help, she read an entire small book for the first time in her life. One participant pointed out that *I have a tendency to procrastinate about things* (JN), whether a task, assignment or larger responsibility. Three participants commented that the assignment instructions were confusing, implying their need for simpler instruction. More specifically, they stated *at the beginning of the year you handed out those things, those confusing things. It was confusing* (LB); *like, you say, 'okay, we are going to do a drill', and you hand it out and it went by too fast. Right? And I didn't really know and you are writing on the board and I really didn't understand it.* (SE); and, *some of the early stuff, I just don't get it [and] a few questions you had I did not know. I couldn't even do them* (MG). This indicated they seemed to miss comprehending the intent of the exercise, whether given in print or orally. At that point of their confusion, they were lost in what to do next unless guided.

Needs

After two months, the diversity and needs of each learner was becoming more apparent, yet challenging to address. That is, one participant was in need of shelter and food; another needed self-directed learning with more one-on-one help; another wanted more challenging work that did not represent traditional school work; one preferred to be left alone while working; and, yet another needed his tasks broken down into simpler steps so he could attain them. Delivering individual learning for diverse needs takes thoughtful planning and adequate resources. At this point, a decision was made to adjust the program and create individualized learning plans for each of the participants. First, the class was split to ensure only four students were in the class at one time. The remaining four were put into the other program delivered at the same time to work on essential life and work skills. This split reduced and calmed the class down where they could settle into their work.

As a result of splitting the class and instilling individualized learning plans, students could work hands-on and with individual support. When a teacher or tutor sat with them to explain the exercise and guide their work as they needed, it was successful. That is, the learning objectives were met, as described in the literacy curriculum and individual lesson plans. More important, students were individually supported every hour they were present. All students commented on this by stating, *what I said so many times, your willing to, like, you know, structure everything individually around each person. You didn't make it one specific curriculum. And the patience you have with all of us. It was great* (TC); *what made that difference was, again, the independency with one-on-one, and how everybody was trying to work together* (JN); and, *More with you. More one-on-one. More willingness to work ... better than anything I have had before* (MG). One student preferred to verbalize his thinking before writing it down, therefore requiring more feedback support. On the other hand, one stated *I need my own space* (LB) to finish her work. All enjoyed being rewarded for their work. Rewarding could be in the form of a new book of personal choice, showing the class their work, or praise. It was important to praise and not critique their work as this population was sensitive to past difficult experiences in schooling. However, they did accept small suggestions for improving their work.

The curriculum focused on working with their learning disabilities, such as poor reading skills, writing ability, comprehension, concentration and motivation. Their learning disabilities and needs were easier to identify after working with them everyday for six weeks. It was found through participant surveys and interviews as well as volunteer tutor feedback that students needed: support in their own learning style; more animated exercises; hands-on activities; and, the redesign of daily lesson plans for individual preferences or for addressing struggles (i.e., reducing the workload, or expressing their frustrations through writing). Through feedback in interviews, they also seemed responsive to gentle guidance in getting by learning barriers, lengthier explanations of tasks, activities that were relevant to life, and a sense of moving forward in their academic work towards real life goals (career, work, school). As one participant phrased it well, *putting the topic into a different category. Like into an interest that I have* (SE). As well, they mentioned the need for their workspace to be positive and respectful, and freeing, such as allowing them to listen to music and surf the net. More important, two participants appreciated staff in the program understanding when they were not feeling well or when they were struggling with personal problems. Three liked having small assignments to do when they were absent. One participant mentioned this by saying, *this program is probably the best program of any others that I have been to. Cause again, you got the support, you got the help, and you got great people such as yourself* (JN). Others acknowledged *you have staff that puts up with a lot more stuff than other programs do* (SE), and *you had more patience, and you don't take crap from anybody* (LB). However, the group's life problems seemed to be increasingly showing side effects such as tiredness from homelessness, illness, drug use, and group tensions. This affected their attendance in the program, requiring patience from the facilitators and the re-shaping of learning plans.

2) The Impact of the Program

Progress

At the start of the program, when not dealing with their struggles in life, their abilities shone through. The most immediate evidence was their creativity in writing, designing a digital business flyer, drawing diagrams, and organizing their work. A key strategy was to give them choice within their creative work. Their personalities and enjoyment for this emerged to a degree.

