UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

ESTABLISHING PREDICTIVE VALIDITY: PREDICTING POSTECONDARY EDUCATION AND EMPLOYMENT OUTCOMES

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

Degree of

DOCTOR OF PHILOSOPHY

By

JENNIFER J. BURNES
Norman, Oklahoma
2015

ESTABLISHING PREDICTIVE VALIDITY: PREDICTING POSTSECONDARY EDUCATION AND EMPLOYMENT OUTCOMES

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

BY

_____
Dr. James Martin, Chair

_____
Dr. Joyce Brandes

_____
Dr. Maeghan Hennessey

_____
Dr. Kendra Williams-Diehm

_____
Dr. Robert Terry

Dedication

To my Family, Friends, and Students and most importantly, to the memories of my

Mom and Nephew Dakota

Acknowledgements

I would not have begun this journey if I did not have supportive parents who always encouraged and believed in me. Thank you, Mom and Dad. I love you. Always.

I would not have been able to complete this journey if not for the supportive staff of the Zarrow Center for Learning Enrichment at the University of Oklahoma. Donna, you have provided assistance in numerous ways, from proofreading and editing to listening and encouraging. Thank you. Amber, I appreciate all of the help along the way, no matter the form it came in. Linda, and previous staff members Jodie, Kristen, Ana, and Lori, you have all helped me in some or many ways and I appreciate you all.

To my doctoral advisor, Dr. Jim Martin: you have supported and encouraged me along the way. You have shared your extensive knowledge of transition, and provided me the opportunity to contribute to the field. I appreciate all you have done for me.

Thank you to my committee members, Dr. Kendra Williams-Diehm for providing a listening ear, Dr. Joyce Brandes for your timely words of encouragement, Dr. Maeghan Hennessey for your guidance, and finally to Dr. Robert Terry for always explaining things in as many ways as I needed to hear them for me to get it, for being available for questions, and being such an excellent teacher.

Thank you to Darla, for choosing me, for trusting me to teach Will and becoming a dear friend along the way, always eager to read another paper and add a parent's perspective, and always providing encouragement.

To Chris: though you have only been a part of the last six months of this journey, you were instrumental in helping me get to the finish by supporting me, encouraging me, and always believing in me. Thank you. I love you.

This would be incomplete without a shout out to friends near and far who have always listened to me, offered encouraging words when I most needed them, and been among my biggest supporters. I appreciate and love you all: Tish, Tammi, Shandi, Carrie, Jackie, Becky, Kim, Anna, Reni, Christie, and all of the rest. And to Misty, "we're not friends; we're cousins." You have kept me focused, healthy, and provided some great entertainment (ha) when I needed a break from the books, and even at times when I should have been hitting the books. I appreciate you more than you know. Also, to my people from BtCLBB: You have been a sounding board, a source of encouragement, and always my safe place. Thank you all.

Table of Contents

List of Tables

List of Figures

Abstract

The Individuals with Disabilities Education Improvement Act of 2004 (IDEA) mandates students with disabilities have a transition plan in place beginning with their first Individualized Education Plan (IEP) when he or she is 16 years old. The transition plan should use transition assessments to identify interests, strengths, and needs. Results of these assessments are then used to create annual education, employment, and if necessary, independent living transition goals. However, no transition assessment developed for students with disabilities has evidence of predictive validity. This study sought to establish predictive validity and thus add to the validity evidence of the *Transition Assessment and Goal Generator (TAGG)*. Relations between *Transition Assessment and Goal Generator (TAGG)* constructs and postsecondary education and employment outcomes for 297 high school leavers who had completed the *TAGG* during their high school years were examined. Logistic regression modeling indicated non-academic behaviors related to the constructs Interacting with Others, Student Involvement in the IEP, Support Community, and Goal Setting and Attainment predict postsecondary education outcomes. Non-academic behaviors within the constructs Employment, Student Involvement in the IEP, Support Community, and Interacting with Others predicted postsecondary employment outcomes. The addition of student Grade Point Average (GPA) strengthened some of the models. The constructs of Persistence, Disability Awareness, and Strengths and Limitations did not yield any significant predictors, possibly because the importance of these non-academic behaviors will not be seen until students have had more time to realize their goals.

Chapter One

Introduction

According to the Individuals with Disabilities Education Improvement Act of 2004 (IDEA), the purpose of special education is "to ensure that all children with disabilities have available to them a free appropriate public education that emphasizes special education and related services designed to meet their unique needs and prepare them for further education, employment, and independent living" (IDEA, 34 C.F.R. §300.1). Furthermore, IDEA's findings state, "as the graduation rates for children with disabilities continue to climb, providing effective transition services to promote successful post-school employment or education is an important measure of accountability for children with disabilities" (20 U. S. C. Sec. 1400(c)(14)). The purpose of the IDEA points to the need for effective transition education practices to improve post-high school further education and employment outcomes. Beginning with a student's first Individualized Education Program (IEP) when he or she is 16 years old, or earlier as deemed appropriate by the state and/or IEP team, the school must use transition assessments to identify interests, strengths, and needs to create education, employment, and if appropriate, independent living goals. The emphasis upon effective transition education practices implies educators will use effective transition assessments to provide information to build the transition section of students' Individualized Education Programs.

Background of the Problem

The Division on Career Development and Transition (DCDT) of the Council for Exceptional Children defines transition assessment as "an ongoing process of collecting

information on the youth's needs, strengths, preferences, and interests as they relate to measurable postsecondary goals and the annual goals that will help facilitate attainment of postsecondary goals" (Neubert & Leconte, 2013, p. 74). Drawing from this definition, it is clear transition assessment should not occur only on one day of the school year. It is a continuous process of monitoring and collecting data as the student gains new experiences to enhance skills, reveal weaknesses, and to shape interests. Interests may change as students learn new skills and participate in more further education and job-related activities, and appropriate transition planning responds to students' emerging interests and awareness through the high school years.

Field and Hoffman (2007), Sitlington and Clark (2007), and Repetto et al. (2012) believe the transition assessment process needs to examine student assessment results across many domains, including (a) vocational interest and preferences, (b) self-determination skills, (c) academic achievement, (d) adaptive behavior, (e) interpersonal relationship skills, (f) emotional development and mental health, (g) employability and vocational skills, and (h) community participation. Each student, however, will not need to be assessed across all these domains as the mix of transition assessments will vary from student-to-student based upon students' skills, interests, needs, and initial postsecondary goals.

IDEA 2004 regulations, as expressed through the Indicator 13 checklist (NSTTAC Indicator 13 Checklist, 2015), request educators to develop annual transition goals addressing students' transition needs to facilitate attainment of postsecondary goals. Axiomatically, transition assessment results identify students' needs matched to postsecondary further education, employment, and independent living outcomes. To do

this, the transition assessment process needs to identify critical student behaviors predictive of post-high school further education, employment, and independent living outcomes. Unfortunately, no current transition assessment designed for use by high school students with disabilities has predictive validity evidence of positive postsecondary further education and employment outcomes.

Statement of the Problem

I could not find any transition assessments created for transition-aged students with disabilities with post-high school further education and employment predictive validity evidence. Thus, a major need exists to obtain predictive validity evidence for a transition assessment to justify its use to identify student strengths and needs predictive of positive postsecondary outcomes.

Theoretical Framework: Validity

In relation to transition assessments, validity represents the extent evidence supports the interpretations and use of transition assessment results (Messick, 1995), and validity is one of the most important concepts associated with an educational assessment (American Educational Research Association [AERA], American Psychological Association [APA], & National Council on Measurement in Education [NCME], 2014). To understand the importance of validity, a brief history of the concept will be examined followed by a review of the validity evidence supporting a recently developed transition assessment.

Brief history. The *Technical Recommendations for Psychological Tests and Diagnostic Techniques* (1954), jointly produced by APA, AERA, and NCME, indicated validity consists of four parts: (a) concurrent validity, (b) predictive validity, (c) content

validity, and (d) construct validity. A year later, Cronbach and a colleague rethought validity and combined predictive and concurrent validity into criterion validity (Cronbach & Meehl, 1955). The artificial distinction of three different types of validity bothered assessment researchers and Messick (1995) proposed a unified view of validity with up to six types of evidence to support test score inferences and uses, including (a) consequential, (b) content, (c) substantive, (d) structural, (e) external, and (f) generalizability. The current standards for testing describes validity evidence as sources that may be used to evaluate the validity of assessment interpretations (AERA, APA, & NCME, 2014).

Each source of validity evidence can be discussed individually, but must be understood in relation to the other types of validity evidence and the intended use of the assessment results. The type of evidence needed to support the use of the results from a particular assessment will vary depending upon inferences made from the results. Educators and students' IEP teams use results from transition assessments to provide opportunities and teach skills students need to learn now to increase the likelihood of further education, employment, and independent living after graduating from high school. This future orientation implies the importance of predictive validity evidence to support using transition assessment results to prepare students for life after high school. Unfortunately, no transition assessment designed for use by high school-aged transition students with disabilities has predictive validity evidence to support its use to identify skills students will need in the future.

Applied example. Martin, Hennessey, McConnell, Terry, and Willis (2015a) developed a new on-line transition assessment for use by transition-aged youth with

disabilities titled the *Transition Assessment and Goal Generator* (*TAGG*). *TAGG* items derive from research-identified non-academic student behaviors associated with post high school employment and education. Each *TAGG* set consists of a Professional, Student, and Family version users complete for an identified student. The computer-generated results profile provides a written summary, depicts student's strengths and needs, and based upon identified needs, the profile lists recommended annual transition goals. When students master the annual transition goals, these skills may increase their likelihood for positive post-school further education and/or employment outcomes.

To actually interpret the *TAGG* in relation to future outcomes, predictive validity must be established. Predictive studies determine the strength of the relation between assessment scores and future follow-up results (AERA, APA, & NCME, 2014).

Research Questions

To determine if *TAGG* constructs do predict further education and/or employment postsecondary outcomes, my dissertation study will use three years of *TAGG* data collected from schools across the country and postsecondary follow-up survey results of students one or more years out of high school to answer the following questions.

1. Do one or more *TAGG* construct scaled scores predict postsecondary education attainment/outcomes?
2. Do one or more *TAGG* construct scaled scores predict postsecondary employment attainment/outcomes?
3. Do *TAGG* construct scaled scores add incremental validity to GPA in predicting postsecondary education?

4. Do *TAGG* construct scaled scores add incremental validity to GPA in predicting postsecondary employment?

Study Significance

Since the advent of the Education for All Handicapped Children Act, Public Law 94-142 (1975), students with disabilities have been provided greater access to the same education and opportunities as their non-disabled peers. As a result, high school graduation and postsecondary employment rates have increased drastically for students with disabilities; for instance, high school graduation rates increased by 14 percent from 1984 to 1997. Additionally, more students with disabilities are enrolling in postsecondary programs (U.S. Department of Education, 2007). However, compared to peers, students with disabilities are still lagging behind their peers when it comes to achieving positive postsecondary outcomes. For example, in 2013, only 17.6 percent of individuals with a disability were employed, compared to 64.0 percent of those without a disability (Bureau of Labor Statistics, 2014). Likewise, according to the National Longitudinal Transition Study-2 (NLTS-2; 2009a), only 58.4 percent of students have ever attended a postsecondary institution since leaving high school and only 45.4 percent of students with disabilities received a diploma, certificate, or license from a postsecondary institution (NLTS-2, 2009b). As students with disabilities continue to lag behind their peers, a growing body of research has developed to determine what influences impact postsecondary success of students with disabilities (Harvey, 2002; Papay & Bambara, 2014; Shandra & Hogan, 2008; Test et al., 2009).

This study will add to the research base on indicators of postsecondary success for students with disabilities that led to the development of the *TAGG* (Martin et al.,

2015a), and expand the field by establishing the predictive validity of *TAGG* results. Once educators, students, and families know what student non-academic behaviors predict positive postsecondary outcomes, these skills can be taught to students with disabilities well before leaving school to provide opportunities to actually practice these critical learned skills.

Chapter Two

Review of Literature

To establish the literature foundation for the research questions depicted in Chapter 1, the literature associated with the questions will be examined and summarized. First, the concept of validity and, specifically, predictive validity will be examined. The importance of predictive validity to establishing the usefulness of transition assessment results will be established. Second, predictive validity studies require follow-up data on students with disabilities who completed the transition assessment while in high school to determine their further education and employment outcomes after high school graduation or leaving school. To do this, large-scale follow-up studies of former high school students with disabilities will be examined to understand methodology, analyses of data, and results. Last, the concept of Grade Point Average (GPA) will be examined to determine the extent GPA predicts post-school further education and employment in general and specifically for students with disability.

Validity

Messick (1989) described validity as "an overall evaluative judgment of the degree to which empirical evidence and theoretical rationales support the adequacy and appropriateness of interpretations and actions on the basis of test scores or other modes of assessment" (p. 13). In addition to the assessment scores, the context of the given assessment and the individuals responding to the assessment contribute to the interpretive meaning of the scores. Per Cronbach (1971), not only do the score interpretations need to be valid, but also the consequences that are a result of the

meaning. The meaning, usefulness, and appropriateness of inferences derived from assessment scores are related, and assessment developers need a way to describe validity evidence that considers the implications of the interpretation of assessment scores (Messick, 1995).

Sources of Validity Evidence

The *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014) describes validity as, "the degree to which evidence and theory support the interpretations of test scores for proposed uses of tests" (p. 11). The *Standards* (2014) further claim assessment validation involves gathering relevant evidence to support the proposed tests uses and interpretations. The following section provides a definition and brief discussion of each of these sources of validity evidence as described in the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014).

Evidence based on test content. The content of an assessment should measure the construct(s) it was created to assess. Construct underrepresentation or irrelevance may provide advantages or disadvantages to subgroups of test-takers, thus subject matter experts may be helpful in recognizing when items may be perceived as too difficult or too easy. Assessment administration and scoring may also be related to evidence related to content. Alignment of content with the domains assessed should also be considered.

Evidence based on response processes. Sometimes, interpretations of constructs are related to assumptions about the cognitive processes engaged in by test takers. Test makers may gain validity evidence by observing the fit between the

construct being assessed and the method the test taker is engaged in when completing the assessment.

Evidence based on internal structure. The structure of an assessment indicates how strongly the relations among test items relate to the construct the proposed test score interpretations are based upon. Per the *Standards*, interrelationships between multiple scores on an assessment need to be shown as consistent with construct(s) that are being assessed.

Evidence for validity and consequence of testing. Interpretation of assessment scores lead directly to consequences of assessment use. Unintended consequences may occur and are often negative. Test developers should consider the evidence for evaluating the feasibility of assessment score interpretations for their proposed uses. Not only the uses for test scores should be considered when accruing validity evidence, but also the claims of their benefit for these proposed uses. Unintended consequences are often negative, but can be positive as well.

Evidence based on relations to other variables. Oftentimes, the intended interpretation of an assessment for a specified use means that the construct should be related to some other variables, thus an important source of validity evidence includes an analysis of the relationship of assessment scores to external variables to the test. This may include specific criteria measures the assessment is expected to predict, or relations to other assessments measuring similar constructs. Demographic variables should be tested to determine if there are group differences (e.g. gender).

Test-criterion relationships. When assessments are intended to predict a applicable criterion, test makers should establish how accurately do assessment results

predict a specified criterion. The assessment is a measure "hypothesized as a potential predictor of that targeted criterion" (AERA, APA, & NCME, 2014, p. 17). Test-criterion studies that are predictive determine the strength of the relationship between assessment scores and criterion scores obtained at a time beyond when assessments are taken.

Predictive Validity Critically Important to Transition Assessments

IDEA (2004) legislation requires transition assessments in order to help teachers, parents, and students achieve the basic purpose of special education by preparing students with disabilities for postsecondary education, employment, and independent living. Thus, establishing predictive validity of transition assessment is important to support its use to identify student strengths and needs predictive of positive postsecondary outcomes.

Extent of predictive validity evidence to support transition assessment results. No transition assessment for students with disabilities exists that provides any evidence of predictive validity. However, the Armed Services Vocational Aptitude Battery (ASVAB) is a nationally normed multi-aptitude test battery used by high schools and postsecondary institutions to help students connect with occupations or training programs related to their skills and interests.

The ASVAB is a proven predictor of success in both educational programs and various civilian and military occupations as evidenced by extensive data linking the ASVAB scores to occupations, analyses linking civilian and military occupations, and a strong relationship between ASVAB scores and the General Aptitude Test Battery,

which is a test battery with extensive validity data for civilian employees (Department of Defense, n.d.).

