The Impact Of A Post-Secondary Education Program On The Self-Efficacy And Future Orientation Of People With High-Functioning Autism

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Abstract

Higher education has significantly impacted the advancement of individuals in our society, including people with developmental disabilities. It affects employment, wages, and the ability to realize one's potential. One way of promoting the integration of young adults with disabilities in higher education is to develop individually tailored intervention programs. Some such programs have been developed to meet the academic needs of people with high functioning autism. The aim of the present study was to examine the impact of such an intervention program on the self-efficacy and future orientation of people with high functioning autism. Nineteen students diagnosed with high functioning autism (aged 23 to 28) participated in the program offered by the student service center. The aim of the program was to accommodate each student according to his or her individual needs; each student was assigned a personal mentor, who provided a continuous channel of communication and emotional support. The research participants completed the Self Efficacy-Assessment Questionnaire (Chen, Gully, & Eden, 2001) and the Future-Orientation Questionnaire (Nurmi, Poole, & Seginer, 1995) before and after the intervention. The results indicated clear improvement in both measures: self-efficacy and future orientation. The findings are discussed in terms of the sequence of psycho-educational interventions beginning in elementary and secondary school period, as well as other interventions designed for young adults with high functioning autism.

Keywords: High-functioning autism; Psycho-educational interventions; Higher education; Self-efficacy; Future orientation

Introduction

Higher education has significantly impacted the advancement of individuals in our society, including people with development disabilities. It

affects employment, wages, and the ability to realize one's potential (Schayeck, 2005). The perception of education for disabled people has changed over time, and it is now generally recognized that individuals with disabilities also need opportunities for higher education. This has led to the creation of a support system within higher education that provides individuals with disabilities with an equal opportunity to succeed despite their unique functional limitations. This approach is based on the principle of normalization, which holds that all individuals with disabilities should be able to conduct their lives as similarly as possible to the general population (Avissar, 2010). Against this background, institutions of higher education need to adapt their support system to the needs of students with disabilities. The integration of people with various disabilities may enable a change in social consciousness and in the economic situation of such individuals. This, in turn, will promote their acceptance by society as a whole, and their ability to live as independently as possible within the general population. According to David (2007), one way to enable the integration of young adults with disabilities in post-secondary education is to adapt intervention programs to the individual needs of each student.

Intervention programs for students with disabilities are offered in a variety of settings, including universities, colleges, and schools for vocational training for adults (Wille-Gregory, Graham, & Hughes, 1995). Intervention programs should provide people with disabilities with the support they need as they enter adulthood. Contact and participation with typical students can be expected to help people with disabilities develop positive interactions with the institutions; service providers can enhance support and increase these students' sense of independence, as well as their capabilities and future employment opportunities (Zafft, 2002). It is important that any intervention plan be tailored to the needs and interests of the student (Mooney, 1996). It must also be designed to ensure that the students do not feel inundated and unable to continue their studies (Halpern, 1994).

Some intervention programs have been designed for students with high functioning autism (HFA) in academic study programs. HFA is part of the wide spectrum of autistic disorders, which are among the extensive development disorders. HFA is characterized by pronounced social skills deficits, low communication abilities, and stereotyped behavior or compulsive activity in specific areas of interest (Rappaport, 2008). In addition, HFA is characterized by normal or higher-than-average intelligence (Cohen & Schreiber, 2013).

The number of students with HFA that participate in post-secondary education has increased considerably as a result of tailored intervention programs that provide social and behavioral support for high-functioning

autistic students, and enhance their self-efficacy (Barnhill, 2014). Self-efficacy is the most consistent predictor of academic success, and the only motivational variable that has a direct impact on that success (Bong & Clark, 1999). In addition, self-efficacy influences future orientation, because a person's belief in his or her abilities to create change enables actions in the present that affect future results (Bandura, 1995; Epel, Bandura, & Zimbardo, 1999; Shell & Husman, 2001; Zimbardo & Boyd, 1999).

