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by

Sarah C. Turner

May 2015

PSYCHOLOGICAL NEEDS AND GOAL SETTING
AMONG ADOLESCENTS WITH AUTISM

A Thesis Presented to the
Faculty of the College of Education
University of Houston

In Partial Fulfillment
of the Requirements for the Degree

Master of Education in Counseling

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Dedication

You never gave up on me.

You held out hope for me on the darkest of nights.

You stayed with me to show me the beauty of the stars

and the moon travelling across the night sky.

We will always stand at the doorsill where two worlds touch

because we share the stars I still see from my window world.

Never underestimate your impact.

Acknowledgement

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Dr. Kimberly Schoger, thank you for introducing me to Dr. Debrah Hall and The Monarch School. My literature review for your course in human development was the starting point for this research. The opportunity to learn more about self-determination theory in adolescent populations has guided me toward completing my degree and the beginning of my career.

TEAM SARAH, I love you more than the sun, the moon, and the stars. I will always remember our adventures to San Francisco and New York City. Thank you for your steadfast encouragement and patience.

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Abstract

Relatedness may be a missing explanatory element in looking at self-determined behavior among adolescents with autism spectrum disorder (ASD). Defined as experiences of closeness and connectedness to others (Deci & Ryan, 2000), relatedness is one of three basic psychological needs, along with autonomy and competence. Schools may focus on building autonomy and competence, as both are essential to academic success, but many times relatedness is not a major focus. The expression of relatedness in students with autism is affected by marked deficits in reciprocal social communication and social interactions.

This study explored the role of psychological needs in the context of goal setting among students with autism. Using a mixed methodology approach, we selected the American Institutes for Research Self-Determination Scale (AIR-S) as a measure for self-determination in children, in the context of goal setting in a school environment. At first glance, these items bear similarity to the items in the Balanced Measure of Psychological Needs, a measure of three psychological needs, designed for adults (BMPN; Sheldon & Hilpert, 2012), that we modified for use with children in this study.

The target population for our sample was adolescents with autism, who attend The Monarch School, a research-based, educational and therapeutic center for children and adolescents with neurological differences. The structure of the school emphasizes the community experience and provides a framework for developing a sense of social connection, termed relatedness by Deci and Ryan (2000). Students are engaged with

their peers and faculty members in collaborative community time throughout the week. The emphasis on building social connections at school creates the opportunity to study the concepts of relatedness, autonomy, and competence, grouped by Deci and Ryan (1985, 2000) as the three basic psychological needs in self-determination theory.

Open-ended and close-ended questionnaires were administered orally to ensure students' understanding. The American Institutes for Research Self-Determination Scale (AIR-S; Wolman et al., 1994) was accompanied by the modified version, Balanced Measure of Psychological Needs- Revised for Young Test Takers, designed to be developmentally appropriate for adolescents with autism. Open-ended questions asked students to explain their answers on the AIR-S, so that we could expose the thought processes behind the numerical ratings they gave us.

The primary research questions were, "What are the underlying meanings of numerical responses to American Institutes for Research Self-Determination Scale (AIR-S) among students with autism spectrum disorder?" and "Does the theoretical association between Balanced Measure of Psychological Needs-Revised (BMPN-R) and AIR-S remain consistent for this group?"

Findings from comparisons of responses on AIR-S and BMPN-R provided insight about the theoretical association of core principles in the existing literature, and explored whether young participants with autism employ this theoretical structure in their mental processing. The open-ended qualitative responses provided insight into the internal experiences of students with autism, and suggested ways to foster self-determined behavior across settings through seeking information from the words of participants themselves rather than observers or rating scales.

Table of Contents

Chapter	Page
I: Introduction.....	1
Psychological Needs.....	2
Relatedness	3
Autonomy	3
Competence	3
Self-Determined Learning Theory	4
Common Elements of Self-Determination Theory and Self-Determination Learning Theory	5
Research Questions	5
II: Methods	7
Design	7
American Institutes for Research Self-Determination Scale (AIR-S).....	8
Balanced Measure of Psychological Needs- Revised for Young Test Takers (BMPN-R).....	9
Participants	11
Demographics	11
Listening Comprehension	11
Participation Criteria	12
Inclusion	12
Exclusion	13
Setting	13
Procedure	14
Administration	15
Data Analysis	15
Ethical Considerations	16
Risks	16
Benefits	16
III: Results	17
American Institutes for Research Self-Determination Scale (AIR-S)	17
Administration	18
Goals: Qualitative Content and Context	18
Helping Others	19
Patience and Flexibility	20
Building Relationships	20
Reflections about Progress in Reaching Goals	20
Quantitative Results	22
IV: Discussion	30
Overview of Findings	30
Relation to Existing Research	31

Implications for Current Theory	33
Implications for Applied Settings	35
Interviewing Adolescents with Autism	35
Balancing Blank Stares and Silence	36
“Out of sight—out of mind:”	37
Maintaining Confidentiality in School Settings	37
Lessons Learned	38
Limitations	38
Conclusions	38
References	40
Appendix A. All items from American Institutes for Research Self-Determination Scale and Balanced Measure of Psychological Needs—Revised for Young Test Takers.....	45
Appendix B. Assent form	48
Appendix C. Permission form for parents of eligible participants	52

List of Tables

Table	Page
1. Mean Comparisons from the AIR-S Norming Sample and The Monarch School.....	18
2. Correlation Matrix from All AIR-S and BMPN-R Scales.....	22
3. Correlation Matrix of AIR-S Autonomy Items.....	23
4. Comparisons of AIR-S and BMPN-R Relatedness Scales	25
5. Correlation Matrix of BMPN-R Autonomy and AIR-S Competence Scales	27
6. Correlation Matrix of BMPN-R Competence and AIR-S Autonomy Scales	28
7. Correlation Matrix of Autonomy and Competence Items	29

List of Figures

Figure	Page
1. Thesis Hypotheses of All Items Organized by Construct	8

Chapter I

Psychological Needs and Goal Setting Among Adolescents with Autism

Adolescents with autism spectrum disorder (ASD) have unique challenges that can be difficult to accommodate at home and at school. The target population for our sample is adolescents diagnosed with autism, who attend a research-based, educational and therapeutic center for children and adolescents with neurological differences. The structure of the school emphasizes the community experience and provides a framework for developing a sense of social connectedness, termed relatedness (Baumeister & Leary, 1995; Deci & Ryan, 2000; Ryan, 1995; Ryan, La Guardia, Solky-Butzel, Chirkov, & Leary, 2005; White, 1959). Students are engaged with their peers and faculty members in collaborative community time throughout the week.

The school supports the four core goals of academic competence, relationship development, self-regulation and awareness, and executive functioning, which are reflective of the three psychological needs for competence, relatedness, and autonomy. The students, educators, and coaches collaborate to develop targets and strategies to work on these core goals. Several sets of goals match each core goal, with different progress points and sub-goals that account for individual differences. Goal setting is an important component of each day, as students rate their progress toward their goals using a self-reported numerical rating and a second rating by an educator. Given the importance of goal setting in this environment, it was a pragmatic choice to pursue the role of basic psychological needs and how they emerge in goal setting, as the students are familiar with the concepts, purposes, and terms.

The emphasis on building social connections at school creates the opportunity to study the concepts of relatedness, autonomy, and competence, grouped by Deci and Ryan (1985, 2000) as the three basic psychological needs in self-determination theory. This study explored the role of psychological needs in the context of goal setting among adolescents with autism. Using a mixed methodology approach, the American Institutes for Research Self-Determination Scale (AIR-S) was selected as a measure for self-determination in children, in the context of goal setting in a school environment. These items bear face similarity to the items in the Balanced Measure of Psychological Needs, a measure of three psychological needs, designed for adults (BMPN; Sheldon & Hilpert, 2012), that we modified for use with children in this study.

Psychological Needs

Some people have stronger, more intense psychological needs than others, but the presence of these needs is thought to be universal and essential for well-being and psychological growth (Deci & Ryan, 2000). Psychological needs are learned phenomena that develop as “tendencies toward achieving effectiveness, connectedness, and coherence” (p. 229). Deci and Ryan discussed the influences of individual differences and characteristics of social environments in the experience of need satisfaction in different settings, with the goal to predict a person’s experience of need satisfaction to indicate the quality of behavior and health.

In looking at adolescents with autism, we often see deficits in their reciprocal communication and social skills. Deficits in these fundamental processes can limit the opportunities and current capacity to engage with and relate to others in a meaningful way. Deci and Ryan (2000) stated that these psychological needs are universal; the

outward expression of relatedness is likely different among students with autism, but the need for connection persists.

Relatedness. Relatedness is the desire to experience closeness and connectedness to others, emotionally and socially (Deci & Ryan, 2000). Relatedness is also discussed in the literature about attachment, because expressions of willingness to trust and rely on others reflect relatedness (Baumeister & Leary, 1995; Ryan, 1995; Ryan, La Guardia, Solky-Butzel, Chirkov, & Leary, 2005; White, 1959). Isolation and disconnection are the opposites of relatedness (Niemic, Ryan, & Deci, 2014).

