Psychosocial Development in Adolescents With Disabilities: Modification and Evaluation of Measures

Myles Maxey
Utah State University

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PSYCHOSOCIAL DEVELOPMENT IN ADOLESCENTS WITH DISABILITIES:
MODIFICATION AND EVALUATION OF MEASURES

by

Myles Maxey

A dissertation submitted in partial fulfillment
of the requirements for the degree
of
DOCTOR OF PHILOSOPHY
in
Human Development and Family Studies

Approved:

Troy E. Beckert, Ph.D.
Major Professor

Travis E. Dorsch, Ph.D.
Committee Member

Trenton J. Landon, Ph.D.
Committee Member

Diana J. Meter, Ph.D.
Committee Member

Sarah S. Tulane, Ph.D.
Committee Member

D. Richard Cutler, Ph.D.
Interim Vice Provost of Graduate Studies

UTHAH STATE UNIVERSITY
Logan, Utah

2022
ABSTRACT

Psychosocial Development in Adolescents with Disabilities: Modification and Evaluation of Measures

by

Myles Maxey, Doctor of Philosophy
Utah State University, 2022

Major Professor: Troy E. Beckert, Ph.D.
Department: Human Development and Family Studies

The purpose of this study was to develop and assess modified versions of common psychosocial development (autonomy, identity development, attachment, self-esteem) assessments of adolescent development specifically for adolescents with intellectual and developmental disabilities (IDD). Adolescents with IDD have often been overlooked in research, particularly lacking is understanding of psychosocial development in adolescents with IDD. A particular reason for this gap in research is the lack of a validated instruments designed to assess their psychosocial development.

With an overall sample of 297 adolescents this study was carried out in two phases. Phase one was instrument modification and phase two was instrument validation and assessment. Adolescents with IDD and their parents \( n = 15 \), along with both an adolescent developmental scholar and a disability scholar, assisted in the measure modification process to promote and enhance comprehension. Once, the newly modified measures were created, neurotypical adolescents \( n = 121 \) completed both the original
and modified measure to help with validation, while adolescents with IDD (n = 161) completed the modified measure to assess psychosocial development similarities and differences. Confirmatory factor analyses were run to assess validity, which demonstrated a need for scale modification across all scales except for one area of cognitive autonomy. The identity formation measure was not used in further analyses due to the need to omit fifteen items to achieve model fit, which compromised the integrity of the subscales creating significant validity issues. Significant differences within IDD type and IDD severity were found in cognitive autonomy decision making, evaluative thinking, and self-assessing. There were also significant differences between adolescents with IDD and their neurotypical peers in peer attachment and all areas of cognitive autonomy except self-assessing. These findings can help researchers more accurately assess psychosocial development for more adolescents, including those experiencing IDD.
PUBLIC ABSTRACT

Psychosocial Development in Adolescents with Disabilities: Modification and Evaluation of Measures

Myles Maxey

Adolescents with intellectual and developmental disabilities (IDD) are often overlooked in research, including psychosocial development (self-esteem, autonomy, attachment, and identity formation). Reliable and consistent survey tools are essential to understanding developmental trends. This study focused on creating surveys that could be comprehended by all adolescents, no matter if they experience IDD or not. Findings from this study suggested that there are more similarities than difference across areas of psychosocial development among adolescents with IDD as well as with their typically developing peers. These findings can help researchers more accurately assess psychosocial development for more adolescents, including those experiencing IDD.
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I can and to set the best example I can for you about the importance of education and being an advocate for everyone. Thank you for always reminding me what matters most in life—family. Your laughs, cuddles, and enthusiasm for life is the sunshine to my days.

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Myles Maxey
**CONTENTS**

<table>
<thead>
<tr>
<th>CONTENTS</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>iii</td>
</tr>
<tr>
<td>PUBLIC ABSTRACT</td>
<td>v</td>
</tr>
<tr>
<td>ACKNOWLEDGMENTS</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xiv</td>
</tr>
<tr>
<td>CHAPTER I: INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Adolescence</td>
<td>4</td>
</tr>
<tr>
<td>Intellectual and Developmental Disability</td>
<td>6</td>
</tr>
<tr>
<td>Theoretical Framework</td>
<td>7</td>
</tr>
<tr>
<td>Psychosocial Theory and Disability</td>
<td>8</td>
</tr>
<tr>
<td>Purpose</td>
<td>10</td>
</tr>
<tr>
<td>Research Questions</td>
<td>12</td>
</tr>
<tr>
<td>CHAPTER II: LITERATURE REVIEW</td>
<td>14</td>
</tr>
<tr>
<td>Disability Type and Severity</td>
<td>15</td>
</tr>
<tr>
<td>Adolescents with Disabilities</td>
<td>19</td>
</tr>
<tr>
<td>Psychosocial Development</td>
<td>27</td>
</tr>
<tr>
<td>Conclusion</td>
<td>45</td>
</tr>
<tr>
<td>Research Questions</td>
<td>48</td>
</tr>
<tr>
<td>CHAPTER III: METHODS</td>
<td>49</td>
</tr>
<tr>
<td>Phase One: Instrument Modifications</td>
<td>49</td>
</tr>
<tr>
<td>Phase Two: Measurement Validation and Assessing Psychosocial Development</td>
<td>56</td>
</tr>
<tr>
<td>Sample Characteristics</td>
<td>57</td>
</tr>
<tr>
<td>Measurement</td>
<td>60</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>65</td>
</tr>
<tr>
<td>CHAPTER IV: RESULTS</td>
<td>69</td>
</tr>
<tr>
<td>Modification and Construction of Psychosocial Developmental Measures</td>
<td>70</td>
</tr>
<tr>
<td>Index Item</td>
<td>Page</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Validity and Reliability of Modified Measures</td>
<td>71</td>
</tr>
<tr>
<td>Psychosocial Developmental Differences within IDD</td>
<td>95</td>
</tr>
<tr>
<td>Psychosocial Developmental Differences of Adolescents With and Without IDD</td>
<td>99</td>
</tr>
<tr>
<td>CHAPTER V: DISCUSSION</td>
<td>105</td>
</tr>
<tr>
<td>Construction and Constitution of Modified Measures</td>
<td>106</td>
</tr>
<tr>
<td>Psychometric Characteristics of Modified Measures</td>
<td>108</td>
</tr>
<tr>
<td>Implications and Future Directions – Instrument Modifications</td>
<td>115</td>
</tr>
<tr>
<td>Psychosocial Development and IDD</td>
<td>117</td>
</tr>
<tr>
<td>Implications and Future Directions – Psychosocial Development</td>
<td>127</td>
</tr>
<tr>
<td>Limitations</td>
<td>129</td>
</tr>
<tr>
<td>Conclusion</td>
<td>130</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>134</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>155</td>
</tr>
<tr>
<td>Appendix A: Disability Diagnoses</td>
<td>156</td>
</tr>
<tr>
<td>Appendix B: Recruitment Letter to Parents and Modification Instructions to Parents</td>
<td>162</td>
</tr>
<tr>
<td>Appendix C: Psychosocial Development Measures</td>
<td>165</td>
</tr>
<tr>
<td>Appendix D: Identity Formation Confirmatory Factor Analyses</td>
<td>175</td>
</tr>
<tr>
<td>CURRICULUM VITAE</td>
<td>181</td>
</tr>
</tbody>
</table>
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Demographic Characteristics of Adolescent with IDD Participants</td>
<td>59</td>
</tr>
<tr>
<td>Table 2</td>
<td>Demographic Characteristics of Adolescent without IDD Participants</td>
<td>61</td>
</tr>
<tr>
<td>Table 3</td>
<td>Wording of Original and Modified Measures of Self-Esteem</td>
<td>72</td>
</tr>
<tr>
<td>Table 4</td>
<td>Initial Model Fit Indices for Self-Esteem</td>
<td>73</td>
</tr>
<tr>
<td>Table 5</td>
<td>Initial Model Fit Indices for Cognitive Autonomy Voicing Opinions</td>
<td>75</td>
</tr>
<tr>
<td>Table 6</td>
<td>Initial Model Fit Indices for Cognitive Autonomy Decision Making</td>
<td>76</td>
</tr>
<tr>
<td>Table 7</td>
<td>Initial Model Fit Indices for Cognitive Autonomy Comparative Validation</td>
<td>77</td>
</tr>
<tr>
<td>Table 8</td>
<td>Initial Model Fit Indices for Cognitive Autonomy Evaluative Thinking</td>
<td>79</td>
</tr>
<tr>
<td>Table 9</td>
<td>Wording of Original and Modified Measures of Cognitive Autonomy</td>
<td>82</td>
</tr>
<tr>
<td>Table 10</td>
<td>Wording of Original and Modified Measures of Behavioral Autonomy</td>
<td>83</td>
</tr>
<tr>
<td>Table 11</td>
<td>Initial Model Fit Indices for Behavioral Autonomy</td>
<td>84</td>
</tr>
<tr>
<td>Table 12</td>
<td>Wording of Original and Modified Measures of Emotional Autonomy</td>
<td>85</td>
</tr>
<tr>
<td>Table 13</td>
<td>Initial Model Fit Indices for Emotional Autonomy</td>
<td>86</td>
</tr>
<tr>
<td>Table 14</td>
<td>Wording of Original and Modified Measures of Parent Attachment</td>
<td>88</td>
</tr>
<tr>
<td>Table 15</td>
<td>Initial Model Fit Indices for Parent Attachment</td>
<td>88</td>
</tr>
<tr>
<td>Table 16</td>
<td>Wording of Original and Modified Measures of Peer Attachment</td>
<td>91</td>
</tr>
<tr>
<td>Table 17</td>
<td>Initial Model Fit Indices for Peer Attachment</td>
<td>91</td>
</tr>
<tr>
<td>Table 18</td>
<td>Cronbach’s Alpha Score for Psychosocial Developmental Measures</td>
<td>95</td>
</tr>
<tr>
<td>Table 19</td>
<td>Means, Standard Deviations, and One-Way Analyses of Variance for Psychosocial Development in Adolescents with IDD</td>
<td>96</td>
</tr>
</tbody>
</table>
Table 20  Means, Standard Deviations, and One-Way Analyses of Variance for Psychosocial Development between Adolescents With and Without IDD  100
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Self-Esteem CFA Model</td>
<td>74</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Cognitive Autonomy Voicing Opinions CFA Model</td>
<td>76</td>
</tr>
<tr>
<td>Figure 3</td>
<td>Cognitive Autonomy Decision Making CFA Model</td>
<td>77</td>
</tr>
<tr>
<td>Figure 4</td>
<td>Cognitive Autonomy Comparative Validation CFA Model</td>
<td>78</td>
</tr>
<tr>
<td>Figure 5</td>
<td>Cognitive Autonomy Evaluative Thinking CFA Model</td>
<td>80</td>
</tr>
<tr>
<td>Figure 6</td>
<td>Cognitive Autonomy Self-Assessing CFA Model</td>
<td>80</td>
</tr>
<tr>
<td>Figure 7</td>
<td>Behavioral Autonomy CFA Model</td>
<td>84</td>
</tr>
<tr>
<td>Figure 8</td>
<td>Emotional Autonomy CFA Model for Adolescents With IDD</td>
<td>86</td>
</tr>
<tr>
<td>Figure 9</td>
<td>Emotional Autonomy CFA Model for Adolescents Without IDD</td>
<td>87</td>
</tr>
<tr>
<td>Figure 10</td>
<td>Parent Attachment CFA Model for Adolescents Without IDD</td>
<td>89</td>
</tr>
<tr>
<td>Figure 11</td>
<td>Parent Attachment CFA Model for Adolescents With IDD</td>
<td>90</td>
</tr>
<tr>
<td>Figure 12</td>
<td>Peer Attachment CFA Model for Adolescents Without IDD</td>
<td>92</td>
</tr>
<tr>
<td>Figure 13</td>
<td>Peer Attachment CFA Model for Adolescents With IDD</td>
<td>93</td>
</tr>
<tr>
<td>Figure D1</td>
<td>Identity Formation Achievement CFA Model</td>
<td>176</td>
</tr>
<tr>
<td>Figure D2</td>
<td>Identity Formation Moratorium CFA Model</td>
<td>177</td>
</tr>
<tr>
<td>Figure D3</td>
<td>Identity Formation Foreclosure CFA Model for Adolescents Without IDD</td>
<td>178</td>
</tr>
<tr>
<td>Figure D4</td>
<td>Identity Formation Foreclosure CFA Model for Adolescents With IDD</td>
<td>179</td>
</tr>
<tr>
<td>Figure D5</td>
<td>Identity Formation Diffusion CFA Model</td>
<td>180</td>
</tr>
</tbody>
</table>
American psychologist Virginia Satir once said, “Adolescents are not monsters. They are just people trying to learn how to make it among the adults in the world, who are probably not so sure themselves” (Satir, 1988, pp. 315-316). Adolescence is a time of marked biological changes, cognitive adjustments, and social transitions. In examining the successful development of an adolescent, psychosocial development brings together aspects of cognitive, social, and biological adjustments. Psychosocial development includes identifying who one is as a person, assessing autonomy levels, evaluating attachment patterns in relationships with family and peers, and gauging levels of self-esteem. As they transverse through the adolescent developmental period, each young person seeks to discover who they are as a person. As they explore the social world, adolescents evaluate their level of autonomy and attachment to parents and peers. As social and cognitive changes occur through daily interactions, the self-esteem of adolescents can fluctuate greatly throughout the day. Understanding how well adolescents are doing in these areas of psychosocial development (i.e., autonomy, attachment, identity, and self-esteem) is important, as unsuccessful psychosocial development has been connected to a variety of negative outcomes, including poor overall well-being (Crawford et al., 2004), problem behaviors (Jessor et al., 2003), substance abuse (Chassin et al., 2004), and increased risk of suicide (Portes et al., 2002).

Adolescent development has been examined across a range of areas, including family and peer relationships, within the school context, in regard to the use and impact
of technology and media, and concerning physical and cognitive development.
Unfortunately, adolescents with intellectual and developmental disabilities (IDD) are
often overlooked in adolescent research (Rowitz, 1988). While it is true that research
examining adolescents with IDD began as early as the 1940s (Carlton, 1941), systematic
exploration of this population has remained sporadic and primarily limited to academic
and therapy outcomes until the late 1980s and early 1990s. Particularly lacking in the
literature is adequate exploration into understanding the psychosocial development of
adolescents with disabilities, namely adolescents with IDD (Maxey & Beckert, 2017).

Individuals with disabilities constitute approximately 27% of the overall
population of the U.S. (Taylor, 2018) with about 17% of children and adolescents in the
U.S. having one or more disabilities. These disabilities include, but are not limited to,
autism spectrum disorder, cerebral palsy, intellectual disability, and other cognitive and
developmental delays (Boyle et al., 2011). The term disability refers to a variety of
impairments, both in body and mental function or structure, and encompasses aspects of
daily living, including difficulties in executing a task or action, and participation
restrictions (World Health Organization, 2013). Further, the Americans with Disabilities
Act of 1990 defines disability as a person who has a physical or mental impairment that
substantially limits one or more major life activity. This includes people who have a
record of such an impairment, even if they do not currently have a disability. It also
includes individuals who do not have a disability but are regarded as having a disability.

However, disability is largely a construct that is defined within the societal and
cultural beliefs and values where the individual resides (Smart, 2009; Vygotsky, 1978).
Disability is a neutral concept; it is the society in which the individual dwells that defines the disability as positive or negative. As the adolescent with IDD is adapting to the changes that come with this developmental period, the societal and cultural views of disability take on additional meaning, especially as the adolescent with IDD seeks to discover their identity and how their disability fits into it, explore their independence, and form positive relationships to find their place within their community (see Al-Kandari, 2015; Morin et al., 2013; Scior et al., 2013; Siperstein et al., 2011).

Although adolescents with IDD have many of the same aspirations as their typically developing peers, because of the added dimension of disability to development, adolescents with IDD have the potential for a different developmental trajectory from their typically developing peers. Consequently, these two groups (adolescents with and without IDD) are distinct in their development and there is value in seeking further understanding of contributors to healthy and successful socio-emotional growth as it relates to disability status. One area where this has salience given the dearth of current literature is in the examination of psychosocial development of adolescents with IDD. This is specifically true as scholars seek to more fully understand the potentially unique developmental trajectory of adolescents with IDD. Unfortunately, there are currently no valid and reliable survey instruments to appropriately measure the psychosocial development of this population.

The purpose of this dissertation was (1) to develop modified versions of common psychosocial assessments of adolescent development specifically for adolescents with IDD, (2) identify areas of psychosocial development that differ within adolescents with IDD, (3) determine how the developmental trajectories of adolescents with and without IDD differ, and (4) contribute to the understanding of the psycho-social development of adolescents with IDD.
IDD based on type and severity of disability, and (3) examine differences in current psychosocial developmental outcomes between adolescents with IDD and neurotypically developing adolescents. To establish the necessity of this dissertation, a brief review of psychosocial development constructs is provided, including identifying the gap in the scientific literature pertaining to the psychosocial development of adolescents with IDD. Information from this study is useful for families, interventionists, educators, and policymakers to orchestrate meaningful opportunities for adolescents with IDD to self-evaluate and analyze, explore their identity, and form meaningful relationships.

**Adolescence**

The scientific study of adolescence (a term which means to grow up or grow into maturity) has its roots in the work of G. Stanley Hall. Hall viewed adolescence as a time of *storm and stress* when children went from being beast-like to civilized (Hall, 1904). Although there are some theorists who disagree with Hall’s notion that adolescents are beast-like, most agree that adolescence is a period of major change and transition.

During the developmental period of adolescence, the individual seeks to understand who they are as an individual across emotional, intellectual, cognitive, and social domains. Anna Freud (1969) viewed adolescent development as biologically driven and Erik Erikson (1963) saw this period as one of inherited maturational growth. Erikson (1959) believed adolescents are attempting to establish their identity—to figure out who they are and their place in the larger social order.

Adolescents are going through physical, mental, and social changes. Relationships
with parents and friends are one of the major social changes that occur during adolescence, particularly in terms of quantity of time spent together. Adolescents spend less time with their parents and more time with their friends and peers (Branje, 2018). Further, adolescents are exploring who they are currently and who they would like to be in the future as they prepare for the transition to adulthood and increased independence and self-reliance (Smetana et al., 2006). These changes influence how others treat them, the amount of responsibility they take on, and the autonomy granted by parents and society. They begin to see themselves as adults and expect to be given more freedoms and responsibility.

Additionally, partially due to the rapid changes that occur during this period of development, Leffert and Peterson (1996) suggested that adolescence presents many opportunities for growth but also an increased risk for developing unhealthy behaviors, particularly as adolescents begin to assert their independence, form an identity, and develop a sense of self-worth. While figuring out who you are is a life-long process, it reaches a pinnacle during this stage. Adolescents begin to realize that many of the choices they make will determine their future choices. Erikson (1959) claimed that during this identity crisis, adolescents are expected to: (1) evaluate their abilities, interests, and childhood influences, (2) explore possible opportunities and futures, and (3) make lifelong choices in love, work, and ideology. Some become overwhelmed with what is expected of them and may experience an overload of stress. It seems logical that the identity crisis might take on additional components for adolescents with IDD and can potentially impact other areas of their psychosocial development. Indeed, for adolescents
with IDD, the element of disability is added to the formation of overall identity. As adolescents with IDD explore their identity as an individual with a disability, they are also evaluating levels of autonomy, assessing attachment relationships, and gauging self-esteem levels (Arnett, 2018; Erikson, 1963).

**Intellectual and Developmental Disability**

In the fifth revision of Diagnostic and Statistical Manual of Mental Disorders (DSM-5), intellectual disabilities, autism spectrum disorder, and other developmental disabilities (e.g., down syndrome, cerebral palsy, fetal alcohol syndrome, etc.) were classified together under the broader term of neurodevelopmental disorders (American Psychiatric Association [APA], 2013). Neurodevelopmental disorders are a group of conditions with onset during the developmental period (before the age of 18). These disabilities and disorders typically manifest early in development, often before the individual enters grade school, and are characterized by developmental deficits that produce impairments in personal, social, academic, or occupational functioning. Further, these neurodevelopmental disorders frequently co-occur (APA, 2013). Neurodevelopmental disorders and disabilities vary in level of impairment, based on the areas of the brain and body that are impacted as well as the accessibility to intervention and support. Some adolescents with IDD have only mild and very specific limitations of learning or control of executive functions, others have global impairments of social skills or intelligence (APA, 2013). As such, adolescents with IDD not only differ from their typically developing peers, but, because of varying severity, they can also differ within
their group in the ways that they process information and understand their social and cultural settings. One of the areas in which these differences occur is in their psychosocial development. The developmental delays of IDD have direct connection to psychosocial outcomes as they can impact the ability of these adolescents with IDD to develop relationships, self-evaluate, be fully autonomous, and explore their identity (APA, 2013). Consequently, there is a present need for modified measures to examine the psychosocial development of adolescents with IDD to ensure validity of the construct (APA, 2013).

Theoretical Framework

Erikson’s ubiquitous theory of psychosocial development can be applied to all individuals (Erikson, 1950). It could be assumed then that Erikson’s psychosocial theory provides a lens to understanding adolescent development for both typically developing youth and those with IDD. Adolescents with IDD may need adjustment or alterations to the stages, but they can complete the stages. With this in mind, there is value in further understanding these two groups of adolescents, those with IDD and their typically developing peers. Erikson’s theory of psychosocial development is based on the assertion that the child’s social world influences their development at key stages. The basis of Erikson’s psychosocial theory is rooted in Sigmund Freud’s psychoanalytic theory. However, Erikson focused on maturational and social influences in addition to the psychosexual sources of development. Each of Erikson’s eight stages, which encompass the entire lifespan, has a common crisis with two opposite outcomes (Erikson, 1950), one
outcome being positive or syntonic, the other is negative or dystonic. An individual who finds a favorable balance between the two possible extremes gains a specific strength to their ego. The ego strengths gained in one stage are important to an individual in finding a favorable balance between opposing outcomes and gaining the ego strength associated with successive stages throughout the life cycle (Erikson, 1950).

Erikson’s theorized that all eight crises are present throughout the lifespan with individuals facing a central crisis during each developmental stage. The first six stages cover the developmental lifespan through early adulthood. These six crises are trust versus mistrust, autonomy versus shame and doubt, initiative versus guilt, industry versus inferiority, identity versus role confusion, and intimacy versus isolation. Understanding the differences between adolescents with and without IDD within these six stages is important in the scope of psychosocial development to gauge how the developmental trajectories of these two groups of adolescents may vary.

**Psychosocial Theory and Disability**

Erikson’s Theory of Psychosocial Development (Erikson, 1950, 1963, 1968) is a valuable theoretical framework in understanding the developmental processes of individuals, particularly adolescents with IDD. Through this lens, understanding of differences between adolescents with IDD and their typically developing peers can be examined in terms of how they navigate the crises of each developmental stage. Although many individuals with IDD will navigate and complete Erikson’s stages, they may be required to alter the stages, delay them, or relinquish some of the tasks of the
development stages. This results from needing to manage a disability along with similar challenges faced by their typically developing peers to maintain the highest quality of life possible.

Although Erikson’s psychosocial development theory has some limitations when it comes to individuals with IDD, it has significant utility in understanding the basic developmental aspects of this population. Having a framework in examining the developmental trajectory, while accounting for deviations resulting from their disability, through the lifespan provides the ability to gauge how well the individual is progressing and ways to support healthy development. Individuals with IDD might respond differently than their typically developing peers to the demands of their society and culture. For centuries, people with IDD were thought to be unable to participate in society. However, more recently, society has been making progress to include individuals with IDD in all aspects of the community, beginning first with the deinstitutionalization of individuals with IDD and continuing with the disability civil rights movement and the promotion of increased rights for this population. Indeed, the views of society have and are changing for reasons such as increased integration of those with IDD into multiple social settings, increasing numbers of people with IDD, and the Americans with Disabilities Act of 1990. Individuals with IDD have the same, or at least similar, needs, aspirations, and goals as their peers without IDD (Picci & Scherf, 2015; Shogren et al., 2006). Erikson (1963) asserted that adaptive functioning included both moral and social awareness rather than just biological functioning. People with IDD redefine freedom and autonomy and consider themselves to be both autonomous and free (Clark et al., 2004).
Erikson’s theory is based on the concept of predictable phases of life that are experienced by most people. As individuals move through the lifespan, this predictability allows them to make plans and establish goals. When life tasks are universal, it is possible to have multiple role models and mentors. Like their typically developing peers, individuals with IDD navigate the developmental stages and seek to maintain the highest quality of life possible. However, they are also simultaneously managing a disability, which includes determining the role that their disability plays in who they are as an individual. Erikson considered “ego identity” as the culminating stage of life, which is defined as “the acceptance of one’s own life cycle as something that had to be and that, by necessity, permitted no substitutions” (Erikson, 1950, p. 268). Erikson might include disability as a life experience that permits no substitutions from which the individuals can develop great ego strength. Overall, individuals with IDD may be required to alter some of the stages, delay them, or relinquish some of the tasks of the developmental stages (Picci & Scherf, 2015; Uddin et al., 2013).

**Purpose**

Many studies have examined adolescents with varying disabilities in comparison to others of a similar mental age, resulting in comparisons being made between adolescents with IDD and typically developing children in early to middle childhood (Miles & Chapman, 2002). However, comparisons of this type may not be appropriate or relevant in part because of instrumentation issues (Maxey & Beckert, 2017). Additionally, there are significant gaps in the scientific understanding of adolescents with
IDD, especially the variations of psychosocial development within adolescents with IDD and between atypical and typically developing adolescents (Maxey & Beckert, 2017). Of particular note, having valid measures for all participants is essential to ensuring the participants’ scores, and subsequent results and conclusions, are accurate. The comprehension level of adolescents with IDD must be accounted for in the creation of measures to promote accuracy in assessing psychosocial development. I propose that the current psychosocial development measures are written at a level that may be unclear or confusing to adolescents with IDD. Thus, to ensure accuracy in evaluating psychosocial development in adolescents with IDD, this dissertation study was conducted.

The purpose of this dissertation was to develop and assess modified versions of common psychosocial development assessments of adolescent development specifically for adolescents with IDD, identify areas of psychosocial development that differ within adolescents with IDD based on type and severity of disability, and examine differences in current psychosocial developmental outcomes between adolescents with IDD and neurotypically developing adolescents. To accomplish this purpose, the research was carried out in two phases. First, current measures of psychosocial development were evaluated and revised with adolescents with IDD, their family members, and disability professionals informing measure modifications. Second, to ensure that the validity of psychosocial development measures was maintained after modifications, typically developing adolescents took both the original and modified measures. Although validity is imperative in ensuring the utility of research measures, previous disability researchers have made modifications to some typically developing psychosocial development
measures, but have not validated them appropriately (Abubakar et al., 2013; Dagnan & Sandhu, 1999). Additionally, I assessed differences in type and severity of IDD and psychosocial developmental outcomes. Finally, preliminary comparisons and conclusions regarding psychosocial development between adolescents with IDD and typically developing adolescents were made.