The purpose of the present study was to examine the impact of an intervention program on the sense of self-efficacy and future orientation of people with HFA in post-secondary education. It was a short-term longitudinal study of the development of a sense of self-efficacy and future orientation among the students with high-functioning autism during the time they participated in an intervention program that was designed to provide them with support during their academic studies at a university from July through October 2014.

High-Functioning Autism

HFA is part of the wide spectrum of autistic disorders, which are characterized by pronounced social skills deficits, communication struggles, and stereotyped behaviors with obsessive interests (Rapport, 2008). In some cases, people on the spectrum also experience other limitations, such as poor motor skills and coordination and organizational weaknesses (Comyn, Lynch, & Stevenson, 2001). A diagnosis of HFA implies a qualitative impairment in social contacts, expressed by at least two of the following: deficiencies in complex and nonverbal behaviors, such as eye contact, facial expressions, body postures, and gestures to regulate social interactions; poor social development relative to peers; disinterest in shared spontaneous pleasures, interests, or achievements with others; and lack of expression of social or emotional reciprocity. Another criterion includes patterns of behaviors, interests, activities, and repetitions characterized by rigid stereotypes, expressed by at least one of the following: preoccupation with a stereotypical pattern of one or more specific areas of interest that exceeds normal practice in intensity or focus; inflexible adherence, strikingly unique routines, or rituals; repetitive physical movements, and constant preoccupation with objects and parts. The disorder causes significant clinical abnormalities in social functioning, employment, and other important areas. HFA is characterized by average or higher intelligence and cognitive abilities. The distinctive mark of the syndrome and the characteristic that makes it unique are the unusual interests that people with HFA have (Cohen &Schreiber, 2013).

Many researchers have focused on HFA and its prevalence in the population. However, inconsistent findings on this subject have resulted in

uncertainty. This has been attributed to numerous reasons, such as different methods of diagnosis, residential environments, and age at of diagnosis (Metz, 2013). Several studies have indicated a lower rate of girls than boys with HFA, but recent publications have suggested possible under-diagnosis among girls and women (Author, 2014). In recent years, there has been a significant increase in the diagnosis of autism in general, and HFA in particular. This can be attributed to more widespread professional knowledge, as well as greater public access to information on the subject (Comyn, Lynch, & Stevenson, 2001).

Self-Efficacy

Self-efficacy is belief in one's ability to perform a task, the ability to raise one's own motivation, and the cognitive ability to perform a task and take the necessary action to control the course of its implementation. Such beliefs arise from thoughts and feelings about one's ability. These beliefs are inconsistent; they change before, during, and after the person performs a task.

According to Bandura (1997), the process of developing a sense of self-efficacy includes sub-processes of self-awareness, recalling previous experiences, controlling, comparing and contrasting, reasoning, judgment, and transfer, followed by a self-evaluation of how one thinks, feels, and operates. This process contributes significantly to the motivation to achieve (Katz, 2002).

An indication of self-efficacy in terms of at least two main indices is considered a basis for planning the treatment and teaching. One is a self-efficacy that depends on a specific situation. This is a person's judgment of his or her capacity to deal with a specific situation. The second is a general trait self-efficacy, which refers to all the activities of people. This concept is similar to concepts such as self-esteem or self-perception, which are generally considered as common personality traits. Although self-efficacy is a concept related to a specific behavior, it may also apply to different behaviors in similar situations (Bandura, 1997).