In the second month of the program, all students were becoming more confident and reaching into areas they have not done before, or for a long time. For example, one participant read her first novel completely, *The Lion, the Witch and the Wardrobe* by C.S Lewis. She attested to this as *really hard, but there was all the other assignments. I worked on them and could take them home or whatever, and I remembered a lot of it* (MG). Another participant wrote all night about a favourite subject and produced three written pages of facts and information from memory and a text. Another took notes during a field trip to add to her short essay. This participant also noted *I am proud of my essays, poetry, and my webpage* (LB). All echoed their like for and ease with computer work, such as graphic designing, writing, information searching and communicating, with comments from one participant who articulated his experience in the computer class as, *I have to have both hands-on and text. And you were right there. You were asking me if I needed help. Very involved with everything. And that is what made it most successful* (JN). In the second month, they were settling into the learning program with its variety of exercises, individual plans, creative work, and

technology use. Though not completely stable or working in a consistent way, 4 of the 5 students were working through their individual lessons plans and getting their work done. They were meeting the lesson objectives given to them weekly. They were producing more than they thought, and upon discovering they could create and produce work, they were impressed. See Table 1 in the Appendix for a typical weekly individual learning plan for each participant.

Four of the participants were working at a stage 2 literacy level (MAE&T, 2006), approximately a Grade 6 school level, with the fifth participants having more skills in nearly completing his high school diploma. During the third month, one of the students was increased to a higher reading stage (stage 3) as she was showing promise in her work and needed the challenge. Four participants were attempting exercises and completing them well enough, while one did not enjoy or complete most classroom activities. Exercises had a real sense to them, such as shopping from a store flyer (i.e. math skills), and writing or expressing in some manner about their self-chosen book or magazine article (i.e. knowledge, creativity and communication skills). Additionally, in choosing their own materials to use, they selected resources that appealed to them and dealt with real life themes. For example, various resources selected by the participants included horticulture, traveling to Amsterdam, information on sharks, Italian culture and geography, and general psychology. These were included in their individual learning plans. As well, participants were showing signs of self awareness and how they learn. They were aware that they needed *texts and hands on learning* (JN); *my own space* (LB); *to have options and to have extra time with the teacher* (MG); *people who can understand me* (SE); and the teacher to *explain situation from different standpoints* (TC). All stated they needed interesting, fun work, and four needed hands-on work. When asked, all said they enjoyed the learning program to date, and felt fortunate and comfortable in being there. None had any strong suggestions for change, even the participant who did not respond well to classroom activities. All participants liked the individual work plans and the one-on-one attention.

For those three participants consistently coming to the program, by the third month they were showing confidence to reach for more work and understanding. For example, two participants requested to work in a field of interest. Another wanted to employ a self-directed form of learning by gathering assigned weekly readings and other study activities pertaining to an interest he was developing. He would work with these tasks alone and elsewhere (as in the library), then return for more. One reason for this may be the program was in a university setting giving participants a feeling of maturity and opportunity to visit other faculties and fields of interest, such as horticulture, marine animals, and psychology. These visits aligned with their original interests when coming into the program.

In the fourth month, most of their work continued to increase in quality as their confidence increased. They were not harshly marked or judged on their composition, but were encouraged to create and use their ideas. This tended to work favourably with them. Four participants increased their speed of producing work due to writing, reading and typing daily. Their literacy skills were improving by the gauge of the difficulty of reading materials selected for their individual learning plans. Also, all participants were completing larger pieces of work, over time, and were using more resources such as self-chosen text, online information, or visuals. That is, their work was not only supported by personal knowledge but also from researched information. One key lesson, during the computer lab time, was to evaluate online resources for validity, reliability and currency. Other examples of activities using technology included: reading online about the pine beetle crisis in British Columbia; how to find, access and maintain etiquette and privacy in online discussion boards; how to use free online design tools and graphics to create work; and how to find cooking recipes of choice. In face to face environments, they learned to talk to professionals and workers in different fields, and use different material formats for reading and writing (such as magazines, workplace documents, poetry, and visual displays). One student looked online for information about what is required to take the next step towards a career. These activities showed they were learning how to find information necessary for their needs, and to explore the world around them.