Autonomy. Deci and Ryan's view of autonomy is defined as volition regarding the experience of freedom, choice, and self-regulation (Deci & Ryan, 2000, p. 231; Sheldon & Hilpert, 2012, p. 442). In self-determination theory, to be autonomous does not mean to be independent of others (Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2003). Defined as the experience of perceived feelings of being controlled or manipulated to act, think, and feel in specific ways, heteronomy is the opposite of autonomy (Ryan & Deci, 2006, cited by Niemic, Ryan, & Deci, 2014).

Competence. Competence is the need to plan and control the outcome of one's actions and to experience mastery (White, 1959). In this study, this need for effectiveness is found in one's interactions with the school environment, including school work, social interactions in the classroom, and community time with students and faculty. Opportunities to practice and increase their capabilities through appropriate challenges that align with the students' goals can help students to build mastery, though a dissatisfying outcome may decrease the experience of competence (Niemic, Ryan, & Deci, 2014).

Self-Determined Learning Theory

Knowledge about self-determination allows educators, parents, and administrators to monitor, assess, and recommend changes for students in mainstream education plans and special populations to maximize their capacity and opportunity to practice self-determined choices and actions (Dempsey, 2011; Shogren, 2006; Shogren, Wehmeyer, Palmer, Soukup, Little, Garner, & Lawrence, 2008). Self-determination learning theory has been applied to students with autism spectrum disorder. The premise of self-determined behavior is that people with disabilities can attend to skills-based deficits by focusing on fundamental behaviors (Cottenceau, Roux, Blanc, Lenoir, Bonnet-Brilhault, & Barthelemy, 2012; Wehmeyer, Shogren, Smith, Zager, & Simpson, 2010; Zambo, 2010). Goal setting is a common example of self-determined behavior, as this process has qualitative and quantitative elements that reflect academic and personal goals. In this study, goal setting is the foundation for looking at self-determined behavior at school. Goal setting is essential for working with the students toward building mastery across the Four Core Goals at the school in this study.

To study the phenomena surrounding self-determined behavior in education, Wolman, Campeau, DuBois, Mithaug, and Stolarski developed and published the American Institutes for Research Self-Determination Scale (AIR-S; Wolman, et al., 1994). The two subscales of the instrument are Opportunity and Capacity. The Opportunity items reflect chances to practice self-determined behaviors in school and at home. The Capacity items assess the knowledge, abilities, and perceptions that enhance self-determination (Shogren et al., 2008, p. 96; Wolman et al., 1994).

Common Elements of Self-Determination Theory and Self-Determination Learning Theory

Both self-determination learning theory and the psychological needs self-determination theory hold the premise that self-determined behavior is learned and developed throughout the life-span (Deci & Ryan, 1985, 2000; Mithaug, 2003; Shogren et al., 2008; Wolman, Campeau, DuBois, Mithaug, & Stolarski, 1994). In thinking about self-determination in the context of goal setting, one can see the expression of autonomy (you made a plan), competence (you figured out the steps for reaching the goal and asked for guidance if you need it) and relatedness (you and your friends went and accomplished the goal together).

Research Questions

The primary research questions were, “What are the underlying meanings of numerical responses to American Institutes for Research Self-Determination Scale (AIR-S) among students with autism spectrum disorder?” and “Does the theoretical association between Balanced Measure of Psychological Needs-Revised (BMPN-R) and AIR-S remain consistent for this group?”

Findings from comparisons of responses on AIR-S and BMPN-R provided insight about the theoretical association of core principles in the existing literature, and explored whether young participants with autism employ this theoretical structure in their mental processing. All items from both measures are listed in Appendix A. The assent form for students and the permission for parents are included in Appendices B and C, respectively. The open-ended qualitative responses provided insight into the internal experiences of students with autism, and suggest ways to foster self-determined behavior across settings

through seeking information from the words of participants themselves rather than observers or rating scales.

Chapter II

Method

Design

The exploratory research design of this study called for mixed methodology, using qualitative and quantitative components. Content analysis was used to analyze the data collected from behavior observation, previously collected data at The Monarch School, and one-on-one semi-structured interviews with students using the American Institutes for Research Self-Determination Scale- Student version (1994) and Balanced Measure of Psychological Needs—Revised for Young Test Takers (BMPN; Sheldon & Gunz, 2009; revised BMPN-R, Turner, 2014).

In the AIR-S and BMPN-R, items appeared to reflect the nature (essence) of relatedness, competence and autonomy; see Figure 1 for the hypotheses for each item. In creating the hypotheses about which items would be correlated, I asked myself, “What words suggest these items have to do with these psychological needs?” Encouragement, understanding, and connection to others seemed to reflect relatedness. Competence is about action: making plans, setting goals, and feeling good about your work. Autonomy’s mantra is “I can do this—I know I can.” Strauss and Corbin (1990) described the next steps of the qualitative methodology in grounded theory procedures. On a printed version of the AIR-S, I labeled wrote Relat, Comp, and Auton to note key words I associated with these constructs. The items in the BMPN-R were already organized in scales, with one scale for each construct. Once we had the words, they needed to be categorized. Then the categories were composed of the properties of relatedness and clues about how to join them into groups to understand the data as

patterns and themes emerged. Themes and the groups that compose them are multifaceted and multidimensional; these are discussed in the Results section.

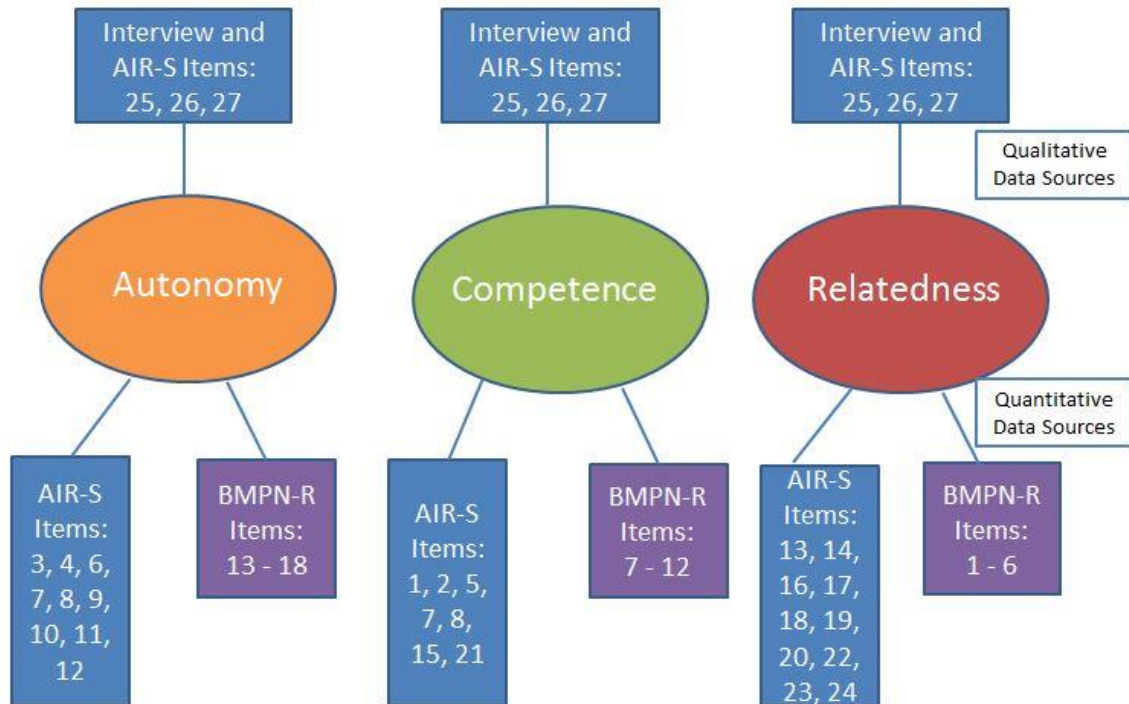


Figure 1. Thesis hypotheses of all items organized by construct

American Institutes for Research Self-Determination Scale (AIR-S). The American Institutes for Research Self-Determination Scale (AIR-S) has theoretical roots in self-determined learning theory and has two scales, Opportunity and Capacity. Developing self-determination is a lifelong process, with new opportunities to learn, make decisions, and act with volition. AIR-S also asks participants to consider what they want, what they need, and how they are going to get what they want and need (Wolman et al., 1994, p. 4, cited by Shogren et al., 2008). The preliminary version of the AIR Self-Determination Scale was field tested with assessments conducted by educators, including

special education teachers and resource specialists. Over 450 participants were included in the norming samples, ranging in an even distribution between six to 25 years of age.