The findings from this study provide a foundational understanding of current psychosocial development in adolescents with IDD, thus contributing to the ability of future researchers and interventionists to identify areas to promote greater understanding and integration between adolescents with IDD and their typically developing peers. Given the purpose of this dissertation, the over-arching research question of this dissertation was, “Can self-report measures be modified to the comprehension of adolescents with mild to moderate IDD such that the instruments adequately evaluate psychosocial development both for adolescents in this population and also for typically developing youth?” This over-arching research question was broken into three research questions to examine psychosocial development among adolescents, both with and without IDD.

**Research Questions**

“Can self-report measures be modified to the comprehension of adolescents with mild to moderate IDD such that the instruments adequately evaluate psychosocial development both for adolescents in this population and also for typically developing youth?”
1. How do text-revised modifications of existing self-report measures on psychosocial development constructs impact the psychometric properties of the measures for neurotypical adolescents?

2. How do a young person’s psychosocial developmental outcomes differ between those with different types and severities of IDD (e.g., mild intellectual disability vs. level 1 autism spectrum disorder and moderate intellectual disability vs. level 2 autism)?

3. How does psychosocial development differ between adolescents with and without IDD?
CHAPTER II
LITERATURE REVIEW

To provide understanding and context to disability, a review of the construct of IDD type and severity is needed. Therefore, this chapter begins by highlighting how IDD is classified within the DSM-5 and reviewing at length what is currently known about development (family, peers, school, and extracurricular activities and community integration) of adolescents with disabilities. After establishing the disability and developmental framework, a brief overview of each of the aspects of psychosocial development is elucidated to provide understanding to constructs examined in this dissertation.

Having a conceptual understanding of these psychosocial constructs provides clarity and a foundation from which to ground this dissertation before examining each psychosocial construct from a disability lens. One of the core foci of this dissertation was understanding how the type and severity of disability relates to psychosocial developmental outcomes. Therefore, the crux of this literature review focuses on an overview of the psychosocial development literature among adolescents with disabilities, including type and severity of disability. Despite desiring many of the same developmental outcomes and relationships as their typically developing peers, adolescents with IDD often face difficulties in the ability to achieve developmental milestones on the same trajectory, across cognitive, emotional, and behavioral domains (APA, 2013). There is a necessity for understanding psychosocial development, which brings together aspects of the cognitive, emotional, and behaviors domains, of
adolescents with IDD to address the shortage of research in this area (Maxey & Beckert, 2017).

**Disability Type and Severity**

As professionals learn more about disability, the diagnostic criteria and classification of disabilities has transformed. The current overarching term that is used for IDD is neurodevelopmental disorders. Neurodevelopmental disorders cover numerous types of disorders, which include intellectual disabilities, communication and language disorders, autism spectrum disorder, attention-deficit/hyperactivity disorder, learning disorders, and motor disorders. Within this dissertation, the two types of disabilities addressed include intellectual disabilities (also referred to as intellectual developmental disorder) and autism spectrum disorder. Disabilities such as Down syndrome, cerebral palsy, fetal alcohol syndrome, and fragile X syndrome are classified under the broad umbrella of intellectual disabilities. Although many other disorders outside of intellectual disabilities and autism spectrum disorder are included under neurodevelopmental disorders, they were not addressed as standalone disorders in this dissertation. However, many of these other disorders co-occur in individuals with intellectual disabilities and or autism spectrum disorder (APA, 2013).

**Intellectual Disabilities**

The term “intellectual disability” represents a group of disorders with onset during childhood or adolescence that includes both intellectual and adaptive functioning deficits in conceptual, social, and practical domains. Intellectual disability is
characterized by deficits in cognitive abilities (e.g., problem solving, planning, reasoning, judgment) and adaptive functioning that contribute to difficulties in meeting developmental and sociocultural standards for independence and social responsibility (APA, 2013). The DSM-5 marks a shift from previous versions of the DSM which relied exclusively on IQ scores. The new criteria include additional measures of adaptive functioning, while IQ continues to need to be at least two standard deviations below the mean ($M = 100, SD = 15$, i.e., 70 or less).

The severity level (mild, moderate, severe, or profound) of the intellectual disability is determined by the person's ability to meet developmental and sociocultural standards for independence and social responsibility, not exclusively by the IQ score. Mild intellectual disability can apply to those who experience delays in all developmental areas, but often have no unusual physical characteristics, such as motor difficulties and physical anomalies. They learn practical life skills, blend in socially, and develop activities of daily living, such as personal hygiene, dressing, and self-feeding. With moderate intellectual disability, there are noticeable developmental delays (i.e. speech, motor skills) and they may have physical signs of an impairment (i.e. thick tongue). They can communicate in basic, simple ways and are able to learn basic health, safety, and self-care skills. They may have difficulty in social situations and problems with social cues and judgment. These individuals care for themselves, but may require more instruction and support than the typical person without IDD. Although individuals with severe intellectual disability often experiences considerable delays in development, the individual may be able to learn simple daily routines and aspects of self-care. They may
understand speech, but have little ability to communicate verbally. They need daily direct supervision and support in social situations and in performing self-care activities. There are significant developmental delays in all areas among those with profound intellectual disability. They have obvious physical and congenital abnormalities and require supervision and support in self-care activities. They depend on others for all aspects of day-to-day life and have extremely limited communication abilities. Frequently, people in this category have other physical limitations as well (APA, 2013). Further details pertaining to intellectual disabilities, including diagnostic criteria can be found in Appendix A. For this dissertation, only adolescents with mild and moderate intellectual disabilities were included. Beginning with these two groups is important in gauging the applicability of the modified measures and to tease out differences in disability severity.

**Autism Spectrum Disorder**

Autism spectrum disorder (ASD), which underwent marked changes in diagnostic criteria in the DSM-5, is a complex developmental disability. Autism spectrum disorder typically appears during early childhood and affects a person’s ability to communicate and interact with others. There is no known single cause of autism, but increased awareness of society, early diagnosis and intervention by professionals, and access to appropriate support services for individuals and families lead to significantly improved outcomes (APA, 2013). Some of the behaviors associated with autism include delayed learning of language, difficulty making eye contact or holding a conversation, difficulty with executive functioning relating to reasoning and planning, narrow and intense interests, poor motor skills, and sensory sensitivities. The diagnosis of autism spectrum
disorder is applied based on analysis of all behaviors and their severity.

Severity is based on social communication impairments and restricted repetitive patterns of behavior. Like intellectual disabilities, there are three levels of severity. For ASD they are identified as Levels 1, 2, and 3. These levels are classified by level of support needed. Within Level 1 (requiring supports), individuals can have noticeable impairments in social communication without supports. This could include difficulty initiating social interactions or decreased interest in social interactions. Additionally, they may experience difficulties switching between activities and problems with organization, which may hamper independence. Level 1 individuals were frequently classified as having Asperger syndrome prior to the DSM-5. Individuals classified as Level 2 (requiring substantial supports) have marked deficits in verbal and nonverbal social communication skills, limited skills in the initiation of social interactions, and reduced or abnormal responses to social overtures from others. They also have inflexibility of behavior, resulting in difficulties coping with change and distress and or difficulty in changing focus and action. Those in the Level 3 severity (requiring very substantial support) have severe deficits in verbal and nonverbal social communication skills. These cause severe impairments in functioning, very limited initiation of social interactions, and minimal response to social overtures from others. Additionally, they have extreme difficulty coping with change, or other restricted or repetitive behaviors markedly interfere with functioning in all spheres. They experience great distress and or difficulty changing focus or action (APA, 2013). Further details pertaining to autism spectrum disorder, including diagnostic criteria, can be found in Appendix A. Only adolescents
with level 1 and 2 autism spectrum disorder were included in this dissertation.

**Adolescents with Disabilities**

The developmental aspirations of adolescents with disabilities are like those of their typically developing peers, but there are also differences that are brought on by their disability. This section focuses on understanding the areas that most directly relate to psychosocial development in adolescence (family, friends and peers, and school and extracurricular activities). These areas have salience in the lives of adolescents with and without disabilities and potential influence in helping adolescents with disabilities navigate adolescence and prepare for the transition to adulthood (Maxey & Beckert, 2017). The well-intentioned efforts and desires of supporters (i.e., parents, educators, advocates, and disability professionals) in seeking ways to support adolescents with IDD developmentally may fall short in capturing the full potential of adolescents with IDD (McDougall et al., 2010; Wehmeyer & Shogren, 2016). These advocates and supporters of adolescents with IDD often see deficits and want to resolve and remove barriers to encourage more wholesome lives. However, adolescents with IDD have much that they can contribute to their communities as they transverse their distinct developmental trajectory. Thus, there is a need to change our assessment and understanding of the development process of adolescents with IDD. Often the focus is either on adolescents with IDD being developmentally similar to their typically developing peers or being entirely developmentally dissimilar (Iglesias et al., 2019; Moody et al., 2022; Schwartzman et al., 2022). The better approach would be centered on understanding the
uniqueness of their separate developmental path—focusing on the individual.

That is not to say that the developmental tasks that adolescents with IDD face are entirely dissimilar from their typically developing peers. Indeed, they are establishing friendships and acceptance from peers, integrating body image and self-concept, and establishing their own identity. Although they are faced with similar transformations of adolescence, disproportionately more young people with IDD are prone to developmental, physical, and social challenges than their typically developing peers (Atkins, 2016; Chung et al., 2012; Rose et al., 2015). Additionally, many adolescents with IDD desire to have interactions with their typically developing peers and engage in recreational, social, academic, and extracurricular activities and opportunities (Al-Kandari, 2015; Chang & Dean, 2022; Locke et al., 2010). However, adolescents with IDD face struggles related to their disabilities and the impact of societal limitations, making it difficult, sometimes impossible, to participate in activities at the same level as their peers, both independently and with their peers (Atkins, 2016; Feldman et al., 2016; McNaughton et al., 2003). As a result, adolescents with IDD may face negative outcomes like stress and loneliness at higher levels than their typically developing peers (Asher & Paquette, 2003; Locke et al., 2010; Whitehouse et al., 2009). Consequently, it is a necessity to focus on a different developmental trajectory to fully understand adolescents with IDD. This allows for an examination of adolescents with IDD without making unrealistic comparisons to their typically developing peers. Instead, allowing their trajectory and growth to guide the research as we seek to further understand the population. To do this, it is important to recognize that disability is a unique construct
and that each individual and family faces and responds to disability differently. Sometimes the developmental desires and changes are similar to their typically developing peers, other times they are not.

Not unlike their typically developing peers, adolescents with IDD are faced with many challenges associated with the adolescent years. However, adolescents with IDD have been considered the forgotten ones, particularly in research (Rowitz, 1988). In a previously published review, Maxey and Beckert (2017) highlighted the paucity of literature on psychosocial development for adolescents with IDD, and outline areas of importance to both typically developing adolescents and adolescents with IDD, including family relationships, peers and friends, technology, bullying, school and extracurricular activities, and psychosocial development.

Psychosocial development is an area of significance as it plays an important role in this populations’ transition to adulthood. During the transition to adulthood, young people assume responsibility for self-care, decision making, and future planning. Successful transition usually correlates with the adoption of adult social roles related to independent living, employment, education, social supports, friendships, autonomy, and self-determination (Kirk, 2008). Despite facing different and frequently more difficult challenges during adolescence, it is possible for the adolescent with IDD to successfully traverse this developmental period, when psychosocial development aspects are understood. Once this area of development is understood, it can lead to the implementation of the proper supports and key relationships that contribute to the success for each individual. The emphasis needs to be on promoting a positive and healthy
developmental trajectory for the individual, rather than concentrating on making adolescents with disabilities more like their typically developing peers. Before expounding on psychosocial development aspects, it is necessary to elucidate the contributors to the overall developmental aspects of adolescents with disabilities.

**Family Influence**

There have been numerous studies examining family influence on adolescents with disabilities, including parenting stress (Ekas & Whitman, 2010; Ulus et al., 2012), realigning roles (Betz et al., 2015), development of healthy parent-child relationships (Mitchell & Hauser-Cram, 2010) and sibling relationships (Doody et al., 2010; Pollard et al., 2013). The two studies highlighted in this section are most salient in relation to psychosocial development of adolescents with IDD. As adolescents with IDD are transitioning through adolescence, their families play a key role. Jones et al. (2014) used a sample of 50 parents of adolescents with intellectual disabilities to understand how parents and their adolescent child ($M_{age} = 15.9$ years, $SD = 1.85$) discuss differences and disability. Parents provided written responses to open-ended questions regarding conversations with their adolescent child with intellectual disabilities about difference and disability. Adolescents completed measures of self-concept and self-determination. The researchers found that talking to an adolescent about difference and disability was a difficult task for parents. Many parents struggled to grasp the level of content and optimal timing of interactions with their child with intellectual disabilities. As a result, much of the communication within the parent-child dyad ends up being reactive instead of proactive, often occurring after the adolescent was bullied, or as an explanation for why
the child could not participate in an activity with their typically developing peers. Interestingly, adolescents whose parents talked to them about difference and disability reported lower feelings of self-competence related to their schoolwork and social acceptance by classmates. However, it is believed that this has relation to the timing of the conversations (Jones et al., 2014).

Social opportunities are less prevalent for youth with disabilities (physical, intellectual, and mixed diagnostic) than for typically developing youth (Tonkin et al., 2014). To understand sibling relationship quality and the role of siblings in socialization, Begum and Blacher (2011) utilized 70 sibling dyads, which included one 12-year-old adolescent with \( n = 23 \) or without \( n = 47 \) intellectual disabilities. They found that the sibling relationship provided an opportunity for adolescents with IDD to learn requisite skills and appropriate behaviors through observation and experience, especially given their limited social sphere. Sibling relationships also socialized and prepared adolescents with disabilities for social functioning in other peer contexts, as the typically developing sibling provided opportunities to experiment with behaviors and learn from observed interactions between the typically developing sibling and others (Begum & Blacher, 2011). These family relationships can serve as important sources for psychosocial development. They can provide assistance and feedback to the adolescent with IDD. Although families play an important role in supporting the adolescent with IDD, they are only one source of relationship.

Friends and Peers

Another contributor to the overall quality life of adolescents with IDD is their...
peers and friends. During this time, much like their typically developing peers, many adolescents with IDD are seeking to establish friendships and develop a sense of belonging and community. Skär (2003) employed qualitative interviews of 12 adolescents with restricted mobility disabilities to understand their relationships with their peers and friends, including how their perception of themselves played into these relationships. Adolescents with restricted mobility disabilities often described themselves as regular members of the adolescent group, even though they were fully cognizant of their disability. However, they felt that others, both their typically developing peers and adults, saw them as drastically distinctive because of their disability. This contributed to relationships to friends of the same age being either markedly defective or non-existent and relationships to adults often characterized as ambivalent or asymmetric (Skär, 2003). The social lives of adolescents with severe developmental disabilities may be the most significantly impacted, as researchers suggest that peer interactions and durable friendships are rare or altogether absent for this population (Petrina et al., 2014; Webster & Carter, 2007).

**Participation in Activities Outside of School**

Adolescents with IDD are thought to participate in fewer activities outside school than their typically developing peers (Abells et al., 2008). Solish et al. (2010) sought to compare typically developing children, children with autism spectrum disorder, and children with intellectual disability in terms of their number of mutual friendships, their involvement in various types of activities, and with whom their activity participation occurred. They examined participation in social (e.g., playing at friends’ houses or going
to the movies), recreational (e.g., playing hockey or taking music lessons), and leisure (e.g., playing on the computer or watching television) activities. Using a sample of 185 parents (140 mothers, 44 fathers, 1 other caregiver) of children between 5 and 17 years of age, the researcher found that typically developing ($n = 90$) children not only had more friends than children with disabilities, but also participated in significantly more social and recreational activities than children with autism spectrum disorder ($n = 65$) and children with intellectual disability ($n = 30$). However, there was no difference in terms of participation in leisure activities. Further, typically developing participants engaged in more social and recreational activities with peers than those in the two disability groups. Individuals with intellectual disability participated in significantly more recreational activities with peers than those with autism spectrum disorder. Finally, in terms of participation in activities with parents and other adults, children and adolescents with intellectual disability and autism spectrum disorder engaged in significantly more social activities with their parents and other adults (Solish et al., 2010). This study provides grounding that there are differences in opportunities between adolescents with and without IDD, as well as between adolescents with different type and severity of IDD. Additionally, the participation in activities outside of school, or lack thereof, could relate to differential psychosocial developmental outcomes for those with disabilities.

Beyond the social interaction aspect of activities, participation in activities outside school is important for an adolescent’s health and can positively influence their self-esteem, psychological wellbeing, social competence, physical fitness, and gross motor skills (Murphy & Carbone, 2008). The physical aspect of participation in activities
outside of school may be particularly important (Rimmer et al., 2007) as adolescents with disabilities are at a higher risk of chronic health conditions, such as obesity, and social risks, such as isolation (Melville et al., 2008). Adolescents with disabilities exhibit similar desires to participate in extracurricular activities as their typically developing peers, but often have fewer opportunities to do so (Mundhenke et al., 2010). Adolescents with disabilities face additional barriers compared to their typically developing peers because of their disability (Shields et al., 2012). These unique barriers include a loss of interest among adolescents with intellectual disabilities in participating in activities as the skills gap between them and their peers widened, a lack of parental time to facilitate participation, a lack of available options, and personal barriers such as behavioral problems or deficits in their social skills (Menear, 2007). In fact, adolescents with intellectual disabilities have a greater risk for psychopathology compared to typically developing adolescents, as there is a 3–7 times higher prevalence of emotional and behavioral problems in children and adolescents with intellectual disabilities, compared with typically developing youths (de Ruiter et al., 2007; Dykens, 2000). Emerson (2003) utilized a stratified, random sample of 438 children between the ages of 5 and 15 to understand the prevalence of psychiatric disorders in context of child characteristics, life events, and family characteristics. They found numerous factors associated with this increased risk of psychopathology including social deprivation, family composition, number of potentially stressful life events, the mental health of the child’s primary caregiver, family functioning, and child management practices (Emerson, 2003). These findings provide important information for the current dissertation study which seeks to
examine the psychosocial development of adolescents with disabilities, which could be associated with these factors that relate to risk for psychopathological outcomes.

**Psychosocial Development**

**Identity Development**

Within the Eriksonian model of psychosocial development, identity formation during adolescence is life’s most important developmental task (Erikson, 1963). Identity formation results from the establishment of a new sense of ego identity by searching for inner continuity and sameness of one’s meaning for others, which is linked to unique values and beliefs in their group and or society (Erikson, 1968). During adolescence, identity is developed within three domains, including love (interpersonal relationships), work (occupation), and ideology (beliefs and values). Adolescents must make commitments within each area or they will endure identity confusion (Erikson, 1968). Through the utilization of Marcia’s (1966) four identity status model in a quantitative approach, several researchers have operationalized Erikson’s concept of identity (Bennion & Adams, 1986; Berzonsky, 1989; Faber et al., 2003; Krettenauer, 2005). The four outcomes of Marcia’s identity status paradigm are achievement, moratorium, foreclosure, and diffusion. These outcomes are based on two key processes or exploration and commitment involved in identity formation (Grotevant, 1987; Kroger, 2003).

**Adolescents with Disabilities and Identity Development**

Adolescents with IDD are navigating the same aspects of identity formation as
their neurotypical peers and may not differ in their process, but may have a longer period of identity formation (Rękosiewicz, 2020). Nonetheless, identity development is an area that is complicated for adolescents with disabilities as they are deciding how their disability contributes to their identity or how they intend to integrate their disability into who they are as a person while still exploring the same areas of identity as their typically developing peers. This decision is a multifaceted meaning-making process (Forber-Pratt et al., 2021). Lingam et al. (2014) utilized a phenomenological qualitative approach to understand the experiences of 11 adolescents with developmental coordination disabilities in forming their identity. Developmental coordination disability occurs when a delay in the development of motor skills results in the individual being unable to perform common, everyday tasks. There is no identifiable medical or neurological condition that explains the coordination problems. The findings of Lingam et al. centered on a theme of we’re all different. Within this overall central theme, they found that adolescents with developmental coordination disabilities incorporated aspects of their own self-perception, how they perceived the way others saw them, things that were difficult for them, their opinion of the future, and aspects that they include into their identity that make their life easier (Lingam et al., 2014). The Lingam et al. study is an important beginning in understanding the identity formation process for adolescents with disabilities. However, the study did not include adolescents with intellectual disabilities or autism spectrum disorder. Additionally, the constructs under the overall theme deviated from the essential aspects of identity formation. Within this dissertation study I sought to understand the level of identity formation, within a frame of Marcia’s identity
statuses, of adolescents with intellectual and developmental disabilities and their typically developing peers.

Beyond the research done by Lingam et al. (2014), Wilkinson et al. (2015) interviewed four late adolescents (19-22 years of age) with intellectual disabilities (ID) and their caregivers to understand the formation of sexual identity. These individuals with intellectual disabilities struggled with stigma of their communities regarding their ability to have a ‘normal’ sexual identity. This study provided important insights into barriers to identity formation. In their review article, Zolkowska and Kaliszewska (2014) highlighted the developmental process of social identity through what adolescents with disabilities observe from peers and siblings. Challenges from the disability could make it difficult for the adolescent with disabilities to explore their identity, but having others they can observe may provide a reasonable substitute in the process.

One possible theory to guide understanding of identity in adolescents with disabilities is Social Identity Theory. This theory, an outcrop of Erikson’s psychosocial theory, explains implications of social identity for one’s perceptions and behaviors as well as relationships between individuals and groups. Social identity is related to personal identity. People can use various strategies to derive a positive personal identity, distinct from strategies that improve social identity. Social identity theory addresses three main concepts: psychological processes that differentiate social from personal identity; strategies to derive a positive social identity; and how characteristics of various social structures determine which strategies apply (Ellemers & Haslam, 2012).
Self-Esteem

Self-esteem is generally defined as an individual’s psychological strength that manifests one's overall view and feelings about oneself (Bachman et al., 2011; Servidio, 2019), or a person’s self-perception (Rosenberg et al., 1995). It can be impacted by aspects of a person’s attitudes about their inclusion within certain groups. Everyone has self-esteem, but one person’s self-esteem may be higher or lower than another (Rosenberg et al., 1989). Other scholars contend that self-esteem is not only related to the individuals’ perception of self, but the perception of self as viewed by others (Harter, 1999; Mead, 1934). The perception of competency in areas important to an individual, and support of significant others are predictors of self-esteem (Harter, 1986).

Adolescents with Disabilities and Self-Esteem

Self-esteem often improves by being a member of certain highly valued social categories (Detrie & Lease, 2007). Conversely, membership in a stigmatized group may lead to poorer self-evaluations (Detrie & Lease, 2007). Feelings of being devalued could emerge from reactions in personal interactions or from a lack of social support that members of marginalized groups feel (Detrie & Lease, 2007). One important aspect to understand concerning self-esteem and adolescents with disabilities is the link between self-esteem, depression, and optimism. There have been empirically based links between self-esteem and depression as well as self-esteem and optimism in typically developing adolescents, which may have bidirectional effects (Millings et al., 2012; Orth et al., 2008; Rosenberg et al., 1989).

Mueller and Prout (2009) compared adolescents with ID ($n = 269$) to adolescents
without ID (n = 267) utilizing the Add Health data set (a longitudinal study of a nationally representative sample of adolescents in grades 7-12 in the United States during the 1994-95 school year) on aspects of self-esteem, optimism, and depressive symptoms.

Contrary to the findings from Detrie and Lease’s (2007) study, data from the first three waves of the Add Health data indicated that there was not a significant difference between adolescents with and without intellectual disabilities in terms of self-esteem (Mueller & Prout, 2009). However, adolescents with disabilities reported significantly higher levels of mild to moderate depression over time when compared with their typically developing peers. In fact, while typically developing adolescents saw a slight decrease in depression from Wave 1 to Wave 2, adolescents with intellectual disabilities saw an increase. Additionally, by late adolescence, typically developing adolescents had a significant increase in optimism that was not experienced by the adolescents with intellectual disabilities (Mueller & Prout, 2009). The connection between self-esteem, optimism, and depression was not found in the Mueller and Prout study, which indicates that there is a need for further examination within adolescents with disabilities. While this study provides initial information regarding self-esteem, the researchers did not make any modifications to wording nor did they assess the ability of adolescents with disabilities to understand the survey items in order to respond appropriately. Nonetheless, the Mueller and Prout study measured self-esteem the same for adolescents with and without disabilities, demonstrating that the focus of this study to measure psychosocial development among both populations was reasonable.

There is evidence that for people with IDD, stigmatization can have a negative
impact on their psychological well-being, lowering their self-esteem and negatively affecting their mood. Shields et al. (2007) used a sample of 47 children with cerebral palsy and 47 children without disability to understand differences in self-concept. The authors employed Harter’s self-concept scale and found that children with cerebral palsy had lower scores of scholastic competence, social acceptance, and athletic competence. However, there were no differences in global self-worth, physical appearance, or behavioral conduct. The lack of significant difference in global self-worth is noteworthy, further investigation is warranted to understand self-esteem across various disabilities.

Multiple researchers have examined the role that social interactions, along with community integration and perceptions, have on self-esteem in individuals with IDD. Dagnan and Sandu (1999) found that social comparisons in adults with ID were positively associated with total self-esteem scores and negatively associated with reported levels of depression. Thus, if adults with ID felt that they were on an equal level as their peers, then self-esteem tended to be higher. Dagnan and Sandu made modifications to two of the four instruments that they utilized (a third had modifications to the response scale following the practice of previous researchers). However, the researchers chose not to utilize the adults with disabilities in the modification process, instead opting to make the adjustments themselves. Nonetheless, the Dagnan and Sandu study demonstrates that the focus of this dissertation study to modify current psychosocial development for understanding among all populations was plausible.

Abraham et al. (2002) studied self-esteem in adults ranging from 23 to 65 years of age ($M = 42, SD = 9.6$) with learning difficulties and disabilities and the relationship of
disability and self-esteem to community participation and feeling stigmatized. Higher levels of community integration and lower levels of perceived stigma were related to higher levels of self-esteem. However, any type of stigma had a negative impact on self-esteem (Abraham et al., 2002). Further expounding on the impact of stigmatization, Dagnan and Waring (2004) studied adults with intellectual disabilities, ages 23 to 65 on the relationship between stigma and psychological distress. Negative beliefs about the self were positively associated with the experience of feeling stigmatized. Further, they found that stigma has an impact on social comparison processes mediated by evaluative beliefs (Dagnan & Waring, 2004). Understanding the impact of community perceptions and feelings of stigmatization on self-esteem is an important step in realizing how self-esteem may fluctuate in individuals with disabilities.

Although some areas of psychosocial development are lacking research for this population, there is available research on self-esteem during the adolescent years for those with disabilities. In one recent study, Gallagher et al. (2020) studied self-concept among 13-year-old adolescents with and without developmental disability (DD) in Ireland. Having a DD diagnosis had a strong association with low self-concept scores, particularly areas of behavioral adjustment, intellectual and school status, popularity, and happiness. These adolescents were also more likely to live in poorer households as well as having poor health, more episodes of bullying, and negative views of school than their neurotypical peers (Gallagher et al., 2020).