By the fifth month, only one participant was continuing to plan for post-secondary. Through struggles or new interests others did not pursue this as arduously as at the beginning of the program. One participant suggested he wanted to try learning how to do assignments again without the pressure of learning content. Another wanted to learn how to write grammatically well. As well, some were not overly ready for the workplace. One participant did not want to deal with the public due to her lack of tolerance for people.

Another participant stated, *I think I might be ready but I might want a little break in between where I can try and work in the skills I have already learned from this program, and really apply it to myself where I can actually use the skills that I learned* (JN). Another wanted some kind of job but needed to learn how to manage money and basic expenses first. One participant wanted to be an advocate for FASD people by talking at conferences and working with them locally.

Growth

The most noticeable growth in these individuals was in their coping with emotions and behaviour. In the interviews, two of the older participants stated they became more aware of their behaviours and reactions to situations. They shared *I learned how to take other people ideas [and] more so now I kind of listen [to] ... their reason behind it and kind of incorporate it into what I was learning* (TC), and *I also have those times where I know this is not the time that I really have as much encouragement or motivation* (JN). A younger participant came to realize his behaviour and outbursts were disturbing others, stating *nobody told me to start growing up, like to my face, but the actions that they all showed me. I learned to control my outbursts, like having an outburst of excitement or whatever it is. Uhm, to learn to think about the consequences of that - what will happen if I do that* (SE). Two of these participants stated they could have tried harder in the learning program. The other parts to the holistic program, such as life and employment preparation, social work, and counseling, were key to these behavioural changes; whereas, the learning program gave them the confidence that they could learn. For example, four participants seemed impressed they could do math exercises, as in working with fractions and place values. These participants did not feel they had this knowledge, though it was forgotten almost immediately; one participant felt he could learn and that if he looked at situations differently (as when using physical manipulatives with fractions) and broke down his thinking, it could become a reasoning skill.

When asked if they felt they learned, all five participants stated they did but in surprisingly different ways. Individually they reflected on learning *to control my outbursts* (SE); *how to relax* and not worry about the quality of work (MG); *short stories and math, which I have forgotten* (LB); *with the psychology ... I learned the LeDoux's theory on emotions, which is just one of many* (JN); and, *I learned how to take other people's ideas* (TC). One noticeable and encouraging change in the participants was their attempt to create public awareness to reduce prejudice attitudes towards people with the FASD condition. Dr. Darren Lund, a professor at the University of Calgary and social activist (<http://www.ucalgary.ca/~dlund/>), shared with the participants a diversity tool kit to help groups *promote equity and the acceptance of differences within schools and communities* (<http://www.ucalgary.ca/~dtoolkit/>, 2006). Two of the participants were keen to start plans on how they could promote awareness and equity for people with FASD in their local communities. The chartered psychologist within the program considered this a sign that students were becoming more aware and accepting of their condition. This was less evident when students first entered the program. The dialogue about activism took place after six months of learning and discussing with participants about FASD.

3) Teaching and Learning Strategies

All participants reflected on their experience in the learning program through surveys and interviews. They offered suggestions to what would be beneficial to future learners who struggle with FASD. These suggestions were from their reflection on what worked for them. Most commented on the individualized lesson plans and individual attention, and on learning styles, needs and interests. They shared key teaching and learning strategies for those who struggle with difficult problems.

Teaching to their Needs

Participants suggested taking into consideration the FASD condition is hard to deal with and that life for these people is not easy. As well, they suggested to ask such participants what and how they want to learn, and then, to take it slowly and to provide simple instructions. Four participants felt the approach to the learning in the program was made relevant to their lives and aspirations. All commented on wanting lessons that were interesting, such as more creative and hands-on. One suggested offering field trips to such places as zoos, historical buildings, or parks. Another, who struggled with ADHD as well as FASD, suggested offering different types of learning, such as cooking classes, which would capture his interest as something highly relevant to his life. Interesting, one participant suggested separating those who struggled with ADHD into another place, so they would not constantly disrupt the class and become a major distraction.