The AIR-S defines a goal as “something you want to get or achieve” and a plan as “the way you decide to meet your goal or the steps you take in order to get what you want or need.” The first three questions are open-ended qualitative questions: “Give an example of a goal you are working on.” “What are you doing to reach this goal?” “How well are you doing in reaching this goal?” After discussing a specific goal mentioned in the first three questions, the students completed the quantitative 24-item AIR-S. A 5-point rating scale ranging from 1 (*never*) to 5 (*always*) was used to assess six items in each of the following categories: things I do, how I feel, what happens at school, and what happens at home.

Balanced Measure of Psychological Needs- Revised for Young Test Takers.

Sheldon and Gunz’s Balanced Measure of Psychological Needs (BMPN; 2012) was designed to measure Deci and Ryan’s three psychological needs: autonomy, competence, and relatedness (2000). This measure is based on Deci and Ryan’s work regarding self-determination theory and basic psychological needs. In Sheldon and Gunz (2009) and Sheldon and Hilpert (2012), the BMPN was normed with undergraduate students.

With permission of the authors, the measure was modified to ensure that it is developmentally appropriate for adolescents in a school setting. Relatedness, competence, and autonomy were the three sections of the BMPN-R, each with six items for each construct, for a total of 18 items. Each scale had three positively worded, “satisfaction” items and three negatively worded, “dissatisfaction” items; the measure is “balanced” because it has an equal number of positive to negative questions with an equal

number of items per construct. The tense was also changed from past tense to present tense to create temporal continuity. For example, “I felt a strong sense of intimacy with the people I spent time with” (item 5) has been changed to “I feel like I belonged among the people at school.”

I revised the BMPN to adjust for varying developmental levels and literacy by shifting the word choice to more concise and concrete terms and the verb tense from past tense to present tense. The word choices were more direct and the items were structured to have school as the common setting, which provided context and increased clarity for students. One goal was for the items to have behaviorally specific terms used in goal setting terms that the students were familiar with to increase clarity and decrease ambiguity about the meaning. This is one example of a change about interpersonal relationships. “I felt a strong sense of intimacy with the people I spent time with” (BMPN item 13, Sheldon & Gunz, 2009) transitioned to “I feel like I belong among the people at school” (BMPN-R item 13, Turner, 2014).

Each student identified a goal he or she wanted to discuss during the interview. The audio recording has each student’s goals, and some were written on the first page of the AIR-S packet. The AIR-S was written in present tense, creating a consistent framework for the conversation as a selected goal and reflection about their experiences.

The quantitative data from AIR-S and BMPN-R was entered in IBM’s Statistical Package for Social Sciences (SPSS). Descriptive statistics (means and standard deviations) for subscales are provided in a table, with interpretive commentary in the results and discussion chapters. A correlation matrix of the subscale sums from both measures was examined to reveal whether subscales are associated in the expected ways.

Verbatim transcriptions of the semi-structured interviews with students were coded using content analysis with NVivo 8 software. I audio-recorded interviews to ensure accuracy and to allow for verbatim transcription of the responses. The sources for qualitative data were interview data, field notes, summaries, and my own reflections about the dialogue and research process.

Participants

Demographics. Parents of students in the Butterfly program at The Monarch School were contacted to invite their child to participate in the study “Goal Setting and Psychological Needs among Students with Autism.” The parents of 13 students responded and 11 students met the inclusion criteria (described below); one student met the inclusion criteria but was excluded because his speech was too difficult to understand. Ten participants were interviewed to discuss goal setting and their experiences with the underlying psychological needs: relatedness, competence, and autonomy. The mean age of the sample is was 15 years of age, with a standard deviation of 1.8 years. The youngest participant was 13 years of age. The oldest was 17 years and 11 months. Three girls and seven boys participated in the study. Of the ten participants, seven were White, one was Black, one was Asian American, and one was Middle Eastern American.

Listening comprehension. The Group Reading Assessment and Diagnostic Evaluation provided information about listening comprehension, designed to measure language skills and comprehension without words or images. This can be of interest for individuals with autism because the diagnostic criteria for autism spectrum disorder note a marked deficit in reciprocal communication skills, which may influence perceptions about the student’s language skills. The raw scores of the listening comprehension items

from the Group Reading Assessment and Diagnostic Evaluation (GRADE; Pearson Education, 2001) were collected in the fall 2013 semester, organized and analyzed as stanine scores, a descriptive statistic with scores that range from 1 to 9 with a mean of 5 and a standard deviation of 2. These stanine scores added to the descriptive conceptualization of the sample's developmental diversity.

All components of the assent process and administration were read aloud to address potential deficits in reading skills, so exploring students' listening comprehension was essential to ensure that the students understood the words they heard and responded with their level of agreement for each item. Some students' scores indicated a weakness in listening comprehension, with four students in the first and second stanines; while most other scores indicated average listening comprehension, two students were scored in the ninth stanine.

Participation criteria. The Monarch School is a research-based, educational and therapeutic center for students with neurological differences. The school collects diagnostic information and academic performance for enrolled students; the admissions and directors had documentation to indicate whether a student would be a potential participant. I collaborated with the faculty at The Monarch School to determine which students would have the executive functioning, verbal comprehension, and self-regulation skills to be interviewed and to complete the 24-item AIR Self-Determination Scale-Student version and the 18-item Balanced Measure of Psychological Needs- Revised for Young Test Takers.

Inclusion criteria. Participants in this study must have been diagnosed with autism spectrum disorder and be currently enrolled in the Butterfly Program at The

Monarch School. The Monarch School has access to medical records that indicate a diagnosis of autism spectrum disorder; I did not have direct access to these medical records. To confirm that the student has a documented diagnosis of autism, a list with the names of students who carry this diagnosis information was developed by a faculty member at The Monarch School. Before the interview, each participant returned a permission form signed by a parent. Students were asked to sign the informed assent affirming their rights as participants, including confidentiality and the right to end the interview at any time.

Exclusion criteria. The focus of this study is the role of psychological needs among students with autism spectrum disorder at The Monarch School, so full-time enrollment was a requirement. Students who were not diagnosed with autism spectrum disorder were ineligible. Most diagnosed comorbidities did not exclude students from the study, with the exception of one student diagnosed with Tourette's disorder because his speech was difficult to understand.

Setting

The Monarch School is a research-based, educational and therapeutic center for students with neurological differences with a strong, supportive community. In their teaching model, the Four Core Goals are self-awareness/self-regulation, relationship development, academic/professional competence, and executive functioning. Self-regulation is critical because students need to balance thoughts, emotions, and behaviors to focus on the task and the process of learning. Relationship development involves connecting with others. Executive functioning and academic competence involve taking ownership of decisions and plans, which may lead to autonomy and competence.

Integrating these goals in the classroom encouraged students to organize their thoughts into concrete, specific plans to complete their task and share their knowledge with others.

Procedure

I read the assent form aloud to each student, asking the student if he or she had any questions and ensuring that the student understood the tasks and his or her rights as a participant in this study. Each student was interviewed individually. The instruments were administered to students privately in various small rooms in the Butterfly building to reduce noise and potential distractions by other students. I coordinated with the eligible students and their teachers to schedule an interview. All instruments were administered orally. In the AIR-S and BMPN-R, reading each question and the sequence of five ratings for all participants was designed to create consistency in the administration and adjust for levels of literacy.

Administration. After the student returned a permission form signed by a parent and completed the assent document, the digital audio recorder was activated to make a verbatim record of the interview. I read aloud the instructions and definitions presented in the American Institutes for Research Self-Determination Scale- Student version (AIR-S). The student was encouraged to ask questions before the interview began. The students were asked to answer the quantitative 18-item BMPN-R. A 5-point rating scale ranges from 1 (*no agreement*) to 5 (*much agreement*) was used to assess 6-items in each of the following categories: relatedness, autonomy, and competence.

Some students preferred me to use a pen to move sequentially across the list of five responses, ranging from *never* to *always* in the AIR-S and from *no agreement* to *much agreement* in the BMPN-R. For eight of ten participants, I circled the response that

the student said aloud; two students requested to circle their own answers, as I read the statements aloud. Each student was asked if he or she would like me to read each option aloud and say each response while moving the pen across the line of responses. In administering the AIR-S, I read the options aloud with this sequence: *never, almost never, sometimes, almost always, to always*. In the administering the BMPN-R, I always began with this sequence: *1 no agreement, 2, 3 some agreement, 4, and 5 much agreement*; this 5-point range was consistent with the administration procedure presented in Sheldon and Gunz (2009) and Sheldon and Hilpert (2012).

Data Analysis

For the quantitative data, bivariate correlations were calculated between all subscales, all items in the hypotheses that indicated relevant statistical associations, and all items versus all items. We calculated these in IBM's Statistical Package for Social Sciences (SPSS). For the qualitative data, the process for the grounded theory method for qualitative data analysis was to take the raw data from the transcribed interviews and organize it based on specific words or phrases (Strauss & Corbin, 1990). These phrases are organized into categories I developed through the process of open coding in QSR's NVivo8. NVivo8 is a software package designed to organize and manage data from multiple sources, manage and track conceptual and theoretical knowledge, ask questions of the data, graphically model concepts built from the data, and track the progress of the project. As I continued to code the interviews, patterns emerged as the *free nodes* were linked together and structured in hierarchical *tree nodes*. The names and patterns of these tree nodes are alternatively labeled as themes or concepts.