Szivos-Bach (1993) found that increased awareness of stigmatization was associated with low self-esteem in late adolescents with mild intellectual disabilities,
which is an important first step in understanding adolescents with disabilities. However, 
the clear majority of studies have examined self-esteem in children and adults with 
disabilities. Additionally, the focus of the studies examining self-esteem in children and 
adults with disabilities has primarily focused on the relationship between stigma of 
disability and self-concept and self-esteem. Nonetheless, the extent literature has shown 
that disability, along with perceptions of others toward disabilities, are related to level of 
self-esteem. This is especially true in terms of individuals with disability having lower 
self-esteem. There is a gap in the literature that needs to be addressed in order to 
understand self-esteem in adolescents with disabilities, which starts with the inclusion of 
adolescents with disabilities. The current study sought to fill the gap by examining self-
esteeim in adolescents with disabilities through modified measures with comprehensible 
language. Additionally, the current study explores this area of psychosocial development 
in comparison to their typically developing peers. Understanding self-esteem in both 
populations is important to best support adolescents as a whole, as well as the adolescents 
with disabilities subpopulation individually.

**Autonomy**

From an Eriksonian perspective, autonomy is considered a milestone primarily 
faced in toddlerhood. However, in recent years it has gained increasing attention as a task 
of adolescence (Beckert, 2016). The primary difference is that adolescent autonomy, 
unlike autonomy in toddlerhood, is reinforced internally more frequently than externally 
(Harter, 1978). In general, autonomy implies that adolescents increase self-reliance by 
distinguishing their own ideas from their parents, organize their own experiences,
regulate their own behaviors, guide their own lifegoals, and make decisions based on their own ideas and experiences without relying exclusively on parents or others. In short, it is the ability to act, think, and feel independently without undue influence from others (Beckert, 2016).

Cognitive autonomy includes an adolescent’s ability to evaluate thought, to voice opinion, to make decisions, to capitalize on comparative validations, and to self-assess (Beckert, 2007); emotional autonomy includes an adolescent’s feelings of confidence to define goals independent of the wishes of their parents and peers, and achieve interpersonal competence (Anderson et al., 1994; Noom et al., 2001); and behavioral autonomy includes an adolescent’s ability to develop age appropriate behaviors (Anderson et al., 1994; Cicchetti & Rogosch, 2002). Simply, the three basic areas of autonomy include: (1) the perception of goals and desires; (2) the perception of independence and individuality; and (3) the perception of self-regulation and control (Noom et al., 1999).

Adolescents with Disabilities and Autonomy

Obtaining a sense of autonomy constitutes a major goal for most individuals with disabilities, particularly in the transition from childhood to adolescence and adolescence to adulthood. Autonomy, for adolescents with disabilities, includes taking responsibility for their behavior, making decisions regarding their lives, and maintaining supportive social relationships (Crittenden, 1990). Type and level of disability severity can contribute to one’s autonomy. Across the three areas of autonomy, emotional and behavioral autonomy have been examined in adolescents with disabilities. These are both
important as adolescents with disabilities seek independence and pursue goals while continuing to rely on parents for some basic needs and being susceptible to peer pressure. However, there are no studies that have examined cognitive autonomy in adolescents with disabilities. Thus, it is an area of autonomy, as well as psychosocial development that is important to assess and understand in order to support adolescents with disabilities as they transverse this developmental period.

One area where adolescents with disabilities can begin to exercise autonomy with the support and influence of family members involves making medical decisions. Racine et al. (2012) studied 14 late adolescents and early adults with cerebral palsy in terms of autonomy exploration and respect for choices within the healthcare context. There was a relationship between feelings of autonomy being enhanced or limited depending on the type of supports that were provided by the community, healthcare professionals, and family members. When adolescents and early adults with cerebral palsy were able to access transportation, have doctors listen to their concerns, and have parents support medical decisions rather than make the decision, they felt that they had more control over their lives (Racine et al., 2012). Terrone et al. (2014) sought to understand how family relationships supported autonomy and the maturational processes of late adolescents and early adults with \( n = 85 \) and without \( n = 85 \) Down syndrome. They found that the level of autonomy in typically developing individuals was influenced by all members of their family. However, adolescents and young adults with Down syndrome were significantly influenced by their mothers (Terrone et al., 2014).

A growing area of autonomy for individuals with disabilities encompasses self-
determination, which is the ability to have control over their lives, including choice-making, problem solving and or goal setting and attainment skills (Burke et al., 2020; Vicente et al., 2020). Self-determination is impacted by both family and educational opportunities (Vicente-Sánchez et al., 2018). Within educational contexts, being involved in their transition and IEP planning and having opportunities for self-determination skill development were positively correlated with later self-determination outcomes (Mumbardó-Adam et al., 2020; Raley et al., 2021). Within family contexts, although parents affirm they generate opportunities for self-determination expression, overprotective attitudes might be constraining those opportunities (Gagnon et al., 2020; Mumbardó-Adam et al., 2018).

Aspects of autonomy in adolescents with disabilities has primarily been explored in terms of behavioral autonomy with less attention given to understanding emotional and cognitive autonomy. As adolescents and their families are preparing for the transition to adulthood, it is important to understand how the adolescent feels about their level of autonomy and abilities to make decisions. The current study examined autonomy across all three areas in order to understand how well adolescents with disabilities are doing in being independent and making decision independent of their family and friends.

Attachment

In general, attachment behaviors are built into human nature to enhance individual survival and security, especially in adverse or distressing circumstances (Bowlby, 1982). Further, individuals are biologically predisposed to form close emotional bonds with, and maintain proximity to, attachment figures (Bowlby, 1969, 1982). As such, a simple way
to explain attachment is that it is the quality of relationships with significant others, which can include parents, friends, and romantic partners (Noom et al., 1999).

Some researchers have identified secure attachments to parents as important bonds during adolescence (Laible et al., 2000; Noom et al., 1999; Raja et al., 1992), and others view the parent-adolescent relationship as a secondary attachment as the adolescent spends less time with their parents and are transitioning to other types of attachment relationships and establishing independence (Adams-Price & Greene, 1990; Freud, 1958). Nonetheless, attachment to parents remains as important as peer attachment for healthy adolescent psychosocial adjustment and prevention of psychosocial problems (Allen et al., 1998; Laible et al., 2000; Liu, 2008; Noom et al., 1999; Zimmermann & Becker-Stoll, 2002). It might be that parents and peers serve different purposes in terms of the support, advices, and information they provide to adolescents (Raja et al., 1992).

**Parent Attachment**

Secure parental attachment fosters confidence, self-efficacy, self-esteem, social skills, and the ability to explore the environment competently, which in turn foster mutually satisfying interpersonal interactions and relationships (Berlin et al., 2008; Sroufe et al., 1999, 2005). Further, the interactions and attachment between parents and their adolescent children could influence identity development, as parents and families are thought to provide adolescents with baseline experiences from which to develop their own point of view (Collins & Laursen, 2004; Grotevant, 1987; Zimmermann & Becker-Stoll, 2002).

Adolescents who were better able to communicate about attachment experiences
in ways that reflected balance and autonomy were more likely to be socially accepted. These adolescents were also likely to encounter fewer internalizing behaviors and to participate in fewer externalizing behaviors (Allen et al., 1998). Research continues to support findings that the more acknowledged or recognized the attachment is by adolescents, the more socially accepted they tend to be (Allen et al., 1998). Adolescents who receive responsive and sensitive feedback from caregivers will be more likely to see themselves as worthwhile and will expect others to respond to them in a similar way (Boling et al., 2011). Further, adolescents who were securely attached, were likely comfortable to go and explore social experiences and feel more socially competent (Boling et al., 2011). Family connectedness and attachment can also be a highly protective factor for adolescent self-esteem, especially after a traumatic event, such as social isolation (Preston & Rew, 2021).

**Peer Attachment**

As children transition to adolescence, they spend less time with family and begin to spend more time with peers without adult supervision (Chan & Chan, 2013). This decrease in time spent with parents is often due to increased school demands, including extracurricular activities, as well as outside employment. As such, peers and friends begin to play an increasingly significant and influential role throughout adolescence (Bednar & Fisher, 2003). Adolescents have reported that they perceive their best friends as being equally supportive as their parents. Adolescents perceive friend influence highly during these developmental years, which inevitably will alter the parent-adolescent relationship (Scholte et al., 2001).
Adolescent peer relationships play an important role in fostering positive adolescent psychosocial development. Peer groups can contribute to identity formation by serving as a guide to establish a sense of self that is separate from their parents or family (Brown, 1990; Parker et al., 2006). Peers frequently provide different perspectives to stimulate independent thought through expressed differences while maintaining a balance by establishing their own beliefs and principles (Kerpelman & Pittman, 2001; Parker et al., 2006) which contributes to the development of autonomy. Research shows that the type of attachment influences the quality of social relations among adolescents (Dykas et al., 2008; Thompson, 2006).

**Adolescents with Disabilities and Attachment**

It is possible that attachment relationships are of even greater importance to adolescents with disabilities, because of their reduced coping resources. Clasien de Schipper et al. (2006) evaluated how disability can influence attachment behaviors by observing five children with disabilities, ranging in developmental age from 1 to 5 (chronological ages 3 to 14). These observations showed that forming attachment relationships may be more difficult for individuals with disabilities because the methods of communication and behaviors they express may be more difficult for the parents and peers to decipher, which in turn may decrease the sensitivity to the child with disabilities.

In their review of the stress-attachment model of challenging behaviors in individuals with severe and profound intellectual disabilities, Janssen et al. (2002) highlight parental factors, such as increased stress associated with caring for a child with disabilities and accepting the diagnosis of disability. The authors emphasize that these
parental factors may negatively impact the development of attachment relationships. In fact, individuals with disabilities were more likely to develop insecure, disorganized attachments with their parents (Janssen et al., 2002). This is particularly true when maltreatment occurs, and parental stress is high because of complicated resolution of the disability diagnosis, high caregiver burden, and the child’s lack of verbal ability (Janssen et al., 2002).

External factors related to the stress that parents experience associated with having a child with a disability can impact the ability to form a secure attachment relationship. Such factors include extra financial burdens, lack of social support and the added demands as a caregiver. In addition, adolescents who feel that their needs are not recognized, are ignored, or not understood become distressed (Howe, 2006). This distress often impacts attachment behavior which can lead to more stress and frustration for the parents. It is this stress that often impacts a caregiver’s state of mind and ability to form a secure attachment with their child. As a result, it seems that it is the interaction between adolescents with disabilities and the caregiver’s state of mind with respect to attachment that is associated with insecure attachment relationships more so than the disability itself (Howe, 2006). Hoffman et al. (2009) sought to understand the difference in parenting stress and closeness in mothers of typically developing children \( (n = 342; M_{age} = 8.03 \text{ years}, SD = 3.61) \) and mothers of children with autism \( (n = 104; M_{age} = 8.61 \text{ years}, SD = 2.77) \). Children in both groups ranged in age from 3 to 16. Using the Parenting Stress Index (Abidin, 1995), they found that mothers of children with autism had significantly higher stress across all domains except attachment. Despite the added stress these
mothers report close relationships with their children (Hoffman et al., 2009). This study provides general understanding of the impact that autism could have on the parent-child relationship, however the results are derived from the perspective of the parent rather than the child with autism.

In another parent perspective study, Clements and Barnett (2002) examined parent and child predictors of attachment of 72 toddlers with cerebral palsy and cleft lip and palate. These authors found that the increased severity of a child’s disability did not predict increased risk of insecure attachment. In fact, attachment security increased for toddlers with more severe disorders and disabilities (Clements & Barnett, 2002). On the contrary, other research has found that type and severity of disability may impact attachment relationships. Teague et al. (2020) explored attachment behaviors within parent-child relationship of young children with an average age of 5 years old with ASD and comorbid intellectual disability compared to other developmental disabilities. Children with ASD had more attachment difficulties with parents than children with other developmental disabilities and higher levels of behavior and emotional problems (Teague et al., 2020).

Al-Yagon (2012) compared 369 adolescents, ages 15 to 17, with \( n = 181 \) and without \( n = 188 \) learning disabilities in terms of parental attachment and behavior functioning. Adolescents completed a survey that included instruments of attachment security to parents, loneliness, affect, teachers as attachment figures, and externalizing and internalizing behaviors. This study revealed important differences during adolescence. Individuals with learning disabilities reported less secure attachment
relationships with both mothers and fathers compared to their typically developing peers. Further, attachment with fathers was significantly associated only with positive affect. However, attachment with mothers was significantly and positively associated with positive affect and negatively with negative affect, peer-network loneliness, peer-dyadic loneliness, and internalizing and externalizing behaviors (Al-Yagon, 2012). Based on the results of this study, the attachment relationship between adolescents with disabilities and their mothers is important to understand as it could have a connection to other psychosocial development outcomes. While providing foundational understanding, the Al-Yagon study examined attachment relationship for adolescents with learning disabilities using unmodified measures. This dissertation examined psychosocial developmental outcomes across disability type and severity through modification to promote comprehension of all adolescents, whether or not they experience an intellectual or developmental disability.

When it comes to adolescents with IDD and their peers, adolescents may become more strongly attached to peers who are experiencing similar conditions (Matheson et al., 2007). Abubakar et al. (2013) evaluated the relationship between attachment to parents and peers, identity formation, and well-being among adolescents with visual and physical disabilities. Within this study, one measure (the Erickson’s Psychosocial Stage Inventory; Gray et al., 1986) was modified by the researchers to promote linguistic clarity. Adolescents with visual and physical disabilities scored lower on peer attachment measures compared to those without disabilities. Further, youth with visual and physical disabilities had a similar quality of attachment with both mothers and peers, but they had
significantly lower attachment with fathers (Abubakar et al., 2013). These findings give valuable insights into possible outcomes for adolescents with intellectual disabilities and autism spectrum disorder. The attachment to parents, both mothers and fathers, and peers is valuable as adolescents with IDD seek to understand who they are, which can be supported by a secure attachment base. The social connection between adolescents with IDD and their peers with and without disabilities has the potential to significant impact identity formation and identity achievement (Forber-Pratt et al., 2021).

Moreover, Weiss et al. (2011) examined the differences in peer attachment between adolescents 15 and 16 years of age with \( n = 40 \) and without \( n =116 \) intellectual disabilities (ID). Particularly, the authors examined the interaction between intellectual functioning and attachment style in predicting romantic relationship violence in maltreated youth utilizing data from the Maltreatment and Adolescent Pathways (MAP) Longitudinal Study of Child Protection Services (CPS)-involved youth. Thus, no measure modification was made for promotion of comprehension. Youth with ID were less likely to be classified as securely attached compared to their typically developing peers and peers with other types of disabilities. In fact, they were significantly more likely to have insecure, avoidant attachment styles with romantic partners, including higher levels of violence perpetration and victimization. Further, despite an avoidant attachment style being a risk factor for all maltreated youth, it holds a particularly strong effect on youth with ID (Weiss et al., 2011). The authors of this study found connections between attachment and other outcomes in adolescents with disabilities. Positive relationships and secure attachments with peers, including similar age siblings, have been
found to lead to feelings of belonging and willingness to enter into social spaces and additional relationships (Robinson et al., 2020). Nonetheless, it is important to understand all psychosocial development outcomes, which could relate to more positive outcomes through adolescents and the transition to adulthood. This dissertation sought to understand the nuanced differences between type and severity of IDD in outcomes that could contribute to successful development of parent and peer attachment relationships.

Conclusion

Although researchers have explored aspects of psychosocial development in adolescents with IDD that provide a foundation for this dissertation, the overall research in this area is markedly limited. This is particularly true in comparison to the literature in other research areas relating to development of adolescents with IDD, such as family relationships and education, and extent knowledge of psychosocial development of typically developing adolescents. However, there have been some key findings to build upon in further developing research in this area.

Identity formation researchers have found aspects that contribute to the development of identity in adolescents with some disabilities and how sexual identity is formed. There remains a gap of understanding of how successfully adolescents with IDD are in exploring and committing to an identity. This understanding is an important step toward supporting adolescents with IDD in distinguishing who they are as a person and how their disability contributes to that identity. The concept of self-esteem in individuals with disabilities has been explored in children and adults, but minimally in adolescents.
When it has been explored, it has been in terms of self-concept and depression. There is evidence that stigmatization could contribute to the self-esteem of individuals with disabilities. Self-esteem takes on an important role in adolescence as they seek to explore their identity and form relationships. Thus, differentiating between disability type and severity in adolescents with disabilities is important to their overall psychosocial development.

During the transition from childhood to adolescence and then from adolescence to adulthood, the need for autonomy increases. Depending on the level of support that family members provide, adolescents with disabilities have varying levels of autonomy feelings. Mothers play a particularly important role in how autonomous adolescents with disabilities feel. Cognitive autonomy is an area that has not been explored in adolescents with disabilities. An understanding of how autonomous adolescents with disabilities are cognitive would provide a new perspective into how well they are developing and forming opinion and thoughts. A comprehension of the connection between the three areas of autonomy would be important in adolescents with disabilities in identifying areas where they can be better supported. Adolescents with disabilities tend to have attachments to both peers and parents, particularly mothers. However, these attachments are often not secure and with their peers may not be reciprocated. Attachments formed during adolescence impact future attachments for individuals with disabilities.

While these previously cited studies provide a beginning knowledge of psychosocial development in adolescents with disabilities, comprehension and inclusive language remains a gap in research practice. In each of these studies, the measurements
used were not validated for use with the population of adolescents with disabilities. Often researchers circumvent this potential problem by asking supporting individuals to respond for the adolescent. Other times researchers assume that adolescents with disabilities will understand the nuances of the questions sufficiently to respond appropriately. Even in situations where modifications were made to the wording to promote comprehension, these were done by the researcher with no involvement from adolescents with disabilities. It is important to validate and, where necessary, modify the battery of psychosocial instruments toward allowing those with disabilities the opportunity to respond appropriately.

The purpose of this dissertation was (1) to develop modified versions of common psychosocial assessments of adolescent development specifically for adolescents with IDD, (2) identify areas of psychosocial development that differ within adolescents with IDD based on type and severity of disability, and (3) examine differences in current psychosocial developmental outcomes between adolescents with IDD and neurotypically developing adolescents. As illustrated in this review of the literature, this dissertation study was necessary as there is a lack of understanding of psychosocial development in adolescents with IDD, which is an area of importance for this populations’ successful transition to adulthood. Adolescents with IDD can successfully traverse this developmental period when supports and key relationships are in place, despite the difficulties and challenges they may face during this developmental stage. This dissertation study adds to the field of knowledge by providing a foundational understanding of the psychosocial development of adolescents with IDD. Further, the
modification of the existing psychosocial development measures provides new instruments that can be used within both typically and atypically developing populations.

**Research Questions**

1. How do text-revised modifications of existing self-report measures on psychosocial development constructs impact the psychometric properties on scores for neurotypical adolescents?

2. How do a young person’s psychosocial developmental outcomes differ between the severity and type of disability (e.g., mild intellectual disability vs. level 1 autism spectrum disorder and moderate intellectual disability vs. level 2 autism)?

3. How does psychosocial development differ between adolescents with and without disabilities, based on severity and type?
CHAPTER III
METHODS

The purpose of this dissertation study was to develop modified versions, specifically for adolescents with mild to moderate IDD, of common psychosocial assessments of adolescent development; identify areas of psychosocial development that differ within adolescents with IDD based on type and severity of disability and examine differences in current psychosocial developmental outcomes between adolescents with IDD and neurotypically developing adolescents. To accomplish this purpose, a cross-sectional survey research design was carried out in two phases to address the research questions. The first research question, “How do text-revised modifications of existing self-report measures on psychosocial development constructs impact the psychometric properties of the measures for neurotypical adolescents?”, was addressed through both phases. Phase one focused on text revision needed to ensure the comprehension level of adolescents of IDD was accounted for in the questions. Phase two focused on exploring the impact of measure modification on psychometric properties. Additionally, phase two also addressed research question two (How do a young person’s psychosocial developmental outcomes differ between those with different types and severities of IDD?) and three (How does psychosocial development differ between adolescents with and without IDD?).

Phase One: Instrument Modifications

There were several steps in the text revision process that needed to occur to
ensure the comprehension level of adolescents of IDD was accounted for in the questions. These steps occurred during phase one of this dissertation study, which explored ways to modify commonly used measures of adolescent psychosocial development to adequately assess this development in adolescents with mild to moderate ID and level 1 and level 2 ASD. Previous researchers have modified some measures of psychosocial development (Abubakar et al., 2013; Dagnan & Sandhu, 1999), but did not utilize individuals with IDD as part of their modification process. Thus, there was no standard procedure established for making such modifications. However, there is a modification protocol for language accommodations and the goal of this phase of the study closely resembles a language modification procedure. Therefore, I followed a process and protocol commonly used for translating measures into a different language.

The standard procedure for translating a measure to a different language involves four steps. First, the measure is translated into the new language by bilingual speakers with the source language as their primary language. Next, monolingual speakers of the translated language check the translation for accuracy and idiomatic correctness. The third step involves a back-translation from the translated language to the source language by bilingual speakers with the translated language as their first language. Finally, the original and back translation versions are compared by bilingual speakers to ensure accuracy of content (van der Vijver & Leung, 1997).

To modify these measures to make them applicable for use with adolescents who have mild to moderate ID or level 1 to level 2 ASD, a four-step process was implemented. Because parents and their adolescent child with disabilities serve as key
stakeholders in promoting comprehension of the wording of questions, the first step in the modification process was to have parents and their adolescent child with disabilities translate the measures into disability-friendly wording. Adolescents with IDD and their parents completed this step together, but independent of any other dyad. I then reviewed these translations for consensus and to identify questions that lacked uniformity in suggested changes from parents and their adolescent child with disabilities. Next, adolescents with disabilities, with parental assistance, checked for accuracy and comprehension of wording of each measure. Finally, a scholar with expertise in adolescent development and a scholar with expertise in disability research ensured that the face validity and construct completeness/integrity of the original measures were maintained within the modified measures. Additionally, these scholars provided recommendations on content validity of the modified measures. Before beginning the study, the Utah State University Institutional Review Board reviewed and approved the study as outlined below.

**Sample and Procedure of Each Step**

**Step 1**

Adolescents with IDD and their parents were recruited through Parent and Family Support Networks in two western USA states. These networks focus on training and information by and for parents of children and youth with IDD. These organizations are guided by the philosophy that parents are important and complete participants in the decision-making processes for their child along with medical, disability, and academic professionals. As such, parents can provide significant support to other parents in similar
circumstances.

An email with recruitment information was sent to the Family Support Networks to distribute through their monthly newsletters and online social media platforms requesting the participation of the parent along with their adolescent child with IDD. Together with informed consent and assent from both members of the participating dyads, copies of the original measures were sent to parents and their adolescent child with IDD to review and translate into disability-friendly terminology. Along with the original measures to review, parents were provided with specific instructions for completing the task. These instructions, along with the email letter that were sent to parents in the monthly newsletters and online social media platforms, can be found in Appendix B. Parents were reminded that the purpose of the modification is to help adolescents with mild to moderate ID or level 1 to level 2 ASD. Parents were asked to return recommended modifications within two weeks of receiving the email.

For this step of the dissertation, twelve parent-adolescent dyads participated, which allowed for multiple perspectives from families with different types and varied severity of IDD across different ages of adolescents. Seven of the adolescents in the parent-adolescent dyads had a primary diagnosis of ID (APA, 2013), five of these were mild ID and two were moderate ID. Age range for the adolescents with ID who participated was 10-21 years old ($M = 15.43$) and included four boys and three girls. The remaining five adolescents had a primary diagnosis of ASD (APA, 2013), three of these were Level 1 ASD and two were Level 2 ASD. Age range for the adolescents with ID that participated was 12-21 years old ($M = 15.60$) and included four boys and one girl.
This sample size is in line with previous research with parent-child dyads which reached saturation with between six and fifteen participants (Donaldson et al., 2011; Gibson et al., 2011; Mount & Dillon, 2014; Ottmann & Crosbie, 2013; Svensson et al., 2013).

**Step 2**

I began step 2 by compiling and reviewing suggested modifications from the parent-adolescent dyads. The primary purpose of this initial review was to ensure that the concepts of the measures were not being changed by the suggested modifications (i.e., that the measures were continuing to measure what they were intended to measure). I reviewed all suggested changes and analyzed the modification recommendations following a *data-driven* qualitative approach, which relies on identifying overall ideas and themes from the interview data, rather than interpreting the interviews based on pre-existing literature or theory (Gibbs, 2008).

The first step in the data-driven approach was to compile all the parent-child dyad responses into a combined document. This provided one document that had all suggestions for each measure item. Utilizing all responses, an overall consensus idea for each measure item was established and modifications made. I reviewed each response and then I captured the central idea for each measure item, which resulted in modification of that item. Following the initial changes, I evaluated each of the measures to establish face validity. This was done by comparing the modified measures to the original measures to examine for continuity in measuring the construct. The goal being to ensure that the intended purpose of the measure in assessing the psychosocial developmental construct was maintained while also maintaining the voice of the adolescents with IDD.
and their parents in the modifications.

**Step 3**

Families who provided their feedback on recommended modifications were invited to participate in a follow-up focus group. Five parent-adolescent children with IDD dyads participated in this step, three adolescents with ID and two with ASD. In this meeting, parents and their adolescent child discussed each of the measures with me. The process was similar to that done in think-aloud studies (Ericsson & Simon, 1998), with the purpose of examining if each individual survey item was being understood in the way that the question intended. Think-aloud studies involve participants verbalizing their thought process as they completed the measure (Ericsson & Simon, 1998). These methods have been used previously to examine measures assessing illness perceptions (van Oort et al., 2011), theory of planned behavior (D. P. French et al., 2007) and quality of life (Westerman et al., 2008).

To achieve the objective of adolescents with IDD understanding the intended meaning of each item, several changes were made based on recommendations and discussed to ensure that there was consensus among the participants in the group. Consequently, when a situation arose that the adolescents and parents did not agree, discussion occurred to seek agreement. If agreement could not be made, the insights of the adolescent ruled to ensure that the wording was appropriate and understandable when participants answered the questions later in this dissertation study. If there was lack of agreement between those with intellectual disabilities and those with autism spectrum disorder, the key was on simplifying and modifying to ensure both groups understood the
wording to arrive at an agreeable end. Thus, if the wording needed to be simplified further for an adolescent(s) with intellectual disabilities and it was still understandable to the adolescents with autism, then this change was made. The primary goal was to ensure open sharing of ideas from all involved in the focus group without resulting in undue pressure from the group.

Step 4

For the final step in the measurement modification process, I utilized an adolescent developmental scholar and a disability scholar. I served as the arbitrator in the process. Troy Beckert is a professor at Utah State University in Human Development and Family Studies. Trenton Landon is an assistant professor at Utah State University in Rehabilitation Counseling. After completing a draft of the modified measures with parents and their adolescent child with IDD, including initial feedback, preliminary modifications made by me, and the final modifications resulting from the think aloud group, the adolescent developmental and disability scholars provided input on face validity and overall question structure to promote conceptual integrity of each measure.

Each of the scholars were provided with both the original measures and a draft copy of the modified measure. Before meeting as a group, each scholar independently reviewed and made comments on suggestions for adjustment to measure items based on anticipated psychometric properties. The primary focus of this step was to examine for the continuity of word meaning between the original and modified versions. Once this step was completed, the developmental and the disability scholars met with me to make final revisions to the measures. This step involved having the original measure to
compare and ensure that the changes in wording did not modify the overall meaning, thus maintaining face validity of each measure. During the meeting, the two scholars and I discussed suggestions for adjustment as a group. Each of the measure items were addressed and a consensus decision on how to proceed was made. Changes were made to ensure that wording was simplified and understandable to all adolescents with IDD while seeking to maintain the psychometric integrity of the measures.