As well, the individualized lesson plans worked for one participant who offered, *you worked individually, and like I already said ... that worked a lot better for me, because you wouldn't be going along a structured thing like the norm. Which I guess is best for kids with different sorts of problems* (TC). Teaching strategies that worked for this group included carefully explaining and showing what is being taught, and using text and hands-on activities at the same time. One participant appreciated explanations carefully drawn out on a whiteboard, and another appreciated being able to revisit text presented online. Two found that using hands-on manipulatives, or having lesson steps broken down, gave them confidence in approaching math problems.

Personal Attention

Another point was the benefit of a smaller class. The teacher and volunteer tutors could focus on all learners, and participants could not hide or be forgotten. The teacher was seen as always there, quite involved in their activities, and willing to help. This ensured their learning and understanding was monitored. One participant noticed, over time, she felt comfortable within the program, which helped her learn better. All commented they did not get such treatment in previous programs, including public education. Three participants commented that past instructors would put work in front of them, and expect them to do it with out help. This was their perception of education.

They also commented on the benefit of the holistic program, which besides education included life and employment preparation, counseling, social support, and wage earning. To address an immediate concern for their hunger, food was brought in everyday from willing businesses that offered donated fruit, beverages, baked goods and small prepared meals. Participants also earned wages from the hours they attended. More so, all participants felt if they were struggling with life issues, such as homelessness, drug use, or relationship problems, the program gave them time to work that out, and with support if needed. This was echoed by one participants in stating, *what I found most helpful [is] ... where they understood that I had problems that I had to work on, where it was going to take most of my time, where I am not going to be able to be in the program as much* (JN). Ongoing help for participants would include financial support, finding shelter, counseling, and turning to support within the community social network. Participants were always welcomed back into the program – the door was never closed. All commented on the patience and tolerance of all the staff. This was a relief to the participants, and something they had not experienced before in a program. It kept them coming back.

Using Technology

All commented positively on the use of computers in their learning. One participant found this gave him his own space to work, so it was less distracting. Two others commented on computers offering ample resources and information. One had fun with free time to chat online. One mentioned he typed faster than he wrote, and another liked using graphics programs to create her art. They found these tools easy, enjoyable to use, and *more hands-on and creative* (LB). They appreciated learning how to find information, work with numbers through online games, and create with digital tools. Besides creating, learning was scaffolded helping students with the next step in their work. For example, one noted learning *a lot more than when I have with text because it is right there* (JN). Two mentioned a key benefit was to return to their work to fix it at any time, such as within Word or PowerPoint. One mentioned that using the computer required less organizational skills on her part, as she could directly enter text or graphics into a space. Her comments were *it's not really big on organizational skills and you [do] just whatever...* (MG). The structure of software programs provided ease of input, immediate results, and flexible creative tools. Computer works was motivating for them. This was supported by two participant's comment in saying, *I liked the computer class and the website and stuff. That was fine because in normal school when we had a computer we had a task we had to do and we were forced to do it, but in your class we got to go whatever we wanted* (SE), and working with *different kind of thing, like the stuff we did on computers, like where you got to pick something you wanted to do a flyer on. I liked that, it was good* (TC). With the support of technology tools and the keen interest of youth for the same, these participants could become more creative in their work.

Discussion

As the research and educational program progressed, it became evident to the research team that the past educational experience of the participants was poor, and left them uncertain and tentative about their ability