Ethical Considerations

The collaborative approach by the Monarch faculty for recruiting students to participate in this study started with the development of a list of students who would meet the criteria: diagnosis of autism spectrum disorder; current enrollment at The Monarch School; and the consideration by the faculty at The Monarch School about each student's distress tolerance, self-regulation, executive functioning, and verbal comprehension. The completed forms were collected and stored in a locked cabinet before transitioning the paperwork to a locked box in my home office.

Risks. This research study presented a minimal level of risk. Each participant was asked to discuss one of his or her goals at school, because goals are a focal point for learning and instruction at The Monarch School. As an intern, I worked directly with the students who were interviewed, so the students were familiar with the school setting and me, as an interviewer. The students were self-regulated and calm during their interviews; many were excited about the benefit of going outdoors for five minutes between measures.

Benefits. Students were thanked for sharing their perspectives about goal setting and psychological needs. Students were asked if they would like to have a five minute break between measures. Some students elected to go outside to play basketball or run around the track for five minutes between measures. They were eagerly encouraged to continue participating in research because "It's cool to know more about why we do what we do, how we learn to do these things, and what steps we're taking now to get to where we want to go." After the last interview, students who were interviewed and others who were not expressed interest in participating in my future research projects.

Chapter III

Results

This study explored the role of psychological needs in the context of goal setting among students with autism spectrum disorder (ASD). Using a mixed methodology approach, we selected the American Institutes for Research Self-Determination Scale (AIR-S) as a measure for self-determination in children, in the context of goal setting in a school environment. The target population for our sample was adolescents with autism, who attend The Monarch School, a research-based, educational and therapeutic center for children and adolescents with neurological differences.

This chapter is organized in terms of the research questions and the exploratory analyses that followed from them.

American Institutes for Research Self-Determination Scale (AIR-S)

In the development of the AIR-S Self-Determination Scale, Wolman et al. (1994) collected data from parents, educators, students, and resource specialists in mainstream and special education programs in the United States in the early 1990s. The measured constructs were Capacity to Self-Determine and Opportunity to Self-Determine (separated into school and home settings). The ratings from the norming population were compared to the ratings from the sample at The Monarch School in 2014, displayed in Table 1.

Table 1

Mean Comparisons from the AIR-S Norming Sample and The Monarch School

	Percentage of Sample	Student Ratings		
		Capacity to Self-Determine	School Opportunities	Home Opportunities
AIR-S Norming Data from 72 Sites				
Students Without Disabilities	16.4	45.2	37.9	47.3
Students with MR (Mild/Moderate Mental Retardation)	11.1	40.4	39.8	40.4
Students with LD (Learning Disability)	30.6	40.6	40	42.9
Students with BD (Emotional and Behavior Disorder)	7.6	43.5	44.3	39.5
Students with OD (Other Disabilities)	34.3	42.9	43.8	44
Monarch Students with Autism Spectrum Disorder	100	42.4	21.4	23.6

Note. The AIR-S norming group included $n < 450$ at 72 sites and the sample from The Monarch School included $n = 10$.

Administration

“So we're going to talk about the American Institutes for Research Self-Determination Scale. And so, I'm going to be asking questions about how you get or how you go about getting what you want or need, so like we were talking about with goals. You're going to listen to the way the statement is and so then this all goes back to the last two weeks.” I specifically asked students about how they would prefer to me read the statement and the list of responses. I read each question aloud, using a pen to follow along with each word in the statement and moving from left to right in reading the statements and responses from left to right, beginning with *no agreement* to *much agreement*. This process was not counterbalanced.

Goals: Qualitative Content and Context

Students reference their goals and review their targets after each class. Some students chose targets directly from their Four Core Goals at The Monarch School. Peter,

a high school senior, and I talked about recognizing areas for improvement, setting goals, and changing behaviors to meet the needs of the situation.

I find like setting goals can be a bit more, a bit more necessary in [school projects] . . . And some of the goals that I've had is basically not only how to get my grade up (laughs), but um just how to be a good friend to people at school and how to regulate myself when I need to be regulated, when others aren't regulated. — (Peter, age 17).

Helping others. Kirsten's goal to be a leader is an abstract concept with behaviorally specific actions on the path to meeting her goal (Kirsten, age 13). I first met her in January 2014, when I was an intern in the Integrated Learning Practice program at The Monarch School. This year, her hard work in self-awareness, self-regulation, and relationship development was evident in her transition to providing constructive feedback, instead of teasing and “policing” other students by telling them what they are doing incorrectly and insisting what they should be doing.

Grant's goal described the process of reaching his goal of “trying to help people” (Grant, age 17). He sets the table and helps to prepare for dinner for the family and their dogs. At home and school, Grant worked diligently to learn about math, science, cooking, and reading. This fit well with the AIR-S item 7, “I feel good about what I like, what I want, and what I do well.”

SCT: “Okay. How well do you think you're doing in reaching this goal?”

Grant: “Good.”

SCT: “How do you feel about yourself when you think about that as being good?”

Grant: “Happy.”

Patience and flexibility.

Earlier in the school year, Rabi and I talked about superheroes and the upcoming release of a video game. He quoted the advertisement of the video game with enthusiasm during the weeks before the video game was released. During our interview, he talked about the process of waiting to get what he wanted.

One of them is trying to accept a “no” like what someone says no . . . One of them is waiting until you get what you want. . . it feels like you’ve been on the plane for 16 hours. . . I just feel impatient about that when I have to wait for a week to get what I want— (Rabi, age 14).

Building relationships. Relationship Development is a Four Core Goal at The Monarch School. This may have inspired Ethan’s decision to discuss his perspective about building relationships with others at school.

I am actually working on my [Relationship Development] with people. I'm trying to interact with them and talk with them a lot, and I'm wanting to be friends with them. . . I am coming up to them, and I'm like saying, "Hi, how are you doing?" And not being rude or anything but I'm trying to be nice. (Ethan, age 13).

Reflection about Progress in Reaching Goals

The students’ reflections about their own progress were limited, as responses from students are almost all are “pretty good.” These adolescents look to others for feedback, including their parents at home, and coaches and teachers at The Monarch School.

Sig: A person who really knows whether I'm, whether I'm doing well and my goals or not is [my coach].

SCT: Umhmm. Okay. How does he do that?

Sig: Sometimes, I have a hard time with proofing and he's encouraging me to do well in my proofing and so he's setting me goals and he says at the end of the week whether I did well or that I did not. . . He's not really a teacher that I like very much but he does . . . know what's going on with me and the plans and stuff my goals he does know whether I'm doing well or not. So I just ask him for some of that information. 'Cause he is the one who knows. (Sig, age 13).

Quantitative Results

“Does the theoretical association between Balanced Measure of Psychological Needs-Revised (BMPN-R, a scale designed for neurotypical adults) and AIR-S (a scale designed for special needs students) remain consistent for adolescents with autism?” The quantitative elements for the thesis are the students' responses to the 18 items of the BMPN-R and 24 items of the AIR-S. The correlation matrix in Table 2 identifies each of the subscales based on our three constructs for psychological needs. Strong correlations between the AIR-S Autonomy and the BMPN-R Competence, and the AIR-S Competence and BMPN-R Autonomy indicate statistical significance and further analysis in the Discussion. The items grouped into the Autonomy and Competence subscales described in the hypotheses also were correlated within the AIR-S subscales, but not necessarily with the other items in the BMPN-R.

Table 2

Correlation Matrix for All AIR-S and BMPN-R Scales

	BMPN-R Relatedness	BMPN-R Competence	BMPN-R Autonomy	AIR-S Relatedness	AIR-S Competence	AIR-S Autonomy
BMPN-R Relatedness		.38 (.284)	.39 (.272)	.34 (.337)	.52 (.121)	-.51 (.889)
BMPN-R Competence			.47 (.171)	-.18 (.621)	.19 (.593)	.72 (.018)*
BMPN-R Autonomy				.21 (.557)	.82 (.004)**	.46 (.177)
AIR-S Relatedness					.53 (.116)	.08 (.826)
AIR-S Competence						.32 (.373)
AIR-S Autonomy						

Note. * $p < .05$. ** $p < .01$.

The central hypotheses about the relationships between the scales stated the scales based on the same construct should be correlated. This correlation matrix indicates the relationships between the six scales of interest, composed of the three scales from the Balanced Measure of Psychological Needs—Revised for Young Test Takers (Sheldon & Hilpert, 2012; revised, Turner, 2014) and the three from the American Institutes for Research Self-Determination Scale (AIR-S; Wolman et al., 1994). The AIR-S Autonomy and BMPN-R Competence scales were correlated ($r = .72$ and $p < .018$). The AIR-S Competence and BMPN-R Autonomy scales were correlated ($r = .82$, $p < .004$). The correlation between the relatedness scales was $r = .34$, $p < .337$.