According to Bandura (1986, 1997), the process of acquiring self-efficacy is gradual and requires ongoing development. It is based on processing information from four sources: (a) past success; (b) behavioral models; (c) realistic verbal persuasion; and (d) physiological and psychological stimulation. Any new contribution to self-efficacy combines with and strengthens it. Past success or authentic experiences of control have the strongest influence on the development of self-efficacy. Such experiences increase the likelihood of a sense of self-efficacy, while failures might reduce it. The second source that informs the process, behavioral models, derives from experiences of observation or imitation. When individuals

observe behavioral models and imitate them successfully, their self-efficacy increases. If such an attempt at imitation fails, the individual's self-efficacy will decline. The third source is realistic verbal persuasion by another person that one is capable of performing the given task successfully. The power of persuasion depends on the credibility, knowledge, and power of persuasion of that person. Verbal persuasion is also liable to decrease one's self-efficacy. Finally, physiological and psychological stimulation – sweating, heart palpitations, anxiety, stress, and tension – also inform the process of developing self-efficacy. These sensations are often perceived as indicators of fear of failure or a sense of inability and incompetence. Similarly, the individual's mood also affects self-efficacy. Optimism strengthens self-efficacy, but negativism weakens it.

One's sense of self-efficacy is derived from cumulative knowledge of cognitive processes or knowledge about the information sources mentioned above. In addition, according to research based on social cognitive theory, the experience of others and verbal persuasion may have greater impact than individual past experience does, depending on the person (Zeldin & Pajares, 1999). According to Schunk (1997), self-efficacy can change as a result of working on tasks and skills.

Self-efficacy and academic achievement

Academic self-efficacy is associated with significantly greater academic achievement and behavior (Marsh, 2007; Marsh & Craven, 1997). It is based primarily on comparison of one's own academic ability with the perceived capabilities of peers (Marsh, Byrne, & Yeung, 1999; Marsh & Parker, 1984). Although knowledge and cognitive skills are necessary for academic achievement, they are not enough. Even when students know what to do, they often find it difficult to invest effort in fulfilling the complex requirements of the task. This may be related to the individual's belief in his or her ability to act effectively in order to achieve goals or face challenging situations (Bandura, 1997).

Research on academic self-efficacy has revealed that it influences the student's motivation: a greater sense of competence is accompanied by greater motivation for learning (Bandura, 1997). Bong & Clark (1999) and Pajares & Schunk (1999) also found that self-efficacy is the most consistent predictor of academic behavior and academic success. It is the only motivational variable that has a direct impact on academic results. According to the researchers, this suggests that academic self-efficacy is a specific, stand-alone component, and therefore beliefs that relate specifically to the task in question are good predictors of performance.

In addition, Kurtz-Costes and Schneider (1994) found that the relationship between self-efficacy and adaptive coping with learning

difficulties is closely associated with academic progress. Other research has indicated a link between self-efficacy and feelings that students experience. Pleasant emotions such as joy and pride correlated positively with positive academic self-image; unpleasant emotions such as anxiety and anger correlated negatively (Goetz, Frenzel, Hall, & Pekrun, 2008; Goetz, Pekrun, Hall, & Haag, 2006). Promoting self-efficacy and learning skills has been shown to contribute to academic ability by generating a meta-cognitive change in the individual's beliefs about his or her ability to change (Katz, 2009).

In his discussion of the process of developing self-efficacy for educational tasks, Schunk (1991) claimed that students find it easier to prepare for short-term, specific objectives than those that are long term and more general, and this strengthens their assessment of their ability. Thus easy goals may contribute to the development of academic efficacy, leading to success in challenging assignments, as well. In addition, Schunk also found that teaching strategies can contribute to academic self-efficacy when instructors set goals that are neither too easy nor too difficult for the students (Mart, 2011; Schunk, 1991). Moreover, success has been shown to contribute to self-efficacy. Therefore, successful task completion reassures individuals of their ability to perform other tasks, leading to their willingness to invest the necessary effort. Success in one activity also affects self-efficacy regarding others, and helps strengthen personality traits such as self-esteem (Katz, 2009).

Other studies have indicated a positive relationship between self-efficacy and perception of the future. People who believe in their abilities to create change can envision the impact of their actions on future results. Accordingly, they feel committed to shape their future (Bandura, 1995; Zimbardo & Boyd, 1999; Epel et al., 1999; Shell & Husman, 2001).