to learn. They were weak academically and cognitively (Ackerman, 1998; CFAN, 2003; Duquette, Stodel, Fullarton and Hagglund, 2006b; Green, 2007; Harpur, 2001; Roebuck-Spencer, 2004; Ryan & Ferguson, 2006a). Within a short time, it was obvious their attaining a high school diploma was unrealistic (Ryan & Ferguson, 2006b). This meant redesigning their options for a productive life, such as planning steps to help them cope with struggles and maintaining a healthy existence, while moving ahead towards their life desires (Ackerman, 1998; Duquette, Stodel, Fullarton and Hagglund, 2006b; Edmonds, 2005; Green, 2007; Harpur, 2001; NOFAS, 2004). Additionally, having disabilities left these participants developmentally behind most young people their age (CFAN, 2003; Nash, Rovet, Greenbaum, Fantus, Nulman & Koren, 2006; Ryan & Ferguson, 2006b; Sokol, Delaney-Black & Nordstrom, 2003). They did not seem to know how to examine or cope with this dilemma; that is, managing the transition from adolescents to adulthood while struggling with FASD (CFAN, 2003; Duquette, Stodel, Fullarton and Hagglund, 2006b; Harpur, 2001; Ryan & Ferguson, 2006a). However, by working along side others with FASD, and by becoming aware of the characteristics of this disorder, participants came to acknowledge their struggles, weaknesses and strengths (Ackerman, 1998; Harpur, 2001; Kalberg & Buckley, 2007). For one participant, having FASD was a new discovery and quite upsetting. For others, they did not understand the full impact of the disorder. In the life and employment preparation section of the program, they explored this daily. With such support from professionals in psychology and social work fields, participants were able to learn and share about their lives as FASD sufferers (Green, 2007; Kalberg & Buckley, 2007; Ryan & Ferguson, 2006a). With this learning, they soon became advocates against discrimination of people with this disorder. Educationally, they used their knowledge about FASD and their specific conditions to learn how they could learn best (Kalberg & Buckley, 2007).

The most pressing issues for the program were dealing with their life struggles and addressing problems (Harpur, 2001). They also experienced growing teamwork tensions with other participants (Green, 2007; O'Connor et al., 2006; O'Malley & Nanson, 2002; Sokol, Delaney-Black & Nordstrom, 2003). These struggles spilt into the educational classroom, and required space for it, which meant they needed less intense work assignments, time off, or the ability to write and talk about their struggles. Along with structural and space needs, it became evident students who struggle with FASD effects have trouble adhering to traditional learning strategies (Ackerman, 1998; Alberta Department of Education, 1996; BC Minister of Education, 1996; CFAN, 2003; Duquette, Stodel, Fullarton & Hagglund, 2006b; Green, 2007; Harpur, 2001; Kalberg & Buckley, 2007; Malbin, 1993; Osborne, 1994; Raymond & Belanger, 2000; Weiner and Morse, 1994; Zevenbergen and Ferraro, 2001). This meant designing a highly flexible curriculum with a unique set of expectations (Ackerman, 1998; NOFAS, 2004). More so, a shift was needed in what was considered success for this population (Ackerman, 1998; Duquette, Stodel, Fullarton and Hagglund, 2006b; Edmonds, 2005). In this program, it seemed success came in different ways – increased self awareness, communication skills, consistent attendance, and creative work. Additionally, the increase in confidence, quality and amount of work produced by students was a positive sign of their progress (Ackerman, 1998; Duquette, Stodel, Fullarton and Hagglund, 2006b). Participants continued to complete their weekly tasks; however, this was evident only for those that came consistently to the program, which was 50% of the original enrollment. Overall, these participants needed complete support, individualized learning plans, and understanding and patience as they tried to fit learning into their unstable lives (Duquette, Stodel, Fullarton and Hagglund, 2006b; Harpur, 2001; Kalberg & Buckley, 2007; Roebuck-Spencer, 2004; CFAN, 2003; Ryan & Ferguson, 2006a; Green, 2007). Learning was not a priority for them as they struggled with daily life. This required curriculum and learning to fit around them.

Yet, the participants were forward thinking about where they wanted to go (Ackerman, 1998; Duquette, Stodel, Fullarton and Hagglund, 2006b). This was supported by the program constantly exploring issues, examples and possibilities in life and with employment (Raymond & Belanger, 2000). It opened the world to them, and showed them options and opportunities, as others may have. More so, they were given a voice and respected for who they were, and what they had experienced in life. By the end of the program, after six months, most students were not ready to enter a post-secondary program, and only half were ready for the workplace (Ryan & Ferguson, 2006b). They felt good about the knowledge and skills they learned to date, and wanted to continue within the same kind of program. They were successful at their current level - a new feeling for them (Ackerman, 1998; Duquette, Stodel, Fullarton and Hagglund, 2006b; Ryan and Ferguson, 2006b). It seemed a longer program, than 6 months, was required. The main outcome for this

program was their acceptance and awareness of who they were, what they needed, and their desire to keep learning.