Although the correlations between the competence and autonomy subscales did not have the expected outcomes, the items within the respective AIR-S subscales were strongly correlated. Our hypotheses about the items in the AIR-S scales grouped logically similar items that reflected the operational definitions of the psychological

needs: autonomy, competence, and relatedness. The correlations between the items of the AIR-S autonomy subscale are listed in Table 3. Both AIR-S Items Competence AIR-S 2 and AIR-S 5 were correlated with AIR-S 21 the list of items grouped in Competence AIR-S. Competence item 21: “At home, I have learned how to make plans to meet my goals and to feel good about them” (AIR-S, Wolman et al., 1994). Competence AIR-S 2, “I set goals to get what I want or need. I think about what I am good at when I do this,” was correlated with Competence AIR-S 21 $r = .65$ ($p < .042$). Competence AIR-S 5 “I check how I’m doing when I’m working on my plan. If I need to, I ask others what they think of how I’m doing,” was correlated with Competence AIR-S 21 $r = .667$ ($p < .035$).

Table 3

Correlation Matrix of AIR-S Autonomy Items

Autonomy American Institutes for Research Self-Determination Scale	Correlation (p-value)	Autonomy American Institutes for Research Self-Determination Scale
Auton AIR-S 3. I figure out how to meet my goals. I make plans and decide what I should do.	.721 (.019)*	Auton AIR-S 4. I begin working on my plans to meet my goals as soon as possible.
Auton AIR-S 4. I begin working on my plans to meet my goals as soon as possible.	.933 (.000)**	Auton AIR-S 10. I like to begin working on my plans right away.
Auton AIR-S 6. If my plan doesn’t work, I try another one to meet my goals.	.680 (.031)*	Auton AIR-S 12. I am willing to try another way if it helps me to meet my goals.
Auton AIR-S 9. I like to make plans to meet my goals.	.814 (.004)**	Auton AIR-S 6. If my plan doesn’t work, I try another one to meet my goals.
Auton AIR-S 10. I like to begin working on my plans right away.	.793 (.006)**	Auton AIR-S 3. I figure out how to meet my goals. I make plans and decide what I should do.

Note. * $p < .05$. ** $p < .01$

The correlation matrix in Table 4 listed the relationships between all Relatedness items in AIR-S and BMPN-R. Relatedness items AIR-S 13 and BMPN-R 10 items were correlated with $r = .80, p < .005$. Relatedness Item AIR-S 17 was correlated with Relatedness BMPN-R item 7, respectively, with $r = .67 (p < .035)$. None of the other items were correlated in expected ways.

Table 4

Comparisons of AIR-S and BMPN-R Relatedness Scales

	Relat BMPN-R 1. I feel a sense of contact with people at school who care for me, and whom I care for at school.	Relat BMPN- R 4. I am lonely at school.	Relat BMPN-R 7. I feel socially close and connected with other people who are important to me.	Relat BMPN-R 10. I feel like people at school don't notice the good things about me.	Relat BMPN-R 13. I feel like I belong among the people at school.	Relat BMPN-R 16. I have conflicts with people at school I usually get along with.
Relat AIR-S 13. People at school listen to me when I talk about what I want, what I need, or what I'm good at.	.25 (.485)	.26 (.461)	.03 (.930)	.80 (.005)**	-.13 (.716)	-.20 (.585)
Relat AIR-S 14. People at school let me know that I can set my own goals to get what I want or need.	-.40 (.252)	-.23 (.528)	-.14 (.691)	-.01 (.971)	-.05 (.892)	.28 (.492)
Relat AIR-S 16. People at school encourage me to start working on my plans right away.	.43 (.214)	.22 (.536)	.38 (.283)	-.05 (.887)	.45 (.187)	.24 (.500)
Relat AIR-S 17. I have someone at school who can tell me if I am meeting my goals.	-.15 (.674)	-.54 (.104)	.67 (.035)*	-.29 (.415)	.51 (.133)	.27 (.457)
Relat AIR-S 18. People at school understand when I have to change my plan to meet my goal. They offer advice and encourage me when I'm doing this.	-.10 (.786)	-.08 (.828)	.54 (.109)	.57 (.086)	.18 (.609)	.26 (.470)
Relat AIR-S 19. People at home listen to me when I talk about what I want, what I need, or what I'm good at.	-.03 (.924)	.04 (.909)	-.28 (.429)	.52 (.122)	-.22 (.544)	.18 (.616)
Relat AIR-S 20. People at home let me know that I can set my own goals to get what I want or need.	.00 (1.00)	-.31 (.392)	.26 (.472)	-.56 (.089)	.48 (.166)	.09 (.808)
Relat AIR-S 22. People at home encourage me to start working on my plans right away.	.43 (.214)	-.15 (.682)	-.25 (.484)	-.31 (.384)	.13 (.721)	-.48 (.156)
Relat AIR-S 23. I have someone at home who can tell me if I am meeting my goals.	-.57 (.082)	-.61 (.063)	.32 (.371)	.06 (.864)	.01 (.975)	.50 (.139)
Relat AIR-S 24. People at home understand when I have to change my plan to meet my goal. They offer advice and encourage me when I'm doing this.	.63 (.053)	.26 (.461)	.54 (.105)	.11 (.773)	.40 (.257)	-.13 (.718)

Note. * p < .05. ** p < .01.

The bivariate correlation matrix in Table 5 shows the relationships between the AIR-S Competence and the BMPN-R Autonomy scales. These items indicate strong correlations between both scales with $r = .82$ ($p < .004$). Two pairs indicate a significance level of $p < .05$ and two pairs below $p < .01$. The two p-values correlated below $p < .01$ were Competence AIR-S 15 and Autonomy ($r = .84$, $p < .002$) and Competence AIR-S 8 and Autonomy BMPN-R 9 ($r = .83$, $p < .003$). The two pairs of items correlated at a level of significance of $p < .05$ were Competence AIR-S 5 with Autonomy BMPN-R 9 ($r = .67$, $p < .033$) and Competence AIR-S 15 ($r = .66$, $p < .036$).

The correlation matrix in Table 6 shows the relationships between the AIR-S Autonomy scale and the BMPN-R Competence scale. The first item in the Competence scale in the BMPN-R, “I am successfully completing difficult tasks and projects at school” (Turner, 2014) was correlated with items Autonomy AIR-S 3 ($r = .71$, $p < .020$), Autonomy AIR-S 11 ($r = .75$, $p < .012$), and Autonomy AIR-S 12 ($r = .81$, $p < .005$).

Table 5

Correlation Matrix of BMPN-R Autonomy and AIR-S Competence Scales

	Comp-AIR-S 1. I know what I need, what I like, and what I'm good at.	Comp-AIR-S 2. I set goals to get what I want or need. I think about what I am good at when I do this.	Comp-AIR-S 5. I check how I'm doing when I'm working on my plan. If I need to, I ask others what they think of how I'm doing.	Comp-AIR-S 7. I feel good about what I like, what I want, and what I do well.	Comp-AIR-S 8. I believe that I can set goals to get what I want.	Comp-AIR-S 15. At school, I have learned how to make plans to meet my goals and to feel good about them.	Comp-AIR-S 21. At home, I have learned how to make plans to meet my goals and to feel good about them.
Auton 1. 3. I am free to do things my own way at school.	.43 (.212)	-.41 (.236)	.07 (.849)	.26 (.471)	.48 (.156)	.42 (.201)	0.08 (.825)
Auton 2. 6. I have a lot of pressures I don't like at school.	.07 (.853)	.17 (.645)	.27 (.446)	.62 (.054)	-.09 (.803)	.08 (.820)	.36 (.302)
Auton 3. 9. I feel like my choices at school express who I really am.	-.16 (.669)	-.07 (.846)	.31 (.387)	.36 (.305)	.83 (.003)**	.84 (.002)**	.10 (.778)
Auton 4. 12. I pretty much do what other people tell me to do at school.	-.56 (.091)	.52 (.122)	.67 (.033)*	.03 (.934)	.36 (.300)	.38 (.273)	.29 (.295)
Auton 5. 15. I am really doing what interests me at school.	.22 (.538)	-.46 (.182)	.18 (.615)	.41 (.246)	.52 (.128)	.66 (.036)*	-.17 (.645)
Auton 6. 18. I have to do things I don't want to do at school.	-.30 (.399)	.31 (.390)	.17 (.645)	.34 (.335)	-.32 (.319)	.00 (1.000)	-.10 (.789)

Note. *p < .05. **p < .01.