The ASVAB provides a solid body of validity evidence comprised of many published studies and technical reports. However, while the ASVAB is nationally normed and provides evidence of fairness and non-bias, it is not normed for students with disabilities.

There are few studies on educational assessments focusing on students with disabilities that establish any predictive validity. The Assessment of Basic Learning Abilities predicted behaviors related to students with disabilities such as compliance with given instructions, name recognition, and performance on three-choice and four-choice tasks (Martin, Thorsteinsson, Yu, Martin, & Vause, 2008), but does not provide any information on long-term outcomes of students assessed with this instrument. Charman et al. (2005) established predictive validity of autism screening assessments at ages two and three years versus outcome at seven years of age. This was a small sample study (N = 29), which may make the follow-up screenings more feasible.

In establishing predictive validity, samples of students must be followed over time. This can be a costly undertaking, which may explain why more follow-up studies are not completed. The studies highlighted in the following review are primarily analyses on extant datasets conducted independently of the original study set forth.

Follow-Up Studies of Former High School Students with Disabilities

Dinger (1961) conducted the first published follow-up study of former high school students deemed “educable retarded” to determine their post-school outcomes. He concluded occupational success for individuals in this population is a reflection not

necessarily of intelligence, but of personal characteristics. He recommended schools place students with disabilities into jobs so each will be employed at graduation or when they age-out.

Modern-day follow-up studies systematically replicate Dinger's (1961) research, though few cite his study as the seminal work. Today's studies involve many more former students across all disability categories and from across the country. My purpose with this section of the literature review is to identify 10 recent large-scale follow-up studies that used detailed follow-up survey data to calculate predictions about student educational and employment outcomes. I wanted to see how these studies were analyzed so I could systematically replicate the best methods for this dissertation study. Thus, the purpose of this section was not to conduct an exhaustive review of all post-high school follow-up studies of former students with disabilities, but rather to examine a selection of studies and identify research questions, predictors, data collection, outcomes, and analysis methods.

To do this I will first explain my inclusion criteria, how I found the follow-up studies, and checked their quality. Second, the purpose of the follow-up studies will be examined. Third, the disability categories of the former high school students included in the various follow-up studies will be summarized. Fourth, I will summarize the research questions these studies asked. Fifth, how the follow-up data were collected will be presented. Sixth, the identified predictors will be discussed. Seventh, the analyses used in my collection of studies will be detailed.

Finding Modern Follow-Up Studies

Inclusion criteria. To be considered for inclusion in this review, articles had to

include (a) predictor variables pertaining to secondary education programs, practices, or student behaviors and (b) outcome variables related to postsecondary education and/or employment. While results of demographic variables or school characteristics may be noted in research questions, this review focused on practices that can be implemented at the classroom, school, or district level to improve postsecondary educational outcomes or student behaviors that have been identified as predictors of positive post-school outcomes. Programs and practices may be based on student academic instruction (e.g. functional academics vs. regular academics), student behaviors taught (e.g. self-advocacy), or a school-wide transition program. Using the checklist based on the quality indicators developed by the CEC (2014; Appendix A, Figure 3), articles that met (a) and (b) above were then checked against the requirements to decide on final inclusion in this literature review. The articles included in this discussion are described in Table 1.

Locating follow-up studies. I searched peer-reviewed articles in various databases to find studies that used correlational research methods investigating the relations between predictor and outcome variables. I searched Academic Search Elite, Educational Resources Information Center (ERIC), MasterFILE Premier, Middle Search Plus, Professional Development Collection, PsycARTICLES, and SocINDEX using various combinations of the following search terms: correlation, correlational, predictor, disability, high school, outcomes, relationships, relations, college, employment, and secondary.

Methodology quality check. The Council for Exceptional Children standards for evidence-based practices in special education enable researchers to identify studies that have a strong methodological foundation. For a quantitative study to be considered

methodologically sound, it must have met all quality indicators specified for the applicable research design. Before evaluating the research studies discussed in this review, I first compared each against the checklist adapted from the CEC quality standards (Appendix A; Figure 3). Quantitative studies that did not meet the quality standards described were not included in this review.

Table 1

Follow-up studies referenced in this review. Post HS focus area, number of students included in study, disability category, predictor and outcome variables of interest, and findings are included.

Reference	Post HS focus area	N	Disability	Predictor Variable(s)	Postschool Outcome Variable	Findings
Benz, Lindstrom, & Yovanoff (2000)	Employment and education	709	SLD, ID, ED, OHI, SI, HI, OI, TBI, AU, VI	Number of paid jobs; transition goals completed	Engagement in work or education	Students who hold two or more jobs were 1.8x more likely to be engaged in work or continuing education than those who held less than two jobs. Students who completed four or more transition goals were 3.8x more likely to be productively engaged than students who completed less than 4 goals.
Bouck (2012)	Employment and education	54,875 (weighted)	ID (Moderate/Severe)	Curriculum (functional vs. academic)	Independent living, post-secondary school attendance, currently employed with paid job, ever employed with paid job, full-time work, earning above minimum wage	No significant relations between predictor and outcomes.
Carter, Austin, & Trainor (2012)	Employment	450	ID, MD, AU and eligible for alternate assessment during year of survey	Work history	Current employment status (2 years after HS)	Paid work experiences during high school strongly associated with post-school work status.

Chiang, Cheung, Hickson, Xiang, & Tsai (2012)	Education	430	AU	Post-high school goal of postsecondary education	Participation in postsecondary education	Significant predictors of PSE: primary post-high school goal for the student in PSE, high school type, parental expectation, annual household income, and academic performance.
Halpern, Yovanoff, Doren, & Benz (1995)	Education	987 from OR , NV; 565 from AZ	LD, ID, ED, Speech-Language, HI, VI, OI, OHI, AU, MD, TBI	Functional achievement, instruction received, and transition planning participation	Participation in postsecondary education	Functional achievement scores, instruction received by the student, and participation in relevant transition planning during high school were all significant predictors of postsecondary education participation.
Harvey (2002)	Employment and education	7,007	Orthopedic, SLD, visual or hearing problems, deafness, speech problem, orthopedic problem, physical disability, learning problem, emotional problem, or other health problems	Secondary vocational education	Employment status, annual employment wage earnings, average weekly hours worked	Secondary vocational education led to (a) higher employment rates, (b) greater wage earnings, and (c) more hours worked.

	Joshi, Bouck, & Maeda (2012)	Employment	62,513 (weighted)	mild intellectual disability	Employment activities, vocational/technical preparation, paid work experiences apart from school	Current employment status and any engagement in employment	Students who participated in each additional transition activity (e.g. prevocational education, placement support) resulted in 1.2 times more likely to be currently employed. Students who had engaged in paid-employment experiences while in school were 5.7 times as likely to engage in post-school employment. Students who experienced a school-sponsored job were 3.5 times as likely to ever engage in post-school employment.
	Papay & Bambara (2014)	Employment and education	490 (up to 2 years); 190 (between 2 and 4 years)	intellectual disability	Transition practices: work experiences, interagency involvement, life skills instruction	Current employment status, any postsecondary education at 2 and 2 to 4 years	Used "practical significance" in addition to statistical. Youth involvement was practically significant in predicting post-school employment and education. Family involvement was significant predictor of postsecondary education. Work experience was predictive of employment at 2-4 years out of HS. Life skills instruction was strong predictor of both outcomes. Parental expectations were strong predictors for both outcomes.
	Rabren, Dunn, & Chambers (2002)	Employment	1,393	LD, ID, other	Employment at time of HS exit	Employment	Students who were employed at graduation were more likely to be employed one year later.

Shandra & Hogan (2008)	Employment	2,254	Drawn from the World Health Organization's International Classification of Functioning, Disability, and Health. 32.5% moderate disability; 9.3% serious disability	School-based program of study participation	Full time employment and employment benefits	School-based programs increase the likelihood students with disabilities will be stably employed and working FT. Work-based programs are best for increasing the likelihood that students with disabilities will be employed with jobs that have fringe benefits.

Purpose of Identified Follow-Up Studies

Of the studies represented in this review, four focused only on predicting postsecondary employment, two focused on only predicting postsecondary education, and four focused on predicting both postsecondary education and employment. Predictors of these postsecondary outcomes include number of paid jobs student has held, number of transition goals completed, type of curriculum (functional vs. academic), student work history, a postsecondary education goal, functional achievement level, instruction received, transition planning participation, secondary vocational education participation, paid work experiences, family involvement, life skills instruction, and participation in a school-based program of study. Five of the studies used the NLTS2 follow-up studies as their data source; other data sources included Oregon's Youth Transition Program: an Oregon, Nevada, and Arizona replication study; the National Education Longitudinal Study (NELS); the Alabama Transition Initiative (ATI); and the National Longitudinal Survey of Youth 1997 (NLSY97).

Disability Categories of Former Students

The collection of follow-up studies included students across all IDEA-specified disability categories. Studies using the NLTS2 as a data source had research questions targeted to a specific disability classification such as intellectual disability (e.g., Papay & Bambara, 2014), or they used the terminology moderate/severe with inclusion criteria of a range of disabilities (e.g., Carter et al., 2012). Other studies included students across almost all disability categories (Benz et al., 2000). Shandra and Hogan (2008) used the World Health Organization's Classification of Functioning, Disability, and

Health framework, which classifies a child's health and well-being across four areas: (a) body structures, (b) body functions, (c) activities, and (d) participation. The authors then classified the child's disability into the domains of learning or emotional disabilities, sensory limitations, physical disabilities, or chronic illness. Due to sample size limitations, they then classified participants as having one or more serious limitation, no serious limitation but at least one moderate limitation, or not currently limited.

Research Questions Asked

Research questions in the collected follow-up studies focused on employment and/or educational outcomes for specific student populations (e.g. autism, moderate/severe intellectual disability) in five of the studies. Each of these was a secondary analysis using the NLTS2 database. Bouck (2012) asked whether a functional or academic curriculum taught to students with moderate/severe intellectual disabilities predicted greater post-school success in employment or education. Carter et al. (2012) asked what are the postsecondary work experiences of young adults with disabilities and to what extent are student demographics, skills, family factors, and high school career development programming related to employment after high school. When looking at postsecondary educational outcomes, Chiang et al. (2012) asked why students with autism who had successful postsecondary employment outcomes were different from others with autism who were not successful. Additionally, they asked what factors were associated with positive postsecondary outcomes for students with autism. Joshi et al. (2012) asked what are employment outcomes of students with mild intellectual disability and what relation exists between their participation in employment related transition activities and employment status. Finally, Papay and Bambara (2014)

asked if experiencing a combination of best practice school program variables predicts successful postsecondary outcomes in employment and education up to two and four years out of high school.

The remaining five studies asked questions about students with disabilities in general. Benz et al. (2000) asked what relations exist between student and program factors and postsecondary engagement in employment or education activities. Halpern et al. (1995) simply asked what predicts postsecondary education attainment of students with disabilities. Harvey (2002) asked if differences in postsecondary employment rates, earnings, and hours worked and secondary vocational education participation existed between students with and without disabilities. Rabren et al. (2002) asked post-school interview questions about students' secondary experiences to predict their impact on employment outcomes. Finally, Shandra and Hogan (2008) asked if participation in school-to-work programs predicted employment success.

Follow-Up Study Data Collection Methods and Instruments

Half of the studies examined used the NLTS2 database (Bouck, 2012; Carter et al., 2012; Chiang et al., 2012; Joshi et al., 2012; Papay & Bambara, 2014). The NLTS2 was a large-scale longitudinal study of students with disabilities that began in 2001. The study included 11,270 youth with disabilities from across the nation who were aged 13 through 16 at the beginning of 2000. Data was collected in intervals over 10 years from parents, students, and school personnel. The goals of NLTS2 were to

- Describe secondary students who receive special education and their households;
- Describe their secondary school experiences, including schools, school

programs, related services provided, and extracurricular activities;

- Measure secondary and post-school outcomes of participants in education, employment, social, and independent living domains; and
- Identify secondary school-related variables that contributed to positive postsecondary outcomes.

Data were collected for the NLTS2 through telephone interviews with parents and students every other year, school surveys, student assessments that included academics, interviews about how students feel about themselves, their attitudes about school and learning, and their social relationships. When the assessment was not appropriate due to student's communication deficiencies or high support needs, a teacher-completed checklist was substituted.

Studies reflected in this review used the NLTS2 database by selecting specific variables that indicated the population of interest. For example, Papay and Bambara (2014) selected a variable that indicated the student had an intellectual disability if the parent or school reported the student was diagnosed with intellectual disability in either the first or second wave of the study.

Benz et al. (2000) collected data through the Oregon Youth Transition Program, which is operated by the Oregon Department of Education, the Oregon Vocational Rehabilitation Division, the University of Oregon, and statewide schools. Though the program began with just seven schools in 1990, at the time of publication, it was in 80 percent of Oregon high schools statewide. The Oregon Youth Transition Program serves students with disabilities who require additional support beyond what special education typically provides in order to achieve postsecondary success, and as such has

a goal to improve postsecondary outcomes by preparing students for competitive employment and/or further training.

Data for the Oregon Youth Transition Program study (Benz et al., 2000) were obtained from a database comprised of students who participated in the program and included student demographics, program services received, and outcomes achieved at program exit and two years after exiting the program. Student information was gathered across four phases: (a) program entry, (b) at 6-month intervals during the program, (c) at program exit, and (d) at 6-month intervals for two years after exiting the program. Data integrity was protected by providing standardized forms across all sites, and training and technical assistance annually, including terminology and operationalized definitions of terms. Data were reviewed by a technical assistance person at the university who directed any questions to specific site staff before it was entered into the database.

Similar to Benz et al. (2000), Rabren et al. (2002) used data from a state's transition efforts, the Alabama Transition Initiative (ATI). The ATI included student tracking as a major program, thus annual data was collected on in-school and post-school students with disabilities through an in-school and post-school transition survey instrument modeled after Vermont's Post-School Indicators Follow-Up Questionnaire. Demonstration sites comprised of the students in the study were provided at least three training programs each year and ongoing technical assistance. Teachers of former students administered the post-school survey via phone interviews. Teachers received special training on the use of the standardized interview procedures. At least five attempts were made to contact each student.

Halpern et al. (1995) conducted a 3-year follow along study in Oregon and Nevada, plus a 2-year replication study in Arizona that used the same instruments and procedures as the Oregon and Nevada study. They first collected for the Oregon and Nevada study during students' last year of high school, followed by a second round when students were out of school for a year, and again at two years post-high school. The Arizona replication study only had data for students' last year of high school and one year post-high school.

Samples were selected to ensure representation of primary disability category, geographic location, gender, and minority status, with a slight bias towards underrepresenting students with learning disabilities in order to gather a greater number of students with lower-incidence disabilities.

Instrumentation included the development of five data-collection instruments, three of which addressed in-school components while the remaining two addressed post-school areas. The in-school instruments included student and parent interviews and a teacher questionnaire. Student and parent interviews comprised the post-school instruments.

Interviewers participated in a 6-day training in order to become familiar with the instruments, interviewing strategies, and procedures for the using the phone format. Inter-interviewer agreement was assessed on all interview instruments; agreement rates ranged from 95% to 100%.

Harvey (2002) conducted a secondary analysis of data from the National Education Longitudinal Study (NELS) of 1988-1994. This database is similar to the NLTS in its scope and design. However, it represents the larger student population with

students with disabilities as a subset of the whole. Student disabilities included orthopedic, learning disabilities, visual or hearing disabilities, emotional disturbances, or other health impairments. Data were collected over four waves, beginning when students were in eighth grade and continuing every two years through two years post-school. Analysis was restricted to those students who participated in all four years of the study. Data collected included surveys of parents, teachers, and school administrators during the first year. School records were added during the second wave. High school courses taken were gathered in the third wave as well as student National Assessment of Education Progress (NAEP) data. The final wave included postsecondary interviews to gather information on outcomes to date.

The National Longitudinal Survey of Youth 1997 (NLSY97) was the data source for Shandra and Hogan (2008). The NLSY97 was designed by the Department of Labor to follow the transition from school to work of over 8,000 students who were 12 to 16 years old as of the end of 1996. Focus was on employment, schooling, vocational training, and income as well as educational attainment, enrollment status, and job history. This secondary analysis only included students who reported having a disability during the first wave of data collection, and consisted of data covering the first eight waves.

The 10 studies examined only drew from six sources, though three of these sources were national studies (NLTS2, National Education Longitudinal Study, and the National Longitudinal Survey of Youth 1997). Two of the sources were from single states (Oregon's Youth Transition Program and Alabama's Student Tracking Program), while the final one was a regional state effort (Oregon, Nevada, and Arizona).