**Phase Two: Measurement Validation and Assessing**

**Psychosocial Development**

With the final draft of the modified measures complete, the next phase in the study was to assess the psychometric properties, including validity and reliability of scores, of the modified measures of psychosocial development. To accomplish this, typically developing adolescents completed both the original and modified measures to assess whether reliability and validity of psychosocial development measures was maintained after modifications. Additionally, phase two addressed research questions two and three. Adolescents with IDD answered questions on the modified measures to assess differences in the type and severity of disability and psychosocial developmental outcomes. Further, employing scores from both adolescents with IDD and typically developing adolescents on the modified measures, preliminary comparisons and conclusion regarding psychosocial development were made. Because adolescents, both those with and those without IDD, are minors, parental consent was obtained prior to the adolescent providing assent to participate.
Sample Characteristics

Overall Characteristics

The average age of the 282 adolescents participating in Phase 2 of this study (both typically developing and those with disability) was 15.91 years of age ($SD = 2.86$). More adolescent girls (55.3%) participated than boys (43.3%) and nonbinary adolescents (1.4%). The sample was mostly White (70.9%) with the remainder of adolescents self-identifying their ethnicity as follows: 10.3% African American/Black and 10.3% Hispanic/Latinx, 3.9% multiple ethnicities, 2.1% Asian, 1.4% American Indian or Alaskan Native, and 1.1% Pacific Islander/Hawaiian. Of the 282 participants, 90.8% were still in school (52.7% in middle school, 25.3% in high school, and 12.8% in college or post high program). A large percentage of adolescents (86.5%) had at least one sibling.

Adolescents with Intellectual Disabilities and Autism Spectrum Disorder

Recruitment of Adolescents with Disabilities

Adolescents with IDD were first recruited through a snowball sampling technique through Parent and Family Support Networks, social media, and word of mouth. Due to lack of sufficient sample size ($n = 60$), a Qualtrics panel was purchased to obtain the remaining participants ($n = 101$). The modified measure, created to enhance comprehension and accuracy in measuring psychosocial development among adolescents with IDD, was completed online using Qualtrics.
Sample Characteristics of Adolescents with Disabilities

The average age of the adolescents with either intellectual or developmental disabilities was 16.42 (SD = 3.08). Half the sample identified as girls (50.3%), 48.4% identified as boys, and 1.3% identified as nonbinary. Of the adolescents with IDD subsample, 63.3% were White, 16.8% were African American/Black, 11.2% were Hispanic/Latinx, 3.1% were multiple ethnicities, 2.5% were American Indian or Alaska Native, 2.5% were Asian, and 0.6% were Pacific Islander/Hawaiian. The diagnostic disability type of the subsample included 63.4% with intellectual disabilities as their primary diagnosis and 36.6% had autism spectrum disorder as their primary diagnosis. The diagnostic severity breakdown of the subsample was 41.6% had mild ID diagnosis, 21.7% had moderate ID, 29.8% had level 1 ASD, and 6.9% had level 2 ASD. The majority of participants (83.9%) were either still in school (junior high/middle school, senior high school, or college) or in a post high school or transition program. Most of the adolescents with disabilities in this sample (79.5%) had at least one sibling. Table 1 contains detailed demographic information for adolescents with IDD.

Adolescents Without Intellectual and/or Developmental Disabilities

Recruitment of Adolescents without IDD

Neurotypical adolescents were recruited through a snowball sampling technique through social media and word of mouth. The primary purposes of including neurotypical adolescents was to assess the validity of the modified measures. Therefore, both the original and modified measure were completed online by participants using Qualtrics.
Table 1

Demographic Characteristics of Adolescent with IDD Participants

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Mild ID</th>
<th>Moderate ID</th>
<th>Level 1 ASD</th>
<th>Level 2 ASD</th>
<th>Full sample</th>
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<td>%</td>
<td>n</td>
<td>%</td>
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<td>0.0</td>
<td>10</td>
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<tr>
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<td>13.4</td>
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<tr>
<td>Siblings</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>8</td>
<td>22.9</td>
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</table>

Note. Percentages may not add up to 100 due to rounding.
Sample Characteristics of Adolescents Without IDD

The average age of the neurotypical adolescents was 15.23 (SD = 2.39) and had more adolescent girl participants (61.9%) than boys (36.4%) and non-binary adolescent (1.7%) participants. The neurotypical adolescent subsample was predominately White (80.9%) with the remainder of adolescents self-identified their ethnicity as follows: 9.1% Hispanic/Latinx, 4.9% multiple ethnicities, 1.7% African American/Black, 1.7% Asian, and 1.7% Pacific Islander/Hawaiian. 94.2% of neurotypically developing participants were still in school; 10.8% in college, 49.6% in senior high school, and 33.8% in middle school. 95.9% of all neurotypical adolescent participants reported having at least one sibling. Table 2 contains detailed demographic information for adolescents without IDD.

Measurement

The focus of this dissertation was to modify existing measures of psychosocial development and establish psychometric properties of those modified measures. All survey instruments utilized have current utility in measuring constructs of psychosocial development in typically developing adolescents. The total number of items across the five original measures employed for this dissertation was 117. The questions for both the original measures and the modified measures are found in Appendix C.

Demographics

Participants, both adolescents with IDD and typically developing adolescents, were asked basic demographic questions about their gender, age, year in school, and
Table 2

Demographic Characteristics of Adolescent without IDD Participants

<table>
<thead>
<tr>
<th>Demographic</th>
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<th>%</th>
</tr>
</thead>
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<td><strong>Ethnicity</strong></td>
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<td></td>
</tr>
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<td>0</td>
</tr>
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<td>Asian</td>
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<td>Freshman/sophomore</td>
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<td>Junior/senior</td>
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<tr>
<td>College</td>
<td>13</td>
<td>10.8</td>
</tr>
<tr>
<td>No longer in school</td>
<td>7</td>
<td>5.8</td>
</tr>
<tr>
<td><strong>Siblings</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only child</td>
<td>5</td>
<td>4.1</td>
</tr>
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<tr>
<td>4 or more</td>
<td>42</td>
<td>34.8</td>
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</tbody>
</table>

*Note.* Percentages may not add up to 100 due to rounding.
ethnicity. Year in school was divided by grade level into 9 options: 6th, 7th, 8th, 9th, 10th, 11th, 12th, College, and No Longer in School. Additionally, an option of Post High Program was included for adolescents with IDD. Additionally, adolescents with IDD were asked questions concerning the types and severity of IDD, disability services currently being received, and educational accommodations.

**Self-Esteem**

The Rosenberg Self-Esteem scale (RSE) is a commonly used measure of self-esteem. The 10-item inventory attempts to measure both barometric and baseline self-esteem responses using a Likert-scale format 1 (strongly disagree) up to 4 (strongly agree). Previous scores from studies have demonstrated good psychometric properties. In a sample of 2,168 adolescents, a Cronbach’s alpha of .87 was reported (Small & Luster, 1994). The test-retest reliability for this measure revealed correlations of $r = .85$ and $r = .88$ when given over a two-week period (Rosenberg, 1979). Convergent validity between the RSE and the Learner Self-Esteem Scale correlated at .72 (Savin-Williams & Jaquish, 1981). For the modified and original measure, self-esteem scores were summed and averaged to give a self-esteem score for each adolescent.

**Cognitive Autonomy**

The Cognitive Autonomy and Self-Evaluation (CASE) inventory was used to assess adolescent cognitive autonomy. The CASE inventory is a 27-item Likert-scale format measure. The response options range from 1 (strongly disagree) to 5 (strongly agree). The measure has five subscales: evaluative thinking (eight items), decision-
making (six items), voicing opinions (five items), comparative validation (five items), and self-assessing (three items). The original study (Beckert, 2007) conducted among North American Teenagers, had Cronbach alpha internal reliability coefficients of .87 for evaluating thinking, .77 for decision-making, .80 for voicing opinions, .64 for comparative validation, and .73 for self-assessing. Additional studies have also demonstrated good psychometric properties associated with scores on this measure (Beckert et al., 2015; Lee & Beckert, 2012). Scores on both the original and modified measure were averaged for each of the subscales. Higher scores in each subscale indicate an advanced cognitive autonomous tendency in that subscale. Higher scores across all subscales represent an increased propensity toward cognitive autonomy.

**Parent and Peer Attachment**

The Modified Inventory of Parent and Peer Attachment (IPPA; Raja et al., 1992) is a 24-item scale used to assess perceived social support from parents and friends separately. The modified version of the IPPA is divided into 12 items measuring parent-child relationships and 12 items measuring friendship. Response options range from 1 (never true) to 5 (always true). The scores from each score are summed and averaged to create a score for overall attachment quality of the relationships, parents and peers separately scored. Scores from the initial and subsequent studies have demonstrated good reliability, Cronbach alpha coefficients between .72 and .91 across scores on both the peer and parent scales (Armsden & Greenberg, 1987) and test-retest reliability scores in a sample of 935 adolescents were .82 and .80 for the scores of each scale (Raja et al., 1992). Validity was established through moderately to high correlations to Family and
Social Self scores and the Tennessee Self-Concept Scale (Armsden & Greenberg, 1987). For both the original and modified measure measures, average scores for both parent and peer attachment scales were created. Higher scores indicated higher levels of attachment.

**Behavioral and Emotional Autonomy**

The Adolescent Autonomy Questionnaire (AAQ) is an autonomy measurement developed by Noom et al. (2001). The AAQ consists of three subscales (attitudinal, emotional, and behavioral), each consisting of five items, and use a Likert-scale format in which participants scores range from 1 (not at all descriptive of me) to 5 (very descriptive of me). Only the behavioral and emotional autonomy subscale items from the AAQ were modified and used in this study. The scores from the original sample of 400 Dutch adolescents yielded good reliability scores (.64 for behavioral autonomy and .60 for emotional autonomy), as well as convergent and divergent validity (Noom et al., 2001). For the original and modified autonomy measure, scores were summed and averaged to create an overall autonomy score for each of the subscales. Thus, there was one score for behavioral autonomy and one for emotional autonomy.

**Identity Formation**

The Modified Extend Objective Measure of Ego Identity Status scale (The Modified EOMEIS) is a 40-item scale developed by Akers et al. (1998). Each item was designed to measure a specific identity status (i.e., foreclosure, diffused, moratorium, and achievement). The response values range from 1 (strongly disagree) to 5 (strongly agree). Cronbach alpha internal reliability coefficient for each identity status score in the original
study of 1,159 adolescents in the U.S. were good: .74 for achievement, .71 for
moratorium, .79 for foreclosure, and .78 for diffusion (Akers et al., 1998).

Using previously employed statistical techniques (Lee, 2010), the summed
subscale scores of the modified measures was obtained to form a continuous measure of
achievement, moratorium, foreclosure, and diffusion. Previous studies (Jones et al., 1994;
Lee, 2010) have used standardized scores, which allowed for categorization of
participants into statuses. However, there was a large number of participants who were
unable to be classified, or as Jones et al. referred to them, in transition. For the analyses
of this dissertation, summed scores were used for participants. This resulted in
participants having a score for each status (e.g., achievement, moratorium, foreclosure,
and diffusion).

Data Analysis

Statistical analyses in this study were run using SPSS 26.0 and Mplus 8.1. Before
running analyses, scale scores for each measure, as specified above, were created. These
were created for adolescents with IDD on the modified measures and on both the
modified and original measures for adolescents without IDD. As part of this step,
preliminary analyses were conducted to explore the frequency distribution for each
variable. Scale alignment was assessed as part of research question one.

Research Question 1

To answer the first research question, “How do text-revised modifications of
existing self-report measures on psychosocial development constructs impact the
psychometric properties of the measures for neurotypical adolescents?”, a series of confirmatory factor analyses (CFA) were run to evaluate validity of the modified measures. A CFA was run for each measure, with a separate CFA run for each scale in the CASE inventory. Comparisons between model fit for typically developing adolescent scores on the original measures compared to the typically developing adolescent scores on the modified measure were assessed, specifically comparisons between Akaike information criterion (AIC; Akaike, 1974) and Bayesian information criterion (BIC; Stone, 1979). A small difference in AIC and BIC would indicate that the modification did not significantly impact model fit. Thus, indicating that validity of scores on the measure was not impacted by the modification.

Further, Cronbach alpha coefficients were calculated for the scores on both the original and modified measures for typically developing adolescents and the modified measures for adolescents with IDD. This allowed for assessment of the reliability of the measures. Cronbach’s alpha scores above .60 are considered acceptable reliability and above .70 indicate good internal reliability (Henson, 2001). Thus, Cronbach alpha coefficient scores for participant scores measures above .60 in this study would indicate at least acceptable reliability for that measure. If a measure has multiple subscales, then Cronbach alpha coefficient scores were obtained for each subscale using the same parameters mentioned above—reliability scores above .60.

**Research Question 2 (Within IDD Variance)**

For the second research question, “How do a young person’s psychosocial developmental outcomes differ between those with different types and severities of
IDD?”, a series of ANOVAs was employed to examine how the combination of type and severity of disability influenced each of the psychosocial developmental outcomes. This was the most appropriate analysis for the scope of the research question as it allows for the analysis of differences on a continuous dependent variable between independent grouping variables. The independent variables for this research question are categorical and the dependent variables are measured on an interval level. In this analysis, the dependent variable (psychosocial developmental outcome) was compared by disability severity. Disability severity has four groups (Mild ID, Level 1 ASD, Moderate ID, and Level 2 ASD). A statistically significant score difference between the mean scores of disability severity groups would indicate that there is a difference for that area of psychosocial development. A Least Significant Difference (LSD) post-hoc test was used for multiple comparisons for each significant ANOVA to determine where the statistical differences within IDD were based on severity.

**Research Question 3 (Between Adolescents with and without IDD)**

The third research question, “How does psychosocial development differ between adolescents with and without IDD?”, was answered by conducting a series of ANOVAs to examine differences between adolescents with and without IDD. In this analysis, the dependent variable (psychosocial developmental outcome) was compared by IDD severity. Disability severity has five groups (No Disability, Mild ID, Level 1 ASD, Moderate ID, and Level 2 ASD). A statistically significant score difference between the mean scores of disability severity groups would indicate that there was a difference for
that area of psychosocial development. A Least Significant Difference (LSD) post-hoc
test was used for multiple comparisons for each significant ANOVA to determine where
the statistical differences between adolescents with and without IDD were based on
severity.
CHAPTER IV

RESULTS

The purpose of this dissertation was (1) to develop modified versions of common psychosocial assessments of adolescent development specifically for adolescents with IDD, (2) identify areas of psychosocial development that differ within adolescents with IDD based on type and severity of disability, and (3) examine differences in current psychosocial developmental outcomes between adolescents with IDD and neurotypically developing adolescents. This study was guided by the overarching research question, “Can self-report measures be modified to the comprehension of adolescents with mild to moderate IDD such that the instruments adequately evaluate psychosocial development both for adolescents in this population and also for typically developing youth?” To accomplish this, two distinct steps were necessary. First, modified versions of common psychosocial assessments were developed for adolescents with mild to moderate IDD. Details of steps taken to develop the modified instrument were covered in the previous chapter. Once the instrument was finalized, I then evaluated several of its psychometric properties with neurotypical adolescents. This step allowed me to answer the first research question.

For the second step, I assessed psychosocial development using the newly developed instrument with adolescents with IDD and their neurotypical counterparts. This step was necessary for me to address the remaining research questions to examine psychosocial development among adolescents, both with and without IDD. This chapter outlines the results of these analyses.
Modification and Construction of Psychosocial Developmental Measures

As a brief review from the detailed explanation in the last chapter, a revised instrument emerged after several careful steps of text revision. The first two steps included initial recommended changes from adolescents with IDD and their parents, which I followed with an initial compiling and review to ensure face validity. The final two steps involved reexamining the initial modifications with the adolescents with IDD and their parents, followed by a final review with an adolescent scholar and a disability scholar.

Two important trends arose from the modification process. First, adolescents with IDD struggled to comprehend the questions that had more than one line of inquiry. In fact, identity formation was the most difficult scale for adolescents with IDD to modify due to needing to address more than one line of inquiry when answering the question (e.g., *I know my parents do not like some of my friends, and I am not sure what to do about it yet*). Both adolescents with IDD and their parents identified that having two statement made it more complex and it was difficult to know which part to respond to, particularly if the two statements could not be answered similar (e.g., agree with *I know my parents do not like some of my friends*, while disagreeing with *I am not sure what to do about it yet*).

The second trend during the modification process was that adolescents with IDD also had difficult with understanding questions that were negatively worded. Adolescents with IDD and their parents identified that it could be confusing for the adolescent to comprehend the questions with the back and forth of some items worded positively and
some items worded negatively. Further, it was unclear for the adolescent with IDD about whether or not they had answered a survey item that was asked in both a positive (e.g., I find it difficult to start a new activity on my own) and negative (e.g., I can easily start new tasks or activities on my own) way.

Validity and Reliability of Modified Measures

Once the revision was finalized, the instrument required assessment for psychometric properties. As the purpose was to develop a modified version of common psychosocial assessments of adolescent development for adolescents with mild to moderate ID and adolescents with Level 1 to 2 ASD, a necessary step was to have neurotypical adolescents complete both the original and modified measures. Therefore, in the results that follow analyses will include scores for neurotypical adolescents on both the original and the modified versions as well as scores for adolescents with IDD on the modified version of the measures.

Confirmatory Factor Analysis

The first research question that guided this study asked, “How does text-revision modifications of existing self-report measures on psychosocial development constructs impact the psychometric properties on scores for neurotypical adolescents?” The multifaceted nature of psychosocial development, as previously explained, includes self-esteem, cognitive autonomy, emotional autonomy, behavioral autonomy, parent and peer attachment, and identity formation. I executed a series of confirmatory factor analyses (CFA) to evaluate validity of the modified measures. To establish good model fit, I
compared the Akaike information criterion (AIC; Akaike, 1974) and Bayesian information criterion (BIC; Stone, 1979), and followed common model fit expectations involving chi-square, CFI, and RMSEA (Kline, 2016; Schreiber et al., 2006).

The CFAs for each psychosocial development measure for both groups of adolescents (with and without IDD) are found in Figures 1-13, each figure is discussed and shown separately in this chapter. With the exception of the Modified EOMEIS, all scales, after item modification, arrived at good model fit and theoretical soundness.

**Self-Esteem**

The 10-item Rosenberg Self-Esteem scale (RSE) is a commonly used measure of self-esteem. As seen in Table 3, all 10 items required rewording.

**Table 3**

*Wording of Original and Modified Measures of Self-Esteem*

<table>
<thead>
<tr>
<th>Item</th>
<th>Original measure</th>
<th>Modified measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I feel that I am a person of worth, at least on an equal plane with others.</td>
<td>I feel that I am a person that matters.</td>
</tr>
<tr>
<td>2</td>
<td>I feel that I have a number of good qualities.</td>
<td>I feel that there are many good things about me.</td>
</tr>
<tr>
<td>3</td>
<td>All in all, I am inclined to feel that I am a failure.</td>
<td>Overall, I believe that I am a failure.</td>
</tr>
<tr>
<td>4</td>
<td>I am able to do things as well as most other people.</td>
<td>I am able to do things as well as other people.</td>
</tr>
<tr>
<td>5</td>
<td>I feel I do not have much to be proud of.</td>
<td>I do not feel that I have much to be proud of.</td>
</tr>
<tr>
<td>6</td>
<td>I take a positive attitude toward myself.</td>
<td>I have a positive attitude about myself.</td>
</tr>
<tr>
<td>7</td>
<td>On the whole, I am satisfied with myself.</td>
<td>For the most part, I am okay with who I am.</td>
</tr>
<tr>
<td>8</td>
<td>I wish I could have more respect for myself.</td>
<td>I wish I could respect myself more.</td>
</tr>
<tr>
<td>9</td>
<td>I certainly feel useless at times.</td>
<td>Sometimes I feel useless.</td>
</tr>
<tr>
<td>10</td>
<td>At times I think I am no good at all.</td>
<td>Sometimes I think I am no good at all.</td>
</tr>
</tbody>
</table>

*Note:* Items reworded during the modification process are **bold**.
The first CFAs included all items from the RSE. None of the three models (one for adolescents with IDD, one for neurotypical adolescents original measure, and one for neurotypical adolescents modified measure) had a good fit (see Table 4).

**Table 4**

*Initial Model Fit Indices for Self-Esteem*

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$ (35)</th>
<th>$p$</th>
<th>RMSEA</th>
<th>95% CI</th>
<th>CFI</th>
<th>TLI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurotypical adolescents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>original</td>
<td>116.168</td>
<td>&lt; .0001</td>
<td>.138</td>
<td>[.111, .167]</td>
<td>.895</td>
<td>.865</td>
<td>.055</td>
</tr>
<tr>
<td>modified</td>
<td>143.875</td>
<td>&lt; .0001</td>
<td>.160</td>
<td>[.134, .188]</td>
<td>.863</td>
<td>.824</td>
<td>.062</td>
</tr>
<tr>
<td>Adolescents with IDD</td>
<td>241.017</td>
<td>&lt; .0001</td>
<td>.191</td>
<td>[.169, .214]</td>
<td>.668</td>
<td>.573</td>
<td>.126</td>
</tr>
</tbody>
</table>

I further evaluated the self-esteem measure and found a need to separate into positive and negative groupings within the measure. All items that were originally negatively worded (e.g., *I certainly feel useless at times; Sometimes I feel useless*) were grouped together. The same was done for the positively worded items (e.g., *I take a positive attitude toward myself; I have a positive attitude about myself*). Figure 1 represents the revised self-esteem CFA with factor loadings.

For neurotypical adolescents, the two CFA models (original and modified measures), each with separate positive and negative groupings, revealed acceptable fit (original: $\chi^2$ (34) = 71.601, $p = .0001$; RMSEA = .098 (95% CI [.067, .130]); CFI = .950; TLI = .932; SRMR = .050; AIC = 2215.568; BIC = 2305.033; and modified: $\chi^2$ (34) = 85.920, $p < .0001$; RMSEA = .118 (95% CI [.088, .148]); CFI = .932; TLI = .905; SRMR = .068; AIC = 2243.206; BIC = 2335.467). For adolescents with IDD, the model also
revealed adequate fit to the data: $\chi^2 (34) = 73.814, p = .0001; \text{RMSEA} = .085 (95\% \text{ CI} [0.059, 0.112]); \text{CFI} = .936; \text{TLI} = .915; \text{SRMR} = .057.$

**Figure 1**

*Self-Esteem CFA Model*

**Cognitive Autonomy**

The CASE inventory is comprised of five subscales. To evaluate the validity of both the original and modified cognitive autonomy scales, separate CFAs were run for each subscale. Figures 2-6 show the CFA models with factor loadings for each subscale, each subscale CFA figure is discussed and shown separately in this section.

**Voicing opinions.** A CFA with all items of Voicing Opinions did not result in good model fit for the modified measure for neurotypical adolescents (see Table 5).

After removing one item (item 19; *keeping opinion to self at school*) that had a
Table 5

*Initial Model Fit Indices for Cognitive Autonomy Voicing Opinions*

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$ (5)</th>
<th>$p$</th>
<th>RMSEA</th>
<th>95% CI</th>
<th>CFI</th>
<th>TLI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurotypical adolescents</td>
<td>3.171</td>
<td>.6737</td>
<td>.000</td>
<td>[.000, .099]</td>
<td>1.00</td>
<td>1.00</td>
<td>.025</td>
</tr>
<tr>
<td>original</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>modified</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adolescents with IDD</td>
<td>10.500</td>
<td>.0623</td>
<td>.083</td>
<td>[.000, .153]</td>
<td>.959</td>
<td>.918</td>
<td>.037</td>
</tr>
<tr>
<td>modified</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

low factor loading, I achieved good model fit across the two neurotypical adolescent models (original: $\chi^2$ (2) = 1.305, $p = .5206$; RMSEA = .000 (95% CI [.000, .159]); CFI = 1.000; TLI = 1.000; SRMR = .019; AIC = 1232.216; BIC = 1265.765, and modified: $\chi^2$ (2) = 1.269, $p = .5303$; RMSEA = .000 (95% CI [.000, .158]); CFI = 1.000; TLI = 1.000; SRMR = .017; AIC = 1276.396; BIC = 1309.945). For adolescents with IDD, the intact voicing opinions subscale model had good model fit (see Table 5). For the balance with the neurotypical model and future analyses, I also ran a CFA with item 19 (*keeping opinion to self at school*) removed, resulting in a satisfactory model fit: $\chi^2$ (2) = 5.363, $p = .0684$; RMSEA = .102 (95% CI [.000, .211]); CFI = .972; TLI = .915; SRMR = .030.

Figure 2 shows the revised cognitive autonomy voicing opinions CFA.

**Decision making.** There was good model fit for the initial models of decision making for neurotypical adolescents for both original and modified measure models, and satisfactory model fit for the modified measure for adolescents with IDD (see Table 6 and Figure 3). AIC was 1608.094 for the original measure and 1630.080 for the modified measure and BIC was 1658.418 for the original measure and 1680.404 for the modified measure.
Figure 2

*Cognitive Autonomy Voicing Opinions CFA Model*

![Cognitive Autonomy Voicing Opinions CFA Model Diagram]

*Note.* Standardized estimates shown for adolescents for Cognitive Autonomy Voicing Opinions. Factor loadings for original measure, modified measure for neurotypical adolescents, and modified measure for adolescents with IDD.

| Table 6 |

*Initial Model Fit Indices for Cognitive Autonomy Decision Making*

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$ (9)</th>
<th>$p$</th>
<th>RMSEA</th>
<th>95% CI</th>
<th>CFI</th>
<th>TLI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurotypical adolescents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>original</td>
<td>11.793</td>
<td>.2252</td>
<td>.051</td>
<td>[.000, .121]</td>
<td>.969</td>
<td>.948</td>
<td>.050</td>
</tr>
<tr>
<td>modified</td>
<td>10.095</td>
<td>.3429</td>
<td>.032</td>
<td>[.000, .110]</td>
<td>.991</td>
<td>.985</td>
<td>.042</td>
</tr>
<tr>
<td>Adolescents with IDD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>modified</td>
<td>17.971</td>
<td>.0355</td>
<td>.079</td>
<td>[.020, .132]</td>
<td>.931</td>
<td>.885</td>
<td>.043</td>
</tr>
</tbody>
</table>
Figure 3

*Cognitive Autonomy Decision Making CFA Model*

![Cognitive Autonomy Decision Making CFA Model Diagram](image)

*Note.* Standardized estimates shown for adolescents for Cognitive Autonomy Decision Making. Factor loadings for original measure, modified measure for neurotypical adolescents, and modified measure for adolescents with IDD.

**Comparative validation.** A CFA with all items did not result in good model fit for the original measure for neurotypical adolescents nor the modified measure for adolescents with IDD (see Table 7).