Table 6

Correlation Matrix of BMPN-R Competence and AIR-S Autonomy Scales

	Auton-AIR-S 3. I figure out how to meet my goals. I make plans and decide what I should do.	Auton-AIR-S 4. I begin working on my plans to meet my goals as soon as possible.	Auton-AIR-S 6. If my plan doesn't work, I try another one to meet my goals.	Auton-AIR-S 9. I like to make plans to meet my goals.	Auton-AIR-S 10. I like to begin working on my plans right away.	Auton-AIR-S 11. I like to check on how well I'm doing in meeting my goals.	Auton-AIR-S 12. I am willing to try another way if it helps me to meet my goals.
Comp 1- BMPN-R 2. I am successfully completing difficult tasks and projects at school.	.71 (.020)*	.61 (.061)	.52 (.122)	.27 (.456)	.75 (.012)*	-.35 (.324)	.81 (.005)**
Comp 2- BMPN-R 5. I feel like a failure when I am unable to do well at something at school.	.14 (.703)	.10 (.784)	.40 (.249)	.07 (.852)	.07 (.845)	-.53 (.115)	.59 (.074)
Comp 3- BMPN-R 8. I take on and succeed at hard challenges at school.	.49 (.153)	.60 (.065)	.41 (.233)	.57 (.084)	.46 (.175)	.42 (.221)	.17 (.647)
Comp 4- BMPN-R 11. If I do something stupid, that makes me feel incompetent at school.	-.43 (.213)	-.24 (.503)	.12 (.750)	.05 (.883)	-.35 (.922)	-.51 (.128)	.38 (.283)
Comp 5- BMPN-R 14. I do well even at the hard things at school.	.38 (.276)	.52 (.125)	.16 (.658)	.54 (.107)	.44 (.207)	.46 (.176)	-.16 (.658)
Comp 6- BMPN-R 17. I give up at something that is harder than I expected.	.19 (.595)	.21 (.550)	.29 (.423)	.57 (.089)	.22 (.547)	.27 (.455)	.00 (1.00)

Note. * $p < .05$. ** $p < .01$.

The summary presented in Table 7 indicated the correlations between AIR-S and BMPN-R Autonomy and Competence scales. Each pair highlighted in this summary can be found in Tables 5 and 6.

Table 7

Correlation of Autonomy and Competence Items

Autonomy Items	Correlations	Competence Items
Autonomy BMPN-R 3. 9. I feel like my choices at school express who I really am.	.84 (.002)**	Competence AIR-S 15. At school, I have learned how to make plans to meet my goals and to feel good about them.
Autonomy BMPN-R 4. I pretty much do what other people tell me to do at school.	.67 (.033)*	Competence AIR-S 5. I check how I'm doing when I'm working on my plan. If I need to, I ask others what they think of how I'm doing.
Autonomy BMPN-R 5. 15. I am really doing what interests me at school	.66 (.036)*	Competence AIR-S 15. At school, I have learned how to make plans to meet my goals and to feel good about them.
Autonomy AIR-S 3. I figure out how to meet my goals. I make plans and decide what I should do.	.71 (.020)*	Competence BMPN-R 2. I am successfully completing difficult tasks and projects at school.
Autonomy AIR-S 10. I like to begin working on my plans right away.	.75 (.010)**	Competence BMPN-R 2. I am successfully completing difficult tasks and projects at school.
Autonomy AIR-S 12. I am willing to try another way if it helps me to meet my goals.	.81 (.005)**	Competence BMPN-R 2. I am successfully completing difficult tasks and projects at school.

Note. * $p < .05$. ** $p < .01$.

Chapter IV

Discussion

Overview of Findings

The Monarch School actively supports the Four Core Goals of academic competence, relationship development, self-regulation and self-awareness, and executive functioning, which are reflective of the three universal psychological needs for autonomy, competence, and relatedness. Autonomy is the need to experience volition and ownership of choices. Competence is the need to experience effectiveness at with the environment. Relatedness is the need to experience social and emotional connectedness. The research question was “Does the theoretical association between Balanced Measure of Psychological Needs-Revised (BMPN-R, a scale designed for neurotypical adults) and AIR-S (a scale designed for special needs students) remain consistent for adolescents with autism?” We were interested in whether the structure of psychological needs is similar for adolescents with autism and normative adults.

Our sample included adolescents diagnosed with autism who attend The Monarch School, a research-based, educational and therapeutic center for individuals with neurological differences. Two instruments were selected to provide qualitative and quantitative data to analyze the self-determination theory of psychological needs (Deci and Ryan, 2000) and self-determined behavior (Wolman, et al., 1994). The American Institutes for Research Self-Determination Scale (AIR-S) and Balanced Measure of Psychological Needs- Revised (BMPN, Sheldon & Gunz, 2009; revised, Turner, 2014) were selected as measures for self-determination in adolescents, in the context of goal setting at school. The results were compared by correlating scores on subscales from

both instruments. Open-ended questions asked students to explain their answers, so that we could expose the thought processes and explore the underlying cognitive structures behind the numerical ratings. The subscales reflecting the three psychological needs failed to show the expected associations and instead revealed some unexpected relationships. The AIR-S Autonomy and BMPN-R Competence scales were strongly correlated $r = .72, p < .018$. The AIR-S Competence and BMPN-R Autonomy scales were also strongly correlated $r = .82, p < .004$. These connections between two scales justified further exploration. The correlation between the Relatedness scales was $r = .34, p < .337$.

Findings from comparisons of scores on the two measures provided insight about the theoretical association of core principles in the existing literature. The items in the competence scales matched well and were grouped together, with Competence AIR-S 2 and Competence AIR-S 21 $r = .65 (p < .042)$. Competence AIR-S 5 and Competence AIR-S 21 $r = .67 (p < .035)$. The items in the AIR-S autonomy scale were strongly correlated, as indicated in Table 3 in the Results chapter. Discussion regarding to what degree adolescents with autism employ this theoretical structure in their cognitive processing was reflected in the unusual results obtained in the study.

Relation to Existing Research

This study provides a new understanding of psychological needs in a school environment for adolescents with neurological differences. In our study, adolescents with autism rated their experiences of their internal psychological needs with the Balanced Measure of Psychological Needs instrument (Sheldon & Gunz, 2009), which we modified with permission of the first author. Led by Deci and Ryan's research in the

psychological needs branch of self-determination theory, the studies have involved normative undergraduate students, whereas this study's participants are adolescents with autism.

In revising the items in the BMPN, we crafted statements that were based on the operational definitions of relatedness as the need to experience social and emotional connectedness (Deci & Ryan, 2000; Baumeister & Leary, 1995; Ryan, 1995; Ryan, La Guardia, Solky-Butzel, Chirkov, & Leary, 2005; White, 1959; Niemiec, Ryan, & Deci, 2014), autonomy as the need to experience volition and ownership of choices (Niemiec, Ryan, & Deci, 2014; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2003; Deci & Ryan, 2000), and competence as the need to experience effectiveness with the environment (Niemiec, Ryan, & Deci, 2014; White, 1959; Deci & Ryan, 2000) constructs in a school environment.

In the AIR-S manual, the items in the AIR-S were grouped in the following subscales: Things I Do, How I Feel, What Happens at School, and What Happens at Home. Things I Do and How I Feel were based on the self-determined learning theory's constructs "Capacity to Self-Determine" and "Opportunity to Self-Determine." These constructs were based on the operational definitions of capacity as knowledge, abilities, and observations and opportunity as the chances to apply one's knowledge, abilities, and skills related to self-determination (Wolman, Campeau, DuBois, Mithaug, D., & Stolarski, 1994; Mithaug, D., 2003; Shogren, Wehmeyer, Palmer, Soukup, Little, Garner, & Lawrence, 2008).

Implications for Current Theory

We thought certain items were logically linked within the subscales of AIR-S Autonomy and AIR-S Competence, but these subscales did not match with the BMPN-R Autonomy BMPN-R Competence. Instead, the AIR-S Autonomy and BMPN-R Competence were strongly correlated, with $r = .72$ ($p < .018$), and the AIR-S Competence and BMPN-R Autonomy scales were strongly correlated, with $r = .82$ ($p < .004$). The Monarch School emphasized goal setting and feedback loops between teachers, students, and coaches by using a system called “proofing” with brief statements from the teacher and student, along with rating scales for students to rate and celebrate their progress; in the Results, Sig discussed the process of receiving feedback from his coach to help him understand how to achieve his goals and progress.

As presented in Table 7, the behaviors the AIR-S Autonomy subscale focused on setting goals and creating plans to reach them right away, including willingness to try a different plan to reach their goal. The theoretical perspective of the AIR-S assessment was rooted in self-determined learning theory, which focused on gradually acquiring the knowledge, abilities and skills necessary for goal setting and other self-determined actions. Other related examples of self-determined behavior were goal setting, making plans, and organizing a feedback loop from someone at school or at home.

The first pair presented in Table 7, reflected the sense of ownership of choices and the expression of competence by using specific strategies for success in an academic environment. The pair of Autonomy BMPN-R 4 and Competence AIR-S 5 referenced a specific question about following directives at The Monarch School: “What do you (the teacher) want me to do?” In the BMPN, this item was negatively worded by Sheldon and

Gunz (2009) to reflect dissatisfaction, but the students in the sample may have interpreted our revised item, “I pretty much do what other people tell me what to do at school,” as obediently listening to a directive from a teacher. The three items in the AIR-S Autonomy scale that lined up with the Competence BMPN-R 2 reminded me of the directives, goal setting strategies, and task completion used in the classroom at The Monarch School. These learning strategies were integrated in the lesson plans during my internship at The Monarch School.