Future Orientation

Future orientation refers to all the thoughts, feelings, and concerns with which humans interact subjectively with their perceptions of their future. Future orientation is reflected in how the individual makes plans, sets goals, and avoids unwanted situations (Seginer & Mahajna, 2003). In addition, future orientation reflects how people foresee future, including their expectations, preparations, and general feelings about the future (De Volder & Lens, 1982; Seginer, 1988; Shell & Husman, 2001).

Future orientation can be divided into one's future course of life and existential domains. According to Seginer (2001), future life course refers to hopes and concerns about the future, including education, military service, work, and career. Existential domains involve concerns and hopes of self, others, and society. It is important to note that the orientation toward the

future life course is active and directed towards specific goals, but the existential domains are passive. Self-direction is towards defined future goals, compared with the existential domains, which relate to the future passively and are expressed in hopes and fears of the future (Seginer, 2001).

Researchers of future orientation have constructed a developmental model of the future orientation based on three components: (a) motivation, (b) cognitive representation, and (c) behavioral representation (Seginer, 2000; Seginer, Vermulst, & Shoyer, 2004). Motivation increases people's interest in investing effort. In addition, the motivational component drives a person to aim for the future, and define long- and short-term tasks. Cognitive representation allows people to consider future issues and develop expectations along a sequence of time in the future time, expressing both hopes and concerns about the future (Seginer, 1998, 2001; Seginer, Vermulst, & Shoyer, 2004). These components stimulate the behavioral representation, which includes two variables: (a) an information search, examination of future possibilities and their adjustment to the individual; and (b) commitment to a chosen goal and persistence in achieving it (Seginer & Mahajna, 2003).

Consideration of the future begins in childhood and continues throughout life. It gains momentum in adolescence and early adulthood, when important decisions are made (Nurmi, 1991; Nurmi et al., 1995). Adolescents are confronted with the developmental task of finding their own paths to adulthood. Their view of the future is shaped by both external and internal factors (Seginer, 2001, 2003). Through interaction with significant others, the adolescent creates subjective images of his or her future interests, expectations, and plans. In addition, this future image is influenced by psychological factors, such as the adolescent's social development and self-esteem (Nurmi, 1991; Shoyer, 2006).

Adolescent development is affected by the choice of the environment and the people with whom one communicates, along with society's demands and opportunities (Crockett & Bingham, 2000). Thus, future orientation is an ongoing interactive process in three spheres – cultural and social, family environment, and the self – which inform the effort of adolescents to develop plans and objectives and organize their path into the future (Seginer & Halabi-Kheir, 1998).

Future orientation and academic education

As discussed earlier, future orientation persists throughout life. In adulthood, positive future orientation is essential to students in dealing with the tasks and challenges that life presents (Finzi-Dottan & Sharon Garty, 2010). This stage of development is often characterized by academic studies alongside work and family life. In addition, because of these other

obligations, people are more likely to base their decisions of whether to pursue studies or work on their assessment of how the different options will contribute to their lives in the future. Accordingly, young adult students can be expected to evaluate the advantages and disadvantages of different options relative to the time and energy they require. Based on this comparison, they choose activities that they deem more rewarding rather than those that require more effort and are less rewarding (Horstmanshof & Zimitat, 2003). Against this background, many young adults pursue higher education as an investment in the future, based on the belief that the time and effort required will lead to achievement of their goals (Frymier & Shulman, 1995). Future orientation is an important factor in a student's academic achievements (Epel et al., 1999). Young adults with an unstable future orientation and a lack of optimism are liable to drop out of school and have low academic achievements (Simons, Vansteenkiste, Lens, & Lacante, 2004). Horstmanshof and Zimitat (2003) found that the older a student is, the better his or her future orientation; as they mature, students develop more future-focused capabilities, as well as better time management skills and greater independence.