Identified Predictors

The reviewed follow-up studies identified six predictors. Below I will describe each, indicate unique aspects of the predictor if any exists, and cite the follow-up study.

Goal-setting. Odds of participation in postsecondary education increased when a school's primary goal for a student with autism was preparation for postsecondary education (Chiang et al., 2012). This study also found a relation between the student's participation in transition planning and the school's primary goal of postsecondary education. In other words, when the school set the expectation of postsecondary education for a student, the student appears to be more involved in transition planning. However, the student's involvement in transition planning was not predictive of the outcome of postsecondary education.

High school instruction. High school instruction and completion in reading, writing, math, problem solving, and social skills predicted postsecondary education (Halpern et al., 1995). Life skills instruction for students with intellectual disabilities strongly predicted postsecondary employment and education, though it was theorized the life skills instruction may have actually been social skills instruction (Papay & Bambara, 2014). Better definitions of what constitutes life skills instruction may be necessary to truly determine if it is a predictor of postsecondary education and employment.

Interagency involvement. Interagency involvement, measured by adult service agency representation in transition planning, predicted postsecondary education four years after high school for students with intellectual disabilities (Papay & Bambara, 2014).

Paid employment. Paid work experience in high school predicted engagement in productive work or continuing education (Benz et al., 2000). Paid community employment predicted employment after high school for students with severe disabilities (Carter et al., 2012). Paid work experience and school-sponsored work experiences predicted post-school employment (Joshi et al., 2012). Work experience was predictive of post-school employment for students with intellectual disabilities at two to four years out of high school (Papay & Bambara, 2014). Employment at high school graduation predicted employment one year later (Rabren et al., 2002).

Transition program. Transition goal completion predicted engagement in productive work or continuing education. Students who completed four or more goals were almost four times more likely to be involved in further employment (Benz et al., 2000). Participation in transition plan development predicted postsecondary education (Halpern et al., 1995). Participation in transition activities predicted post-school employment (Joshi et al., 2012). A school-based transition program that includes course sequences based on occupational goal, cooperative education, school-sponsored enterprise, and/or technical preparation predicted postsecondary employment (Shandra & Hogan, 2008).

Vocational education. Secondary vocational education participation for students with disabilities predicted postsecondary employment (Harvey, 2002).

Analyses Used In My Set of Follow-Up Studies

When examining postsecondary outcomes, much of the quantitative data is gathered as a yes or no outcome. Thus, many of the large-scale follow up studies are modeled using logistic regression.

Logistic regression. Nine of the studies discussed in this review used logistic regression to answer research questions (Benz et al., 2000; Bouck, 2012; Carter et al., 2012; Chiang et al., 2012; Halpern et al. 1995; Harvey, 2002; Joshi et al., 2012; Papay & Bambara, 2014; Rabren et al., 2002). Logistic regression predicts a discrete outcome from a set of variables that may be continuous, discrete, dichotomous, or a mix. For instance, the discrete outcome of employment is employed/not employed and logistic regression can analyze follow-up data to determine if paid work experiences in high school predicted postsecondary employment. Logistic regression is useful in these situations because it makes no assumptions about the distributions of the predictor variables. Predictor variables are not required to be normally distributed, linearly related to the dependent variable, or of equal group variance. A goal of logistic regression is to correctly predict the category of the outcome (employed/not employed) for individual cases.

Caution. Studies using logistic regression must be grounded in theoretical knowledge. Predictors should be selected based on an existing justified model, which is the case in the studies represented in this review. However, when there are too few cases in relation to the number of predictors, logistic regression may result in models that fail to converge or have high parameter estimates and standard errors (Tabachnick & Fidell, 2013). When this occurs, more data should be gathered or the number of predictors should be reduced.

Generalized estimating equations. The final article reviewed used Generalized Estimating Equations (Shandra & Hogan, 2008) to model longitudinal data. Their data included measurements of same individuals at multiple points in time, which results in

positive correlation within subjects. Generalized estimating equations account for within-subject correlation, resulting in efficient parameter estimates with robust standard errors. This type of analysis is not relevant to my study so will not be discussed further.

Summary

The 10 studies examined in this review identified (a) six predictors of postsecondary education and employment, (b) five predictors of postsecondary education, and (c) four predictors of postsecondary employment. These findings expand on earlier research that vocational education participation, transition related services, and paid work experiences lead to better employment outcomes for students with disabilities (Hasazi, Gordon, & Roe, 1985; Mithaug, Horiuchi, & Fanning, 1985). This review and an exhaustive literature review by Test et al. (2009) found follow-up studies primarily focused upon programs and services, and not student behavioral predictors of positive post-high school further education or employment outcomes.

Thirty-two evidence-based secondary level transition education practices were that improve specific student skills were identified by Test, Fowler, et al. (2009). Various teaching strategies had levels of effectiveness strong to potential. However, these findings provide no evidence of long-term efficacy of the education practices. That is, it is not known if student acquisition of these skills leads to improved postsecondary education and employment outcomes.

Similarly, Test, Mazzotti, et al. (2009) conducted a review of secondary transition correlational studies to identify predictors of improved postsecondary education and employment outcomes for students with disabilities. Sixteen predictors of

positive postsecondary engagement were identified, including 12 predictors of programs, services, placements, or processes, and four student-level predictors, including paid employment, self-advocacy, self-care, and social skills. While paid employment is a specific student behavior, the remaining three predictors did not specify precise non-academic behaviors teachers could teach to facilitate improved postsecondary outcomes.

While these reviews identified effective secondary education teaching strategies and predictor variables, there remained a need to use this information to develop constructs of specific behaviors associated with positive postsecondary education and employment outcomes.

Transition Assessment and Goal Generator (*TAGG*)

Martin et al. (2015a) developed the *TAGG* to assess non-academic student behaviors related to positive postsecondary education and employment outcomes. The *TAGG* identifies students' strengths and needs related to transition from high school; once the assessment is completed, the *TAGG* uses the identified needs to provide meaningful annual transition goals students, teachers, and family members can use within the IEP transition plan. The *TAGG* has three versions; the student, professional, and a family member each fill out their own version of the assessment for each student.

The *TAGG* Student Version (*TAGG-S*) (Martin et al., 2015b) measures non-academic student behaviors related to successful transition with 34 items across seven constructs: Strengths and Limitations/Support Community, Disability Awareness, Persistence, Interacting with Others, Goal Setting and Attainment, Employment, and Student Involvement in the IEP. The *TAGG* Professional (*TAGG-P*) and *TAGG* Family

(*TAGG-F*) versions measure the same constructs as does the *TAGG-S* plus one more. Strengths and Limitations and Support Community did not collapse into one construct as they did in the student version. The *TAGG-P* and *TAGG-F* contain 31 five-point Likert-type items and three yes/no items. The professional version is written at a higher reading level than the parent version. The student version contains the same items, but uses a three-point Likert-type scale. See Appendix B for screenshots of *TAGG* assessment items (Figures 4-9).

***TAGG* constructs.** Summaries of the *TAGG* construct definitions are below. See McConnell et al. (2013) to see how constructs were developed and defined.

***Strengths and limitations*.** The student describes his strengths and limits. The student is able to recognize situations in which strengths and limits may impact outcomes.

Disability awareness. The student is aware of his disability and is able to explain it to others. The student knows what supports are needed and allowed in various situations. The student is not defined by his disability.

***Persistence*.** The student believes in his ability to face and overcome adverse situations. He uses failure as an opportunity to learn and impact future success.

***Interacting with others*.** The student cooperates with individuals across school and community settings.

Goal setting and attainment. The student is goal oriented and familiar with setting and attaining goals. The student is able to break large goals down into small achievable tasks in order to realize larger goals, as well as adjust goals as needed.

Employment. The student has had a paid job and aspires to have a job that matches his interests and abilities.

Student involvement in the IEP. The student participates in his IEP by contributing to the discussion on performance and academic plans and how these relate to his postsecondary goals.

Support community. The student differentiates between individuals who have a positive influence versus those who do not. The student is able to be a part of a positive support network as needed.

TAGG Validity Evidence

Using the framework of the different types of validity established earlier in this chapter, this section will highlight the validity evidence established in support of the *TAGG*.

Evidence based on test content. The *TAGG* research team examined research studies that identified non-academic behaviors related to postsecondary employment and education for students with disabilities. The process employed by McConnell et al. (2013) resulted in the identification of a list of behaviors associated with positive postsecondary outcomes from which construct definitions were derived.

Evidence based on response processes. *TAGG* developers observed 20 *TAGG* administrations across four states. Developers considered questions and comments from assessment participants in subsequent revisions (McConnell, Martin, & Hennessey, 2015).

Evidence based on internal structure. Item response theory confirmed the suitability of the response patterns across all subscales, providing evidence of internal

structure validity. Additionally, results of the exploratory and confirmatory factor analyses determined model fit is acceptable across all versions (Hennessey, Terry, Martin, McConnell, & Willis, 2015).

TAGG professional version. The eight-construct structure of the *TAGG-P* has acceptable model fit ($\chi 2$ (499) = 1,043.62, $p < .0001$; RMSEA = .058; CFI = .92, TLI = .91, and RMSR = .06). Fourteen weeks after the first *TAGG* administration, the same professionals completed the *TAGG* again. This test-retest indicated a large correlation between the two administrations (.80). Internal consistency across constructs ranges from .68 - .93, while the overall consistency is .95. This is considered excellent reliability.

TAGG family version. The eight-construct *TAGG* family version also has acceptable model fit ($\chi 2$ (499) = 862.74, $p < .0001$; RMSEA = .057; CFI = .91, TLI = .90, and RMSR = .058). Test-retest administration demonstrated a large correlation between administrations (.70). Internal consistency across constructs ranges from .60 - .93, while the overall consistency is .89, which is considered excellent reliability.

TAGG student version. The seven-construct *TAGG* student version also has acceptable fit ($\chi 2$ (505) = 819.00, $p < .0001$; RMSEA = .047; CFI = .89, TLI = .88, and RMSR = .064). Test-retest administration demonstrated a large correlation between administrations (.70). Internal consistency across constructs ranges from .44 - .82, with an overall consistency of .89, which is considered excellent reliability.

Evidence based on relations to other variables. Several studies have provided validity evidence related to outside variables. McConnell, Martin, Herron, and Hennessey (2015) determined no significant differences in scores between males and

females on the *TAGG*. Specifically, education professionals scored males and females comparably across all *TAGG-P* constructs. Also, no relations exist between *TAGG* scores and socioeconomic status (Hennessey, Herron, Herron, & Martin, 2015), disability category (Martin, McConnell, Martin, & Hennessey, 2015), GPA (McConnell, Martin, & Hennessey, 2015), and time spent in general education (Martin, 2014).

Summary of Validity Findings

Established validity evidence of the *TAGG* includes measures related to test content, response processes, internal structure, and relations to other variables. My study will further address relations to other variables by determining if the *TAGG* assessment predicts positive postsecondary education and employment outcomes.

Grade Point Average

In addition to practices at the classroom, school, or district level that predict postsecondary education and employment outcomes, postsecondary educational institutions use academic achievement measured by GPA as an indicator of students' college readiness and future success (Camara & Echternacht, 2000; Noble & Sawyer, 2002). In addition to academic achievement, GPA also measures motivating characteristics, such as attendance and effort (Stiggins, Frisbie, & Griswold, 1989). However, Noble and Sawyer (2002) found GPA was unable to predict high levels of academic achievement during the first year of college. This may be explained due to the GPA actually measuring more than academic achievement, such as motivation, academic engagement, or persistence. Students with high academic achievement in high

school were more likely to be high achievers in college than those who were labeled underachievers (Peterson, 2000).

Further studies have linked high school GPA to postsecondary employment (Horn, Berktold, & Bobbit, 1999; Leonard, Beauvais, & Sholl., 1999). McConnell et al. (2013) found that non-academic behaviors related to postsecondary employment and further education measured by the *TAGG* (2015) are different that what is measured by GPA, indicating GPA may contribute additional information to prediction models examining postsecondary education and employment outcomes.

Chapter Three

Methodology

Martin et al. (2015) developed the *TAGG* based on research-identified student behaviors associated with post high school further education and employment. To add to the growing *TAGG* validity evidence, a study needs to be completed to determine the *TAGG*'s predictive validity. Thus, I designed this study to identify any *TAGG-P*, *TAGG-F*, and *TAGG-S* constructs that predict positive postsecondary education and employment outcomes. To answer the following research questions, I used *TAGG* assessment construct scaled scores for the *TAGG-P*, *TAGG-F*, and *TAGG-S* versions and the *TAGG* Follow-Up survey results from students one year or more out of high school who completed the *TAGG* while in high school.

1. Do one or more *TAGG* construct scaled scores predict postsecondary education attainment/outcomes?
2. Do one or more *TAGG* construct scaled scores predict postsecondary employment attainment/outcomes?
3. Do *TAGG* construct scaled scores add incremental validity to GPA in predicting postsecondary education?
4. Do *TAGG* construct scaled scores add incremental validity to GPA in predicting postsecondary employment?

The following sections will discuss the methodology used in this dissertation study. First, the research design and various statistical analyses will be presented. Second, the follow-up survey used to collect post-high school outcome results of former students with disabilities who completed the *TAGG* while in high school will be

described and its methodology discussed. Third, *TAGG* Follow-Up Survey data analysis procedures will be presented.

Research Design

I used logistic and Poisson regression analyses to determine whether *TAGG* non-academic behavior clusters predict positive postsecondary educational and employment outcomes. Table 2 depicts the eight post-school education and employment outcomes used in this analysis. I examined *TAGG* scaled scores for each construct for use as predictors in the models.

Table 2

Eight Further Education and Employment Follow-Up Survey Outcome Items That Former TAGG Participants Answered, Percent Responding Yes, and Type of Regression Analysis Completed

Outcome	Number	% Yes	Model
Postsecondary Education			
1. Has been enrolled in education or training since high school.	293	53.58	Logistic
2. Currently participating in any skill- or experience-building program.	294	5.10	Poisson
3. Currently enrolled in an education or training program that takes place at a community college, junior college, university, or vocational school.	294	29.93	Logistic

Postsecondary Employment

1. Currently working in a paid job.	292	50.00	Logistic
2. Actively looking for work.	140	52.14	Logistic
3. Has worked a TOTAL of three months in past year or since leaving high school.	146	90.41	Poisson
4. Has had current job for more than three months.	146	76.45	Logistic
5. Job is in a career that interests you most.	262	20.99	Logistic

Note. Outcome variables are coded 0 = no and 1 = yes. The number of participants who answered the question is provided. The percent that answered "yes" is provided. The percents that are greater than 90 percent or less than 10 percent are modeled using Poisson regression methods.

Logistic regression is used to predict a discrete outcome from a set of variables that may be continuous, discrete, dichotomous, or a mix (Tabachnick & Fidell, 2013). For instance, the discrete outcome for employment is "yes," employed, or "no," not employed: Figure 1 displays a binary outcome variable (1/0) on the y-axis and a continuous predictor on the x-axis. The plot of these data results in two parallel lines, each corresponding to one of the possible outcomes. Ordinary least squares regression is not adequate for analyzing non-linear data or data without normally distributed error terms and constant variance (Neter, Kutner, Nachtsheim, & Wasserman, 1996). Logistic regression is useful in these situations because it makes no assumptions about the distributions of the predictor variables. Predictor variables are not required to be normally distributed, linearly related to the dependent variable, or of equal group variance. Parameter estimates are used to calculate and interpret odds ratios. Logistic regression also is not appropriate when the proportion responding (y = 1) is close to

zero or one (Hosmer & Lemeshow, 2000), as it was for two of the outcomes of interest in my study. These two outcomes were investigated using Poisson regression methods.