In the preparation for this study, we knew the terms used in the classroom would be similar to the terms used in both measures. We had not expected that the learning strategies presented in the classroom would be correlated with the learning outcomes of completing difficult tasks and projects. In terms of cognitive structures of competence and autonomy, the students responses seemed to merge the definitions of autonomy and competence because the items were based on similar behaviors and learning strategies.

Recent studies link self-determination status to the attainment of more positive academic and transition outcomes, such as employment and independent living, a more positive quality of life, and life satisfaction (Wehmeyer, Shogren, Zager, Smith, & Simpson, 2010). The premise of self-determined behavior is that people with disabilities can attend to skills-based deficits by focusing on fundamental behaviors (Cottenceau, Roux, Blanc, Lenoir, Bonnet-Brilhault, & Barthelemy, 2012; Wehmeyer, Shogren, Smith, Zager, & Simpson, 2010; Zambo, 2010). In thinking about self-determination in the context of goal setting, one can see the expression of autonomy (you made a plan), competence (you figured out the steps for reaching the goal and asked for guidance if you

needed it) and relatedness (you and your friends went and accomplished the goal together).

Deci and Ryan's results with the cognitive structures of psychological needs of undergraduate students were different from the adolescents with autism in our sample. This study has new applications for self-determination theory for special populations, noted by the participants' age range, diagnosis of autism spectrum disorder with DSM-5 criteria, and the research-based, educational environment designed for individuals with neurological differences, The Monarch School in Houston, Texas.

Implications for Applied Settings

Knowledge about self-determined learning theory allows educators, parents, and administrators to monitor, assess, and recommend changes for students in mainstream education plans and special populations to maximize their capacity and opportunity to practice self-determined choices and actions (Dempsey, 2011; Shogren, 2006; Shogren, Wehmeyer, Palmer, Soukup, Little, Garner, & Lawrence, 2008).

Interviewing Adolescents with Autism. I abbreviated the directions at the top of the questionnaire. For some, I previewed the content to explain the structure of the statements in the AIR-S and BMPN-R during the assent process. The explanation during the informed assent was not audio recorded, though the main response was, "What do those words mean?" Providing a written list of commonly asked questions about specific, concrete definitions of key terms may benefit the interviewer and interviewee for two reasons. The student can read along with the interviewer, which is advantageous for students with deficits in listening comprehension. A numbered list to explain the assent process and terms would simplify the interviewer's explanations; this may

decrease anxiety for interviewer because it creates consistent structure for his or her responses.

The explanation of the assent document required several aspects of executive functioning, so it was difficult to shift the discussion with the student before the first open-ended question. I had anticipated that the three open-ended questions, such as “name one goal you’re working on,” would frame the conversation. I thought the dialogue at the beginning would be a way to build rapport, but it was difficult to shift the conversation to the task. Based on the responses, some students did not seem to retain their chosen goal throughout the interview; the AIR-S organized the open-ended questions at the end of the interview, but I asked these three questions directly after reading the AIR-S directions. Careful consideration about the balance of the timing and content of the directions and items is recommended to streamline the conversation to maximize the opportunities for reflections about specific details of the interviewer’s area of interest.

Balancing Blank Stares and Silence. To explore the phenomena of blank stares and silence, we looked at the listening comprehension data from the Group Reading Assessment and Diagnostic Evaluation (GRADE; Pearson Education, 2001) from the students’ most recent assessment in the fall semester of 2013. Kirsten’s pattern was to respond with succinct answers for each of the items in both measures. As the interview continued, Kirsten’s responded with one-word answers. “Does anything on the page [stand] out to you?” She stared at me with a blank expression, so we sat in silence for a moment. It can be difficult to tolerate the silence, but some students may need time to grasp and process the verbal information and nonverbal cues.

“Out of sight—out of mind.” I had anticipated that the three open-ended questions, such as “name one goal you’re working on”, would frame the conversation. The qualitative questions in the AIR-S manual were on the last page of the interview. I expected the conversation about their goals would be a way to build rapport and create the context for their responses, so the three qualitative questions were on the first page. Despite the intention to reference the goals and the plans, it seemed like students forgot about the example they gave at the beginning of the interview, so the goals were “out of sight—out of mind.” The description of the chosen goals was not integrated in other parts of the AIR-S, which may be a limitation of the measure. Also, using the dialogue about the goal was not an effective strategy for making sense of the quantitative data from the other 24 questions. A helpful tip for administering the AIR-S and other measures with adolescents may be making a copy of the directions or ripping out the first page with the written goals to reference during the interview.

Maintaining Confidentiality in School Settings. After contacting the parents of students in the Butterfly program, I handed the envelopes with permission slips to eligible students. Giving students loose papers increases the likelihood of lost papers, so permission forms for parents to sign should be logged as an entry in their student’s homework folder. However, this raises the ethical dilemma about confidentiality with adolescents in a school setting. To avoid breaking confidentiality by disclosing medical information about their neurological difference, the envelope was labeled as “A new research opportunity at The Monarch School,” Instead of the title of the study, “Psychological Needs and Goal Setting among Students with Autism.”

Lessons Learned

I enjoyed the sense of community and collaboration at The Monarch School, during my practicum in graduate school. I wondered if this sense of community and relatedness was emphasized in ways that bring people together in a meaningful way that contributed to understanding a stigmatized developmental disorder. I wanted to know if developing psychological needs is a part of a universal developmental path of expected phenomena that occur during adolescence and emerging adulthood. People have different ways they express and experience their psychological needs and how they describe them. The students are learning more about themselves and may have internal/inner experiences that they may or may not currently be able to express verbally.

Limitations

The administration of the questionnaires was inconsistent in interviewing some of the students. I abbreviated the directions at the top of the questionnaires, after receiving direct feedback from a student that I was talking too much and needed to slow down. Some interviews were interrupted by teachers and other students during the gap between class periods.

Conclusions

A relationship effect between listening comprehension and slow processing of audio information may have created longer periods of silence during the interview. Interviewing adolescents with autism must include patience for balancing silence and allowing for time to process verbal information. Gathering more data to understand the context of the student's responses may be helpful because, despite the efforts and intentions of the interviewer, sometimes the interview data are limited. Flexibility and

patience in the presentation of the items and written options seemed to be helpful for everyone. These students have ideas and insight that they may not know how to express in words.

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Appendix A

Instruments

The items for each assessment are posted below, beginning with the AIR-S.

AIR-S: American Institutes for Research: Self-Determination Scale

1. I know what I need, what I like, and what I'm good at.
2. I set goals to get what I want or need. I think about what I am good at when I do this.
3. I figure out how to meet my goals. I make plans and decide what I should do.
4. I begin working on my plans to meet my goals as soon as possible.
5. I check how I'm doing when I'm working on my plan. If I need to, I ask others what they think of how I'm doing.
6. If my plan doesn't work, I try another one to meet my goals.
7. I feel good about what I like, what I want, and what I do well.
8. I believe that I can set goals to get what I want.
9. I like to make plans to meet my goals.
10. I like to begin working on my plans right away.
11. I like to check on how well I'm doing in meeting my goals.
12. I am willing to try another way if it helps me to meet my goals.
13. People at school listen to me when I talk about what I want, what I need, or what I'm good at.
14. People at school let me know that I can set my own goals to get what I want or need.
15. At school, I have learned how to make plans to meet my goals and to feel good about them.
16. People at school encourage me to start working on my plans right away.
17. I have someone at school who can tell me if I am meeting my goals.
18. People at school understand when I have to change my plan to meet my goal. They offer advice and encourage me when I'm doing this.
19. People at home listen to me when I talk about what I want, what I need, or what I'm good at.
20. People at home let me know that I can set my own goals to get what I want or need.
21. At home, I have learned how to make plans to meet my goals and to feel good about them.
22. People at home encourage me to start working on my plans right away.
23. I have someone at home who can tell me if I am meeting my goals.
24. People at home understand when I have to change my plan to meet my goal. They offer advice and encourage me when I'm doing this.
25. Give an example of a goal you are working on.
26. What are you doing to reach this goal?
27. How well are you doing in reaching this goal?

BMPN-R: Balanced Measure of Psychological Needs—Revised for Young Test Takers

1. I feel a sense of contact with people at school who care for me, and whom I care for at school.
2. I am successfully completing difficult tasks and projects at school.
3. I am free to do things my own way at school.
4. I am lonely at school.
5. I feel like a failure when I am unable to do well at something at school.
6. I have a lot of pressures I don't like at school.
7. I feel socially close and connected with other people who are important to me.
8. I take on and succeed at hard challenges at school.
9. I feel like my choices at school express who I really am.
10. I feel like people at school don't notice the good things about me.
11. If I do something stupid, that makes me feel incompetent at school.
12. I pretty much do what other people tell me to do at school.
13. I feel like I belong among the people at school.
14. I do well even at the hard things at school.
15. I am really doing what interests me at school.
16. I have conflicts with people at school I usually get along with.
17. I give up at something that is harder than I expected.
18. I have to do things I don't want to do at school.