Intervention Programs

In the modern era, higher education has become increasingly important; it has a direct impact on the advancement of the individual in society. The acquisition of higher education may increase the chances of employment and higher wages. It also provides tools with which to maximize one's personal abilities (Schayeck, 2005). Education is key to the advancement of individuals in society (Yaacobi, 2003). This strongly suggests that people with disabilities also need a higher education. Nevertheless, little research has been done on this subject. A number of developments that affect people with disabilities make it all the more important for them to participate in post-secondary education; these include integration of people with disabilities in the community and culture, changes in social awareness, economic changes, and changes in the world of work. Moreover, accelerated technological development is enabling people with disabilities to live relatively independently and to participate in all aspects of life, including employment (David, 2007). Gajar (1998) found that higher education is the key to improving the ability of these people to secure suitable employment. He claimed that adults with special needs are mature enough to address the challenges of higher education. In Israel, as in other countries, several programs have been designed to enable people with disabilities to acquire an education, but little research has been published on this subject.

These programs allow people with special needs the opportunity to experience post-secondary education. With the support of their parents and professionals, working in collaboration with teaching staff, these students can be successful. These arrangements also give young adults with disabilities an opportunity to integrate and form friendships with peers who do not have disabilities. Such programs offer many benefits, primarily because they facilitate the participants' transition into adulthood, by means of interaction with students without disabilities, participation in social and recreational activities, development of relationships with different service providers in the institutions, a sense of independence and capability, and better employment opportunities in the future (Zafft, 2002).

Post-secondary education programs for young adults with disabilities are offered in different settings, including universities, colleges, vocational training centers, and adult schools (Wille-Gregory, Graham, & Hughes, 1995). The program must be effective so that the students do not feel inundated and unable to continue. In addition, the students with disabilities need to learn the skills necessary for dealing with social and academic challenges. Participation requires self-determination and self-esteem; towards this end, students with disabilities should be given the opportunity to select the career directions most interesting to them (Halpern, 1994). It is also important that they choose programs that are consistent with their interests and needs (Mooney, 1996).

The number of students with disabilities, including HFA, who pursue higher education has grown significantly. Therefore it is necessary that these programs have support centers to provide students with social and educational support during their years of study. Teaching students with HFA is a challenge, because the disability is not always apparent. Professors and other students may not always be aware of the disability. Nevertheless, these students must be allowed special accommodations, both physical and instructional, in order to enhance their learning experience (Barnhill, 2014).

Approaches to Intervention Programs for People with HFA

Young adults diagnosed with autism, their families and professionals face the challenge of finding the treatment or intervention that is best suited to their special needs. Despite the many studies conducted in the field and the increasing understanding of autism spectrum disorders, there is no clear-cut conclusion regarding the best intervention.

When institutions for post-secondary education began to accept students with HFA, they did so on the basis of the students' academic ability and the funding they received for serving these students. The leaders of these institutions believed that their student support centers, which dealt with other disabilities, would be able to assist and guide students diagnosed with HFA.

However, it emerged that these students needed a completely different type of support than that required by students with other disabilities. In addition, they also required support in the social and behavioral realms, which the existing student centers could not provide.

In order to become more effective for students with HFA, support centers must recognize the additional adjustments to be made for each student, according to his or her individual needs. In addition, the support centers must understand the importance of assigning a mentor to each student, to provide a continuous channel of communication and emotional support.

Most of the intervention programs available today are based on Skinner's behavioral theory. These are psycho-educational programs that aim to change behavior and teach the participants life skills, for the purpose of improving their learning functions (Mills & Marchant, 2011). Several intensive behavioral treatment (IBT) plans have been developed according to this theory. Such programs are constructed specifically and intensively for each individual, with the purpose of changing his or her patterns. Empirical studies have indicated that such interventions are very effective (Leaf, Taubman, McEachin, Leaf, & Tsuji, 2011).