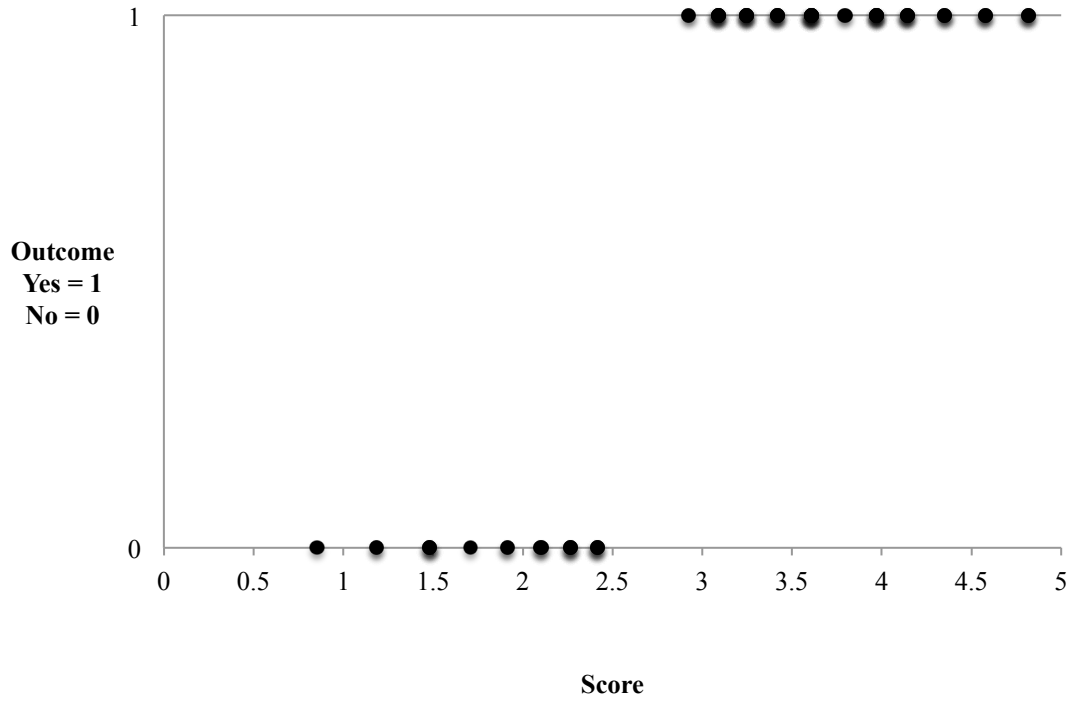

Figure 1. Graphical representation of univariate logistic regression. Logistic regression is appropriate when dependent data is binary.

The Poisson distribution is a discrete distribution measuring rare counts of occurrences. Poisson regression can be used when modeling data where the outcome of the event is considered a rare occurrence (Neter et al., 1996). Two of the outcomes I examined in this study had proportions of occurrence (outcome = "yes") greater than 90 percent or less than 10 percent, thus I modeled these using Poisson regression. Poisson regression models are developed similarly to logistic regression.

Model development. I used SAS ® software for all analyses. When identifying the logistic regression models, I conducted direct logistic regression using the scaled scores for each construct of each *TAGG* version [professional (8 constructs), family (8 constructs), and student (7 constructs)] separately as the independent variables. Each predictor was first examined in the univariate model for each postsecondary education and employment outcome. Following Hosmer and Lemeshow's (2000) variable selection procedures, I considered any variable with a Wald X^2 p-value < .25 for the full model. This ensured any variables important in the model were included during the model building. For example, for the *TAGG-P*, two predictor variables had p-values < .25 when I ran univariate analysis with the outcome of "the student has been enrolled in any education or training since leaving high school." I included these two predictor variables in the multivariate logistic model. Next, I ran logistic regression with the backwards selection method. This method begins with all specified predictor variables in the model, and it checks the Wald X^2 for the significance of the individual parameter estimates. The least significant effect that does not meet the $\alpha = .05$ level of significance is then automatically removed from the model. This is repeated until no other parameter estimate can be removed from the model using the $\alpha = .05$ level of significance or until all effects have been removed from the model.

In addition to the Wald X^2 test, I also used the Hosmer-Lemeshow X^2 test to measure the overall goodness of fit of the model. This test is a decile-of-risk test statistic where subjects are ranked based on their estimated probability of the outcome variable. Next, they are placed in up to 10 groups based on their estimated probability. Next, they are divided by the actual outcome—those who answered "yes" and those

who answered "no." Expected frequencies for each of the cells created from this process are created and compared to the actual outcome. Models that display good fit will have subjects with an actual outcome of "yes" in the higher deciles and those who answer "no" will be in the lower deciles. A good model will produce a non-significant X^2 test (Hosmer & Lemeshow, 2000). I reported overall goodness of fit test statistics, Hosmer-Lemeshow test statistics and associated p-values with all significant models.

When considering models with GPA, I examined likelihood ratio X^2 tests when adding GPA to models built from *TAGG* constructs to evaluate the importance of GPA in the model.

The Poisson regression was analyzed the same way as the logistic regression. I first ran univariate models for all possible predictors for each *TAGG* version, and included predictors with a Wald X^2 p-value < .25 in the multivariate model. Automatic backwards selection was not an option, so I ran the model iteratively by eliminating the most non-significant predictor not meeting the $\alpha = .05$ level of significance, then rerunning until there were no more predictors to eliminate.

Effect size calculations. I used two measurements, odds ratios and the area under the Receiver Operating Characteristic (ROC) curve, to depict effect sizes when examining the logistic regression models.

Odds ratios. Odds ratios are defined as the increase in odds of the outcome happening when a one-unit increase on the predictor variable occurs. For example, an odds ratio of 1.4 on a predictor variable means for every unit change in the predictor variable, the odds of being in the outcome group changes by a factor of 1.4. Stated another way, the percentage change in the odds ratio for a one unit increase is 1.4 – 1 =

.40, reflecting a 40% increase in the odds of falling into the outcome group. Similarly, an odds ratio of 0.70 indicates the odds of the being in the outcome group are 30% less with a one-unit increase in the predictor variable. Odds ratios that are below one actually reflect a decrease in the odds of falling into the outcome group (Tabachnick & Fidell, 2013).

Area under the ROC curve. The ROC curve plots the probability of detecting a true occurrence (sensitivity) against the probability of a false occurrence (1 – specificity). This can also be defined as the probability of a randomly selected pair of cases from each outcome category being correctly classified. The area under the ROC curve is a measure of the ability of the model to discriminate between the subjects who experience the outcome of interest from those who do not and ranges from 0.5 to 1 (Hosmer & Lemeshow, 2000). The minimum ROC value for an "acceptable" model varies with different studies dependent upon the content and context of the study (Environmental Protection Agency, n.d., para. 6). Given that this study involves behavior of adolescents and young adults, it is reasonable to expect that the discriminatory power of prediction models may not be in the high range. The ROC value considers both the odds-ratio and the sensitivity of the model; it is another piece of information to use when evaluating a model. For my study, I set the a priori values under the ROC curve at 0.65 or greater.

Correlations. Given the nature of the development of the *TAGG* (Martin et al., 2015) constructs, it is expected that the constructs will be highly correlated with each other. Pearson correlations will be calculated among all constructs for each *TAGG* version.

Multicollinearity. Logistic regression is sensitive to exceedingly high correlations among predictor variables, indicated by large standard errors for parameter estimates and/or tolerance test failure within the software program (Tabachnick & Fidell, 2013). Tests of multicollinearity between constructs will be conducted to ensure any two or more estimated parameter estimates do not share a high variance proportion. Additionally, backwards selection of predictors will reduce models to contain predictors that are not correlated. I will examine model fit statistics to ensure important predictors are not removed from the model.

TAGG Follow-Up Survey Provided Outcome Data for Predictive Models

Through an iterative process, the *TAGG* research team developed a comprehensive *TAGG* Follow-Up Survey (Appendix C) by selecting questions included in the National Post-School Outcome Center (NPSO, n.d.) sample Indicator 14 follow-up survey questions. When completed, the results gave a detailed look at how the student finished high school, their educational, employment, and living history, use of adult services, and updated demographic information. After refining and then piloting the items, we loaded the questions into a web survey platform, which used skip logic to guide students from one question to the next.

The *TAGG* Survey asked similar questions to those in the reviewed studies. Based on answers, the survey logic guides the student to the next question. For example, if a student answered "No" to the question, "Do you want to attend a college or vocational program in the next year," the next question the student would answer is, "What is the main reason you do not want to attend a college or vocational program in the next year?" Questions also addressed disability awareness; interpersonal skills;

living situation; and transition programs the student participated in during high school, if the program was completed, and why if it was not completed. The questions I used in this analysis are depicted in Table 3.

Procedures. The *TAGG* research team used two methods to collect student post-high school surveys. First, we asked past participating professionals to contact their former students who had completed the *TAGG* when in high school. We provided educators with student and parent contact information and requested they also use local sources to reach their former students. Educators first talked with their former students to obtain their agreement, then sent them the survey link, mailed a paper copy, or asked questions over the phone or in person. A total of 25 participating educators assisted 146 students to complete student surveys. We provided participating educators $30 per completed survey to compensate for their time. Second, we attempted to contact the remaining students by email, phone, Facebook, text, or through their parents. When a fruitful method was found, we attempted contact with the former students up to three times to obtain their survey participation. Once contact was made and agreement to participate secured, we texted or emailed the survey link, sent a paper copy, or asked questions during a phone call. We assisted 24 students to complete student surveys, and the remaining 127 were independently completed by the student. We mailed former students a $10 gift card to thank them for completing the survey.

Table 3

TAGG Follow-Up Survey Questions Used in this Study

Question Providing Data for My Models
How many education or training programs have you been enrolled in since leaving high school?

Are you currently participating in any skill- or experience-building program that required formal admission (such as Peace Corps, Military Service)?
Are you currently enrolled in any education or training programs that takes place at a community college, junior college, university, or vocational school?
Are you currently working in a paid job?
Are you actively looking for work?
Have you had your current job for more than three months?
In the past year or since leaving high school, have you worked for a TOTAL of three months at any of your jobs?
Is your job in a career that interests you most?

Note. Selected questions taken from the *TAGG* Follow-Up Survey from which I used the corresponding data in my analysis. The first question was converted to a binary response of has attended or has not attended an education or training program since leaving high school.

Participants. Participants were former high school students with disabilities who completed the *TAGG* in academic years 2010-2011, 2011-2012, and/or 2012-2013. *TAGG* participants included in the follow-up study graduated or left high school in 2011, 2012, 2013, or 2014, thus follow-up participants were out of school from 9 months – 4.5 years. The *TAGG* assessment was given over the course of the school year dependent on when the teacher provided it to his/her students. Thus, the determinations as to how long students were out of school is an estimate based on the academic year and grade they last took the *TAGG* assessment, and the assumption that the student graduated or otherwise left school after their 12th grade year. While we did have a small percentage of students in our study who completed a fifth year of high school, for the purposes of determining years out of high school, I am using year 12 as the final year. Table 4 depicts the years since the student last participated in the *TAGG* as well as the

years out of high school when completing the *TAGG* Follow-Up Survey, rounded to whole years.

Table 4

Number of students by years since last TAGG assessment and approximate years out of high school when completing TAGG Follow-Up Survey.

Years Since *TAGG*			Years out of HS When Completing Follow-Up Survey		
Years	n	%	Years	n	%
1	103	34.7%	< 1	6	2.0%
2	127	42.8%	1	145	48.8%
3	43	14.5%	2	92	31.0%
4	24	8.1%	3	35	11.8%
			4	19	6.4%

During the 2014 year of survey data collection, a total of 216 students completed the *TAGG* Follow-Up Survey. Collection efforts were repeated during the spring of 2015, resulting in 168 survey responses. Of these 168 responses, 87 were repeat responders from 2014. After accounting for the repeat responders, I had a total of 297 responses for this analysis. The second year of data was used for those students who completed it both years. Figure 2 depicts the respondents by year.

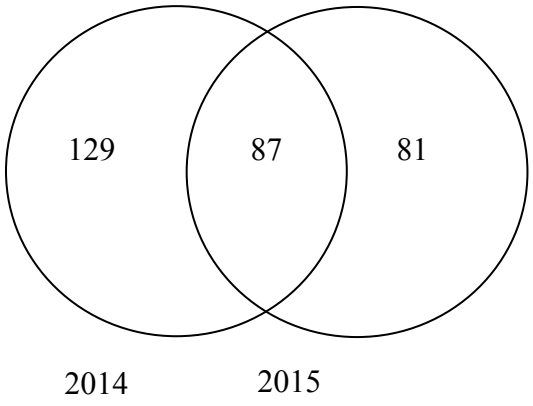

Figure 2. Follow-up Survey responders by year.

Demographics Results from High School Participants Who Provided Data for My Prediction Models

Demographic data. Over three academic years, 2,556 professionals, family members, and students from 42 states and 162 schools completed the *TAGG* (1,537 students, 172 educators, and 847 family members; includes repeat participants). From this larger data set, I used the professional, family, and student *TAGG* results of students who (a) had graduated or left high school and (b) completed the *TAGG* Follow-Up Survey. The following presents the demographic data of these *TAGG* users.

***Students*.** Out of total of 1,291 individuals who completed the *TAGG* during their high school years and had graduated or left high school, 297 completed the *TAGG* Post-School Follow-Up Survey. The average age when these 297 students completed the *TAGG* was 18 (SD = 1.1), and their average age when completing the follow-up survey was 20 (SD = 1.3). Ninety-five percent of the participants graduated from high school. Fifty-nine percent were male. Forty percent were Caucasian and 17 percent were African-American. Fifty-two percent of the participants had a specific learning disability, 18 percent an intellectual disability, and 11 percent had the label of other health impaired. Fifty-nine percent of these former students were eligible for free and reduced lunch when they were in school. See Table 5 for complete student demographics.

***Professionals*.** The 78 participating educators who completed the *TAGG-P* on their high school students with IEPs averaged 44.8 years of age (SD = 10.2). Ninety-five percent of these professionals were female. Ninety-five percent of these professionals were female. Seventy-eight percent had a master's degree or some

master's coursework. The mean years of experience teaching students with disabilities was 15.1 (SD = 10.0). Their professional roles included 74% special educators, 28% transition specialists, and 8% special education directors. Eighteen of these teachers identified serving in two or more professional roles. See Table 6 for complete professional demographics.

Families. I used *TAGG* results completed by 191 family members when their students were still in high school. The family members average age when they completed the *TAGG-F* was 46 (SD = 11.0). Ninety-eight percent spoke English as their primary language. Forty-one percent had a high school diploma or GED as their highest level of education, 14 percent had an associate's degree, and 18 percent had a bachelor's degree. Forty-seven percent were employed full-time, while 21 percent were not working. See Table 7 for complete family demographics.

Table 5

TAGG Student Participants Represented in Follow-Up Survey (n = 297)

Characteristic		n	%	Missing[a]
Age at time of *TAGG*				2%
15		2	< 1	
16		10	3	
17		64	22	
18		125	43	
19		59	21	
20		23	10	
21		6	2	
22		1	< 1	
	Mean	18	SD	1.1
Age at time of Survey				2%
18		20	7	
19		89	31	
20		91	31	
21		44	15	

22		30	10	
23		12	4	
24		4	1	
	Mean	20	SD	1.3
GPA				24%
	Mean	2.69	SD	0.65
Gender				< 1%
Male		173	59	
Primary Disability				< 1%
Autism		23	8	
Deaf-Blindness		1	< 1%	
Emotional Disturbance		11	4	
Hearing Impaired		2	< 1%	
Intellectual Disability		52	18	
Multiple Disability		2	< 1%	
Orthopedic Impairment		3	1	
Other Health Impairment		33	11	
Specific Learning Disability		151	51	
Speech/Language Disability		5	2	
Traumatic Brain Injury		4	1	
Visual Impairment/Blindness		4	1	
Eligible for free/reduced lunch		171	58	11%
Receives free/reduced lunch		156	55	6%
Receives ESL services		6	2	< 1%
Ethnicity				24%
Caucasian/White		124	42	
Black/African American		49	17	
Latino		30	10	
American Indian		17	6	
All Others		7	2	

Note. [a]Missing includes "Not indicated" and "Don't Know". When totals are less than 297, data are missing.

Table 6

TAGG Educator Participants Represented in Follow-Up Survey (n = 78)

Characteristic		n	%	Missing[a]
Age				5 %
	Mean	44.9	SD	10.2

Gender				
Male		4	5	0%
Female		74	95	
Level of Education				
Bachelor's Degree		7	9	0%
Some Master's Coursework		15	19	
Master's Degree		46	59	
Educational Specialist		5	6	
Some Doctoral Coursework		4	5	
Ph.D./Ed.D.		1	1	
Years teaching students with disabilities				< 1%
	Mean	15.1	SD	10.0
Years teaching at current school				< 1%
	Mean	7.8	SD	6.2

Note. [a]Missing includes "Not indicated" and "Don't Know".

Table 7

TAGG Family Participants Represented in Follow-Up Survey (n = 191)

Characteristic		n	%	Missing[a]
Age				9%
	Mean	46.0	SD	11.0
Primary Language				11%
English		167	98	
Other		3	2	
Education				1%
Less than high school		14	8	
High school diploma/GED		69	41	
Vocational certificate		18	11	
Associate's degree		24	14	
Bachelor's degree		30	18	
Master's degree		9	5	
Doctorate/Professional degree		4	2	
Employment				0%
Employed full-time		90	47	
Employed part-time		17	9	
Self-employed full-time		8	4	

Self-employed part-time	4	2
Not working	40	21
Retired	10	5
Permanently disabled, not working for pay	8	7

Note. [a]Missing includes "Not indicated" and "Don't Know".