**Table 7**

*Initial Model Fit Indices for Cognitive Autonomy Comparative Validation*

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$ (5)</th>
<th>$p$</th>
<th>RMSEA</th>
<th>95% CI</th>
<th>CFI</th>
<th>TLI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>original</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neurotypical adolescents</td>
<td>8.208</td>
<td>.1452</td>
<td>.073</td>
<td>[.000, .159]</td>
<td>.962</td>
<td>.924</td>
<td>.040</td>
</tr>
<tr>
<td>modified</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adolescents with IDD modified</td>
<td>18.397</td>
<td>.0025</td>
<td>.129</td>
<td>[.069, .195]</td>
<td>.896</td>
<td>.791</td>
<td>.057</td>
</tr>
</tbody>
</table>
For neurotypical adolescents, one item (item 5; *need family members to support choices*) was removed, leading to good fit to the data for both the original measure, $\chi^2 (2) = 1.671, p = .4337; \text{RMSEA} = .000 (95\% \text{ CI } [.000, .171]); \text{CFI} = 1.000; \text{TLI} = 1.000; \text{SRMR} = .023; \text{AIC} = 1318.643; \text{BIC} = 1352.193$, and the modified measure, $\chi^2 (2) = 2.253, p = .3242; \text{RMSEA} = .032 (95\% \text{ CI } [.000, .186]); \text{CFI} = .996; \text{TLI} = .989; \text{SRMR} = .026; \text{AIC} = 1305.945; \text{BIC} = 1339.495$. For adolescents with IDD, after failure to find good model fit with all items included, item 5 was also removed, resulting in good fit to the data, $\chi^2 (2) = 5.777, p = .0557; \text{RMSEA} = .108 (95\% \text{ CI } [.000, .216]); \text{CFI} = .967; \text{TLI} = .900; \text{SRMR} = .037$. See Figure 4 for cognitive autonomy comparative validation CFA.

**Evaluative thinking.** A CFA with all items of Evaluative Thinking did not result

**Figure 4**

*Cognitive Autonomy Comparative Validation CFA Model*

*Note. Standardized estimates shown for adolescents for Cognitive Autonomy Comparative Validation. Factor loadings for original measure, modified measure for neurotypical adolescents, and modified measure for adolescents with IDD.*
in good model fit for either of the models for neurotypical adolescents (see Table 8). Item seven (evaluating my daily actions) did not load well in the two initial neurotypical adolescents CFA models (original and modified measures). With seven remaining items, good model fit was found for the original measure, \( \chi^2 (14) = 21.917, p = .0803; \) RMSEA = .068 (95% CI [.000, .121]); CFI = .970; TLI = .956; SRMR = .040; AIC = 1983.916; BIC = 2042.628, and modified measure, \( \chi^2 (14) = 23.735, p = .0493; \) RMSEA = .076 (95% CI [.004, .127]); CFI = .966; TLI = .948; SRMR = .042; AIC = 1939.425; BIC = 1998.137. For adolescents with IDD, there was good model fit with all eight items in the model, for the balance with the neurotypical model and future analyses, item 7 (evaluating my daily actions) was removed, resulting in good model fit: \( \chi^2 (14) = 19.655, p = .1414; \) RMSEA = .050 (95% CI [.000, .098]); CFI = .985; TLI = .978; SRMR = .037. Figure 5 shows the revised cognitive autonomy evaluative thinking CFA.

Table 8

<table>
<thead>
<tr>
<th>Model</th>
<th>( \chi^2 (20) )</th>
<th>( p )</th>
<th>RMSEA</th>
<th>95% CI</th>
<th>CFI</th>
<th>TLI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurotypical adolescents original</td>
<td>51.721</td>
<td>.0001</td>
<td>.114</td>
<td>[.077, .153]</td>
<td>.902</td>
<td>.863</td>
<td>.062</td>
</tr>
<tr>
<td>Neurotypical adolescents modified</td>
<td>52.002</td>
<td>.0001</td>
<td>.115</td>
<td>[.077, .154]</td>
<td>.905</td>
<td>.866</td>
<td>.064</td>
</tr>
<tr>
<td>Adolescents with IDD modified</td>
<td>37.672</td>
<td>.0097</td>
<td>.074</td>
<td>[.036, .110]</td>
<td>.959</td>
<td>.943</td>
<td>.045</td>
</tr>
</tbody>
</table>

Self-assessing. Because self-assessing is a three-item measure, all models (three items; see Figure 6) had model fit (just identified) with the same model fit indices: \( \chi^2 (0) = 0.000, p = .000; \) RMSEA = .000 (95% CI [.000, .000]); CFI = 1.000; TLI = 1.000;
Figure 5

Cognitive Autonomy Evaluative Thinking CFA Model

Note. Standardized estimates shown for adolescents for Cognitive Autonomy Evaluative Thinking. Factor loadings for original measure, modified measure for neurotypical adolescents, and modified measure for adolescents with IDD.

Figure 6

Cognitive Autonomy Self-Assessing CFA Model

Note. Standardized estimates shown for adolescents for Cognitive Autonomy Self-Assessing. Factor loadings for original measure, modified measure for neurotypical adolescents, and modified measure for adolescents with IDD.
SRMR = .000. AIC was 892.224 for the original measure and 866.198 for the modified measure and BIC was 917.386 for the original measure and 891.360 for the modified measure.

**Items from cognitive autonomy subscales.** Table 9 provides a summary of the items from the cognitive autonomy subscales, items removed from the cognitive autonomy subscales for purpose of model fit are in *green*. All items, except for item 26, required rewording for adolescents with IDD.

**Behavioral Autonomy**

The five-item behavioral autonomy subscale from the Adolescent Autonomy Questionnaire (AAQ) is found in Table 10. During the modification process, items one, three, and five required rewording. I first ran CFA with all items from the AAQ behavioral autonomy subscale. While the original measure for neurotypical adolescents had good model fit, neither of the modification models (one for adolescents with IDD, one for neurotypical adolescents) had a good fit (see Table 11).

Further evaluation of the behavioral autonomy measure found that the sole negatively worded item (item 2; *difficult to start activity on my own*) needed to be removed. Figure 7 is the revised behavioral autonomy CFA models with factor loadings.

For neurotypical adolescents, the two models had good fit to the data (original: $\chi^2 (2) = 0.070, p = .9658$; RMSEA = .000 (95% CI [.000, .000]); CFI = 1.000; TLI = 1.000; SRMR = .004; AIC = 1328.218; BIC = 1361.768 and modified: $\chi^2 (2) = 2.142, p = .3427$; RMSEA = .024 (95% CI [.000, .184]); CFI = .997; TLI = .990; SRMR = .028; AIC = 1408.956; BIC = 1442.506. For adolescents with IDD, the model was also a good fit to
**Table 9**

*Wording of Original and Modified Measures of Cognitive Autonomy*

<table>
<thead>
<tr>
<th>Item</th>
<th>Original measure</th>
<th>Modified measure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Voicing Opinions</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>If I have something to add to a class discussion, I speak up.</td>
<td>I speak up if I have something to say in class.</td>
</tr>
<tr>
<td>4</td>
<td>When I disagree with others, I share my views.</td>
<td>When I disagree with others, I tell them why.</td>
</tr>
<tr>
<td>9</td>
<td>I stand up for what I think is right regardless of the situation.</td>
<td>I stand up for what I think is right no matter what is going on.</td>
</tr>
<tr>
<td>13</td>
<td>I feel that my opinions are valuable enough to share.</td>
<td>I feel that my opinions are important and I share them with other people.</td>
</tr>
<tr>
<td>19</td>
<td>At school I keep my opinions to myself.</td>
<td>When I am at school, I keep what I think to myself.</td>
</tr>
<tr>
<td></td>
<td><strong>Decision Making</strong></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>There are consequences to my decisions.</td>
<td>I understand that there are consequences to my choices, either good or bad.</td>
</tr>
<tr>
<td>18</td>
<td>I can tell that my way of thinking has improved with age.</td>
<td>I can tell that my ability to think through things has gotten better as I have gotten older.</td>
</tr>
<tr>
<td>20</td>
<td>I think more about my future today than I did when I was younger.</td>
<td>I think more about my future now than I did when I was younger.</td>
</tr>
<tr>
<td>22</td>
<td>My decision making ability has improved with age.</td>
<td>My ability to make choices has gotten better as I have gotten older.</td>
</tr>
<tr>
<td>24</td>
<td>I am good at evaluating my feelings.</td>
<td>I am good at understanding my feelings.</td>
</tr>
<tr>
<td>25</td>
<td>I am better at decision making than my friends.</td>
<td>I am better at making choices than my friends.</td>
</tr>
<tr>
<td></td>
<td><strong>Comparative Validation</strong></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I need family members to approve my decision.</td>
<td>I need family members to support my choices. *</td>
</tr>
<tr>
<td>14</td>
<td>I need my views to match those of my parents.</td>
<td>I need my opinions to be the same as my parents.</td>
</tr>
<tr>
<td>16</td>
<td>It is important to me that my friends approve of my decisions.</td>
<td>It is important to me that my friends agree with my choices.</td>
</tr>
<tr>
<td>23</td>
<td>I need my views to match those of my friends.</td>
<td>I need my opinions to be the same as the opinions of my friends.</td>
</tr>
<tr>
<td>26</td>
<td>I care about what others think of me.</td>
<td><em>I care about what others think of me.</em> **</td>
</tr>
</tbody>
</table>

*(table continues)*
<table>
<thead>
<tr>
<th>Item</th>
<th>Original measure</th>
<th>Modified measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>I think about the consequences of my decision.</td>
<td>I think about what will happen when I make a choice.</td>
</tr>
<tr>
<td>3</td>
<td>I look at every situation from other people’s</td>
<td>I think about the opinion of other people before</td>
</tr>
<tr>
<td></td>
<td>perspectives before making my own judgment.</td>
<td>making my own choice.</td>
</tr>
<tr>
<td>6</td>
<td>I think of all possible risks before acting on a</td>
<td>I think of all the things that could happen before</td>
</tr>
<tr>
<td></td>
<td>situation.</td>
<td>taking action.</td>
</tr>
<tr>
<td>7</td>
<td>I like to evaluate my daily actions.</td>
<td>I like to review and think through my daily action.</td>
</tr>
<tr>
<td>8</td>
<td>I consider alternatives before making decisions.</td>
<td>I consider other options before making a choice.</td>
</tr>
<tr>
<td>10</td>
<td>I think about how my actions will affect others.</td>
<td>I think about how my actions will affect other people.</td>
</tr>
<tr>
<td>11</td>
<td>I think about how my actions will affect me in the</td>
<td>I think about how my current choices may affect me in</td>
</tr>
<tr>
<td></td>
<td>long run.</td>
<td>the future.</td>
</tr>
<tr>
<td>12</td>
<td>I like to evaluate my thoughts.</td>
<td>I like to review and consider my thoughts.</td>
</tr>
</tbody>
</table>

**Evaluative Thinking**

**Self-Assessing**

<table>
<thead>
<tr>
<th>Item</th>
<th>Original measure</th>
<th>Modified measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>I am good at identifying my own strengths.</td>
<td>I am good at knowing what I do well.</td>
</tr>
<tr>
<td>21</td>
<td>I am best at identifying my abilities.</td>
<td>I am the best person to know what I am able to do and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>what skills I have.</td>
</tr>
<tr>
<td>27</td>
<td>I am the best judge of my talents.</td>
<td>I am the best judge of what I am good at.</td>
</tr>
</tbody>
</table>

*Note.* Items reworded during the modification process are **bold**, those unchanged are *italicized*. Items dropped from CFAs are **green**; items with * were removed only for neurotypical adolescents; items with ** were removed only for adolescents with IDD.

**Table 10**

**Worded of Original and Modified Measures of Behavioral Autonomy**

<table>
<thead>
<tr>
<th>Item</th>
<th>Original measure</th>
<th>Modified measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I go straight for my goal.</td>
<td>I stay focused on my own goals.</td>
</tr>
<tr>
<td>2</td>
<td>I find it difficult to start a new activity on my</td>
<td>I find it difficult to start a new activity on my</td>
</tr>
<tr>
<td></td>
<td>own.</td>
<td>own.</td>
</tr>
<tr>
<td>3</td>
<td>I can easily begin with new undertakings on my own.</td>
<td>I can easily start new tasks or activities on my own.</td>
</tr>
<tr>
<td>4</td>
<td>I am an adventurous person.</td>
<td>I am an adventurous person.</td>
</tr>
<tr>
<td>5</td>
<td>I quickly feel at ease in a new situation.</td>
<td>I quickly feel comfortable in new situations.</td>
</tr>
</tbody>
</table>

*Note:* Items reworded during the modification process are **bold**, those unchanged are *italicized.*
Table 11

Initial Model Fit Indices for Behavioral Autonomy

<table>
<thead>
<tr>
<th>Model</th>
<th>χ² (5)</th>
<th>p</th>
<th>RMSEA</th>
<th>95% CI</th>
<th>CFI</th>
<th>TLI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurotypical adolescents original</td>
<td>9.169</td>
<td>.1025</td>
<td>.083</td>
<td>[.000, .167]</td>
<td>.968</td>
<td>.936</td>
<td>.042</td>
</tr>
<tr>
<td>Neurotypical adolescents modified</td>
<td>16.125</td>
<td>.0065</td>
<td>.136</td>
<td>[.065, .212]</td>
<td>.921</td>
<td>.841</td>
<td>.062</td>
</tr>
<tr>
<td>Adolescents with IDD modified</td>
<td>16.035</td>
<td>.0067</td>
<td>.117</td>
<td>[.056, .184]</td>
<td>.914</td>
<td>.828</td>
<td>.049</td>
</tr>
</tbody>
</table>

Figure 7

Behavioral Autonomy CFA Model

Note. Standardized estimates shown for adolescents for Behavioral Autonomy. Factor loadings for original measure, modified measure for neurotypical adolescents, and modified measure for adolescents with IDD.
the data: $\chi^2 (2) = 0.685$, $p = .7099$; RMSEA = .000 (95% CI [.000, .114]); CFI = 1.000; TLI = 1.000; SRMR = .011.

**Emotional Autonomy**

The five-item emotional autonomy subscale from the Adolescent Autonomy Questionnaire (AAQ) is found below (Table 12). During the modification process, all five items were reworded from the original measure.

**Table 12**

*Wording of Original and Modified Measures of Emotional Autonomy*

<table>
<thead>
<tr>
<th>Item</th>
<th>Original measure</th>
<th>Modified measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>When I act against the will of others, I usually get nervous.</td>
<td>I usually get nervous when I do things that other people do not want me to.</td>
</tr>
<tr>
<td>2</td>
<td>I have a strong tendency to comply with the wishes of others.</td>
<td>I have a habit of doing what other people want me to do.</td>
</tr>
<tr>
<td>3</td>
<td>When I disagree with others, I tell them.</td>
<td>When I disagree with someone, I tell them.</td>
</tr>
<tr>
<td>4</td>
<td>I often agree with others, even if I’m not sure.</td>
<td>I often agree with other people, even if I am not sure.</td>
</tr>
<tr>
<td>5</td>
<td>I often change my mind after listening to others.</td>
<td>I often change my mind after listening to what other people think.</td>
</tr>
</tbody>
</table>

*Note.* Items reworded during the modification process are **bold**.

There was not a good fit for all five items in the neurotypical adolescent models. The modified measure for adolescents with IDD did have good model fit (Figure 8; see Table 13).

For neurotypical adolescents, two items (item three [*tell others when I disagree*], the only positively worded item, and item five [*change mind after listening to others*])
were removed (see Figure 9). With the two items removed, both models fit (just identified). AIC was 999.208 for the original measure and 1008.191 for the modified measure and BIC was 1024.370 for the original measure and 1033.353 for the modified measure.

**Figure 8**

*Emotional Autonomy CFA Model for Adolescents With IDD*

![Diagram of Emotional Autonomy CFA Model](image)

*Note.* Standardized factor loading estimates shown for adolescents with IDD for Emotional Autonomy with all items in model. Factor loadings for modified measure for adolescents with IDD.

**Table 13**

*Initial Model Fit Indices for Emotional Autonomy*

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$ (5)</th>
<th>$p$</th>
<th>RMSEA</th>
<th>95% CI</th>
<th>CFI</th>
<th>TLI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurotypical adolescents original</td>
<td>18.156</td>
<td>.0028</td>
<td>.147</td>
<td>[.078, .223]</td>
<td>.849</td>
<td>.698</td>
<td>.058</td>
</tr>
<tr>
<td>Neurotypical adolescents modified</td>
<td>11.787</td>
<td>.0378</td>
<td>.106</td>
<td>[.023, .186]</td>
<td>.897</td>
<td>.795</td>
<td>.052</td>
</tr>
<tr>
<td>Adolescents with IDD modified</td>
<td>6.813</td>
<td>.2349</td>
<td>.047</td>
<td>[.000, .127]</td>
<td>.985</td>
<td>.970</td>
<td>.032</td>
</tr>
</tbody>
</table>
**Parent Attachment**

The 12-item parent attachment subscale of the Modified Inventory of Parent and Peer Attachment (IPPA) is found below in Table 14. During the modification process, six of the items in the measure were re-worded to promote greater comprehension for all adolescents. The initial CFAs with all items were not good fits for any model (see Table 15).

Subsequent evaluation across all three model groups for parent attachment resulted in items six (*I get angry easily at home*) and nine (*tell parents what is bothering me*) being dropped. For neurotypical adolescents, the analysis revealed two groups within the construct, one group on the parent-adolescent relationship (e.g., *My parents accept me*...
Table 14

Wording of Original and Modified Measures of Parent Attachment

<table>
<thead>
<tr>
<th>Item</th>
<th>Original measure</th>
<th>Modified measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>My parents respect my feelings.</td>
<td>My parents respect my feelings.</td>
</tr>
<tr>
<td>2</td>
<td>I wish I had different parents.</td>
<td>I wish I had different parents.</td>
</tr>
<tr>
<td>3</td>
<td>My parents accept me as I am.</td>
<td>My parents accept me as I am.</td>
</tr>
<tr>
<td>4</td>
<td>My parents sense when I’m upset about something.</td>
<td><strong>My parents can tell when I am upset about something</strong></td>
</tr>
<tr>
<td>5</td>
<td>Taking over my problems with my parents makes me feel ashamed or foolish.</td>
<td>If I talk about my problems with my parents, I feel embarrassed or uncomfortable.</td>
</tr>
<tr>
<td>6</td>
<td>I get upset easily at home.</td>
<td>I get angry easily at home.</td>
</tr>
<tr>
<td>7</td>
<td>My parents have their own problems, so I don’t bother them with mine.</td>
<td>My parents have their own problems, so I don’t bother them with mine.</td>
</tr>
<tr>
<td>8</td>
<td>My parents help me to understand myself better.</td>
<td><strong>My parents help me understand myself better.</strong></td>
</tr>
<tr>
<td>9</td>
<td>I tell my parents about my problems and troubles.</td>
<td>I tell my parents about what is bothering me.</td>
</tr>
<tr>
<td>10</td>
<td>I feel angry with my parents.</td>
<td>I feel angry with my parents.</td>
</tr>
<tr>
<td>11</td>
<td>I don’t get much attention at home.</td>
<td><strong>I do not get to spend much time with my parents.</strong></td>
</tr>
<tr>
<td>12</td>
<td>My parents encourage me to talk about my difficulties.</td>
<td>My parents encourage me to talk about things that are hard for me.</td>
</tr>
</tbody>
</table>

*Note:* Items reworded during the modification process are **bold**, those unchanged are *italicized.*

Table 15

Initial Model Fit Indices for Parent Attachment

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$ (54)</th>
<th>$p$</th>
<th>RMSEA</th>
<th>95% CI</th>
<th>CFI</th>
<th>TLI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurotypical adolescents original</td>
<td>172.677</td>
<td>&lt; .0001</td>
<td>.135</td>
<td>[.113, .158]</td>
<td>.826</td>
<td>.787</td>
<td>.075</td>
</tr>
<tr>
<td>Neurotypical adolescents modified</td>
<td>179.187</td>
<td>&lt; .0001</td>
<td>.138</td>
<td>[.116, .161]</td>
<td>.809</td>
<td>.766</td>
<td>.079</td>
</tr>
<tr>
<td>Adolescents with IDD modified</td>
<td>203.590</td>
<td>&lt; .0001</td>
<td>.131</td>
<td>[.112, .151]</td>
<td>.816</td>
<td>.775</td>
<td>.080</td>
</tr>
</tbody>
</table>
as I am) and one group on communication (e.g., *If I talk about my problems with my parents, I feel embarrassed or uncomfortable*). The CFA models (see Figure 10) indicated acceptable fit to the data for the original measure, $\chi^2 (34) = 48.957, p = .0466$; RMSEA = .060 (95% CI [.008, .096]); CFI = .971; TLI = .961; SRMR = .048; AIC = 3119.343; BIC = 3206.012, and the modified measure, $\chi^2 (34) = 60.517, p = .0034$; RMSEA = .080 (95% CI [.046, .113]); CFI = .949; TLI = .933; SRMR = .053; AIC = 3051.001; BIC = 3137.670.

**Figure 10**

*Parent Attachment CFA Model for Adolescents Without IDD*

![Diagram of Parent Attachment CFA Model](image)

*Note.* Standardized estimates shown for neurotypical adolescents for Parent Attachment. Factor loadings for original measure and modified measure for neurotypical adolescents.

The adolescents with IDD model also had two groups within the parent attachment construct. These groups were aligned on the positively (e.g., *parents encouraging to talk about things that are hard for me*) and negatively (e.g., *not getting to
spend time with parents) worded items. The model (see Figure 11) revealed good fit to the data, apart from a statistically significant chi square value: $\chi^2 (34) = 69.131, p = .0003; \text{RMSEA} = .080 \ (95\% \text{ CI [.053, .107]}); \text{CFI} = .947; \text{TLI} = .930; \text{SRMR} = .051$.

**Figure 11**

*Parent Attachment CFA Model for Adolescents With IDD*

Peer Attachment

The 12-item parent attachment subscale of the Modified Inventory of Parent and Peer Attachment (IPPA) is found in Table 16. During the modification process, eight of the 12 items were rephrased to encourage greater understanding for all individuals (bold text in table). The initial CFAs with all items included were not good model fits (see Table 17).
Table 16

Wording of Original and Modified Measures of Peer Attachment

<table>
<thead>
<tr>
<th>Item</th>
<th>Original measure</th>
<th>Modified measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I like to get my friends’ point of view on things I’m concerned about.</td>
<td>When I am worried, I want my friends’ input.</td>
</tr>
<tr>
<td>2</td>
<td>Taking over my problems with my friends makes me feel ashamed or foolish.</td>
<td>If I talk about my problems with my friends, I feel embarrassed or uncomfortable.</td>
</tr>
<tr>
<td>3</td>
<td>I wish I had different friends.</td>
<td>I wish I had different friends.</td>
</tr>
<tr>
<td>4</td>
<td>My friends encourage me to talk about my difficulties.</td>
<td>My friends encourage me to talk about my worries and problems.</td>
</tr>
<tr>
<td>5</td>
<td>I feel alone or apart when I am with my friends.</td>
<td>When I am with my friends, I still feel alone.</td>
</tr>
<tr>
<td>6</td>
<td>My friends listen to me what I have to say.</td>
<td>My friends listen to what I have to say.</td>
</tr>
<tr>
<td>7</td>
<td>I feel my friends are good friends.</td>
<td>I think my friends are good friends.</td>
</tr>
<tr>
<td>8</td>
<td>When I am angry about something, my friends try to be understanding.</td>
<td>When I am angry about something, my friends try to be understanding.</td>
</tr>
<tr>
<td>9</td>
<td>My friends are concerned about my well-being.</td>
<td>My friends care about me and how I am doing.</td>
</tr>
<tr>
<td>10</td>
<td>I get upset a lot more than my friends know about.</td>
<td>I get upset a lot more than my friends know about.</td>
</tr>
<tr>
<td>11</td>
<td>It seems as if my friends are irritated with me for no reasons.</td>
<td>It seems as if my friends get angry with me for no reason.</td>
</tr>
<tr>
<td>12</td>
<td>I tell my friends about my problems and troubles.</td>
<td>I tell my friends about what bothers me.</td>
</tr>
</tbody>
</table>

Note. Items reworded during the modification process are bold, those unchanged are italicized.

Table 17

Initial Model Fit Indices for Peer Attachment

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$ (54)</th>
<th>p</th>
<th>RMSEA</th>
<th>95% CI</th>
<th>CFI</th>
<th>TLI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurotypical adolescents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>original</td>
<td>202.493</td>
<td>&lt;.0001</td>
<td>.151</td>
<td>[.129, .173]</td>
<td>.745</td>
<td>.688</td>
<td>.097</td>
</tr>
<tr>
<td>Neurotypical adolescents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>modified</td>
<td>161.941</td>
<td>&lt;.0001</td>
<td>.129</td>
<td>[.106, .144]</td>
<td>.820</td>
<td>.780</td>
<td>.084</td>
</tr>
<tr>
<td>Adolescents with IDD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>modified</td>
<td>188.581</td>
<td>&lt;.0001</td>
<td>.124</td>
<td>[.105, .144]</td>
<td>.815</td>
<td>.774</td>
<td>.092</td>
</tr>
</tbody>
</table>
Adjustments to all three models of adolescent peer attachment based on low factor loadings resulted in two items being dropped for subsequent analyses including, items one (*When worried I want friends’ input*) and ten (*upset more than friends know*). Figures 12 and 13 show the revised peer attachment CFA models with factor loadings.

For neurotypical adolescents, an additional item, item 11 (*my friends get angry with me for no reason*), was removed based on low factor loading. The subsequent analysis revealed two groups, one group based on the positively worded items in the measure (e.g., *my friends are good friends*), and the other group contained negatively worded items (e.g., *I feel alone with my friends*). The confirmatory factor analysis models

**Figure 12**

*Peer Attachment CFA Model for Adolescents Without IDD*

*Note.* Standardized estimates shown for neurotypical adolescents for Peer Attachment. Factor loadings for original measure and modified measure for neurotypical adolescents.
Figure 13

Peer Attachment CFA Model for Adolescents With IDD

Note. Standardized factor loading estimates shown for adolescents with IDD for Parent Attachment. Factor loadings for modified measure for adolescents with IDD.

indicated adequate fit for the original measure, $\chi^2 (25) = 51.993, p = .0012; \text{RMSEA} = .094 \text{ (95\% CI [.058, .131]); CFI} = .941; \text{TLI} = .915; \text{SRMR} = .051; \text{AIC} = 2606.835; \text{BIC} = 2687.913$; and the modified measure, $\chi^2 (25) = 57.068, p = .0003; \text{RMSEA} = .103 \text{ (95\% CI [.068, .138]); CFI} = .940; \text{TLI} = .913; \text{SRMR} = .062; \text{AIC} = 2468.136; \text{BIC} = 2549.214$.