The aim of the present study was to examine the impact of an intervention program for students with HFA participating in post-secondary studies in a university in Israel on their sense of self-efficacy and their future orientation. The research was based on the growing body of knowledge reviewed earlier in this article. The students participated in an intensive mentor-based intervention program, aimed at providing communication and emotional support. The research hypothesis was that this intervention would positively affect their self-efficacy and their future orientation.

Methodology

The Research Population and Research Procedure

The research sample was comprised of 19 students, aged 23 to 28. Four of the participants were women; the others were men. All had been formally diagnosed with autism spectrum disorder (ASD) and high functioning.

In addition to their studies, the students took part in an intensive intervention program operated by the university's Center for Student Services. The intervention program, overseen by project managers, was designed to assist students in developing social interaction and communication skills by providing them with emotional support. In addition, the dean's office provided academic support to those who needed it. The students who participated in the project shared university-provided housing (dormitories) with their mentors. Students and mentors were expected to

participate in social and skill-building activities together at least three times a week. In the event that a student and mentor did not reside in shared housing, they were expected to work on social skill-building activities at least four times a week. The activities and topics that were addressed varied with the specific needs of the students. In general, these activities addressed communication skills, social interaction, and the like.

Project coordinators provided additional support by meeting with each student and his or her mentor on a weekly basis, to address any questions, comments, or concerns. The project managers, who met with each student once a semester to review expectations and progress, maintained an "open-door policy," so that they were also available to students whenever needed, throughout the semester. In addition, once a month all project participants, including students, mentors, coordinators, and managers met to facilitate positive interactions among all. In addition, workshops were held throughout the year to enhance the students' life skills, including relationship building, personal communication, and daily living skills. Lectures by psychologists were also offered; they were based on areas of interest, as per student requests, in order to help the students develop positive coping skills to address daily life experiences.

For the purpose of the study, the participants completed the same questionnaires twice, pre and post the intervention period (first in July and again in October 2014).

Research Tools

Self-Efficacy Assessment Questionnaire

The Self-Efficacy Assessment Questionnaire (NGSE) (Chen, Gully, and Eden, 2001) was designed to examine the self-efficacy of adults who have cognitive disorders by means of self-report. The respondents are asked to rate their agreement with eight statements on a three-point scale, where 1 indicates "not at all," 2, "to a moderate extent," and 3, "very much." The Hebrew version of the questionnaire, which we used, has been found to have high predictive validity (Chen, Gully, & Eden, 2001).

Future Orientation Questionnaire

The Future Orientation Questionnaire (Seginer, Nurmi, & Poole, 1999) was designed to test motivational, cognitive and behavioral aspects of future orientation regarding various subjects. The questionnaire was customized for a population of adults with cognitive disorders. It is divided into two parts: the first part is comprised of 11 items representing hopes and 11 items representing the respondent's concerns about his or her future; the second part consists of 12 questions about the respondent's studies and 10 about his or her future employment. The questionnaire covers motivational,

cognitive, and behavioral aspects of the two main spheres of their future life: education and employment. The motivation aspect refers to anticipation and self-esteem; the cognitive aspect refers to thoughts about the future; and the behavioral aspect addresses elements of self-inquiry and commitment.

On this questionnaire, the respondents are asked to answer each question on a scale of ranging from 1 ("not at all") to 3 (“very much”). A score of 1 indicates a future orientation that is not active and 3 indicates active future orientation. This questionnaire has been widely used as a valid structure, based on the correlation of future orientation with optimism and pessimism, as well as academic achievements (Seginer, Vermulst, & Shoyer, 2004).

Results

We hypothesized that the intervention would positively affect both dependent measures, self-efficacy and sense of future orientation. Indeed, the results of the self-report questionnaires indicated higher levels of self-efficacy and future orientation in the second measurement (after the intervention program) compared with the first one. We tested the hypothesis using analysis of variance (repeated measures ANOVA). The test results are presented in Table 1.