Responders Versus Non-Responders

Due to the 23% response rate of the Follow-Up survey over the two collection phases, it is important to assess why the outcomes are missing. First, the outcomes could be Missing Completely at Random (MCAR), which would imply that the missing outcome data is unrelated to any other variables. If this is the case, I can assume no response bias and analyze only the complete dataset, which would produce unbiased estimates of effect sizes in the logistic regression models. Second, the outcomes could be Missing at Random (MAR), which implies that the missing outcomes are related to a subset of ancillary variables (i.e. demographic variables) measured in our dataset. If MAR is the case, then including the subset of ancillary variables that predict the missingness response as covariates in the complete models produces unbiased effect sizes as well, with larger standard errors. Finally, if the outcomes are Missing Not at Random (MNAR), then the missing outcomes are not predictable from the ancillary variables included in the dataset, and little can be done in this case (Gelman & Hill, 2006).

To assess the MCAR assumption, I coded the demographic measures into 21 variables and used these to predict the outcome of missingness. The missingness outcome is coded as 1 when an outcome is present for an individual and the outcome is coded as 0 when missing. Subsequently, I conducted a backwards logistic regression with "responded to survey" as the outcome modeled, and the 21 coded demographic

variables as predictors. All demographic variables were reported from when the student took the *TAGG* assessment (see Table 8 for a comparison of respondents to non-respondents). If the student took the *TAGG* more than once, I used the demographic data from the last time it was taken. The resulting model of missingness retained five significant variables (Table 9). The missingness model suggests that students who are English language learners or eligible for free lunch were less likely to respond to the follow-up survey. Moreover, students who received instruction in disability awareness were more likely to respond. Finally, when compared to students who have specific learning disabilities, students with intellectual disabilities or autism were more likely to respond.

The final results suggest the outcomes analyzed for this paper are not MCAR, but are somewhat predictable from a subset of the 21 demographic variables included in the dataset. In a later section of the paper, I use these ancillary variables to conduct a sensitivity analysis between the MCAR and MAR assumptions. Finally, there are no specific tests of the MNAR assumption. However, in order for the MNAR assumption to be true, there would have to another variable, not measured in my dataset, that would have to be minimally correlated with the subset of 21 demographic variables measured in our dataset, and also incrementally and uniquely predictive of the missingness outcome (Gelman & Hill, 2006). Because I have included a fairly large set of ancillary variables in my analysis, this is unlikely to be the case.

Table 8

Comparison of Demographics of TAGG Participants Who Responded to the Follow-Up Survey to Those Who Did Not Respond

	Responders (n = 297)		Nonresponders (n = 998)	
	n	%	n	%
Male	174	59	591	60
Eligible for free/reduced lunch	171	58	557	56
Receives free/reduced lunch	156	55	540	59
Attended IEP	263	90	878	89
Family Attended IEP	243	82	806	82
Received instruction on IEP participation	201	68	671	68
Actively participated in IEP	170	65	494	66
Received instruction on leading IEP	103	40	269	36
Lead IEP	36	12	111	11
Received Instruction in Disability Awareness	189	64	573	58
Receives ESL Services	6	2	49	5
Disability Category				
Specific Learning Disability	151	51	576	58
Intellectual Disability	52	18	120	12
Other Health Impaired	33	11	138	14
Autism	23	8	35	4
All Other Categories	38	13	129	13
Ethnicities				
Caucasian	124	42	455	46
African-American	49	17	181	18
Hispanic	30	10	147	15
American Indian	17	6	93	9
All Other Ethnicities	7	2	21	2

Note. When totals are less than 297, data are missing.

Table 9

Model Fit Statistics for Missingness Model

Significant Construct(s)	X^2 (p-value)	Standard Error	Hosmer-Lemeshow X^2 (*df*) [p-value]	Odds-Ratio [95% CI]	Area Under ROC Curve
Eligible for free lunch[1]	5.20 (0.022)	0.08	9.09 (7) [0.25][2]	0.84 [0.72 - 0.98]	.60[2]
Instruction in disability awareness	8.46 (0.004)	0.07	–	1.23 [1.07 - 1.42]	–
English language	3.90	0.44	–	0.42 [0.18 -	–

learner	(0.048)			0.99]	
Intellectual	4.81	0.19	–	1.53 [1.05 -	–
Disability	(0.028)			2.23]	
Autism	11.95	0.29	–	2.72 [1.54 -	–
	(0.0005)			4.81]	

[1]Overall Wald X^2 (*df*) [p-value] for model: 33.89 (5) [< .0001].
[2]Values for the Hosmer-Lemeshow X^2 and the Area under the ROC Curve are for the overall model.

Data Analysis Procedures

***TAGG* construct score calculations.** Item Response Theory (IRT) methods scored each *TAGG* construct or subscale. IRT is useful when scales have different item types or have different numbers of items in subscales. See Martin et al. (2015b) for a complete description of the IRT scoring methodology.

Missing *TAGG* data. Each student participant had a corresponding professional and the potential for a family member to complete the *TAGG* assessment. However, 108 family members did not complete the *TAGG-F*, and as a result 108 student *TAGG*s do not have a corresponding family *TAGG*. Participants may have chosen to not reply to specific questions when completing the *TAGG*. If no more than one Likert-type item was missing for a construct, I imputed the score using the mean item score for the other items within the construct and rounded to the nearest whole number. For example, if the professional had scores of 3, 3, 4, and 4, plus one missing item within one construct, the average of the entered data is 3.5, which means I imputed the score of 4 for the missing item. Binary items cannot be imputed because they are not scored on the same Likert-type scale as the other items.

Multiple *TAGG* assessments. Some students completed more than one *TAGG* during their high school years. When a survey participant had multiple years of data, I used the most recent *TAGG* assessment results. For instance, if a student had taken the

TAGG in phase 1 and phase 2, I used the phase 2 *TAGG* results. My reasoning is that the most recent assessment should capture the student's skills at their maximum level. I considered using each individual student's highest score for each construct, but rejected this method because I believed using the same method across all participants was the best choice.

Multiple *TAGG* follow-up surveys. Similarly, when students completed both follow-up surveys, I used the most recent survey results in order to capture information about what the student is doing further from their high school completion date.

GPA. GPA data was calculated from student transcripts included with *TAGG* study materials provided the OU Zarrow Center from the participating teachers. GPA was calculated on a 4-point scale where an A earned 4 points, B earned 3 points, C earned 2 points, D earned 1 point, and F earned a value of zero. When numerical grades were provided, a grading scale was assigned as follows: (a) A = 90 to 100, (b) B = 80 to 89, (c) C = 70 to 79, (d) D = 60 to 69, and (e) F = 0 to 59. When grades were listed with a "+" or "–", these qualifiers were disregarded to remain consistent with transcripts that did not include these qualifiers.

For my analysis, I used unweighted GPAs. Unweighted GPAs were calculated by assigning the specified value discussed above to each earned grade and multiplying this value by the number of corresponding credit hours attempted. An overall GPA value was calculated by taking the sum of the products from the previous step divided by the total number of credits attempted. GPAs were calculated from grades as they were entered on the official school transcript. If pass/fail grades were assigned and not

calculated into the school's GPA, they were not included in the GPAs used in this analysis.

GPA inter-rater agreement. Teachers provided transcripts for 270 of 297 students in this analysis. An independent rater randomly selected 30% of the transcripts to determine GPA calculation agreement, and obtained an agreement percentage of 96%. The few disagreements were mutually resolved.

Follow-up survey outcome data. There are eight outcome variables of interest from the survey. Three questions examine postsecondary education outcomes while five examine postsecondary employment outcomes. Seven of the questions required a yes or no answer. Another question asked how many education or training programs the student had been enrolled in after high school, with a choice of answers from 0 – 10+. I recoded this yes if the former students with disabilities choose one or more, otherwise I entered a no response. I chose these questions for analysis after examining all follow-up survey questions. Those that pertained specifically to postsecondary education or employment outcomes with binary responses or could be collapsed to a binary response were included.

Missing responses. In order to account for missing data created by the skip logic used in the survey, I imputed data for two of the postsecondary employment outcomes to increase the sample size used for analysis. For the question, "Have you worked a total of three months at any of your jobs in the last year or since leaving high school," only those individuals who are working (at time of survey) but have not had their current job for more than three months were asked this question. I counted those who are currently working and have had their current job for greater than three months

as a “yes” answer. No assumptions about what the individual is or is not doing are being made in this situation.

The question, “Is your job in a career that interests you most” is only asked of those individuals who are working and have worked at their current job for greater than three months. I imputed those who are not working as a “no” answer, meaning if they are not working at all then they are not in a job in a career that interests them the most. I am not making the assumption that those who have worked less than three months in their current job are not in the career that interests them most, so they will remain missing when analyzing this outcome.

I considered imputing the missing values for the question, “Are you actively looking for work,” which is only asked to those who are not currently working. However, this would make the assumption that those who are currently working are not actively looking for work, which is a negative outcome in this context.

Chapter Four

Results

No studies have been published to determine if the results from any transition assessment designed for secondary-aged students with disabilities of transition age actually predict positive postsecondary education and employment outcomes. To remedy this problem, I examined the relation between non-academic student behavior constructs scored using the Professional, Student, and Family *TAGG* versions (Martin et al., 2015) and postsecondary education and employment outcomes of 297 former high school students with disabilities 1 to 4 years after graduating or leaving high school.

First, I calculated Pearson correlations between all predictor variables. I also tested for multicollinearity among predictor variables.

Next, I modeled six of the outcomes of interest using logistic regression and examined two outcomes of interest with Poisson regression. Chi-square tests assessed overall model fit as well as the significance of individual predictors in each model examined.

I used two effect size measurements, odds ratios and area under the ROC curve, to indicate the strength of the significant models. Odds ratios greater than one describe the increase in odds of an outcome when the predictor increases by one unit, whereas an odds ratio less than one represents the decrease in odds of that outcome with a one-unit change in the predictor variable. ROC curves provide a measure of discrimination of the model; a minimum value of 0.5 indicates no discrimination while a value of 1.0 is perfect discrimination. For this study, values of the area under the ROC curve greater than 0.65 indicate acceptable model discrimination.

Correlations

Pearson correlations between construct scale scores were run across all *TAGG* versions. All constructs were significantly correlated ($p < .005$) with each other across each *TAGG* version, except for the correlation between Employment and Student Involvement on the IEP on the *TAGG-S* ($r = .11$; $p = .057$). Correlations on the *TAGG-P* ranged from .22 ($p = .0002$) between Interacting with Others and Student Involvement in the IEP to .80 ($p < .0001$) between Persistence and Goal Setting and Attainment. On the *TAGG-F*, correlations ranged from .31 ($p < .0001$) between Interacting with Others and Student Involvement in the IEP to .74 ($p < .0001$) between Persistence and Goal Setting and Attainment. For the *TAGG-S*, the correlations ranged from the aforementioned .11 to .64 ($p < .0001$) between Persistence and Goal Setting and Attainment.

Multicollinearity

Tests for multicollinearity were run across all *TAGG* versions. *TAGG-P* variance inflation factors were all below 3.6 and condition indices were below 4.9. *TAGG-F* variance inflation factors were 3.0 and below, while condition indices were 4.3 and below. *TAGG-S* variance inflation factors were all below 3. Condition indices were 3.1 and below.

Univariate Logistic and Poisson Regressions

Tables 21 - 28 [Appendix D] depict the results of the univariate logistic and Poisson regressions for each postsecondary education and employment outcome. The tables provide the p-value for each potential predictor across all *TAGG* versions.

Variables identified with a p-value less than .25 were entered into the multivariate logistic regression equations during the next step of analysis.

Using the p-value less than .25 cut-off, the *TAGG-P* had the greatest number of constructs entered into the multivariate models across all outcomes. As seen in Tables 20 - 27, of the 33 constructs that were below the specified cut-off across all *TAGG* versions and the eight outcomes examined, Interacting with Others, Disability Awareness, and Support Community showed up the most with five occurrences each. The *TAGG-F* had 23 constructs meet the criteria across all outcomes examined, with every construct showing up three times except Interacting with Others, which showed up two times. Eighteen constructs met the criteria for entry into the multivariate models for the *TAGG-S* across all outcomes. Persistence showed up the most with five occurrences.

Backwards logistic regression was used in the multivariate model building. The following sections highlight each significant model followed by a table depicting the Wald X^2 value, standard error of the estimate, Hosmer-Lemeshow X^2, odds-ratio and odds-ratio confidence interval, and the area under the ROC curve. Figures showing the graphs of the area under the ROC curve are shown in Appendix E.

Postsecondary Education Outcomes Predictors

Has been enrolled in postsecondary education. For the first postsecondary education outcome, "has been enrolled in education or training since high school," the *TAGG-P* yielded one significant predictor, Interacting with Others (Table 10). The odds-ratio indicates a 57% increase of the odds of the outcome occurring with a unit increase of the scale score. The nonsignificant Hosmer and Lemeshow X^2 test suggested

good model fit, though the area under the ROC curve indicated this model did not have strong discriminatory power. The constructs from the *TAGG-F* and *TAGG-S* did not result in a significant model.

Table 10

Multivariate Logistic Regression Statistics for Postsecondary Education Outcome, "Has the student been enrolled in an education or training program sine leaving high school?"

Significant Construct(s)	X^2 (p-value)	Standard Error	Hosmer-Lemeshow X^2 (*df*) [p-value]	Odds-Ratio [95% CI]	Area Under ROC Curve
TAGG-P					
Interacting with Others	8.89 (0.003)	0.15	12.46 (7) [0.087]	1.57 [1.17 - 2.12]	0.6055
TAGG-F					
No Significant Constructs	–	–	–	–	–
TAGG-S					
No Significant Constructs	–	–	–	–	–

Currently engaged in skill building program. For the next educational survey item of interest, “currently participating in any skill- or experience-building program,” there were not any significant models.

Currently enrolled in postsecondary education. For the item, “the student is currently enrolled in an education or training program that takes place at a community college, junior college, university, or vocational school,” the *TAGG-P* yielded three significant predictors: Interacting with Others, Student Involvement in the IEP, and Support Community. The area under the ROC curve for this model was 0.757, which

showed excellent model discrimination. The odds-ratio for each predictor indicated an increase of the odds of the outcome with an increase in that predictor's scaled score when other predictors were constant. The nonsignificant Hosmer-Lemeshow X^2 value indicated good model fit. The *TAGG-F* yielded one significant predictor, Goal Setting and Attainment. The odd-ratio indicated a 62% increase in the odds of the outcome with a unit increase of the scaled score. The nonsignificant Hosmer-Lemeshow X^2 suggested good model fit, though the area under the ROC curve was just below the threshold of acceptable model fit. The model does have discriminatory power, but it is not strong.. The *TAGG-S* yielded one significant predictor, Interacting with Others. The odds ratio of 1.96 indicated an almost 100% increase in the outcome with a unit increase of the scaled score. The nonsignificant Hosmer-Lemeshow X^2 suggested good model fit, though the area under the ROC curve was just below the threshold of acceptable model fit. The model does have discriminatory power, but it is not strong. See Table 11 for complete statistics.

Table 11

Multivariate Logistic Regression Statistics for Postsecondary Education Outcome, "Is the student currently enrolled in an education or training program that takes place at a community college, junior college, university, or vocational school?"

Significant Construct(s)	X^2 (p-value)	Standard Error	Hosmer-Lemeshow X^2 (*df*) [p-value]	Odds-Ratio [95% CI]	Area Under ROC Curve
TAGG-P[1]					
Interacting with Others	4.50 (0.034)	0.21	5.03 (8) [0.754][2]	1.55 [1.03 - 2.31]	0.7567[2]
Student Involvement in the IEP	13.30 (0.0003)	0.16	–	1.82 [1.32 - 2.52]	–

Support Community	7.67 (0.0056)	0.24	–	1.93 [1.21 - 3.06]	–
TAGG-F					
Goal Setting and Attainment	6.45 (0.010)	0.19	6.79 (7) [0.451]	1.62 [1.12 - 2.34]	0.6131
TAGG-S					
Interacting with Others	10.21 (0.001)	0.21	3.08 (3) [0.379]	1.96 [1.28 - 2.96]	0.6172

Note: [1]Overall Wald X^2 (*df*) [p-value] for model: 38.74 (3) [< .0001].
[2]Values for the Hosmer-Lemeshow X^2 and the Area under the ROC Curve are for the overall model.