For adolescents with IDD the model also showed two groups based on the positively (e.g., encouraged by friends me to talk about problems) and negatively (e.g., wishing for different friends) worded items. The model revealed acceptable fit: $\chi^2 (34) = 58.711, p = .0053; \text{RMSEA} = .067 \text{ (95\% CI [.037, .096]); CFI} = .961; \text{TLI} = .948; \text{SRMR} = .045$. 
Identity Formation

The 40-item Modified Extend Objective Measure of Ego Identity Status scale (The Modified EOMEIS) is designed to measure a specific identity status (i.e., foreclosure, diffused, moratorium, and achievement) within identity subdomains (friendship, dating, work, education, and lifestyle). All items required rewording for comprehension of the target population. Initial confirmatory factor analyses for each identity formation subscale revealed that models were a poor fit (see initial CFA model fits in appendix D). In order to reach good model fit within each of the identity statuses, it was necessary to drop 15 items (30% of items [3 items] in the moratorium subscale, 40% of items [12 items total; 4 items per subscale] in each of the achievement, foreclosure, and difference subscales; resulting in a reduction of 37.5% of items in the total measure). Omitting this many items to achieve model fit compromised the integrity of the subscales and created significant validity issues. Thus, the decision was made to drop the measure of identity formation from subsequent statistical analysis for the present study. The figures showing the CFA models for each identity subscale with factor loadings for the revised models are in Appendix D.

Cronbach Alpha Coefficients

The final step in addressing the first research question, “how does text-revision modification of existing measures impact psychometric properties of scores on psychosocial development constructs for neurotypical adolescents?” was to analyze the scores from the newly modified and refined measures for reliability. A Cronbach’s alpha was obtained for scores on each measure where appropriate.
Table 18 contains the Cronbach’s alphas for respondent scores on the measured scales for each respondent group, both the original and modified versions of the scales, and reliability coefficients from scores on the measures from the original studies are included in each table for reference. Reliability scores for this study ranged from .55 to .92 for participant scores. All but one scale (Original Cognitive Autonomy Decision Making, .55) for these participant scores indicated acceptable internal reliability (Henson, 2001).

Table 18

Cronbach’s Alpha Score for Psychosocial Developmental Measures

<table>
<thead>
<tr>
<th>Psychosocial development measure</th>
<th>Items</th>
<th>Adolescents without IDD original</th>
<th>Adolescents without IDD modified</th>
<th>Adolescents with IDD modified</th>
<th>Original study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-esteem</td>
<td>10</td>
<td>.92</td>
<td>.92</td>
<td>.84</td>
<td>.87</td>
</tr>
<tr>
<td>Cognitive autonomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voicing opinions</td>
<td>4</td>
<td>.65</td>
<td>.72</td>
<td>.72</td>
<td>.80</td>
</tr>
<tr>
<td>Decision making</td>
<td>6</td>
<td>.55</td>
<td>.63</td>
<td>.66</td>
<td>.77</td>
</tr>
<tr>
<td>Comparative validation</td>
<td>4</td>
<td>.68</td>
<td>.65</td>
<td>.68</td>
<td>.64</td>
</tr>
<tr>
<td>Evaluative thinking</td>
<td>7</td>
<td>.84</td>
<td>.82</td>
<td>.84</td>
<td>.87</td>
</tr>
<tr>
<td>Self-assessing</td>
<td>3</td>
<td>.83</td>
<td>.82</td>
<td>.64</td>
<td>.73</td>
</tr>
<tr>
<td>Behavioral autonomy</td>
<td>4</td>
<td>.73</td>
<td>.72</td>
<td>.71</td>
<td>.64</td>
</tr>
<tr>
<td>Emotional autonomy</td>
<td>4</td>
<td>.70</td>
<td>.61</td>
<td>.70</td>
<td>.60</td>
</tr>
<tr>
<td>Parent attachment</td>
<td>12</td>
<td>.90</td>
<td>.89</td>
<td>.89</td>
<td>.82</td>
</tr>
<tr>
<td>Peer attachment</td>
<td>10</td>
<td>.87</td>
<td>.88</td>
<td>.87</td>
<td>.80</td>
</tr>
</tbody>
</table>

Psyhosocial Developmental Differences within IDD

The second research question that guided this study asked, “How do a young person’s psychosocial developmental outcomes differ between the severity and type of disability?” To answer this question, I used a series of Analysis of Variances (ANOVAs).
The rationale for utilizing a series of ANOVAs, rather than a Multivariate Analysis of Variance (MANOVA) was based on the relatively small sample size of each severity subgroup as well as overall groupings of disability type and severity including the same individuals for both domains (type and severity). For each significant ANOVA finding, I used a Least Significant Difference (LSD) post-hoc test for multiple comparisons to find the difference between groups. Table 19 contains the ANOVA results between adolescents with intellectual disabilities (ID) and adolescents with Autism Spectrum Disorder (ASD) on each of the psychosocial development measures, based on disability severity. Each construct within the multi-faceted psychosocial development concept was explored independently to explore the differences between adolescents with IDD.

Table 19

Means, Standard Deviations, and One-Way Analyses of Variance for Psychosocial Development in Adolescents with IDD

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mild ID</th>
<th>Moderate ID</th>
<th>Level 1 ASD</th>
<th>Level 2 ASD</th>
<th>F(3, 157)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>2.86</td>
<td>0.54</td>
<td>2.78</td>
<td>0.54</td>
<td>2.67</td>
</tr>
<tr>
<td>Cognitive autonomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voicing opinions</td>
<td>3.34</td>
<td>0.82</td>
<td>3.14</td>
<td>0.80</td>
<td>3.56</td>
</tr>
<tr>
<td>Decision making</td>
<td>3.74</td>
<td>0.58</td>
<td>3.52</td>
<td>0.68</td>
<td>3.90</td>
</tr>
<tr>
<td>Comparative validation</td>
<td>2.83</td>
<td>0.81</td>
<td>2.91</td>
<td>0.75</td>
<td>3.05</td>
</tr>
<tr>
<td>Evaluative thinking</td>
<td>3.31</td>
<td>0.72</td>
<td>3.13</td>
<td>0.83</td>
<td>3.60</td>
</tr>
<tr>
<td>Self-assessing</td>
<td>3.65</td>
<td>0.72</td>
<td>3.34</td>
<td>0.77</td>
<td>3.67</td>
</tr>
<tr>
<td>Behavioral autonomy</td>
<td>3.34</td>
<td>0.72</td>
<td>3.19</td>
<td>0.95</td>
<td>3.42</td>
</tr>
<tr>
<td>Emotional autonomy</td>
<td>2.91</td>
<td>0.88</td>
<td>3.04</td>
<td>0.86</td>
<td>2.99</td>
</tr>
<tr>
<td>Parent attachment</td>
<td>2.66</td>
<td>0.72</td>
<td>2.51</td>
<td>0.73</td>
<td>2.60</td>
</tr>
<tr>
<td>Peer attachment</td>
<td>2.41</td>
<td>0.67</td>
<td>2.40</td>
<td>0.68</td>
<td>2.74</td>
</tr>
</tbody>
</table>

*p < .05.
Self-Esteem

A one-way ANOVA comparing the mean scores of adolescents with ID (Mild and Moderate) and adolescents with ASD (Level 1 and Level 2), for self-esteem failed to reach statistical significance, $F(3,157) = 0.81, p = .490$.

Cognitive Autonomy

Voicing Opinions

An ANOVA performed to compare the effect of disability severity on voicing opinions revealed that there was not a statistically significant difference between the four severity groups, $F(3, 157) = 1.790, p = .151$.

Decision Making

The one-way ANOVA comparing the effect of disability severity on decisions making revealed that there was a statistically significant difference between the four group, $F(3,157) = 2.86, p = .039$. Post-hoc tests found that there was a significant difference between adolescents with Moderate ID ($M = 3.52, SD = .68$) and adolescents with Level 1 ASD ($M = 3.90, SD = .61$), $p = .007$, 95% C.I. = [-.645, -.1064]. The difference between Moderate ID and Mild ID ($M = 3.74, SD = .58$) approached statistical significance, $p = .083$, 95% C.I. = [-.476, .030]; as did the difference between Moderate ID and Level 2 ASD ($M = 3.89, SD = .55$), $p = .082$, 95% C.I. = [-.790, .048].

Comparative Validation

A one-way ANOVA examining the effect of disability severity on comparative validation revealed a non-significant difference, $F(3,157) = 1.40, p = .244$. 
**Evaluative Thinking**

There was a statistically significant difference, $F(3,157) = 2.86, p = .039$, in the effect of disability severity on evaluative thinking. Further analysis of differences through found a statistically significant difference between adolescents with Level 1 ASD ($M = 3.60, SD = .65$) and adolescents with Mild ID ($M = 3.31, SD = .72$), $p = .046$, 95% C.I. = [.01, .56]; and Moderate ID ($M = 3.13, SD = .83$), $p = .005$, 95% C.I. = [0.14, 0.79].

**Self-Assessing**

The ANOVA exploring the effect of disability severity on self-assessing among adolescents with IDD showed a statistically significant difference, $F(3,157) = 2.84, p = .040$. Further examination found a statistically significant difference between adolescents with Moderate ID ($M = 3.34, SD = .77$) and adolescents with Level 2 ASD ($M = 4.06, SD = .55$), $p = .005$, 95% C.I. = [-1.24, -0.20]. The difference between adolescents with Moderate ID and adolescents with Mild ID ($M = 3.65, SD = .72$) was trending toward significance, $p = .055$, 95% C.I. = [-0.62, 0.06]. Finally, differences between adolescents with Moderate ID and adolescents with Level 1 ASD also approached significance ($M = 3.67, SD = .85$), $p = .059$, 95% C.I. = [-0.66, 0.12].

**Behavioral Autonomy**

There was no significant difference in the effect of disability severity on behavioral autonomy, $F(3,157) = 0.56, p = .640$.

**Emotional Autonomy**

The ANOVA for the effect of disability severity on emotional autonomy in
revealed a nonsignificant difference, $F(3,157) = 0.22, p = .886$.

**Parent and Peer Attachment**

There was a non-significant difference in the effect of disability severity on parental attachment, $F(3,157) = 0.34, p = .793$. Analyses of the effect of disability severity on peer attachment revealed a trending toward statistically significant difference, $F(3,157) = 2.59, p = .055$.

**Psychosocial Developmental Differences of Adolescents**

**With and Without IDD**

The third research question that guided this study asked, “How does psychosocial development differ between adolescents with and without IDD?” To answer this question, I once again used a series of Analysis of Variances (ANOVAs). For each significant ANOVA finding, I used a Least Significant Difference (LSD) post-hoc test for multiple comparisons to find the difference between groups.

As the diagnostic criteria for ID and ASD differ, to fully examine differences between neurotypical adolescents and each of the disability types, a separate ANOVA was completed for each of the disability types and neurotypical adolescents. Table 20 contains the ANOVA results between the neurotypical adolescents and the two adolescents with IDD groups (ID and ASD). Following the previously established process, each construct within the multi-faceted psychosocial development concept, was explored independently.
Table 20

Means, Standard Deviations, and One-Way Analyses of Variance for Psychosocial Development between Adolescents With and Without IDD

<table>
<thead>
<tr>
<th>Measure</th>
<th>Intellectual disabilities</th>
<th>Autism spectrum disorder</th>
<th>Neurotypical</th>
<th>F(2, 279)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>2.83</td>
<td>0.54</td>
<td>2.72</td>
<td>0.63</td>
</tr>
<tr>
<td>Cognitive autonomy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voicing opinions</td>
<td>3.15</td>
<td>0.76</td>
<td>3.35</td>
<td>0.78</td>
</tr>
<tr>
<td>Decision making</td>
<td>3.67</td>
<td>0.63</td>
<td>3.89</td>
<td>0.60</td>
</tr>
<tr>
<td>Comparative validation</td>
<td>2.86</td>
<td>0.78</td>
<td>2.95</td>
<td>0.86</td>
</tr>
<tr>
<td>Evaluative thinking</td>
<td>3.25</td>
<td>0.76</td>
<td>3.55</td>
<td>0.71</td>
</tr>
<tr>
<td>Self-assessing</td>
<td>3.55</td>
<td>0.75</td>
<td>3.74</td>
<td>0.81</td>
</tr>
<tr>
<td>Behavioral autonomy</td>
<td>3.29</td>
<td>0.87</td>
<td>3.39</td>
<td>0.83</td>
</tr>
<tr>
<td>Emotional autonomy</td>
<td>2.96</td>
<td>0.87</td>
<td>3.00</td>
<td>0.75</td>
</tr>
<tr>
<td>Parent attachment</td>
<td>2.66</td>
<td>0.74</td>
<td>2.67</td>
<td>0.75</td>
</tr>
<tr>
<td>Peer attachment</td>
<td>2.41</td>
<td>0.67</td>
<td>2.73</td>
<td>0.78</td>
</tr>
</tbody>
</table>

*  \( p < .05 \).

***  \( p < .001 \).

Self-Esteem

The one-way ANOVA comparing the effect of intellectual disability severity on mean scores of self-esteem between adolescents with ID (Mild ID and Moderate ID) and neurotypical adolescents, revealed a nonstatistical significant difference, \( F(2,220) = .709, p = .493 \). The analysis of the effect of autism severity on self-esteem revealed a nonstatistically significant differences between adolescents with ASD and their neurotypical adolescent peers, \( F(2,177) = 2.067, p = .130 \).
**Cognitive Autonomy**

**Voicing Opinions**

Neurotypical adolescent scores differed significantly from adolescents with ID scores on voicing opinions, $F(2,220) = 4.292, p < .001$. Differences were found through post-hoc LSD testing to be between neurotypical adolescents ($M = 3.53, SD = .70$) and both adolescents with mild ID ($M = 3.21, SD = .76$), $p = .004$, 95% C.I. = [0.10, 0.54], and moderate ID ($M = 3.05, SD = .75$), $p = .001$, 95% C.I. = [0.21, 0.76]. There was no significant difference on voicing opinions for neurotypical adolescents and adolescents with ASD, $F(2,177) = 1.460, p = .235$.

**Decision Making**

Scores from neurotypical adolescents differed significantly from scores from adolescents with ID, $F(2,220) = 4.292, p < .001$. Significant differences were between neurotypical adolescents ($M = 4.11, SD = .48$) and adolescents with Mild ID ($M = 3.74, SD = .58$), $p < .001$, 95% C.I. = [0.20, 0.53]; and Moderate ID ($M = 3.52, SD = .68$), $p < .001$, 95% C.I. = [0.38, 0.80]. Further, neurotypical adolescent scores differed from adolescents with ASD scores, $F(2,177) = 1.460, p = .235$. The significant difference was found through LSD post-hoc testing between neurotypical adolescents and their peers with Level 1 ASD ($M = 3.90, SD = .61$), $p = .017$, 95% C.I. = [0.04, 0.39].

**Comparative Validation**

There was a statistically significant differences between neurotypical adolescent and the two adolescents with ID severity groups, $F(2,220) = 18.322, p < .001$. 
Neurotypically developing adolescents \((M = 3.45, SD = .68)\) scored significantly higher than adolescents with Mild ID \((M = 2.83, SD = .81), p < .001, 95\% \text{ C.I.} = [0.40, 0.84]\), and Moderate ID \((M = 2.91, SD = .75), p < .001, 95\% \text{ C.I.} = [0.25, 0.81]\), in comparative validation. Furthermore, there was a significant difference between neurotypical adolescents and adolescents with ASD, \(F(2,177) = 11.040, p < .001\). Neurotypical adolescents had statistically significantly higher mean scores in comparative validation than adolescents with Level 1 ASD \((M = 3.05, SD = .82), p = .002, 95\% \text{ C.I.} = [0.15, 0.65]\) and adolescents with Level 2 ASD \((M = 2.55, SD = .95), p < .001, 95\% \text{ C.I.} = [0.45, 1.36]\).

**Evaluative Thinking**

The initial one-way ANOVA showed a statistically significant difference between neurotypical adolescent scores and scores from adolescents with ID, \(F(2,220) = 6.552, p = .002\). Further examination of differences between neurotypical adolescents \((M = 3.56, SD = .61)\) and adolescents with ID on evaluative thinking through post-hoc LSD tests revealed there was a significant difference between neurotypical adolescents and adolescents with Mild ID \((M = 3.31, SD = .72), p = .019, 95\% \text{ C.I.} = [0.04, 0.45]\), and Moderate ID \((M = 3.13, SD = .83), p = .001, 95\% \text{ C.I.} = [0.17, 0.69]\) in terms of evaluative thinking. There was no significant difference on evaluative thinking for neurotypical adolescents and adolescents with ASD, \(F(2,177) = .646, p = .525\).

**Self-Assessing**

There was not a statistically significant difference between neurotypical
adolescents ($M = 3.57, SD = .81$) and adolescents with ASD, $F(2,177) = 1.191, p = .150$, nor between adolescents with ID and neurotypical adolescents, $F(2,220) = 1.849, p = .160$.

**Behavioral Autonomy**

The behavioral autonomy scores of neurotypical adolescents did not differ significantly with scores from adolescents with ID, $F(2,220) = 1.897, p = .152$, or adolescents with ASD, $F(2,177) = .559, p = .573$.

**Emotional Autonomy**

The difference in emotional autonomy was non-statistically significant between neurotypical adolescents and their peers with ID, $F(2,220) = 1.897, p = .152$, and ASD, $F(2,177) = .343, p = .710$.

**Parent Attachment**

The difference between the mean scores of neurotypical peers in terms of parental attachment with both their adolescents with ID, $F(2,220) = .679, p = .508$, and adolescents with ASD counterparts, $F(2,177) = .353, p = .703$, were statistically non-significant.

**Peer Attachment**

Adolescents with ID and their neurotypical adolescent peers differed significantly on peer attachment in terms of disability type, $F(2,220) = 10.452, p < .001$. Neurotypical adolescents ($M = 2.81, SD = .65$) rated their attachment with their peers higher than
adolescents with Mild ID ($M = 2.41, SD = .67), p < .001, 95% C.I. = [0.20, 0.60], and Moderate ID ($M = 2.40, SD = .68), p = .002, 95% C.I. = [0.17, 0.67]. There was no significant difference on peer attachment for neurotypical adolescents and adolescents with ASD, $F(2,177) = .286, p = .752.$
CHAPTER V
DISCUSSION

The purpose of this dissertation was (1) to develop modified versions of common psychosocial assessments of adolescent development specifically for adolescents with IDD, (2) identify areas of psychosocial development that differ within adolescents with IDD based on type and severity of disability, and (3) examine differences in current psychosocial developmental outcomes between adolescents with IDD and neurotypically developing adolescents. This dissertation study addressed the over-arching question, “Can self-report measures be modified to the comprehension of adolescents with mild to moderate IDD such that the instruments adequately evaluate psychosocial development both for adolescents in this population and also for typically developing youth?” The study unfolded in two phases, the modification phase and the analysis phase. The first phase involved the development of a modified version of common psychosocial assessments of adolescent development for adolescents with mild to moderate ID and levels one and two ASD. Adolescents with IDD, their parents, an adolescent scholar, a disability scholar, and I were involved in the modification process. The psychometric properties of the modified instrument were then evaluated with neurotypical adolescents to addresses the study’s first research question examining the feasibility of instrument modifications. In the analysis phase, I assessed psychosocial development using the newly modified instrument with adolescents both with and without IDD. This phase provided answers to the second and third research questions examining psychosocial development among adolescents, both with and without IDD.
In this chapter, I discuss the results of each phase of the dissertation, starting with the modification process and ending with the exploration of psychosocial developmental differences within disability type and severity as well as between adolescents with IDD and their neurotypical adolescent peers. I then discuss the implications of these findings, the limitations of the study, and suggestions for future research.

**Construction and Constitution of Modified Measures**

Phase one of the dissertation study addressed the first research question and focused on instrument text modification to accommodate the understanding of adolescents with IDD. This process transpired in four steps. In step one, parents and their adolescent child with IDD reviewed and translated/modified each of the psychosocial development measures into *disability-friendly terminology*. In step two, I compiled and reviewed suggested modifications from the parent-adolescent dyads to ensure that the meanings and concepts of the items and measures were not being changed by the suggested modifications while also maintaining the voice of the adolescents with IDD and their parents in the revisions. In step three, several families were re-engaged in a follow-up focus group to make final rewording changes for understanding. In the final step, with the assistance of an adolescent developmental scholar and a disability scholar, we assessed the conceptual integrity, continuity of word meaning, face validity, and overall question structure of the modified instruments. Two important trends arose from this process. Adolescents with IDD struggled to comprehend both the questions that had more than one line of inquiry and those questions that were negatively worded.
Identity formation was the most difficult scale for adolescents with IDD to grasp because every item contained more than one line of inquiry to consider when answering the question (e.g., *I’ve had many different kinds of friends, and now I have a clear idea of what I look for in a friendship*). No other scale used in this study has this multiple inquiry issue. Thus, the identity measure required modification to every item on that measure for adolescents with IDD to be able to understand the question well enough to respond. In the measure’s original format, participants need to evaluate two components of each item in their answer (Bradburn et al., 2004). The double-barrel nature of questions increased the complexity of the items—an undesirable property—especially for young people with IDD (Dillman et al., 2014). The complexity of double-barrel identity formation items might increase cognitive burden for respondents so that they also take longer to respond to them leading to survey fatigue (Lenzner et al., 2010) and, more concerningly, could result in participants considering only one component of the item and disregarding the other (Menold, 2020).

Another clear trend in comprehension difficulty for participants in the first phase of this study was the challenge created by negatively worded questions. Surveys are often designed with several questions worded negatively to keep respondents from answering the same way for every question (Weijters et al., 2009; Yorke, 2009). However, for adolescents with IDD, this negative wording caused them to pause while answering and created confusion about the actual meaning of the questions worded that way. Across the CFAs for four of the six measures (all except emotional and cognitive autonomy), there was a need to make modifications because of negatively worded questions. The problem
did not seem to be with the negatively worded items, per se. Rather, the back and forth created by having some items worded positively and some items worded negatively led to confusion for these participants. For most scales, simply dropping the negatively worded items (because they were fewer in number) improved the model fit. Dropping the lone positively worded item from the emotional autonomy scale (I *tell others when I disagree*) while keeping the other four negatively worded items also resulted in improved model fit. While there is purpose to utilizing reverse-coded items in survey for measurement fidelity, for these adolescents with IDD the confusion that combination of both positively and negatively worded questions created was detrimental to the purpose of the scales.

**Psychometric Characteristics of Modified Measures**

All measures used in this study required modification to promote ubiquitous comprehension for all adolescents, regardless of disability status. Unfortunately, the identity formation scale failed to maintain integrity throughout this process. As mentioned in the last chapter, significant modification was needed within the Identity Formation subscale, which included omitting so many items to achieve model fit that it led to compromised integrity of the subscales and created significant validity issues. Therefore, the identity scale was not used in subsequent analyses in the study.

Following the modification procedures for all the other scales, reliability and validity were checked. Checking for internal consistency, in terms of Cronbach’s alpha coefficient, is a common procedure to evaluate the reliability of scores on test items (Mills & Gay, 2019). The reliability coefficients for scores from this sample indicated
that, even though these scales were originally designed for neurotypical populations, there was a clear satisfactory pattern of test reliability among the scores from this sample using the modified measures with only one subscale (Cognitive Autonomy Decision Making) having marginally acceptable reliability for the original measure.

There are several ways to demonstrate validity, such as content-related evidence and evidence from the relationship to the other variables. All the measures of psychosocial development used in this study were designed based on a theoretical direction, mostly from an Eriksonian perspective (Erikson, 1950, 1963, 1968). Apart from the Cognitive Autonomy Decision Making CFAs, scale modification was needed.

**Identity Formation for Those with IDD**

While all the other psychosocial development measures can work for both adolescents with and without IDD, it is possible that for identity it might not be possible. There are many of the psychosocial developmental constructs where comparisons and similarities can be explored between adolescents with and without IDD, however there is a need for further understanding of the nuanced differences between these two groups of adolescents in terms of identity formation. As will be further explored later in this chapter, it seems that identity formation questions can be utilized for other minority groups with the addition of a few questions that specifically address the component of their minority identity. However, this may not be possible for individuals with IDD, as disability is a multi-faceted and complex construct that includes some individuals who have physical manifestations of their disabilities (e.g., Down syndrome, cerebral palsy, and fetal alcohol spectrum disorder) while others have hidden disabilities (e.g., autism
spectrum disorder, and traumatic & acquired brain injuries). Further, although there may be some similarities between individuals with a shared diagnosis, the manifestation of the IDD exhibits differently from one individual to the next.

It has been long argued, and empirically supported, that stereotypes affect human development (e.g., Allport, 1954; Crocker et al., 1998; Major & O’Brien, 2005; Stagnor & Schaller, 1996; Steele, 1997; Steele & Aronson, 1995). These stereotypes are rooted in individual beliefs, cultural norms, and societal values. Underscoring the historical and cultural importance of achieving an identity, Erik Erikson (1968) locates identity development “in the core of the individual and yet also in the core of his communal culture...” (p. 22).

As previously mentioned, identity formation was the one area of psychosocial development that required the most modification to accommodate all adolescent respondents, and that ultimately failed to adequately accommodate modification. Identity formation is the pivotal developmental task during adolescence and is life’s most important developmental task within psychosocial theory (Erikson, 1963). However, for adolescents with IDD, identity development takes on more than just the three accepted domains of love, work, and ideology proposed by Erikson. Adolescents with IDD are grappling with the degree to which their disability contributes to or hinders their identity and how they intend to integrate their disability into who they are as a person (Forber-Pratt et al., 2017; Mesa & Hamilton, 2021; Rękosiewicz, 2020).

The overt form (outward appearance) of the disability can be one factor that contributes to the extent to which adolescents decide to incorporate disability into their
identity. Additionally, cultural and societal values and beliefs can contribute to the degree in which an adolescent with IDD will embrace their disability as a component of their identity. Researchers have begun to shift conceptualization of identity development to a multi-dimensional, non-linear process (de Barros & Morrison, 2022; Mohr & Fassinger, 2000; Partow et al., 2021) in which there may be multiple trajectories and components to healthy identity formation. This could include multiple trajectories, components, and processes for deciding on the level of incorporation of disability within an adolescent’s identity.

As a marginalized population, individuals with IDD often experience negative stereotyping, biases, and discrimination. As a result, identity formation for adolescents with IDD can be negatively impacted (Maxey & Beckert, 2017). The stigma within their communities may also restrict an adolescent’s ability to explore their identity (Zolkowska & Kaliszewska, 2014) and could lead to difficulties in fully achieving an identity (Wilkinson et al., 2015). Social identity theory (Ellemers & Haslam, 2012) posits that individuals with IDD incorporate the social implications of disability within their culture and society in which they reside. Additionally, as a subpopulation, individuals with IDD also examine how they incorporate their disability into their identity, which can be heavily influenced based on the positive and or negative perceptions, beliefs, and values of their social surroundings.

With so little information about the role of disability as a component of identity development in the current literature, it might be helpful to borrow from the growing body of minority-status identity research of other types of minority statuses, such as
racial and sexual minority identity development, that might be used as a parallel for understanding the role of disability in identity formation.

**Racial Identity Development**

Ethnic-racial identity is a multidimensional construct that refers to the beliefs, attitudes, and behaviors endorsed and engaged in by youth related to their ethnic-racial group membership (Umaña-Taylor et al., 2014). Identities linked to ethnicity or race can be developed based on cultural background (e.g., values, traditions) or specific experiences (e.g., racial discrimination) resulting from self-perceived ethnic or racial group membership, or both (Helms et al., 2005).