Table 1 Future Orientation and Self-Efficacy

	Measurement before intervention program (N = 19)		Measurement after intervention program (N = 19)		$F_{(1,18)}$	P	Eta^2
	M	SD	M	SD			
Self-efficacy	2.35	0.28	2.44	0.22	4.297	.05	0.002
Future orientation	2.18	0.27	2.34	0.23	6.858	.01	0.276

As Table 1 indicates, a significant difference was found between the self-efficacy scores measured in July and those measured in October, $F(1,18) = 4.297$, $p < .05$. As hypothesized, a significant difference was also found between the future orientation score measured in July and that measured in October, $F(1,18) = 6.858$, $p < .01$. However, no interaction was found between the two variables.

Discussion and Conclusion

The results of the present study indicated that an intervention program for students diagnosed with HFA contributed significantly in terms of two major variables, self-efficacy and future orientation. The research hypothesis was that an appropriate intervention should lead to improvement in both dependent measures, and the results confirmed this.

The results of previous research in the field of self-efficacy have suggested that HFA students need a completely different type of support than that provided to students with other disabilities. In particular, young adult students with HFA require social and behavioral support. Such support is best provided by a mentor who is in regular contact with the student, in order to continuously promote communication and emotional abilities (Mills & Marchant, 2011). The present research confirmed the importance and effectivity of an intervention program tailored to the needs of students diagnosed with HFA, in order to increase their self-efficacy. Such tailoring requires further investigation.

Bandura (1997) defined perceived self-efficacy as a personal judgment of one's own ability to organize and execute courses of action in order to attain designated goals. A strong relationship between self-efficacy and adaptive coping with learning difficulties has been found to be strongly associated with academic progress (Kurtz-Costes & Schneider, 1994). Bong and Clark (1999) found self-efficacy to be the most consistent predictor of academic success, and the only motivational variable that had a direct impact on that success. Thus, an increase in self-efficacy over time should help promote academic success and realization of one's potential.

The research hypothesis that an intervention program tailored to the needs of students diagnosed with HFA would increase their sense of future orientation was also confirmed. Future orientation is related to how a person makes plans, sets goals, and avoids unwanted situations; it refers to all the individual's thoughts and concerns about the future (Seginer & Mahajna, 2003). In the context of academic studies, future orientation encourages students to undertake tasks and challenges (Finzi-Dottan & Sharon-Garty, 2010). Young adults pursue higher education as an investment, based on belief that the time and effort required will bring them closer to their goals (Frymier & Shulman, 1995). Students with unstable future orientation and lack of optimism can be expected to have difficulty maintaining a grade average and may drop out of their study program (Simons et al., 2004). The results of the present study are consistent with those of Zafft (2002), which indicated that intervention programs enable students with disabilities.

The present findings call attention to the sequence from psycho-educational interventions during the school period to interventions for designed for young adults with HFA who participate in post-secondary studies. Camarena and Sarigiani (2009) found that adolescents with HFA and their parents had clear intentions regarding post-secondary education, but also expressed significant concerns about the ability of post-secondary educational institutions to meet the needs of these young adults. Their analysis indicated that although vocational centers, colleges, and universities have much work to do in this area, families and schools must also play a role

in preparing these students for post-secondary education. Previous research on the successful adjustment of young adults with learning disabilities in institutions of higher education found that those who were doing well possessed awareness, acceptance, and understanding of their disability, but did not see their disability as defining their identity (Spekman, Goldberg, & Herman, 1992).

Limitations of this Study and Future Research

The present research was conducted in one specific university; therefore it is hard to generalize the results. A growing number of universities and colleges are encouraging young adults with high-functioning autism to participate in post-secondary education, and empowering them by means of intervention programs tailored to their needs. Further studies on intervention programs and their implementation could enable the inclusion of a larger number of students in such research, and produce a more valid reflection of the strengths of people with HFA. Such research could also contribute to increased effectiveness of the intervention programs. Future research should be long term, include investigation of pre-academic programs, and compare the long-term outcomes of different models of intervention.

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