To have a successful learning program, first take the time to find out about their health conditions, past experiences, literacy skill level, comprehension ability, learning needs, interests, and life goals. With their complex condition, these are not as evident in the beginning – take the time to discover this. To supplement this, review the characteristics and learning needs for people with FASD (BC Minister of Education, 1996; Duquette, Stodel, Fullarton and Hagglund, 2006b; Ryan & Ferguson, 2006a). Second, rethink about making the learning environment look and feel like traditional schooling, which is restrictive to them; be creative in this approach. Be patient, and keep reflecting and changing the learning approach, curriculum and environment to suit the needs of learners with FASD; incorporate hands-on activities into the curriculum as in technology use and field trips (Ackerman, 1998; Alberta Department of Education, 1996; BC Minister of Education, 1996; CFAN, 2003; Duquette, Stodel, Fullarton & Hagglund, 2006b; Green, 2007; Harpur, 2001; Kalberg & Buckley, 2007; Malbin, 1993; Osborne, 1994; Raymond & Belanger, 2000; Weiner and Morse, 1994; Zevenbergen and Ferraro, 2001). Third, develop their strengths in the beginning (CFAN, 2003). This will increase their confidence, and help them produce more meaningful work. Then, slowly develop their weaker skills, such as reading, writing, comprehension, behavioural management, and making mental connections and life decisions (Ackerman, 1998; Duquette, Stodel, Fullarton & Hagglund, 2006b). Fourth, team work is vital for such a program; significant resources are needed to support the participants, facilitators, and program (CFAN, 2003; Green, 2007; Kalberg & Buckley, 2007; Ryan & Ferguson, 2006a).

Based on the findings of this study, personal attention and creative work guided by understanding professionals seems the key to these participants to progress and grow. A holistic approach that addresses all the needs of people with FASD is the crux to a beneficial program (Raymond & Belanger, 2000). As a result, the participants responded well to this program, its unique setting, and forgiving nature. This study illustrated, while many youth with FASD may never be completely independent, if given the opportunity to learn about their disability, hone their literacy and work skills, and create productive and healthy lives, with adequate just in time support, they can gain the tools to build a positive life (Ackerman, 1998; Green, 2007; Ryan and Ferguson, 2006a; Ryan & Ferguson, 2006b).

Upon reflection, as the teacher and researcher, it was an intense experience to deal with this population. In fact, it was the toughest class I have ever taught. However, they taught me about people who struggle with FASD. For one thing, not only can people learn if they have a learning disability, they desire to do so. This is a forgotten point about this culture. Another important insight I gained is each one of these participants were not happy with their condition. They knew of their weaknesses. In short, they wanted to be accepted as another human being, and given a chance to be included in society. This last point was the most heartbreaking discovery for me.

Conclusion

Usually students diagnosed with FASD are quickly set aside in the public educational system. Typically, a difficult student to manage, most are placed in behavioural programs before they inevitably drop out of school. However, society needs to help these individuals become independent. From this study, offering individualized and customized education, along with counseling and life support, has proven to be effective. As well, considering what success is for each individual, which may not be academic education or training, will be the winning element. These participants shared that they aspired to be independent and able to cope with life challenges, such as working and managing money. Most wanted a family, better people skills, and the attainment of personal goals. Some were already working on goals such as composing music, taking an academic course online, researching the field of psychology to understand the FASD condition, establishing a career, and living on their own. This program showed they can learn, they have the desire to become productive citizens, and they can do this with unique, lifelong support. In short, it gives them a chance to live a good life.