Incremental Effect of *TAGG* in Relation to GPA in Predicting Postsecondary Education Outcomes

Currently enrolled in postsecondary education. When including GPA as a predictor with Interacting with Others to the *TAGG-S* model for the postsecondary education outcome question, "the student is currently enrolled in an education or training program," the model was significant. When comparing the difference of the -2 log-likelihood of the model with GPA to the model without, there was a significant difference (Δ -2LL = X^2 (1) = 83.56). Thus, the *TAGG-S* predictor Interacting with Others adds incremental validity to the established predictive power of GPA when predicting whether the student is currently enrolled in postsecondary education approximately two years after high school. The odds-ratio of 2.08 indicated a unit increase in the scaled score of Interacting with Others results in a 108% increase of the odds of the outcome occurring when GPA was held constant. The area under the ROC curve suggested good model discrimination. See Table 12 for complete statistics.

GPA did not impact other postsecondary education models. Adding GPA to the to the other models predicting postsecondary education outcomes did not result in significant models.

Table 12

Multivariate Logistic Regression Statistics for Postsecondary Education Outcome, "Is the student currently enrolled in an education or training program that takes place at a community college, junior college, university, or vocational school?" with GPA Added to Model.

Significant Construct(s)	X^2 (p-value)	Standard Error	Hosmer-Lemeshow X^2 (*df*) [p-value]	Odds-Ratio [95% CI]	Area Under ROC Curve
TAGG-S[1]					
Interacting with Others	9.57 (0.002)	0.24	11.35 (8) [0.183][2]	2.083 [1.31 - 3.32]	0.6680[2]
GPA	3.92 (0.048)	0.24	–	1.61 [1.01 - 2.58]	–

Note: [1]Overall Wald X^2 (*df*) [p-value] for model: 13.62 (2) [0.001].
[2]Values for the Hosmer-Lemeshow X^2 and the Area under the ROC Curve are for the overall model.

Postsecondary Employment Outcomes Predictors

Currently working in a paid job. For the outcome of interest question, "the student is currently working in a paid job," the *TAGG-P* yielded one significant predictor, Employment. The nonsignificant Hosmer-Lemeshow X^2 indicated good model fit. The odds-ratio indicated a 102% increase in the odds of the outcome occurring with a unit increase in the scaled score. The area under the ROC curve suggested the model did not predict well. The *TAGG-F* and *TAGG-S* models did not yield any significant predictors. See Table 13 for complete statistics.

Table 13

Multivariate Logistic Regression Statistics for Postsecondary Employment Outcome, "Is the student currently working in a paid job?"

Significant	X^2 (p-value)	Standard	Hosmer-	Odds-Ratio	Area

Construct(s)		Error	Lemeshow X^2 (*df*) [p-value]	[95% CI]	Under ROC Curve
TAGG-P					
Employment	16.24 (< .0001)	0.17	3.94 (4) [0.415]	2.021 [1.44 - 2.85]	0.6312
TAGG-F					
No Significant Constructs	–	–	–	–	–
TAGG-S					
No Significant Constructs	–	–	–	–	–

Looking for work. For the postsecondary employment outcome, "the student is actively looking for work," the *TAGG-P* yielded one significant predictor, Employment. The nonsignificant Hosmer-Lemeshow X^2 suggested good model fit. The odds-ratio indicated a 109% increase in the odds of the outcome with a unit increase in the scaled score. The area under the ROC curve indicated good model discrimination. Student Involvement in the IEP was significant in the *TAGG-F* and *TAGG-S* models. For the *TAGG-F* model, the odds-ratio indicated a 91% increase in the odds of the outcome occurring with a unit increase in the scale score. The area under the ROC curve suggested good model discrimination. The odds-ratio for the *TAGG-S* indicated a 133% increase in the odds of the outcome occurring, while the area under the ROC curve suggested good model discrimination. See Table 14 for complete statistics.

Table 14

Multivariate Logistic Regression Statistics for Postsecondary Employment Outcome, "Is the student actively looking for work?"

Significant Construct(s)	X^2 (p-value)	Standard Error	Hosmer-Lemeshow X^2 (*df*) [p-value]	Odds-Ratio [95% CI]	Area Under ROC Curve
TAGG-P					

Employment	9.49 (0.002)	0.24	1.43 (5) [0.92]	2.09 [1.31 – 3.35]	0.6507
TAGG-F					
Student Involvement in the IEP	6.50 (0.011)	0.25	3.87 (8) [0.87]	1.91 [1.16 – 3.14]	0.6586
TAGG-S					
Student Involvement in the IEP	11.68 (0.001)	0.25	2.08 (6) [0.91]	2.33 [1.44 – 3.79)	0.6631

Held current job for more than three months. For the postsecondary employment survey item of interest, "the student has had current job for more than three months," the *TAGG-P* yielded one significant predictor, Support Community. The odds-ratio indicated a 102% increase in the odds of the outcome for a unit increase in the scaled score for Support Community. The nonsignificant Hosmer-Lemeshow X^2 indicated good model fit, while the area under the ROC curve suggested good model discrimination. The *TAGG-F* and *TAGG-S* models did not have any significant predictors. See table 15 for complete statistics.

Table 15

Multivariate Logistic Regression Statistics for Postsecondary Employment Outcome, "Has the student had current job for more than three months?"

Significant Construct(s)	X^2 (p-value)	Standard Error	Hosmer-Lemeshow X^2 (*df*) [p-value]	Odds-Ratio [95% CI]	Area Under ROC Curve
TAGG-P					
Support Community	6.22 (0.013)	0.28	11.30 (6) [0.08]	2.02 [1.16 – 3.49]	0.6548
TAGG-F					
No Significant Constructs	–	–	–	–	–
TAGG-S					
No Significant Constructs	–	–	–	–	–

Held any job for more than three months. For the outcome, "the student has held any job for more than three months," there were not any significant models.

Current job interests me. For the outcome item "the student has a job in a career that interests you most," the *TAGG-P* yielded one significant predictor, Employment. The odds-ratio indicated a 183% increase in the odds of the outcome with a unit increase in the Employment scale score. The area under the ROC curve suggested good model discrimination. The *TAGG-F* also yielded one significant predictor, Interacting with Others. The odds-ratio indicated a 109% increase in the odds of the outcome occurring with a unit increase in the Interacting with Others scaled score. The area under the ROC curve suggested fair model discrimination. See Table 16 for complete statistics.

Table 16

Multivariate Logistic Regression Statistics for Postsecondary Employment Outcome, "Is the job in a career that interests the student the most?"

Significant Construct(s)	X^2 (p-value)	Standard Error	Hosmer-Lemeshow X^2 (*df*) [p-value]	Odds-Ratio [95% CI]	Area Under ROC Curve
TAGG-P					
Employment	15.28 (< .0001)	0.27	3.01 (4) [0.56]	2.83 [1.68 – 4.77]	0.6879
TAGG-F					
Interacting with Others	6.41 (0.011)	0.29	3.80 (6) [0.70]	2.09 [1.18 – 3.71]	0.6478
TAGG-S					
No Significant Constructs	–	–	–	–	–

Incremental Effect of *TAGG* in Relation to GPA in Predicting Postsecondary Employment Outcomes

Looking for work. When adding GPA as a predictor with Employment to the *TAGG-P* model for the postsecondary education outcome question, "the student is actively looking for work," the model was significant. When comparing the difference of the -2 log-likelihood of the model with GPA to the model without, there was a significant difference (Δ -2LL = X^2 (1) = 52.65). Thus, the *TAGG-P* predictor Employment adds incremental validity to the established predictive power of GPA when predicting whether the student is actively looking for work. The odds-ratio indicated a 120% increase in the odds of the outcome when the scaled score for Employment increased by one unit and GPA was constant. The area under the ROC curve indicated strong discrimination. Adding GPA as a predictor to the *TAGG-S* model for this outcome also resulted in an improved model (Δ -2LL = X^2 (1) = 53.86). Therefore, the *TAGG*-S predictor Student Involvement in the IEP adds incremental validity to the established predictive power of GPA when predicting whether the student is actively looking for work. The odds-ratio indicated an increase of 156% the outcome when there was a unit increase of the scaled score for Student Involvement in the IEP. The area under the ROC curve indicated strong discrimination of the model. See Table 17 for complete statistics.

GPA did not impact other postsecondary employment models. Adding GPA to the to the other models predicting postsecondary employment outcomes did not result in significant models.

Table 17

Multivariate Logistic Regression Statistics for Postsecondary Employment Outcome, "Is the student actively looking for work?" with GPA Added to the Model

Significant Construct(s)	X^2 (p-value)	Standard Error	Hosmer-Lemeshow X^2 (*df*) [p-value]	Odds-Ratio [95% CI]	Area Under ROC Curve
TAGG-P[1]					
Employment	7.41 (0.007)	0.29	6.07 (8) [0.64][3]	2.20 [1.25 - 3.89]	0.6923[3]
GPA	4.50 (0.03)	0.33		0.49 [0.26 - 0.95]	
TAGG-S[2]					
Student Involvement in the IEP	9.19 (0.002)	0.31	6.91 (8) [0.55][4]	2.56 [1.40 - 4.75]	0.7332[4]
GPA	5.71 (0.017)	0.35		0.43 [0.22 - 0.86]	

Note: [1]Overall Wald X^2 [p-value] for model: 11.05 (2) [0.004].
[2]Overall Wald X^2 [p-value] for model: 12.52 (2) [0.002].
[3]Values for the Hosmer-Lemeshow X^2 and the Area under the ROC Curve are for the overall *TAGG-P* model with GPA included.
[4]Values for the Hosmer-Lemeshow X^2 and the Area under the ROC Curve are for the overall *TAGG-S* model with GPA included.

Sensitivity Analysis for Responders Versus Non-Responders

When conducting this follow-up study, 77% of students who took the *TAGG* during high school did not respond to the follow-up survey. Following from the discussion in Chapter 3 on responders vs. nonresponders, I conducted a sensitivity analysis using the five significant ancillary variables from the MAR analysis as covariates in a new set of logistic regression analyses to ascertain if the effects from the complete responder dataset could be reproduced. Table 18 compares the odds-ratios of the original model and the model with the MAR covariates. All of the odds-ratios were similar in range and magnitude to the original models with significant confidence

intervals, except for the Interacting with Others construct on the *TAGG-P* for the outcome, "is currently enrolled in an education or training program." The lower level of the odds-ratio confidence interval was 0.96, thus the odds-ratio is not significantly different than one at the 95% level of confidence. Given these sensitivity analysis results based on models of MAR, I concluded there was very little difference in the parameter estimates, thus the complete model unbiased parameter estimates.

Table 18

Conducting a sensitivity analysis of responders versus nonresponders by comparing the odds-ratios of the original models to models with MAR covariates of Eligible for free lunch, received disability awareness training, received English language learner services, autism, and intellectual disability.

Outcome	Odds-Ratio [95% CI] Original Model	Odds-Ratio [95% CI] Model With MAR Covariates
Student has been enrolled in an education or training program since leaving high school.		
TAGG-P		
Interacting with Others	1.57 [1.17 - 2.12]	1.70 [1.24 - 2.32]
Student is currently enrolled in an education or training program that takes place at a community college, junior college, university, or vocational school.		
TAGG-P		
Interacting with Others	1.55 [1.03 - 2.31]	1.46 [0.96 - 2.21]
Student Involvement in the IEP	1.82 [1.32 - 2.52]	1.72 [1.23 - 2.41]
Support Community	1.93 [1.21 -3.06]	1.90 [1.19 - 3.03]
TAGG-F		
Goal Setting and Attainment	1.62 [1.12 -2.34]	1.52 [1.02 - 2.25]
TAGG-S		
Interacting with Others	1.96 [1.28 - 2.96]	1.90 [1.24 - 2.92]
The student is currently working in a paid job.		
TAGG-P		
Employment	2.02 [1.44 - 2.85]	1.91 [1.34 - 2.71]

The student is actively looking for work.		
TAGG-P		
Employment	2.09 [1.31 - 3.35]	1.96 [1.20 - 3.19]
TAGG-F		
Student Involvement in the IEP	1.91 [1.16 - 3.14]	2.34 [1.29 - 4.26]
TAGG-S		
Student Involvement in the IEP	2.33 [1.44 - 3.79)	2.39 [1.43 - 3.98]
The student has had current job for more than three months.		
TAGG-P		
Support Community	2.02 [1.16 - 3.49]	1.77 [1.02 - 3.07]
The job is in a career that interests the student most.		
TAGG-P		
Employment	2.83 [1.68 - 4.77]	2.76 [1.62 - 4.69]
TAGG-F		
Interacting with Others	2.09 [1.18 - 3.71]	2.37 [1.28 - 4.40]

Summary of Findings

In the area of postsecondary education, the *TAGG-P* Interacting with Others construct significantly predicted whether a student has been enrolled in education or training since high school. The Interacting with Others, Student Involvement in the IEP, and Support Community constructs for the *TAGG-P* each significantly predicted the outcome, "the student is currently enrolled in an education or training program that takes place at a community college, junior college, university, or vocational school." The *TAGG-F* Goal Setting and Attainment construct and the *TAGG-S* Interacting with Others construct significantly predicted this outcome. The addition of GPA to the *TAGG-S* model resulted in a better fitting model.

In the area of postsecondary employment, the *TAGG-P* Employment construct significantly predicted the outcome, "the student is currently working in a paid job." The *TAGG*-P Employment construct significantly predicted the outcome, "the student is

actively looking for work." The *TAGG-F* and *TAGG-S* Student Involvement in the IEP construct significantly predicted the same outcome. The addition of GPA to the *TAGG-P* and *TAGG-S* resulted in a better fitting model for this outcome. The *TAGG-P* Support Community construct predicted the outcome, "the student has had current job for more than three months." The *TAGG-P* Employment and *TAGG-F* Interacting with Others construct significantly predicted the outcome, "the student has a job in a career that interests you most." Table 19 summarizes these findings.

Table 19

Postsecondary Education and Employment Outcomes with Significant Findings from Logistic Regression Models

Outcome	Assessment Version	Significant Constructs
Has the student been enrolled in an education or training program since leaving high school?	Professional	Interacting with Others
Is the student currently enrolled in an education or training program that takes place at a community college, junior college, university, or vocational school?	Professional	Interacting with Others Student Involvement in the IEP Support Community
	Family	Goal Setting and Attainment
	*Student	Interacting with Others
Is the student currently working in a paid job?	Professional	Employment
Is the student actively looking for work?	*Professional	Employment
	Family	Student Involvement in the IEP
	*Student	Student Involvement

		in the IEP
Has the student worked at his current job for greater than three months?	Professional	Support Community
Is the job in a career that interests the student the most?	Professional Family	Employment Interacting with Others

Note. Five of the eight *TAGG* constructs identified by Martin et al. (2015) using research-identified student behaviors associated with postsecondary education and employment predicted specific postsecondary education and employment outcomes.
* Indicates where the addition of GPA as a predictor significantly improved the models.

Chapter Five

Discussion

I designed this study to obtain predictive validity evidence of the *TAGG* assessment developed by Martin et al. (2015) to justify its use to identify non-academic student strengths and needs and recommend annual transition goals.

Studies by Benz et al. (2000), Halpern et al. (1995), Joshi et al. (2012), and Shandra and Hogan (2008) found transition programming students receive in high school, which may include goal completion, participation in transition planning and related activities, and courses based on occupational goals, is predictive of productive employment or continuing education. Harvey (2002) determined involvement in secondary vocational education predicted postsecondary employment. Paid employment also predicted postsecondary employment for students (Benz et al., 2000; Carter et al., 2012; Joshi et al., 2012; Papay & Bambara, 2014; & Rabren et al., 2002). However, none of these studies predicted outcomes from data gathered from transition assessments.

Logistic regression analysis found that five of the eight constructs from the various *TAGG* assessment versions predict postsecondary education or employment outcomes. See Table 20 for an illustration of significant findings by postsecondary outcome and *TAGG* version.

Table 20

Number of Occurrences of Constructs in Significant Logistic Regression Models Across TAGG Versions by Outcome Type

	Outcome	
	Education (2 outcomes)	Employment (4 outcomes)

Construct	*TAGG-P*	*TAGG-F*	*TAGG-S*	*TAGG-P*	*TAGG-F*	*TAGG-S*
Interacting with Others	2		1*		1	
Student Involvement in the IEP	1				1	1*
Support Community	1			1		
Goal Setting and Attainment		1				
Employment				3**		

Note. Significant constructs are shown by education and employment outcomes analyzed in this study and across *TAGG* versions.
*Addition of GPA resulted in a stronger model.
**Addition of GPA resulted in a stronger model for one of the three Employment models.