Researchers have examined identity development in terms of continuous growth as opposed to discrete changes in stage. The stage model may not capture subtle changes in ethnic identity over short periods of time, whereas a continuous growth approach will (S. E. French et al., 2006), as ethnic identity exploration and commitment ebb and flow during adolescence (Meeus, 2011). Within ethnic identity research two dimensions related to exploration and commitment have been studied. The first dimension, group-esteem, is defined as how one feels about being a member of one’s racial or ethnic group, and the second dimension, exploration, is defined as how much an individual tries to find out what it means to be a member of one’s racial or ethnic group (S. E. French et al., 2006). Exploration is designed to tap Phinney’s (1992) construct of *ethnic search*. Although group-esteem is not identical to commitment to one’s group, it has been strongly positively related to commitment to one’s group (S. E. French et al., 2006; Phinney, 1992).
In similar fashion, exploring disability identity within a process of continuous growth would be important in order to see change over time. This would also allow for examination of when, how, and the extent to which adolescents embrace and incorporate their disability. Further, espousing the dimensions of exploration and group-esteem would be valuable in assessing how an adolescent with IDD explores meaning of their disability, how they feel connected to their disability group, and forms their identity holistically, including the extent to which they choose to incorporate their disability.

**Sexual Identity Development**

Sexual identity development can provide another parallel to understanding the role a disability might play in a young person’s identity. Sexual identity development is conceptualized as the process by which a person comes to recognize their sexual attractions and incorporates this awareness into their self-identity (Mohr & Fassinger, 2000). Indeed, Mohr and Fassinger identified six dimensions of identity development, starting with internalized homonegativity (rejection of one’s sexual minority identity) and culminating in the commitment to a sexual minority identity. This multi-dimensional approach supports a well-rounded and thorough understanding of the processes through which sexual minority people explore, acknowledge, and define their sexual identities (Bishop et al., 2020; Calzo et al., 2011). Adolescents negotiate and navigate at least two narratives of sexual identity during development. The first narrative they term as a narrative of *struggle* and *success*. The *struggle* part of the story relates directly to internal and external challenges to self-acceptance, but the *success* part of the story reveals the possibility of redemption from suffering through *coming out* and becoming a part of the
sexual minority community (Herdt & Boxer, 1993; Savin-Williams, 1998). An alternative to this classic narrative of sexual identity, emancipation (Cohler & Hammack, 2007) suggests liberation from the rigid categories of sexual identity and a critical perspective on society’s need to create a sexual typology to regulate sexual desire (Muehlenhard, 2000).

Borrowing from the sexual minority identity field, future research should examine the milestones that are present within disability identity formation. Additionally, exploration to understand whether there is a struggle and success or emancipation narrative for adolescents with IDD and does this vary from one individual to the next, or across disability type and severity. The Mohr and Fassinger (2000) dimensions would also be an important addition within disability identity formation research to explore the nature in which adolescents with IDD embrace their disability over time, which may or may not begin with initial rejection, and understanding the fluidity of disability identity formation.

Findings from this dissertation are a good first step in understanding the role a disability can play in adolescent identity development by providing appropriate measures of identity development. This could be done by separating the two domains (commitment and exploration) into independent questions, ensuring that constructs and concepts are well defined and understood. As has been the case with ethnic and sexual identity research, adding a scale specific to disability identity might be a logical next step. Furthermore, it might be necessary to utilize another measure to explore identity formation, such as Berzonsky’s Identity Style Inventory-Version 5 (Berzonsky et al.,
2013) instead. Alternatively, questionnaire research may not be the appropriate means of studying identity formation in adolescents with IDD. Employing qualitative interviews could provide a more nuanced understanding of the process of identity formation for adolescents with IDD.

**Implications and Future Directions – Instrument Modifications**

**Modification Process**

This dissertation study is foundational in establishing a means of measurement modification to make research instruments more accessible and inclusive for individuals with IDD. The value and importance of having the voice of adolescents with IDD along with their parents speaks to respecting and honoring ‘nothing about us without us’ (Charlton, 2000). Further, utilizing experts within both the adolescent development field and the disability field allows for cross disciplinary collaboration to promote fidelity of the developmental aspects of the measurement items while also valuing the important insights in disability knowledge. Having research instruments that are more accessible through simpler language could be beneficial for all adolescent participants, including for adolescents with and without IDD and adolescents who are second language learners.

The processes taken herein were important first steps, nonetheless additional modification review and processes are necessary. Future research should begin by examining the items that were dropped from measures during the confirmatory factor analyses process to explore trends and areas for further modification in context of the items that remained. Additionally, researchers should explore the positive and negative
wording aspect of questions, focusing on the wording of such questions during modification to minimize confusion. Most importantly, all future modification should involve adolescents with IDD and their support teams (e.g., parents, siblings, teachers) to keep their voice at the forefront.

Incorporation and Examination of Identity Formation and IDD

Identity formation presented noteworthy difficulties in this study. During the modification process, there was substantial discussion about the items within the identity formation measure, namely the double-barreled nature of the items. The ability of adolescents with IDD to fully conceptualize and comprehend the intent of the wording of the item to recommend modification language took a longer amount of time than for the other psychosocial development measures. Even after modification, which required rephrasing every item in the measure, there were analytical issues. For the confirmatory factor analyses to approach acceptable model fit, extensive alterations and item deletions were made that compromised the fidelity of the measure.

As has been highlighted previously, future research should examine the assessment of disability identity, including the exploration and commitment processes, to create a measure that accurately explores this aspect of identity formation for adolescents with IDD. Other considerations might include employing a different identity formation measure, such as Berzonsky’s Identity Style Inventory-Version 5 (Berzonsky et al., 2013). This instrument could be useful as it does not use double-barrel questions, instead employing single stimuli items. As such, future researcher should work with adolescents
with IDD to modify this measure for use. While finding an identity formation measure that can be used for all adolescents to make comparison within IDD and between adolescents with and without IDD is important, clearly more needs to be done. Alternatively, future research should utilize qualitative methods to understand the identity formation process for adolescents with IDD. This could be done from a solely qualitative perspective or through the implementation of a mixed methods approach.

**Psychosocial Development and IDD**

One of the core foci of this dissertation was the preliminary exploration of psychosocial development within IDD type and severity as well as between adolescents with and without IDD. Addressing the remaining research questions of this study, each construct within the multi-faceted psychosocial development concept is discussed independently in context of similarities and differences within IDD type and severity and among those with and without IDD. Foundational findings are examined in context of previous research and future directions are proposed.

**Self-Esteem**

There was not a significant difference between the mean scores of adolescents with ID (mild and moderate) and adolescents with ASD (Level 1 and Level 2), for self-esteem. Nonetheless, it is interesting to note that self-esteem was the only psychosocial domain in which adolescents with ID had a higher average scale score than adolescents with ASD. This should be further explored as this could potentially be a result of difficulties in social communication and social interaction across multiple contexts for
adolescents with ASD (APA, 2013). Adolescents with ASD may not recognize the nonverbal communicative behaviors used for social interaction and have lower social-emotional reciprocity (APA, 2013), thus resulting in less ability to socially compare and self-evaluate and reflect.

In terms of comparison between neurotypical adolescents and their adolescents with IDD peers, there was also a non-significant difference in terms of self-esteem. This is in line with past research (Mueller & Prout, 2009) that showed that there was not a significant difference for self-esteem between adolescent with and without IDD, namely those with ID. Further, relatively high self-esteem among this sample of American adolescents correlates with previous research findings that American adolescents commonly report high self-esteem scores (Chen et al., 2021; Orth et al., 2018; Setoh et al., 2015). Indeed, the lack of significant difference and comparatively high self-esteem scores of adolescents with IDD in comparison to their typically developing peers might be seen as reassuring. As a minority and marginalized population, the finding of comparable self-esteem is positive as those with IDD often experience negative stereotypes, biases, and discriminations. There is a possibility that there are self-protective and coping skills that adolescents with IDD utilize to overcome the negative societal impacts that they face. Further examination of self-esteem among adolescents with IDD, both between disability type and severity as well as with their typically developing peers, would be valuable. Future research should examine the intersectionality of disability, gender, and race as components of stigmatization on self-esteem.
Cognitive Autonomy

Cognitive Autonomy has not been explored among adolescents with IDD, therefore the findings of this study are foundational. In this section I review the findings and implications for each of the subscales of Cognitive Autonomy separately.

Voicing Opinions

There was a statistically significant difference between neurotypical adolescent scores and both adolescents with mild ID and adolescents with moderate ID scores on voicing opinions. However, there was no difference between neurotypical adolescents and adolescents with ASD. This finding is intriguing and future research should examine what makes a difference in adolescents with ID voicing their opinions in comparison to their neurotypical peers. It is possible that adolescents with ID may have fewer opportunities, or no opportunities, to voice their opinions across various settings (i.e., school, home, and community social settings) or they may be unsure of when or how to express their opinions to others. This could lead to adolescents with IDD becoming accustomed to others voicing opinions for them. While adolescents with IDD, both ID and ASD, often need support with social communication and social interaction, the type of support differs. An area that adolescents with ID often need particular support, which those with ASD may need little to no support, is comprehension of information and sharing of specific wants and needs (APA, 2013). As such, although usually well-intentioned family members, teachers, and others may voice opinions for the individual rather than taking the time to support them in advocating for themselves. These opportunities to learn self-advocacy can occur first through facilitated opportunities,
which then can transition to natural occasions in which the adolescent contributes their thoughts and opinions.

**Decision Making**

There were several differences observed between groups related to how they felt about their ability to make decisions. In fact, decision making was the only area of cognitive autonomy in which there was a significant difference across IDD and between both adolescents with ID and ASD with their neurotypically developing peers. Additionally, decision making was the only subscale of the CASE inventory that remained fully intact for all groups. Further exploration would be beneficial to understand the differences in decision making and what contributes to the difference within adolescents with IDD and between those with IDD and their neurotypical peers. A particular area of exploration would be parental influences on cognitive autonomy decision making. It is possible that adolescents with IDD, particularly as severity increases (adolescents with Moderate ID scored significantly lower than any other group) are not granted as many opportunities to make as many decisions. Judgement and reasoning are two components of decision making, which can be impacted by ID (APA, 2013). Parents and other individuals important to the adolescent with IDD, while good intentioned, may seek to make decisions for the adolescent to keep them safe. Nonetheless, this intercession could be limiting the adolescent’s ability to learn and develop as well as preventing their right to the dignity of risk—meaning to try things and make decisions even though they may ultimately not succeed (the right to fail).
Comparative Validation

While there was no difference in comparative validation among adolescents with IDD, all four disability severity groups scored significantly lower than their neurotypical adolescent peers. The lack of significant difference between adolescent disability groups but having a difference between all adolescent disability groups with neurotypical adolescents is an important finding of the study. There are implications both for future research and interventions. The difference could result from adolescents with IDD still exploring their identity and autonomy, which may lead to increased reliance on family and friends for validation, support in making decisions, and acceptance of overall values, beliefs, and behaviors. Additionally, it could be possible that family members have set an expectation for the adolescent with IDD to act in a certain manner and to hold certain values and beliefs. Finally, the adolescent with IDD may be seeking approval from their peers and thus behave in a way that they would not normally interact. Indeed, previous research has found that adolescents with IDD are more susceptible to friend influence and peer pressure (Bexkens et al., 2014; Dekkers et al., 2019; Wagemaker et al., 2020). Future research should also study the impact of peers, friends, and family in making decisions independently, as well as explore the interrelationship of peer attachment vs. friend attachment and comparative validation.

Comparative validation is also an area of social skill development and growth opportunity for independent skills development within special education, applied behavior analysis, and other disability related interventions. Previous research has shown imitation skills and peer influence susceptibility of adolescents with IDD, particularly
when in classroom settings with peers with higher skill levels (Egger et al., 2021; Finch et al., 2019; Müller et al., 2021). Better understanding of the interpersonal, self-direction, and communication abilities of adolescents with IDD could result from educators and interventionists focusing on conceptual, social, and practical skills (Tassé, 2013) in context of peer relationships and influences.

**Evaluative Thinking**

There were differences observed among adolescents with ID and their neurotypical peers and peers with Level 1 ASD in evaluative thinking. Adolescents with ID may have delays in learning from experiences and perspective taking (APA, 2013). Thus, there may be some difficulties in being able to process alternatives to decisions, assessing decision after the fact, and seeing how their decisions impact self and others. Additionally, the opportunities, both facilitated and natural to evaluate and assess choices prior to and after making a decision may not be offered as regularly for adolescents with ID. Further exploration of evaluative thinking in adolescents with ID is needed to fully understand the role that the disability has compared to external factors, such as family, friend, school, and societal impacts. Further exploring the impact of IDD type and severity will allow for the ability to discover potential intervention and educational supports that can be employed to close the gap.

**Self-Assessing**

There were no significant self-assessing differences among adolescents with IDD and neurotypically developing adolescents. There were, however, differences between
both adolescents with Level 1 and 2 ASD and adolescents with Moderate ID, and between the two groups of adolescents with ID. This finding is a significant first step in understanding cognitive autonomy for adolescents with IDD. As this is an area where adolescents with IDD scored higher than their neurotypical peers, it is possible that adolescents with IDD could see the things that were strengths for them and that they focused more on these areas rather than current areas of difficulties. However, it is also possible that as level of disability increased that adolescents with IDD may be more restricted in their ability to see beyond the limitations of their disabilities. Future research should examine the difference and similarities across all adolescents to gain in their self-assessing process as well as in connection with self-esteem. This is particularly important given that adolescents with IDD scored similar to their neurotypical peers on self-esteem and higher in self-assessing. Therefore, having a nuanced understanding of how these two psychosocial developmental constructs intersect and also contribute to identity is valuable in supporting all adolescents as they transverse into adulthood. This further research should also examine how self-assessing and self-esteem change over the adolescent developmental period, to see if there are similar changes and fluctuations between adolescents with IDD and their neurotypical peers. There is possibility that adolescents with IDD experience greater stigma and become more aware of difference as they age, which could lead to lower self-esteem.

**Behavioral and Emotional Autonomy**

There was no significant difference in the effect of IDD severity on behavioral autonomy or emotional autonomy for adolescents with IDD. Similarly, the behavioral
and emotional autonomy scores of neurotypical adolescents did not differ significantly with scores from adolescents with ID or adolescents with ASD. Previous research has focused on specific situations of making healthcare decisions (Racine et al., 2012) and the role of each family member in the autonomy granting and exploration process (Terrone et al., 2014), specifically for adolescent and young adults with a singular primary disability (e.g., cerebral palsy and Down syndrome). Therefore, the findings of this study are valuable in beginning to understand behavioral and emotional autonomy between adolescents with different IDD diagnoses as well as between adolescents with and without IDD. The findings of this study highlight that all adolescents in this study viewed their autonomy similarly, indicating that disability may not play as significant of a role in the development of age-appropriate behaviors and confidence in defining goals independent of the wishes of parents and peers. This is intriguing in the context of the cognitive autonomy findings that indicated that adolescents with IDD were likely impacted by parents, friends and peers, teachers, family, and other influential individuals. Therefore, it is possible that adolescents with IDD are similar to their neurotypical peers in relation to emotional and behavioral autonomy. However, cognitive autonomy requires a higher level of processing and autonomy granting that may not be provided to adolescents with IDD, particularly those with ID in a similar fashion to neurotypical adolescent peers. Further research is needed to more thoroughly examine how autonomy varies across disability type and severity as well as to get a clearer understanding of similarities and difference between adolescents with and without IDD.
Parent Attachment

There was a nonsignificant difference in the effect of IDD severity on parental attachment. This finding is of note as previous research has found mixed results about whether increased severity of IDD and higher support needs of the adolescent led to higher stress and formation of insecure parent attachment (Clements & Barnett, 2002; Hoffman et al., 2009; Janssen et al., 2002). Further research is necessary to understand what contributes to differences in the parent attachment level between adolescents with IDD. A mixed method approach that examines both internal and external impacts to the relationship could more fully capture the many factors that contribute both positively and negatively to secure levels of attachment.

Further, the difference between the parent attachment scores of neurotypical peers and both their adolescents with ID and adolescents with ASD counterparts were statistically nonsignificant. These findings are nonetheless intriguing as previous research has found that adolescents with IDD often have insecure parent attachment relationships in comparison to their neurotypically developing peers (Clasien de Schipper et al., 2006; Janssen et al., 2002). As the previous research was examined from the parent perspective, frequently the mother, this study might point to the value of including the perspective of the adolescent. It is possible that the adolescent with IDD sees the relationship differently than their parent sees it. The parent could have additional stressors that contribute to their evaluation of the attachment relationship, which the adolescent does not interpret as being there. Future research should examine the parent-adolescent child relationship dyadically to assess differences in perceptions of the relationship.
Peer Attachment

The effect of IDD severity on peer attachment trended toward statistically significant difference. While interpretations should be made with caution, especially given the potential for Type I error present because of the number of ANOVAs, differences were found between adolescents with Level 1 ASD and both adolescents with ID groups. This preliminary finding is well connected with past research findings that youth with ID were less likely to be classified as securely attached compared to their peers with other types of disabilities (Weiss et al., 2011). There could also be a difference in the definition of a friend as used in the measure or the breadth and depth of the friend group and relationship. As adolescents with ASD tend to have greater difficulties in social interaction, particularly developing, maintaining, and understanding relationships (APA, 2013), it is possible that their friend circles are much smaller and therefore more intimate. Further research is needed to gain a greater understanding of within disability differences on peer attachment.

Neurotypical adolescents rated their attachment with their peers higher than adolescents with ID, however there was no significant difference between neurotypical adolescents and adolescents with ASD. Previous research with adolescents with visual and physical disabilities found this population had lower attachment levels with peers than their peers without IDD (Abubakar et al., 2013). The findings in the current study finds some relation to the Abubakar et al. findings as adolescents with ID had lower peer attachment levels than their neurotypical peers. Nonetheless, the same was not found in adolescents with ASD. As mentioned above, one possible explanation for this difference
could be that adolescents with ASD have smaller friend and peer groups. Alternatively, this could be a result of adolescents with ASD not being able to accurately interpret social interaction behaviors, particularly nonverbal ones, or inaccurate social-emotional reciprocity. Future research should examine the differences across varying types of IDD in terms of peer attachment in comparison to their typically developing adolescent peers. Having a more nuanced understanding of areas that contribute to and hinder friend and peer attachment between adolescent with IDD groups would allow for improved interventions and supports being provided. Additionally, it would be valuable to understand the extent of relationships and attachment levels between adolescents with IDD and their neurotypical peers compared to attachments between adolescents who both experience IDD, both shared and differing IDD types. This would allow for greater understanding to the previous findings from Matheson et al. (2007) who found that adolescents may become more strongly attached to peers who are experiencing similar conditions. There is possibility that adolescents with IDD begin to strongly attach and develop friendships to their peers with similar IDD diagnoses as they get older as a means of having shared lived experiences. Having these shared experiences could bring solidarity and a support network as both individuals seek to prepare for adulthood.

**Implications and Future Directions – Psychosocial Development**

**Psychosocial Development Beyond Identity**

Understanding psychosocial development is key to discerning how well adolescents are progressing through this developmental period. The findings of this study
provided initial understanding of the psychosocial development of adolescents with IDD, both within the IDD peer group and across groups with their neurotypical peers. While adolescents with IDD may frequently face stigmas and cultural and societal stereotypes, findings in this study have important implications as both the self-esteem and cognitive autonomy self-assessing scores were similar for all adolescent groups. Across other areas of cognitive autonomy there were differences between adolescents with ID and their neurotypical peers, however the same was often not the case for adolescents with ASD. This is intriguing and necessitates future research to understand what contributes to the differences across IDD types. There are several implications that can be drawn from the psychosocial development findings for educators, interventionists, and disability professionals as they continue to promote healthy and holistic development of adolescents with IDD.

Future research is needed to explore psychosocial development of adolescents with IDD in greater depth in order to get a more nuanced understanding, as well as for replication and further exploration in terms of promoting healthy adolescent development. Further study of psychosocial development in adolescents with IDD over time would be beneficial to understand developmental trajectories and to explore how development occurs within and between IDD types and severities, as well as compared to neurotypical adolescents.

**Relationship between Psychosocial Development Components**

Beyond examining psychosocial development as a whole among adolescents with
IDD, future research should explore the inter-correlation and impact of the constructs on one another. Previous research has begun to explore the influence of one area of psychosocial developmental on another (e.g., Forber-Pratt et al., 2021; Gallagher et al., 2020). An understanding of how one psychosocial developmental construct may influence another (e.g., an adolescent low in autonomy may also rate their parent attachment level low, or an adolescent high in self-esteem may rate their cognitive autonomy voicing opinions high as well). Further, through the utilization of latent class analyses, psychosocial developmental profiles can be created for individuals to holistically examine adolescents along their developmental trajectory. These profiles will also allow for the creation and implementation of interventions to support adolescents in skill development.

**Limitations**

**Change Over Time**

One of the major limitations of a cross-sectional design is that developmental changes over time, causal relationships, and relationship directionality cannot not be evaluated. However, as this study is a foundational study with an exploratory design, a cross-sectional approach was acceptable. Using the results of this study as a starting point, a logical next step would be to employ a longitudinal design to examine the trajectories of psychosocial development in adolescents with IDD to discover whether they have similar developmental patterns to their neurotypical peers. A longitudinal design would offer a chance to demonstrate causal relationships between predictors at
previous time points and developmental outcomes at later time points. It could also set the predictors as time-varying variables to consider the change in predictors and then to evaluate their contributions on adolescent development.

**Sample Recruitment**

While the majority of adolescents with IDD were recruited through a Qualtrics panel, which provided a more geographically diverse population, the sample was one of convenience. In other words, this sample might contain the effect of volunteer bias that would limit generalizability to the whole population of adolescents, both with and without IDD. Accordingly, if random samples are not available, future studies might want to collect demographic information from both participants and subjects who refused to participate at an aggregate level if possible, to evaluate the volunteer effect and to estimate the generalizability. Additionally, demographically, the sample was mostly white (70.9%), which is not representative of the wider population of the U.S., so generalization is limited.

**Conclusion**

This dissertation study provided a foundation for the study of psychosocial development in adolescents with IDD. While the study was not without its limitations, there is a great deal of promise in the findings, both for adolescent development and disability research. The primary takeaways from this study include identity formation in adolescents with IDD, preliminary findings of psychosocial development for adolescents with IDD, similarities and difference in psychosocial development of all adolescents, and
the importance of wording of questions within measures.

Identity

Measurement of identity formation was the one area of psychosocial development that did not work for adolescents with IDD. Disability is a multi-faceted and complex construct that includes some individuals who have physical manifestations of their disabilities (e.g., Down syndrome, cerebral palsy, and fetal alcohol spectrum disorder) while others who do not. Further, although there may be some similarities between individuals with a shared diagnosis, the manifestation of the disability exhibits differently across individuals. Much of this can be attributed to nature and nurture both contributing to how the adolescent develops and integrated their disability within their identity.

Adolescents with IDD and Psychosocial Development

The preliminary findings of this study of psychosocial development for adolescents with IDD was foundational as little research has been conducted with this population. When research has been done, it has been with very specific disabilities, from the perspective of a parent, other family member, or teacher or qualitative in nature. Therefore, this dissertation study is a great start in beginning to understand areas of psychosocial development, particularly cognitive autonomy, which has not been studied previously. The findings herein allow for an initial look at the psychosocial developmental standing between disability types and severities. Initial conclusions are that adolescents with ID tend to rate themselves lower in terms of many psychosocial developmental outcomes and that as severity of IDD increases those scores tend to
decrease further.

**Similarities and Differences in Psychosocial Development**

As indicated above, little research has been done on psychosocial development of adolescents with IDD, and the comparison between adolescents with IDD and their neurotypical peers is even more limited. Therefore, this dissertation study provides beginning understanding of similarities and differences.

**Positive/Negative Aspects of Questions**

The final main takeaway from this dissertation study is the grouping of the measures. All measures, except for the identity formation, had both positively and negatively worded questions for measurement fidelity. Having questions that are negatively worded, or reverse worded, are used in Likert scales to reduce or eliminate acquiescence bias, which is the respondents’ tendency to agree with a given item regardless of its content (Mirowsky & Ross, 1991; Schriesheim & Hill, 1981; Watson, 1992).

Nonetheless, this study highlighted the necessity of groupings to separate by the wording of the questions. For adolescents with IDD the repetitiveness of the questions with the only change being positive to negative rewording seemed to cause confusion that could lead to increased difficulty in interpreting the item (Swain et al., 2008; Van Sonderen et al., 2013). In fact, the repetitive nature of questions was a topic that was discussed in depth during the modification process with both adolescents with IDD and their parents. Further, the potential for confusion or misinterpretation could lead to the
scale measuring something unintended (DiStefano & Motl, 2006; Lindwall et al., 2012). There is great opportunity that lies ahead in further understanding the most effective and inclusive way to incorporate the voice of adolescents with IDD within research.

As this dissertation began, so it will end, “Adolescents are not monsters. They are just people trying to learn how to make it among the adults in the world, who are probably not so sure themselves” (Satir, 1988, p. 315-316). Further, adolescents with IDD are not monsters or scary, they are simply navigating a time of psychosocial development and seeking a sense of inclusion and belonging. Having measures that accurately reflect the lived experience of adolescents with IDD as they traverse their psychosocial development is an important step to understanding development for this population.
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Appendix A

Disability Diagnoses
Intellectual Disabilities

According to the DSM 5, the following three criteria must be met for a diagnosis of intellectual disabilities to be made (American Psychiatric Association [APA], 2013):

A. Deficits in intellectual functions, such as reasoning, problem-solving, planning, abstract thinking, judgment, academic learning and learning from experience, and practical understanding confirmed by both clinical assessment and individualized, standardized intelligence testing.

B. Deficits in adaptive functioning that result in failure to meet developmental and sociocultural standards for personal independence and social responsibility. Without ongoing support, the adaptive deficits limit functioning in one or more activities of daily life, such as communication, social participation, and independent living, and across multiple environments, such as home, school, work, and recreation.

C. Onset of intellectual and adaptive deficits must during the developmental period, prior to the age of eighteen (APA, 2013).

The diagnosis of intellectual disability is based on both clinical assessment and standardized testing of intellectual and adaptive functions. Criterion A refers to intellectual functions that involve reasoning, problem solving, planning, abstract thinking, judgment, learning from instruction and experience, and practical understanding. Critical components include verbal comprehension, working memory, perceptual reasoning, quantitative reasoning, abstract thought, and cognitive efficacy. Intellectual functioning is typically measured with individually administered and psychometrically valid, comprehensive, culturally appropriate, psychometrically sound tests of intelligence. Individuals with intellectual disability have scores of approximately two standard deviations or more below the population mean, including a margin for measurement error (generally ± 5 points). On tests with a standard deviation of 15 and a mean of 100, this involves a score of 65–75 (70 ± 5). Clinical training and judgment are required to interpret test results and assess intellectual performance (APA, 2013).

Deficits in adaptive functioning (Criterion B) refer to how well a person meets community standards of personal independence and social responsibility, in comparison to others of similar age and sociocultural background. Adaptive functioning involves adaptive reasoning in three domains: conceptual, social, and practical. The conceptual (academic) domain involves competence in memory, language, reading, writing, math reasoning, acquisition of practical knowledge, problem solving, and judgment in novel situations, among others. The social domain involves awareness of others’ thoughts, feelings, and experiences; empathy; interpersonal communication skills; friendship abilities; and social judgment, among others. The practical domain involves learning and self-management across life settings, including personal care, job responsibilities, money
management, recreation, self-management of behavior, and school and work task organization, among others. Intellectual capacity, education, motivation, socialization, personality features, vocational opportunity, cultural experience, and coexisting general medical conditions or mental disorders influence adaptive functioning (APA, 2013).