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Appendix

Table 1: Typical Weekly Individual Learning Plan

Skill	Participant #1	Participant #2	Participant #3	Participant #4	Participant #5
Reading	Using the texts, <i>The Perennial Gardener's Design Prime</i> and <i>Lois Hole's Bedding Plant Favorites</i> , complete the following assignment: Plan a very small garden with 5 or 6 varieties of plants. Create a drawing and explain your design and flower choice.	Using your new text, <i>Psychology: Themes & Variations</i> , complete the following assignment: Flip through the book to get use to the different areas of psychology. Each chapter focuses on different perspectives. Find one that appeals to you.	Working with Animals: Review the job skills for the occupation of working with animals, whether in a pet store or vet clinic. Discuss with Kelly.	Working in Recreation: Attached is a list on things to do on the job when working in a recreational setting. Discuss with Kelly. Using your new text , <i>Good Luck Life and A Thousand Pieces of Gold</i> , start the following assignment: Flip through	Read the beginning chapters of <i>The Lion, the Witch and the Wardrobe</i> by C.S. Lewis. Make small notes along the way to stay focused. This can be words or pictures. Stop when you get tired.

	Working in a Nursery: Attached is a list of tasks to do on the job when working in a nursery. Review and comment on them. What skills are needed to do these tasks?			the books to see what each chapter offers. Find a symbol and proverb that appeals to you.	
Writing	Prewriting for a researched paper: Using Assignment 1 under the Writing section develop a writing plan for your paper on 'Marilyn Manson'. Using your book, <i>The Naked Island</i> , choose one character in that book you liked and write a letter to the main character giving support on something he or she struggled with.	Using the info you found on your personal essay on Poi, start a draft outline for your essay.	Whales and Dolphins: reading, learning and composing on their unique language. Pre-write/outline a paper on the differences between whales and dolphins.	Start work on the following letter: Chris McCandless of <i>Into the Wild</i> was a person with different views. Read and jot down some notes about this. Next, pretend you are to explain to his parents the life he led in his last months. How would you describe this to them (in words).	Identifying the Author's Purpose: Use the magazine <i>Our Canada</i> and follow the instructions of Assignment #3 under reading. Pick two articles that appeal to you and read them. Following Assignment #3, write one paragraph per article telling of the main points and author's meaning. Which article did you like better? Why?
Math	Working with fractions. What are they?	Working with fractions. What are they?	Working with fractions. What are they?	Hand in your math assessment	Working with fractions. What are they? <i>Did extra work with manipulatives.</i>
Technology	The first part of this class	When in the computer lab,	In the computer lab, find	First draft of business	Work on your personal

	will be to type up your writing assignments. These will go into your electronic portfolio. Final copy of business flyer is due. Kelly will print out your portfolio.	you can find more info on your personal essay on Poi. Again, stay on track by focusing on your research questions to help you find info for your essay. Find pictures as well for your essay.	information on your paper on whales, dolphins, and language system. Copy and paste it into a Word document.	flyers are to be done. With feedback from Kelly, adjust your flyer for printing. Now it will be ready for advertising!	webpage for the Kaleidoscope website in PowerPoint. I will show you how to do this.
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Table 2: Educational Program Resources

Resource	Description	Links
Literacy and Numeracy Level Assessment: <i>How do your skills Measure Up?</i>	Designed by Human Resources and Skills Development Canada Literacy assessments using workplace documents. Goes to Level 3. Self administered online.	http://measureup.towes.com/
Literacy Curriculum: Stages 1 - 3	Designed by Manitoba Advanced Education and Training Each literacy stage gives lesson plans for tasks in reading, writing, working with documents, and oral communication. Served as a booklet (PDF files).	http://www.edu.gov.mb.ca/acl/all/publications/stages/stages.html
Workplace Skills and Literacy	Designed by Centre for Education and Work, University of Manitoba A facilitator's guide on blending workplace skills and	http://www.cewca.org/literacy.html

	documents with literacy skills for levels 1-3. Served as a booklet (PDF files).	
Math Level 3	<p>Designed by Kelly Edmonds</p> <p>This online resource offers math games appropriate for learners at levels of grade 3 – 8. Interactive media online.</p>	<p>http://www.members.shaw.ca/webdesign15/math3/</p>
Math Curriculum	<p>LearnAlberta.ca website by Alberta Learning</p> <p>Online resource for curriculum building or dynamic student interaction. Print and interactive media online.</p>	<p>http://www.learnalberta.ca/</p> <p>Log in as a guest and pick the appropriate grade level, then mathematics as a subject.</p> <p>For example, grade 7 or 8.</p>