Constructs that Predicted Postsecondary Education and Employment Outcomes

I found three *TAGG* constructs that were significant in predicting both postsecondary education and employment outcomes for students with disabilities. Each *TAGG* version produced at least one significant construct that predicted an outcome across the two educational outcomes explored. Additionally, I found that adding GPA to two of these models resulted in a better prediction model when predicting the likelihood of attending postsecondary education or employment.

Interacting with others. Students who demonstrate the ability to successfully interact with individuals in their school and home life, as well as other adults in the community score highly on this construct. These students participate in projects in small groups and are involved in school or community organizations. I found Interacting with Others to be a significant predictor of the outcome of has been enrolled in an education or training program since leaving high school for the *TAGG-P* and the outcome of currently being enrolled in an education or training program for the *TAGG-P* and

TAGG-S. When looking at postsecondary employment, this construct was a predictor of the outcome of being employed in a career that interests you most for the *TAGG-F.*

Interacting with Others showed up more than any other construct across all versions and outcomes. It makes sense that one's ability to work well with others across all settings leads to positive postsecondary outcomes, and this is also supported in the literature (Goldberg, Higgins, Raskind, & Herman, 2003; Halpern et al., 1995). We live in a social world where group projects in educational settings are commonplace, just as teamwork is necessary to accomplish goals in many employment settings. The highest odds ratio among the significant models is 1.96 on the *TAGG-S*, meaning the odds of the student achieving the outcome of current enrollment in an education or training program two years after leaving school increases by 96% for a unit increase in the Interacting with Others scaled score. Though the other odds ratios are not as large, the frequency this construct showed up in this analysis heeds the importance of being able to positively interact with others in order to improve chances for postsecondary education and employment success.

This is also one of two constructs that showed up as a predictor on each of the three *TAGG* versions. Interacting with Others was significant on the *TAGG-P* for both educational outcomes, which suggests the professional's assessment based on classroom experiences is consistent at predicting educational outcomes. The family member sees how the student interacts across community and family settings, while the student's self-appraisal suggests he or she realizes the need to work well with others in order to continue on to postsecondary education.

Academic performance. Adding GPA as a predictor with Interacting with Others on the *TAGG-S* assessment for the outcome of being enrolled in an education or training program since high school resulted in a better fitting model, providing incremental validity evidence to the *TAGG*. *TAGG* scores provide information in addition to what is already know regarding GPA predicting postsecondary education. GPA is typically a requirement for admission to college and training programs, so it is reasonable that students who have higher GPAs are more likely to attend a postsecondary education program. Furthermore, it is likely that students who score highly on Interacting with Others also possess attributes that lead to having a higher GPA.

The odds-ratio indicates that when Interacting with Others is constant, a unit increase in GPA will yield a 61% increase in the odds of the student achieving the outcome of being enrolled in an education or training program at two years post high school, which is the average time out of high school for students who participated in this survey. Similarly, a unit increase in the Interacting with Others scaled score when GPA is constant suggests a 108% increase in the odds of the outcome occurring.

Applied practice suggestions. When assigning group projects, educators should also prepare students who have difficulty interacting with others by providing lessons on how to properly work as part of a team. Speech language pathologists may be helpful in this role by facilitating proper interactions with others through role-playing activities. Students who struggle in this area may need extra supports as they build up to successfully participating in group assignments. Where feasible, educators and parents

can facilitate involvement in clubs or other groups that interest students, such as sports teams, clubs, or community organizations.

Student involvement in the IEP. Students who are involved in their IEP meeting development by either actively participating or leading their IEP meeting score highly on this construct. These students are able to articulate their present levels of performance as well as their postsecondary goals and how their IEP plan can help them achieve their goals. Student Involvement in the IEP was a significant predictor of the outcome of currently enrolled in an education or training program on the *TAGG-P*, as well as the outcome of actively looking for work on the *TAGG-F* and *TAGG-S.* The ability to plan, lead, and/or participate in one's IEP meeting or transition planning conference provides the student with decision-making abilities and helps the student gain confidence when making decisions about his or her future (Aune, 1991; Halpern et al., 1995). This analysis showed that when the other significant constructs in the model on the *TAGG-P* are constant (Interacting with Others and Support Community), a unit increase in the scaled score of Student Involvement in the IEP results in an 82% increase in the odds of the student being enrolled in an education or training program two years after leaving school. The odds of the outcome occurring are highest on the *TAGG-S*; a unit increase in the Student Involvement in the IEP scaled score results in a 133% increase.

Student Involvement in the IEP is one of two constructs that showed up as a predictor across all three *TAGG* versions, adding to its strength as a predictor. On both the family and the student versions, this construct significantly predicted whether or not the student is actively looking for work. While actively looking for work could be

considered a negative outcome depending on the reason or context the student is actively looking for work, this could also suggest that given the average time of two years out of high school when students took the follow-up survey, the students have completed a two-year program and are seeking a job in their field of study. The skills developed from being involved in their IEP helped provide them with the ability to make appropriate decisions leading to looking for employment. Given the odds ratio value of greater than 2, this seems a likely conclusion. Additionally, this is an outcome that had a lower (n = 140) sample size than most of the other outcomes examined because it only includes those surveyed who are currently not employed.

Academic performance. Adding GPA to the *TAGG-S* version with Student Involvement in the IEP as a predictor resulted in a better fitting model for the outcome of actively looking for work. When GPA is held constant, the odds of the outcome occurring increases by 156% with a unit increase in the construct scaled score. However, when the construct scaled score is constant, the odds of the outcome occurring decreases by 57% when the GPA increases by a point. That is, as GPA increases, students are more likely to not be actively looking for work approximately two years after leaving high school. This may be because they are engaged in further training and/or education.

Applied practice suggestions. Professionals should teach students what their IEP is and how to talk about it with their parents and other professionals in a meaningful way. This is something that can begin in elementary school with the student gaining knowledge and confidence as he or she progresses through the grades. Furthermore, teachers and parents can help students choose a course of study that relates to his or her

future goals. Students should be taught to eventually lead their IEP meetings so that by the time they graduate, they are able to use the knowledge of their strengths and needs to help navigate needed supports in any postsecondary education training program or employment setting.

Support community. This construct identifies whether the student knows who are positive influences and those who are not, and if the student is able to accept help from supports as needed, not just to get out of doing a task. It also assesses whether the student is able to utilize community agencies for help. This was a significant predictor on the *TAGG-P* for the education outcome currently being enrolled in an education or training program, and for the employment outcome of has had current job for more than three months. This may imply that the interactions of students with disabilities that professionals observe in the school environment are indicative of who the students surround themselves with beyond high school, which can influence whether or not they enroll in a postsecondary educational program or seek meaningful employment. Students who demonstrated success in postsecondary settings have attributed these skills to supportive people in their network, such as others who have similar disabilities or their family (Skinner, 2004; Thoma & Getzel, 2005), thus these findings solidify previous results.

The odds ratio of 1.93 on the education outcome indicates that for a one-unit increase in the Support Community scaled score, the odds of the student having been enrolled in an education or training program since leaving high school increases by 93% when the other significant constructs for this outcome, Interacting with Others and

Student Involvement in the IEP, are constant. Similarly, for the employment outcome, the odds increase by 102% for a unit increase in the Support Community scaled score.

Applied practice suggestions. Professionals and family members should help students recognize when people are positive supports versus those who are not helpful to the student's academic success through role-playing, discussions, and/or social stories, when appropriate. They can help provide supports only when needed and fade supports as the student gains greater knowledge, skills, and confidence in his or her abilities, thus avoiding any learned helplessness. Additionally, educating students on available community agencies in their current and desired geographical areas to help them transition to adulthood may positively impact their postsecondary educational and employment success.

Construct That Predicted Only Postsecondary Employment Outcomes

Employment. Students who have had a paid job during high school are more likely to be engaged in postsecondary employment. Students who express the desire for a job related to their interests also are more likely to have postsecondary employment. My findings in this study support the existing research suggesting prior employment predicts future employment (Benz et al, 2000; Carter et al; 2012; Joshi et al, 2012; Papay & Bambara, 2014; Rabren et al., 2002). Employment shows up as a predictor in models for three postsecondary employment outcomes on the *TAGG-P*. For a unit increase in the Employment scaled score, the odds of the student working in a paid job at the time of the follow-up survey increases by 102%. The odds of the student who is not otherwise employed but is actively looking for work increases by 109% with a unit increase in the Employment scaled score. The odds of the student working in a career

that interests him or her most increases by 183% for a unit increase in the Employment scaled score. That this construct shows up on three of four of the employment outcomes modeled with logistic regression further supports the importance of employment for students with disabilities before they leave high school.

Academic performance. Adding GPA to the model with Employment as a predictor for the outcome actively looking for work resulted in a better fitting model. However, similar to the addition of the GPA to the *TAGG-S* model with Student Involvement in the IEP as a predictor for this outcome, an increase in GPA resulted in a 51% decrease in the outcome of actively looking for work. Students with higher GPAs have a lower probability of actively looking for work. This may be because students are engaged in further education that impedes their ability to work.

Applied practice suggestions. Professionals who work with students should discuss the importance of paid work experiences and encourage students to attempt to secure paid employment at least on weekends or during summer to help increase their chances for postsecondary employment.

Construct That Predicted Only a Postsecondary Education Outcome

Goal setting and attainment. Students with a history of ability to set realistic goals and attain them, and to break big goals into smaller, more manageable steps while monitoring their progress towards goal attainment will score higher on this construct. Additionally, students who are able to adjust their goals when something is not working out will score well. I found Goal Setting and Attainment to be a significant predictor for the outcome of current enrollment in an education or training program that takes places at a community college, university, or vocational school on the *TAGG-F*.

College students with disabilities have recognized the importance of setting goals with high expectations in order to achieve their dreams (Thoma & Getzel, 2005). Adults with disabilities who have had success at goal setting in the past have carried that skill through to success in education, employment, and social areas, while adults who struggle to find success typically do not know how to write realistic and attainable goals, resulting in failure (Goldberg et al., 2003). Thus, it makes sense that the ability of students to set and reach goals is predictive of postsecondary education enrollment, as even the college admission process and attending the first day of college requires planning to complete all of the tasks leading up to both being accepted to a program and enrolling in classes. This may be because students who want to attend a postsecondary education program generally will have that goal instilled in them by parents, friends, and teachers, as well as their own motivation to further their education.

This construct only showed up on the *TAGG-F*, which given the existing research is surprising. It is possible that goal setting is not a skill that will show up as significant just two years out of high school. Students who have the goals of a successful career, a technical school certificate, or a college degree have not had sufficient time to gain the necessary training and experience to realize these goals.

Applied practice suggestions. Professionals and parents or family members can help students with disabilities learn the skill of goal setting by modeling how to set goals, including how to break them into smaller, attainable steps. Involving students in their IEP meetings from an early age can help students learn to have ownership of their annual IEP goals. Professionals and parents can both help motivate students to set and

monitor goals by incentivizing the attainment of goals, and then fade this as students learn to provide this themselves by choosing meaningful and motivating goals.

Nonsignificant Models

The outcomes modeled with Poisson regression, "The student is currently participating in any skill- or experience- building program" and "The student has worked a TOTAL of three months in past year or since leaving high school" did not yield any significant predictors. For the former question, there were only 15 affirmative responses. Students may have already completed this type of program, or are less likely to attend a skill- or experience- building program versus a college, university, or vocational program. For the latter question, only a subset of the participants, those who were working but have had the job less than three months at the time of the survey, were asked this question. Those who have had current job for greater than three months were added as affirmative responses to this outcome, but 151 participants were not represented in this question. It is possible the results would change if all participants were asked this question, as it may be possible that a participant was not working at the time of the survey but had still worked for more than three months otherwise.

Nonsignificant Predictors

Three of eight *TAGG* constructs did not significantly predict any outcomes across the *TAGG* versions. The following sections will discuss each of these constructs and possible explanations of why they may not have predicted any of the outcomes explored.

Persistence. Persistent students are able to overcome adversity in order to reach their goals. They are able to adjust their actions if needed in order to complete goals as well as accept failure as a learning opportunity.

Successful adults with learning disabilities identify the ability to persevere through struggles as a contributing factor to their success in adulthood (Gerber, Ginsberg, & Reiff, 1992; Goldberg et al., 2003; Greenbaum, Graham, & Scales, 1995). Goldberg et al. (2003) identified perseverance as a success attribute after conducting a 20-year follow up study comparing successful and unsuccessful adults. Successful adults shared that it often took them several tries to complete college, thus extending the time until their education was complete and their chosen career began. Given that the current study followed up on students an average of two years after leaving high school, it is possible that students who scored well on this construct have not had adequate time to persist to the point of achieving the outcomes of interest currently analyzed is a rare occurrence, but neither of these models yielded any significant predictors of post-school outcomes.

Disability awareness. Students who are aware of their disability and can express what this means to others in terms of supports needed, legal requirements, and how it affects their life will score highly on this construct. Goldberg et al. (2003) identified the ability of young adults with learning disabilities to compartmentalize their disability such that they see it only as a part of their whole to be better able to focus on their strengths separate from their learning problems. I suspect this is a component of being self-aware that takes successes and failures to realize, which similar to the

explanation in the previous section, means participants in this study have not had adequate time to fully use their disability awareness to achieve positive outcomes.

Adding evidence to the time it may take for participants to use their knowledge of disability awareness to achieve positive outcomes, Gerber et al. (1992) describes a four-step process of reframing one's disability in a positive manner in order to facilitate outcomes. This involves identifying the disability, accepting the disability and the implications it may have on school and work performance, understanding one's strong points and limitations related to the disability, and finally acting on this knowledge to achieve goals. Disability awareness may not have shown up as a predictor in this study because this process is still ongoing and the participant has not had time to realistically to make their goals into outcomes.

Strengths and limitations. This construct measures how well students understand and explain their personal strengths and needs and how they affect their academic performance and other areas in their life. Students who score highly on this construct are able to articulate correctly when assistance is needed and can express in which areas they excel as well as those areas that they may struggle with. Successful adults who recognize their strengths are able to use them to tailor their careers to accentuate their strengths (Gerber et al., 1992). Skinner (2004) found that college graduates with disabilities had learned to adapt to their limitations by using their strengths to compensate.

As with the other constructs that did not show up as significant, I suspect this one is something that may not show up with such a short-term follow up study. Learning compensatory skills in a college setting or as one embarks on a career is

different from learning those skills in a high school classroom with the supports of an IEP.

Conclusion

My study establishes evidence of predictive validity for the *TAGG* (Martin et al., 2015) assessment. Five of eight constructs predicted at least one of the postsecondary education or employment outcomes I investigated, though the survey time frame is likely too soon after high school to reveal the significance of the remaining constructs. Suggestions for professionals and families to help teach the behaviors the significant constructs assess are provided for Interacting with Others, Employment, Goal Setting and Attainment, Student Involvement in the IEP, and Support Community. The *TAGG-P* constructs overall predicted more outcomes than the *TAGG-F* or *TAGG-S*, indicating the professional's role in transition assessment is more realistic in identifying students' strengths and needs. The *TAGG-P* had at least one significant predictor for each of the outcomes examined with logistic regression, with Employment showing up most frequently. The *TAGG-F* had one significant predictor for one educational and two employment outcomes, while the *TAGG-S* had one significant predictor for one employment and one educational outcome.

Though the remaining constructs, Strengths and Limitations, Disability Awareness, and Persistence, did not show up as significant in any of the prediction models, this finding does not diminish the importance of teaching these behaviors. Instead, it may suggest that when time is limited to teach them, professionals should focus on those behaviors that are stronger predictors for positive postsecondary education or employment outcomes. It is possible that other behaviors capture the core

skills needed to show each of these skills. For instance, students who are actively involved in their IEP and score well on this construct likely have knowledge of their strengths and limitations, but maybe talking about their limits is an emerging skill. Further helping students gain the skills needed to actively participate and then lead their IEP team meeting may simultaneously address weaknesses in their knowledge of Strengths and Limitations.

The addition of GPA to three of the *TAGG-P* and *TAGG-S* postsecondary education and employment outcome models strengthened the models, indicating *TAGG* construct scores add incremental validity to GPA in predicting postsecondary outcomes.

When applying the results of the *TAGG* to individual student's transition plans, team members should strongly consider the student's goals relative to the areas of strengths and needed improvement. For instance, if a student aspires to work on the family farm and Goal Setting and Attainment is an area of need, it makes sense not to focus on that construct strictly to increase the odds of the outcome of college or training program enrollment. Similarly, if it is understood that a student is going to attend college, yet has not engaged in employment and thus shows that as a weakness, the team should consider why the student has not yet engaged in employment before focusing on that area. The student may spend much of his or her extra time studying in order to stay caught up and therefore does not have time for employment without risking grades or extracurricular activities. Due to the individual planning needs, student preferences, availability of resources, and family dynamics, it is not practicable to assign specific competency points on the *TAGG* profile at this time.