Appendix B

Assent Form

UNIVERSITY OF HOUSTON
ASSENT TO PARTICIPATE IN A RESEARCH STUDY

**PROJECT TITLE: PSYCHOLOGICAL NEEDS AND GOAL SETTING
AMONG STUDENTS WITH AUTISM**

You are invited to participate in a research study conducted by Sarah C. Turner a graduate student in the Department of Educational Psychology at the University of Houston.

You can say no if you do not want to participate in this study. Adults cannot make you participate in this study if you do not want to. If you agree to participate in the study now, but change your mind about it later, you can stop being in the study, and no one will be mad at you.

WHAT IS RESEARCH?

Research is a way to learn information about something. Researchers study different subjects the way you study English or math as a subject in school.

There are many reasons people choose to be in a research study. Sometimes people want to help researchers learn about ways to help people or make programs better.

You should understand why you would say yes to being a research participant. Take the time you need to decide if you want to be in this study. You can ask me, Sarah C. Turner, the faculty directors at The Monarch School, and your teachers any question you have about the study.

WHY ARE WE DOING THIS RESEARCH?

In our research we want to explore and understand relationships and goal setting at school.

WHAT WILL HAPPEN DURING THE STUDY

As a part of this study, your voice will be recorded as part of the semi-structured interview about your goals. I will analyze these later, so I will keep them for at least three years in a safe place. We may also may watch and listen to them together at any time that may be beneficial to your growth.

In the research process, you will be asked questions about the goals you have at school; an example of a question is, “Give an example of a goal you are working on.” After we figure out a specific goal you would like to talk about, we will talk about what that goal looks like in different settings, such as at school and at home, with statements that have a rating scale of 1 to 5 for how much you agree with the statement. In the second part of the interview, you will be asked to respond to statements about our psychological needs for connection with others, building mastery, and acting volitionally.

This estimated length of the interview is about 45 to 60 minutes.

COULD GOOD THINGS HAPPEN TO ME FROM BEING IN THIS STUDY?

In the research process, we can learn more about the goals you have at school, understanding them in a new and different way. And, it's exciting to know more about why we do what we do, how we learn to do these things, and what steps we're taking now to get to where we want to go.

COULD BAD THINGS HAPPEN TO ME FROM BEING IN THIS STUDY?

There are no foreseeable risks for this study. Sometimes it can be uncomfortable to talk about things at school that may be personal for you. You don't have to answer any questions they don't want to answer. The information we talk about will be discussed with me, Sarah C. Turner; my thesis committee members at the University of Houston; Dr. Debrah Hall, the Head of School; and faculty directors at The Monarch School.

DO I HAVE OTHER CHOICES?

You can choose not to participate in this study, and you can decide you no longer want to be in the study at any time. You may choose to not answer any question that you are not comfortable with. If you choose not to participate at any time, you will not be penalized.

WHAT IF I HAVE QUESTIONS?

If you have any questions or worries about the research, you can ask Sarah C. Turner at 713.290.1614 before, during, or after your completion of the study. If you wish to talk to someone else or have questions about your rights as a participant, call the University of Houston Committee for the Protection of Human Subjects at (713) 743-9204.

DOCUMENTATION OF PARTICIPANT'S ASSENT

I agree to participate in this study called: PSYCHOLOGICAL NEEDS AND GOAL SETTING AMONG STUDENTS WITH AUTISM.

Signature of minor participant: _____

Date: _____

ANY QUESTIONS REGARDING MY RIGHTS AS A RESEARCH SUBJECT MAY BE ADDRESSED TO THE UNIVERSITY OF HOUSTON COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (713-743-9204). ALL RESEARCH PROJECTS THAT ARE CARRIED OUT BY INVESTIGATORS AT THE UNIVERSITY OF HOUSTON ARE GOVERNED BY REQUIREMENTS OF THE UNIVERSITY AND THE FEDERAL GOVERNMENT.

Appendix C

Permission form for parents of eligible participants

UNIVERSITY OF HOUSTON
CONSENT TO PARTICIPATE IN RESEARCH

PARENTAL PERMISSION

PROJECT TITLE: PSYCHOLOGICAL NEEDS AND GOAL SETTING AMONG STUDENTS WITH AUTISM

Your child is being invited to participate in a research project conducted by Sarah Churchill Turner from the Educational Psychology Department at the University of Houston. The study Psychological Needs and Goal Setting among Students with Autism is part of my master's thesis, being conducted under the supervision of Dr. Susan X Day at the University of Houston.

NON-PARTICIPATION STATEMENT

Your child's participation is voluntary and you or your child may refuse to participate or withdraw at any time without penalty or loss of benefits to which your child is otherwise entitled. Your child may also skip questions that he or she would prefer to not answer of any the questions.

PURPOSE OF THE STUDY

The purpose of the study is to explore and better understand relationships and goal setting at school.

PROCEDURES

Your child will be one of approximately 30 students to be asked to participate in this project at The Monarch School

The estimated time commitment is 45 to 60 minutes, including the scheduled break. If we need more time to complete the questions, we can come back to it at another time.

After reviewing the parental permission and assent document, we will start recording and begin the interview. When requested by your child, he or she may take a break between questions. We will have a scheduled break, after the completion of the first assessment, the American Institutes for Research Self-Determination Scale.

The researcher will read aloud the instructions and definitions presented in the American Institutes for Research Self-Determination Scale- Student version (AIR-S). The student will be asked if he or she has any questions before the interview begins. The AIR-S defines a goal as “something you want to get or achieve” and a plan as “the way you decide to meet your goal, or the steps you take in order to get what you want or need.” The student will be informed that there are “no right or wrong answers.”

The three open-ended questions are a frame for asking questions about an example of a goal at The Monarch School, how he or she is working toward the goal, and how he or she views his or her work toward that goal. After discussing a specific goal mentioned in the first three questions, your child will be asked to answer the quantitative 24-item AIR-S, for a total of 27 items. A 5-point scale that ranges from 1 (never) to 5 (always) will be used to assess the 6 items in each of the following categories: things I do, how I feel, what happens at school, and what happens at home.

After a break between tasks, your child will be asked about his or her agreement with 18 statements about his or her experiences at The Monarch School, using the Balanced Measure for Psychological Needs-Revised. An example of a question is, “I feel socially close and connected with other people who are important to me.”

CONFIDENTIALITY

Every effort will be made to maintain the confidentiality of your child’s participation in this project. Each child’s name will be paired with a code number by the principal investigator. This code number will appear on all written materials. The list pairing your

child’s name to the assigned code number will be kept separate from all research materials and will be available only to the principal investigator and her advisor. Confidentiality will be maintained within legal limits.

RISKS/DISCOMFORTS

There are few foreseeable risks for participating in the project. Some adolescents may be nervous about answering questions. The questions have familiar concepts that are discussed at The Monarch School, such as goals and competence, in the context of a school environment; using familiar words that are emphasized in class will likely create the context for the interview.

BENEFITS

While your child will not directly benefit from participation, he or she will be thanked for their participation in the study and contributing to a better understanding of the roles of psychological needs in goal setting.

ALTERNATIVES

Participation in this project is a voluntary research experience for your child. The only alternative option to being a part of this project is non-participation.

PUBLICATION STATEMENT

The results of this study may be published in professional and/or scientific journals. It may also be used for educational purposes or for professional presentations. However, no individual participant will be identified.

PARTICIPANT RIGHTS

1. I understand that parental consent is required of all persons under the age of 18 participating in this project. I understand that my child will also be asked to agree to participate.
2. All procedures have been explained to me and I have been provided an opportunity to ask any questions I might have regarding my child's participation.
3. Any risks and/or discomforts have been explained to me.
4. Any benefits have been explained to me.
5. I understand that, if I have any questions, I may contact Sarah C. Turner at 713.290.1614. I may also contact Dr. Susan X Day, faculty sponsor, at 713.303.7195.
6. I have been told that my child or I may refuse to participate or to stop his/her participation in this project at any time before or during the project. My child may also refuse to answer any question.
7. ANY QUESTIONS REGARDING MY CHILD'S RIGHTS AS A RESEARCH PARTICIPANT MAY BE ADDRESSED TO THE UNIVERSITY OF HOUSTON COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (713-743-9204).
8. All information that is obtained in connection with this project and that can be identified with my child will remain confidential as far as possible within legal limits. Information gained from this study that can be identified with my child may be released to no one other than the Sarah C. Turner and her advisor, Dr. Susan X Day. The results may be published in scientific journals, professional publications, or educational presentations without identifying my child by name.

NAME OF CHILD: _____

I agree to allow my child to participate in this research project:

YES_____ NO_____

I agree to allow Sarah C. Turner to contact my family about future opportunities to participate in this research project:

YES_____ NO_____

Signature of Parent/Guardian:_____