Adaptive functioning is assessed using both clinical evaluation and individualized, culturally appropriate, psychometrically sound measures. Standardized measures are used with knowledgeable informants (e.g., parent or other family member; teacher; counselor; care provider) and the individual to the extent possible. Additional sources of information include educational, developmental, medical, and mental health evaluations. Scores from standardized measures and interview sources must be interpreted using clinical judgment. When standardized testing is difficult or impossible, because of a variety of factors (e.g., sensory impairment, severe problem behavior), the individual may be diagnosed with unspecified intellectual disability. Adaptive functioning may be difficult to assess in a controlled setting (e.g., prisons, detention centers); if possible, corroborative information reflecting functioning outside those settings should be obtained (APA, 2013).

Criterion B is met when at least one domain of adaptive functioning—conceptual, social, or practical—is sufficiently impaired that ongoing support is needed in order for the person to perform adequately in one or more life settings at school, at work, at home, or in the community. To meet diagnostic criteria for intellectual disability, the deficits in adaptive functioning must be directly related to the intellectual impairments described in Criterion A. Criterion C, onset during the developmental period, refers to recognition that intellectual and adaptive deficits are present during childhood or adolescence (APA, 2013).

Autism Spectrum Disorder

According to the DSM 5, the following criteria are involved in the diagnostic process (APA, 2013):

A. Persistent deficits in social communication and social interaction across multiple contexts, as manifested by the following, currently or by history:

a. Deficits in social-emotional reciprocity.

b. Deficits in nonverbal communicative behaviors used for social interaction.

c. Deficits in developing, maintaining, and understanding relationships.

B. Restricted, repetitive patterns of behavior, interests, or activities, as
manifested by at least two of the following, currently or by history:

a. Stereotyped or repetitive motor movements, use of objects, or speech.

b. Insistence on sameness, inflexible adherence to routines, or ritualized patterns or verbal nonverbal behavior.

c. Highly restricted, fixated interests that are abnormal in intensity or focus.

d. Hyper- or hypo-reactivity to sensory input or unusual interests in sensory aspects of the environment.

C. Symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities).

D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.

E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay (APA, 2013).

The stage at which functional impairment becomes obvious will vary according to characteristics of the individual and their environment. Core diagnostic features are evident in the developmental period, but intervention, compensation, and current supports may mask difficulties in at least some contexts. Manifestations of the disorder vary greatly depending on the severity of the autism, developmental level, and chronological age; hence, the term spectrum (APA, 2013).

The impairments in communication and social interaction specified in Criterion A are pervasive and sustained. Verbal and nonverbal deficits in social communication have varying manifestations, depending on the individual’s age, intellectual level, and language ability. Many individuals have language deficits, ranging from complete lack of speech through language delays, poor comprehension of speech, echoed speech, or stilted and overly literal language. Even when formal language skills are intact, the use of language for reciprocal social communication is impaired in autism spectrum disorder. Deficits in social-emotional reciprocity (i.e., the ability to engage with others and share thoughts and feelings) are clearly evident in young children with the disorder, who may show little or no initiation of social interaction and no sharing of emotions, along with reduced or absent imitation of others’ behavior. What language exists is often one-sided, lacking in social reciprocity, and used to request or label rather than to comment, share feelings, or converse. In adults, deficits in social-emotional reciprocity may be most apparent in difficulties processing and responding to complex social cues. Adults who have developed compensation strategies for social challenges still struggle in novel or unsupported situations and suffer from the effort and anxiety of consciously calculating
what is socially intuitive for most individuals (APA, 2013).

Deficits in nonverbal communicative behaviors used for social interaction are manifested by absent, reduced, or atypical use of eye contact, gestures, facial expressions, body orientation, or speech intonation. An early feature of autism spectrum disorder is impaired joint attention as manifested by a lack of pointing, showing, or bringing objects to share with others. Individuals may learn a few functional gestures, but their repertoire is smaller than that of others, and they often fail to use expressive gestures spontaneously in communication. Among adults with fluent language, the difficulty in coordinating nonverbal communication with speech may give the impression of odd, wooden, or exaggerated body language during interactions. Deficits in developing, maintaining, and understanding relationships are compared against norms for age, gender, and culture. There may be absent, reduced, or atypical social interest, manifested by rejection of others, passivity, or inappropriate approaches that seem aggressive or disruptive. These difficulties are particularly evident in young children, in whom there is often a lack of shared social play and imagination and, later, insistence on playing by very fixed rules. Older individuals may struggle to understand what behavior is considered appropriate in one situation but not another or the different ways that language may be used to communicate. There may be an apparent preference for solitary activities or for interacting with much younger or older people. Frequently, there is a desire to establish friendships without a complete or realistic idea of what friendship entails (APA, 2013).

Autism spectrum disorder is also defined by restricted, repetitive patterns of behavior, interests, or activities (Criterion B), which show a range of manifestations according to age and ability, intervention, and current supports. Stereotyped or repetitive behaviors include simple motor stereotypies (e.g., hand flapping, finger flicking), repetitive use of objects (e.g., spinning coins, lining up toys), and repetitive speech (e.g., the delayed or immediate parroting of heard words; use of “you” when referring to self; stereotyped use of words, phrases, or prosodic patterns). Excessive adherence to routines and restricted patterns of behavior may be manifest in resistance to change or ritualized patterns of verbal or nonverbal behavior. Highly restricted, fixated interests in autism spectrum disorder tend to be abnormal in intensity or focus. Some fascinations and routines may relate to apparent hyper- or hypo-reactivity to sensory input, manifested through extreme responses to specific sounds or textures, excessive smelling or touching of objects, fascination with lights or spinning objects, and sometimes apparent indifference to pain, heat, or cold. Extreme reaction to or rituals involving taste, smell, texture, or appearance of food or excessive food restrictions are common and may be a presenting feature of autism spectrum disorder. Many adults with autism spectrum disorder without intellectual or language disabilities learn to suppress repetitive behavior in public. Special interests may be a source of pleasure and motivation and provide avenues for education and employment later in life. Diagnostic criteria may be met when restricted, repetitive patterns of behavior, interests, or activities were clearly present during childhood or at some time in the past, even if symptoms are no longer present (APA, 2013).
Criterion C, symptoms must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities), refers to recognition that symptoms are present during early childhood. Criterion D requires that the features must cause clinically significant impairment in social, occupational, or other important areas of current functioning. Criterion E specifies that the social communication deficits, although sometimes accompanied by intellectual disability, are not in line with the individual’s developmental level.
Appendix B

Recruitment Letter to Parents and Modification Instructions to Parents
Letter to Parents

Dear Parents of Adolescents with Disabilities,

My name is Myles Maxey and I am a doctoral researcher at Utah State University. As part of my dissertation research, I am conducting a study on the psychosocial development of adolescents with disabilities. This development includes aspects of self-esteem, identity formation, autonomy, and attachment. As part of the study, existing measures for adolescent psychosocial development will be modified to assist in accurately measuring this important construct with young people who have mild to moderate disabilities.

Our research team requests your assistance and input and that of your adolescent child with disabilities in the modification process. If you agree to participate in the study, we will send you an electronic copy of the original measures along with instructions about how to proceed. We would ask that you work together with your adolescent child with disabilities to make changes in such a way that an adolescent with mild to moderate disabilities might be better able to comprehend each question. In an effort to thank you for your efforts, you will be compensated for your time with a $10 gift card. If you are willing to participate or if you have any questions about the study, please e-mail me directly at myles.maxey@aggiemail.usu.edu and I will get back to you.

Thank you for your time and assistance in the process of promoting the inclusion of adolescents with disabilities in the research process to better support their development.

Best,

Myles Maxey
Instructions to Parents and Adolescent Children with IDD

Thank you for your time and willingness to assist in modifying existing measures of psychosocial development to make these instruments more appropriate for use with adolescents with disabilities.

Please use the following instructions as you review each of the measures and make suggestions.

1. Please remember that the focus of the modifications is to help adolescents with mild to moderate (level 1 to level 2) disabilities actively participate in the research process.

2. Please have both the parent and adolescent child with disabilities involved in the process.

3. Please only make changes that enhance the ability to comprehend the question(s), without changing the meaning of the question.

4. Please make your changes directly on the document with a pen or pencil, or you can utilize track changes.

5. Please return the document with the recommended changes within two weeks of receiving it.

If you have any questions, please feel free to contact the graduate researcher, Myles Maxey, at myles.maxey@aggiemail.usu.edu
Appendix C

Psychosocial Development Measures
NOTE: Item Modifications in Red

CASE Inventory
For questions 1-12, rate how often the statement describes you using the following options:
1= Never, 2= Rarely, 3= Sometimes, 4= Often, 5= Always.
1. If I have something to add to a class discussion I speak up.
I speak up if I have something to say in class.
2. I think about the consequences of my decision.
I think about what will happen when I make a choice.
3. I look at every situation from other people’s perspectives before making my own judgment.
I think about the opinion of other people before making my own choice.
4. When I disagree with others, I share my views.
When I disagree with others, I tell them why.
5. I need family members to approve my decision.
I need family members to support my choices.
6. I think of all possible risks before acting on a situation.
I think of all the things that could happen before taking action.
7. I like to evaluate my daily actions.
I like to review and think through my daily actions.
8. I consider alternatives before making decisions.
I consider other options before making a choice.
9. I stand up for what I think is right regardless of the situation.
I stand up for what I think is right no matter what is going on.
10. I think about how my actions will affect others.
I think about how my actions will affect other people.
11. I think about how my actions will affect me in the long run.
I think about how my current choices may affect me in the future.
12. I like to evaluate my thoughts.
I like to review and consider my thoughts.

Questions 13-27 rate how much you agree with each statement using the following options:
1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5=Strongly Agree.
13. I feel that my opinions are valuable enough to share.
I feel that my opinions are important and I share them with other people.
14. I need my views to match those of my parents.
I need my opinions to be the same as my parents.
15. I am good at identifying my own strengths.
I am good at knowing what I do well.
16. It is important to me that my friends approve of my decisions.
It is important to me that my friends agree with my choices.
17. There are consequences to my decisions.
I understand that there are consequences to my choices, either good or bad.
18. I can tell that my way of thinking has improved with age.
I can tell that my ability to think through things has gotten better as I have gotten older.
19. At school I keep my opinions to myself.
When I am at school, I keep what I think to myself.
20. I think more about my future today than I did when I was younger.
I think more about my future now than I did when I was younger.
21. I am best at identifying my abilities.
I am the best person to know what I am able to do and what skills I have.
22. My decision making ability has improved with age.
My ability to make choices has gotten better as I have gotten older.
23. I need my views to match those of my friends.
I need my opinions to be the same as the opinions of my friends.
24. I am good at evaluating my feelings.
I am good at understanding my feelings.
25. I am better at decision making than my friends.
I am better at making choices than my friends.
26. I care about what others think of me.
No change.
27. I am the best judge of my talents.
I am the best judge of what I am good at.
The Modified Extend Objective Measure of Ego Identity Status scale (MEOMEIS)
For all questions (1-40) rate how much you agree with state statement using the following options:
1= Strongly Disagree, 2 = Moderately Disagree, 3 = Disagree, 4= Agree, 5= Moderately Agree
6= Strongly Agree
1. My parents know what's best for me in terms of how to choose friends. My parents know what kind of friends are best for me.
2. I haven’t thought much about what I look for in a date – I just go out to have a good time. I have not thought about what I look for in the person I date, I just go out to have a good time.
3. My own views on a desirable lifestyle were taught to me by my parents and I don’t see any reason to question what they taught me. I learned about what I want in life from my parents, I do not question what they taught me.
4. My parents had it decided a long time ago what I should go into for employment and I’m following their plan. My parents already decided what I should do for a job and I am following their plan.
5. My education is not something I really spend much time thinking about. I do not spend much time thinking about my education.
6. I guess I just kind of enjoy life in general, I don't spend much time thinking about it. I just enjoy life, I do not spend much time thinking about life.
7. Even if my parents disapproved, I could be a friend to a person if I thought she/he was basically good. Even if my parents disagree, I could have a friendship with someone who I thought was a good person.
8. I believe my parents probably know what is best for my future education. I think my parents know what is best for my future education.
9. When I’m on a date, I don’t like to have any particular plans. I do not like to make any set plans when I go on a date.
10. I just can’t decide what to do for an occupation. There are so many that have possibilities. I cannot decide what to do for a job. There are so many options.
11. After a lot of self-examination, I have established a very definite view on what my own lifestyle will be. After thinking about who I am as a person, I have a clear idea of what my life will be.
12. I’m really not interested in finding the “right career”, any job will do. I just seem to go with what is available. I am really not interested in finding the “right job,” I will just take whatever job is available.
13. I know my parents don’t approve of some of my friends, but I haven’t decided what to do about it yet. I know my parents do not like some of my friends, but I am not sure what to do about it yet.
14. Some of my friends are very different from each other, I’m trying to figure out exactly where I fit in. Some of my friends are very different from each other, I am still trying to figure out exactly where I fit in with them.
15. I couldn’t be friends with someone my parent’s disapprove of.
   **I could not be friends with someone my parents do not like.**

16. My parent’s views on life are good enough for me, I don't need anything else.
   **My parents’ ideas about life are good enough for me, I do not need anything else.**

17. I'm not so sure about what I want for my education, but I am now actively exploring
different choices.
   **I am still thinking about what I want for my education, so I am currently exploring
different options.**

18. My dating standards are flexible, but for me to change my standards, it must be
something I really believe in.
   **My dating expectations are flexible and may change as I have new experiences.**

19. I’ve had many different kinds of friends, and now I have a clear idea of what I look for in
a friendship.
   **Because I have had many different kinds of friends, I now have a clear idea of what I
look for in a friend.**

20. I’ve done a lot of thinking about my education, and I’ve got a specific plan laid out.
   **I have done a lot of thinking about my education, and I have a clear plan in place.**

21. I don’t have any close friends, I just like to hang around with the crowd and have a good
time.
   **I enjoy hanging out with a group of people and having a good time, but I would not
think of any of them as close friends.**

22. The standards or “un-written rules” I follow about dating are still in the process of
developing – they haven’t completely “jelled” yet.
   **I am still working on figuring out the dating rules I want to follow**

23. I would never date anyone my parents disapprove of.
   **I would never date a person my parents do not like.**

24. I’ve never had any real close friends because it is too hard to keep a friendship
   going.
   **I have never had any real close friends because it is too hard to keep a friendship going.**

25. Sometimes I wonder if the way other people date is the best way for me.
   **I often wonder if I should change how I date based on what other people are doing.**

26. After considerable thought, I’ve developed my own individual viewpoint of what is for
me an ideal “lifestyle” and don’t believe anyone will likely to change my views.
   **After a lot of thought, I have developed a strong idea of what my ideal life looks like and
I do not think anyone will change my mind.**

27. School is just something I’m supposed to do, not much more.
   **School is just something I have to do.**

28. I haven’t chosen the occupation I really want to get into. I’ll just work at whatever is
available unless something better comes along.
   **I have not chosen the job I really want to have. I will just work at any job unless I find
something better.**

29. My rules or standards about dating have remained the same since I first started going out
and I don’t anticipate that they will change.
   **My rules about dating have been the same since I started dating and I do not think they
will change.**

30. In finding an acceptable viewpoint to life itself, I often exchange ideas with friends and
family.
I talk with friends and family to help me decide how to live my life.
31. It took a lot of effort to decide, and I now have definite intentions about my education.
It was hard to decide what I want for my education, but I now have a clear path in mind.
32. There’s no single “life-style” which appeals to me more than another.
There is no single way to live life that seems better than another.
33. It took me a while to figure it out, but now I really know what I want for a career.
It took me a while to decide, but now I know the type of job I want to have.
34. I’m still trying to decide how capable I am as a person and what jobs will be right for me.
I am still trying to decide what I am good at and what jobs will be a good fit for me.
35. There are so many subjects to learn about in school. I’m trying out as many as possible so I can make a better decision about my future education.
I am taking many different kinds of classes in school so I can decide what to do after I graduate.
36. I might have thought about a lot of different jobs but there’s never really been any question since my parents said what they wanted.
I have thought about different jobs, but my parents said what they want me to do for work, so that is what I plan to do.
37. I’m looking for an acceptable perspective for my own “lifestyle” view, but I haven’t really found it yet.
I am trying to learn what my views of life are and how I want to live it, but I do not really know yet.
38. My parents have taught me the most important goals about my education. I’ve seen no reason to doubt them.
My parents have taught me what is most important about education. I see no reason to doubt them.
39. It took me a long time to decide, but now I know for sure what direction to move in for a career.
It took me a long time to decide, but now I know for sure what job I want when I am an adult.
40. I’ve dated different types of people and I now know exactly what my own “unwritten rules” for dating are.
After dating different types of people, I have a good idea what my own expectations and rules are for dating.
Inventory of Parent Attachment
For all questions (1-12) rate how much each statement best relates to you right now using the following options:
1= Almost Never or Never, 2= Sometimes, 3= Often, 4= Almost Always or Always.
1. My parents respect my feelings.
   No change
2. I wish I had different parents.
   No change
3. My parents accept me as I am.
   No change
4. My parents sense when I’m upset about something.
   My parents can tell when I am upset about something
5. Taking over my problems with my parents makes me feel ashamed or foolish.
   If I talk about my problems with my parents, I feel embarrassed or uncomfortable.
6. I get upset easily at home.
   I get angry easily at home.
7. My parents have their own problems, so I don’t bother them with mine.
   No change
8. My parents help me to understand myself better.
   My parents help me understand myself better.
9. I tell my parents about my problems and troubles.
   I tell my parents about what is bothering me.
10. I feel angry with my parents.
    No change
11. I don’t get much attention at home.
    I do not get to spend much time with my parents.
12. My parents encourage me to talk about my difficulties.
    My parents encourage me to talk about things that are hard for me.
**Inventory of Peer Attachment**

For all questions (1-12) rate how much each statement best relates to you right now using the following options:

1= Almost Never or Never, 2= Sometimes, 3= Often, 4= Almost Always or Always.

1. I like to get my friends’ point of view on things I’m concerned about.  
   **When I am worried, I want my friends’ input.**

2. Talking over my problems with my friends makes me feel ashamed or foolish.  
   **If I talk about my problems with my friends, I feel embarrassed or uncomfortable.**

3. I wish I had different friends.  
   **No change**

4. My friends encourage me to talk about my difficulties.  
   **My friends encourage me to talk about my worries and problems.**

5. I feel alone or apart when I am with my friends.  
   **When I am with my friends, I still feel alone.**

6. My friends listen to what I have to say.  
   **No change**

7. I feel my friends are good friends.  
   **I think my friends are good friends.**

8. When I am angry about something, my friends try to be understanding.  
   **No change**

9. My friends are concerned about my well-being.  
   **My friends care about me and how I am doing.**

10. I get upset a lot more than my friends know about.  
    **No change**

11. It seems as if my friends are irritated with me for no reasons.  
    **It seems as if my friends get angry with me for no reason.**

12. I tell my friends about my problems and troubles.  
    **I tell my friends about what bothers me.**
The Adolescent Autonomy Questionnaire (AAQ)

For the following statement rate how much each statement describes you using these options:
1 = Very Bad Description of Me, 2 = Bad Description of Me, 3 = Average Description of Me, 4 = Good Description of Me, 5 = Very Good Description of Me.

*Emotional*
1. When I act against the will of others, I usually get nervous.
I usually get nervous when I do things that other people do not want me to.
2. I have a strong tendency to comply with the wishes of others.
I have a habit of doing what other people want me to do.
3. When I disagree with others, I tell them.
When I disagree with someone, I tell them.
4. I often agree with others, even if I’m not sure.
I often agree with other people, even if I am not sure.
5. I often change my mind after listening to others.
I often change my mind after listening to what other people think.

*Behavioral*
1. I go straight for my goal.
I stay focused on my own goals.
2. I find it difficult to start a new activity on my own.
No change
3. I can easily begin with new undertakings on my own.
I can easily start new tasks or activities on my own.
4. I am an adventurous person.
No change
5. I quickly feel at ease in a new situation.
I quickly feel comfortable in new situations.
Rosenberg Self-Esteem Scale
For all questions (1-10) rate how much each statement best relates to you right now using the following options:
1= Strongly Disagree, 2= Disagree, 3= Agree, 4= Strongly Agree.

1. I feel that I am a person of worth, at least on an equal plane with others.
   I feel that I am a person that matters.
2. I feel that I have a number of good qualities.
   I feel that there are many good things about me.
3. All in all, I am inclined to feel that I am a failure.
   Overall, I believe that I am a failure
4. I am able to do things as well as most other people.
   I am able to do things as well as other people.
5. I feel I do not have much to be proud of.
   I do not feel that I have much to be proud of.
6. I take a positive attitude toward myself.
   I have a positive attitude about myself.
7. On the whole, I am satisfied with myself.
   For the most part, I am okay with who I am.
8. I wish I could have more respect for myself.
   I wish I could respect myself more.
9. I certainly feel useless at times.
   Sometimes I feel useless.
10. At times I think I am no good at all.
    Sometimes I think I am no good at all.
Appendix D

Identity Formation Confirmatory Factor Analyses
Figure D1

*Identity Formation Achievement CFA Model*

![Diagram showing the Identity Formation Achievement CFA Model]

*Note.* Standardized estimates shown for adolescents for Identity Achievement. Factor loadings for original measure, modified measure for neurotypical adolescents, and modified measure for adolescents with IDD.
Figure D2

Identity Formation Moratorium CFA Model

Note. Standardized estimates shown for adolescents for Identity Moratorium. Factor loadings for original measure, modified measure for neurotypical adolescents, and modified measure for adolescents with IDD.
Figure D3

Identity Formation Foreclosure CFA Model for Adolescents Without IDD

Identity Foreclosure Life

1: Parents know what friends are best for me
2: Do not question what my parents taught me about life
15: Could not be friends with someone my parents do not like
16: Parents ideas about life are good enough for me
23: Could never date someone my parents do not like
29: Dating rules have stayed the same since the beginning

Identity Forelosure Education

8: Parents know best for my future education
38: Do not doubt my parents' goals for my education

Note. Standardized estimates shown for neurotypical adolescents for Identity Foreclosure. Factor loadings for original measure and modified measure for neurotypical adolescents.
Figure D4

Identity Formation Foreclosure CFA Model for Adolescents With IDD

Note. Standardized estimates shown for adolescents with IDD for Identity Foreclosure. Factor loadings for modified measure for adolescents with IDD.
Figure D5

Identity Formation Diffusion CFA Model

Note. Standardized estimates shown for adolescents for Identity Diffusion. Factor loadings for original measure, modified measure for neurotypical adolescents, and modified measure for adolescents with IDD.
CURRICULUM VITAE

MYLES MAXEY

ADDRESS

Human Development and Family Studies 2001 Unity St.
Utah State University Klamath Falls, OR 97603
2905 Old Main Hill Phone (435) 754-5979
Logan, UT 84322-2905 mylescmaxey@gmail.com

EDUCATION

2022 Doctor of Philosophy, Utah State University
Human Development and Family Studies,
Areas of Concentration: Lifespan Development
Committee Chair: Troy Beckert, Ph.D.
Dissertation Title: *Psychosocial Development in Adolescents with Disabilities: Modification and Evaluation of Measures*

2013 Bachelor of Science (Honors), New Mexico State University
Family & Child Science

PROFESSIONAL EXPERIENCE

Academic


2015-2017 Graduate Instructor: Department of Human Development and Family Studies, Utah State University. Troy Beckert, Ph.D. (Supervisor)
HDFS 1500 (face to face): Human Development Across the Lifespan
HDFS 3570 (face to face): Youth & Adolescence

2014-2020 Teaching Assistant: Department of Human Development and Family Studies, Utah State University. Troy Beckert, Ph.D., Sarah Tulane, Ph.D., Ryan Seedall, Ph.D., Lisa Boyce, Ph.D., Alena Johnson, M.S., AFC; Cindy Stokes, M.S., AFC, CHC (Supervisors)
HDFS 2000 (face to face & online): Careers & Life Planning in HDFS
HDFS 2660 (online): Parenting & Child Guidance
HDFS 3130 (online): Research Methods
HDFS 3210 (online): Families and Diversity
HDFS 3350 (online): Family Finance
HDFS 3500 (online): Infancy and Childhood
HDFS 3570 (face to face & online): Youth & Adolescence

2014-2015, Research Assistant: Department of Human Development and Family Studies, Utah State University. Troy Beckert, Ph.D. and Kay Bradford, Ph.D. (Supervisors)

Non-Academic

2020- Current Director of Developmental Disabilities Services, Klamath County, Oregon.


PUBLICATIONS


Research in Progress


PROFESSIONAL PRESENTATIONS

International/National


*Regional*


*Local*


**TEACHING**

*Instructor*

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*Guest Lecture*

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<td>(Presented 1 lecture—Peers &amp; Friends in Adolescence)</td>
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Spring 2016  HDFS 3130  Research Method (Online)
(Presented 1 lecture—Descriptive Research)

Spring 2015  HDFS 3570  Youth & Adolescence
(Presented 2 lectures—Social Cognition and Bullying)

Fall 2014  HDFS 3570  Youth & Adolescence
(Presented 2 lectures—Adolescence & Family and Bullying)

MENTORING

2018  HDFS Autism and Adolescence
(Supervise three undergraduate students)

2015-Present  HDFS Applied Research in Lifespan Development Lab
(Supervise three graduate students and six undergraduate students)

2015  HDFS 3570  Youth & Adolescence
(Mentor Undergraduate Teaching Fellow)

(Supervise two undergraduate students)

PROFESSIONAL SERVICE

2020-2022  NCFR Families and Health Section Students and New Professionals Representative

2018-Present  NCFR Families with Disabilities Focus Group Co-Chair

2018-2022  SRA Emerging Scholars Committee Secretary
SRA Emerging Scholars Representative – Interdisciplinary Committee

2018  Proposal Reviewer for 2018 NCFR Annual Conference

2017  Proposal Reviewer for 2017 NCFR Annual Conference
Mentee Reviewer for 2018 SRA Biennial Meeting

RECOGNITION AND AWARDS

2019-2020  USU Emma Eccles Jones College of Education Dissertation Research Award ($1,650)

2018-2019  Ila Smith Taggart Scholarship ($2,000/year)
2018  Society for Research on Adolescence Emerging Scholar Travel Award
2018  HDFS Doctoral Student Researcher of the Year
2017-2018 Stella Young Griffiths Scholarship ($2,000/year)
2016-2017 Gregory Carl Trevers Scholarship ($2,000/year)
       Frederick Q. Lawson Fellowship ($4,500/year)
2015-2016 Brent C. and Kevon Miller Scholarship ($2,000/year)
       Frederick Q. Lawson Fellowship ($4,500/year)

PROFESSIONAL AFFILIATIONS & ORGANIZATIONS

2015- Present  Society for Research on Adolescence
2016- Present  American Association on Intellectual and Developmental Disabilities
2016- Present  National Council on Family Relations