Future Research

Future research should examine outcomes of students who both work and attend college after high school. This could be looked at as a single outcome or a combination of outcomes, i.e. individuals who are both employed and attending a postsecondary education program at the time of the survey, those who were previously employed but are now only attending postsecondary education, and those who were attending postsecondary education and are now only employed. It may be necessary for some students to work full-time and attend a college program part-time or vice versa, either of which can impact long-term outcomes.

Eighty-two percent of the students completing the *TAGG* Follow-Up Survey had been out of school approximately two years or less. Positive outcomes generally need more time to be realized. Once more data is gathered, length of time after high school should be broken up to better examine outcomes over time, similar to Papay and Bambara's (2014) study that found differences two years and four years out of high school. A replication study should also be conducted to verify the results found within this study.

Ninety-five percent of the students who participated in the *TAGG* Follow-Up Survey graduated from high school. This is higher than the national average of all students of 81% (National Center for Educational Statistics, 2015). An additional analysis, if it were possible to gather this information, would to include a graduate/did not graduate indicator on the full dataset and include this variable in the missing at random analysis. It is possible that students who are doing well or perceive themselves

to be doing well are more likely to respond, possibly lending non-response bias that this analysis was unable to measure.

In conclusion, the current study establishes predictive validity of the *TAGG* and further justifies its use to identify student strengths and weaknesses for use in developing meaningful annual transition goals when developing transition plans. Identified strengths and needs should then be matched to students' postsecondary goals in order to facilitate greater attainment of positive postsecondary education and employment outcomes. The *TAGG-P* provided the most predictive evidence, solidifying the importance of the professionals who work with students with disabilities. Teachers have a greater sample of experience; they see many more students over the course of their practice, thus are able to make better decisions when assessing students.

References

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education (2014). *Standards for educational and psychological testing.* Washington D.C.: American Educational Research Association

American Psychological Association, American Educational Research Association, & National Council on Measurement in Education. (1954). *Technical recommendations for psychological tests and diagnostic techniques*. Washington, DC: American Psychological Association.

Aune, E. (1991). A transition model for postsecondary-bound students with learning disabilities. *Learning Disabilities Research & Practice, 6*, 177-187.

Benz, M. R., Lindstrom, L., & Yovanoff, P. (2000). Improving graduation and employment outcomes of students with disabilities: Predictive factors and student perspectives. *Exceptional Children*, *66*, 509-529.

Bouck, E. C. (2012). Secondary students with moderate/severe intellectual disability: Considerations of curriculum and post-school outcomes from the National Longitudinal Transition Study-2. *Journal of Intellectual Disability Research*, *56*, 1175-1186. doi:10.1111/j.1365-2788.2011.01517.x

Bureau of Labor and Statistics, U.S. Department of Labor (2014). *Persons with a disability: Labor force characteristics summary.* Retrieved from: http://www.bls.gov/news.release/disabl.nr0.htm

Camara, W. J., & Echternacht, G. (2000). *The SAT and high school grades: Utility in predicting success in college*. College Entrance Examination Board, Office of

Research and Development. New York, NY: College Board.

Carter, E. W., Austin, D., & Trainor, A. A. (2012). Predictors of postschool employment outcomes for young adults with severe disabilities. *Journal of Disability Policy Studies*, *23*, 50-63. doi:10.1177/1044207311414680

Charman, T., Taylor, E., Drew, A., Cockerill, H., Brown, J. A., & Baird, G. (2005). Outcome at 7 years of children diagnosed with autism at age 2: Predictive validity of assessments conducted at 2 and 3 years of age and pattern of symptom change over time. *Journal of Child Psychology and Psychiatry*, *46*, 500-513.

Chiang, H. M., Cheung, Y. K., Hickson, L., Xiang, R., & Tsai, L. Y. (2012). Predictive factors of participation in postsecondary education for high school leavers with autism. *Journal of Autism and Developmental Disorders*, *42*, 685-696.

Council for Exceptional Children (2014). *Council for Exceptional Children standards for evidence-based practices in special education*. Retrieved from http://www.cec.sped.org/Standards/Evidence-Based-Practice-Resources-Original

Cronbach, L. J. (1971). Test validation. In R. L. Thorndike (Ed.), *Educational measurement* (pp. 443-507). Washington D.C.: American Council on Education.

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin, 52*, 281-302.

Dinger, J. C. (1961). Post-school adjustment of former educable retarded pupils. *Exceptional Children*, *27*, 353-360.

Education for all Handicapped Children Act of 1975, 20 USC §1401 *et seq.*

Environmental Protection Agency. (n.d.) Predicting environmental conditions from biological observations appendix. Retrieved from http://epa.gov/caddis/pecbo_estimating6.html

Field, S., & Hoffman, A. (2007). Self-determination in secondary transition assessment. *Assessment for Effective Intervention, 32*, 181-190. doi:10.1177/15345084070320030601

Gelman, A., & Hill, J. (2006). Missing-data imputation. In A. Gelman, & J. Hill (Eds.), *Data analysis using regression and multilevel/hierarchical models* (pp. 530-543). New York: Cambridge University Press.

Gerber, P. J., Ginsberg, R., & Reiff, H. B. (1992). Identifying alterable patterns in employment success for highly successful adults with learning disabilities. *Journal of Learning Disabilities, 25*, 475-487.

Goldberg, R. J., Higgins, E. L., Raskind, M. H., & Herman, K. L. (2003). Predictors of success in individuals with learning disabilities: A qualitative analysis of a 20-year longitudinal study. *The Division for Learning Disabilities, 18,* 222-236.

Greenbaum, B., Graham, S., & Scales, W. (1995). Adults with learning disabilities: Educational and social experiences during college. *Exceptional Children, 61*, 460-471.

Halpern, A. S., Yovanoff, P., Doren, B., & Benz, M. R. (1995). Predicting participation in postsecondary education for school leavers with disabilities. *Exceptional Children, 62*, 151-164.

Harvey, M. W. (2002). Comparison of postsecondary transitional outcomes between students with and without disabilities by secondary vocational education

participation: Findings from the national education longitudinal study. *Career Development for Exceptional Individuals*, *25*, 99-122. doi:10.1177/088572880202500202

Hasazi, S. B., Gordon, L. R., & Roe, C. A. (1985). Factors associated with the employment status of handicapped youth exiting high school from 1979 to 1983. *Exceptional Children, 51*, 455-469.

Hennessey, M. N., Herron, J. P., Herron, M. D., & Martin, J. E. (2015). *Determining the extent non-academic behaviors of secondary students with disabilities are related to students' socio-economic status.* Manuscript in process.

Hennessey, M. N., Terry, R. A., Martin, J. E., McConnell, A. E., & Willis, D. M. (2015). *Validating the transition assessment and goal generator (TAGG): Factor structure and basic psychometric properties.* Manuscript submitted for publication.

Horn, L., Berktold, J., & Bobbitt, L. (1999). *Students with disabilities in postsecondary education: A profile of preparation, participation, and outcomes* (NCES 1999-187). Washington, DC: U.S. Department of Education, National Center for Educational Statistics.

Hosmer, D. W., & Lemeshow, S. (2000). *Applied logistic regression* (2nd ed.). Hoboken, NJ: John Wiley & Sons.

Individuals with Disabilities Education Improvement Act of 2004, 34 C. F. R. §300.1 (2004).

Individuals with Disabilities Education Improvement Act of 2004, 20 U. S. C. 1416(c)(14).

Joshi, G. S., Bouck, E. C., & Maeda, Y. (2012). Exploring employment preparation and post-school outcomes for students with mild intellectual disability. *Career Development and Transition for Exceptional Individuals, 35*, 97–107. doi:10.1177/0885728811433822

Leonard, N. H., Beauvais, L. L., & Scholl, R. W. (1999). Work motivation: The incorporation of self concept-based processes. *Human Relations, 52*, 969-998.

Martin, G. L., Thorsteinsson, J. R., Yu, C. T., Martin, T. L., & Vause, T. (2008). The Assessment of Basic Learning Abilities test for predicting learning of persons with intellectual disabilities a review. *Behavior Modification*, *32*, 228-247.

Martin, J. D. (2014). *Examining the measurement invariance of the Transition Assessment and Goal Generator across percent of time spent in general education*. (Doctoral Dissertation). Norman, OK: University of Oklahoma, Department of Educational Psychology.

Martin, J. D., McConnell, A. E., Martin, J. E., & Hennessey, M. N. (2015). *Effects of disability category on non-academic skills associated with post-school employment and education.* Manuscript submitted for publication.

Martin, J. E., Hennessey, M. N., McConnell, A. E., Terry, R. A., & Willis, D. M. (2015a). *Transition assessment and goal generator*. Retrieved from https://tagg.ou.edu/tagg/

Martin, J. E., Hennessey, M. N., McConnell, A. E., Terry, R. A., & Willis, D. M. (2015b). *TAGG technical manual.* Norman, OK: University of Oklahoma's Zarrow Center. Retrieved from https://tagg.ou.edu/tagg/

McConnell, A. E., Martin, J. E., & Hennessey, M. N. (2015). Indicators of

postsecondary employment and education for youth with disabilities in relation to GPA and general education. *Remedial and Special Education.* doi:10.1177/0741932515583497

McConnell, A. E., Martin, J. E., Herron, J. P., & Hennessey, M. N. (2015). *The influence of gender on non-academic skills associated with post-school employment and further education.* Manuscript submitted for publication.

McConnell, A. E., Martin, J. E., Juan, C. Y., Hennessey, M. N., Terry, R., Kazimi, N, … Willis, D. (2013). Identifying non-academic behaviors associated with post-school employment and education. *Career Development and Transition for Exceptional Individuals, 36* 174-187. doi:10.1177/2165143412468147

Messick, S. (1989). Validity. In R. L. Linn (Ed.), *Educational measurement* (3rd ed., pp. 13-103). New York: Macmillan.

Messick, S. (1995). Validity of psychological assessment: Validation of inferences from persons' responses and performances as scientific inquiry into score meaning. *American Psychologist, 50*, 741-749.

Mithaug, D. E., Horiuchi, C. N., & Fanning, P. N. (1985). A report on the Colorado statewide follow-up survey of special education students. *Exceptional Children, 51*, 397-404.

National Center for Educational Statistics. (2015). *Public school graduation rates.* Retrieved from http://nces.ed.gov/programs/coe/indicator_coi.asp

National Longitudinal Survey of Youth. (2008). *America's Youth at 20: School Enrollment and Employment Transitions between ages 19 and 20*. Retrieved from http://www.bls.gov/nls/nlsy97.htm

National Longitudinal Survey of Youth. (2009). *America's youth at 21: School enrollment, training and employment transitions between ages 20 and 21*. Retrieved from http://www.bls.gov/nls/nlsy97.htm

National Longitudinal Survey of Youth. (2013). *America's young adults at 25: School enrollment, number of jobs held and labor market activity: Results from a longitudinal survey*. Retrieved from http://www.bls.gov/nls/nlsy97.htm

National Longitudinal Transition Study-2 (NLTS-2). (2009a). *Parent/young adult survey of postsecondary education* (Table 94) [Data File]. Retrieved from http://www.nlts2.org

National Longitudinal Transition Study-2 (NLTS-2). (2009b). *Parent/young adult survey of postsecondary education* (Table 118) [Data File]. Retrieved from http://www.nlts2.org

National Post-School Outcomes Center. (n.d.). *Data collection survey*. Retrieved from http://www.psocenter.org/content_pages/5

Neter, J., Kutner, M. H., Nachtsheim, C. J., & Wasserman, W. (1996). *Applied linear regression models.* Chicago, IL: Irwin.

Neubert, D. A., & Leconte, P. J. (2013). Age-appropriate transition assessment: The position of the Division on Career Development and Transition. *Career Development and Transition for Exceptional Individuals, 36*, 72-83. doi:10.1177/2165143413487768

NSTTAC Indicator 13 Checklist: Form B. (2015). Retrieved from http://www.nsttac.org/content/nsttac-indicator-13-checklist-form-b-enhanced-professional-development

Noble, J., & Sawyer, R. (2002). Predicting different levels of academic success in college using high school GPA and ACT composite score. *ACT Research Report Series*. Iowa City, IA: ACT, Inc.

Papay, C. K., & Bambara, L. M. (2014). Best practices in transition to adult life for youth with intellectual disabilities. *Career Development and Transition for Exceptional Individuals, 37*, 136-148. doi:10.1177/2165143413486693

Rabren, K., Dunn, C., & Chambers, D. (2002). Predictors of post-high school employment among young adults with disabilities. *Career Development and Transition for Exceptional Individuals, 25*, 25-40. doi:10.1177/088572880202500103

Repetto, J. B., Horky, S. C., Miney, A., Reiss, J., Saidi, A, Wolcott, L, … Jaress, J. M. (2012). Expanding transition to address the needs of students with invisible chronic illness. *Career Development for Exceptional Individuals, 35*, 4-13. doi:10.1177/0885728811423653

Peterson, J. S. (2000). A follow‐up study of one group of achievers and underachievers four years after high school graduation. *Roeper Review*, *22*, 217-224.

Shandra, C. L., & Hogan, D. P. (2008). School-to-work program participation and the post-high school employment of young adults with disabilities. *Journal of Vocational Rehabilitation, 29*, 117-130.

Sitlington, P. L., & Clark, G. M. (2007). The transition assessment process and IDEIA 2004. *Assessment for Effective Intervention*, *32*, 133-142.

Skinner, M. E. (2004). College students with learning disabilities speak out: What it takes to be successful in postsecondary education. *Journal of Postsecondary*

Education and Disability, *17*, 91-104.

Stiggins, R. J., Frisbie, D. A., & Griswold, P. A. (1989). Inside high school grading practices: Building a research agenda. *Educational Measurement: Issues and Practice*, 8, 5-14.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics.* Upper Saddle River, NJ: Pearson.

Test, D. W., Fowler, C. H., Richter, S. M., White, J., Mazotti, V., Walker, A., & Kortering, L. (2009). Evidence-based practices in secondary transition. *Career Development for Exceptional Individuals, 32*, 115-128.

Test, D. W., Mazzotti, V. L., Mustian, A. L., Fowler, C. H., Kortering, L., & Kohler, P. (2009). Evidence-based secondary transition predictors for improving postschool outcomes for students with disabilities. *Career Development for Exceptional Individuals, 32*, 160-181. doi:10.1177/0885728809346960

Thoma, C. A., & Getzel, E. E. (2005). "Self-determination is what it's all about": What post-secondary students with disabilities tell us are important considerations for success. *Education and Training in Developmental Disabilities, 40*, 234-242.

U.S. Department of Defense. (n.d.). ASVAB career exploration program counselor manual. Seaside, CA: Defense Manpower Data Center.

U.S. Department of Education. (2007). *Twenty-five years of progress in educating children with disabilities through IDEA*. Retrieved from http://www2.ed.gov/policy/speced/leg/idea/history.html

Appendix A: Quality Indicators for Methodologically Sound Studies

1.0. Context and setting. The study provides sufficient information regarding the critical features of the context or setting.
1.1. The study describes critical features of the context or setting relevant to the review; for example, type of program or classroom, type of school (e.g., public, private, charter, preschool), curriculum, geographic location, community setting, socioeconomic status, physical layout.
2.0. Participants. The study provides sufficient information to identify the population of participants to which results may be generalized and to determine or confirm whether the participants demonstrated the disability or difficulty of focus.
2.1. The study describes participant demographics relevant to the review (e.g., gender, age/grade, race/ethnicity, socioeconomic status, language status).
2.2. The study describes disability or risk status of the participants (e.g., specific learning disability, autism spectrum disorder, behavior problem, at risk for reading failure) and method for determining status (e.g., identified by school using state IDEA criteria, teacher nomination, standardized intelligence test, curriculum-based measurement probes, rating scale).
3.0. Intervention agent. The study provides sufficient information regarding the critical features of the intervention agent.
3.1. The study describes the role of the intervention agent (e.g., teacher, researcher, paraprofessional, parent, volunteer, peer tutor, sibling, technological device/computer) and, as relevant to the review, background variables (e.g., race/ethnicity, educational background/licensure).
3.2. The study describes any specific training (e.g., amount of training, training to a criterion) or qualifications (e.g., professional credential) required to implement the intervention, and indicates that the interventionist has achieved them.
4.0. Description of practice. The study provides sufficient information regarding the critical features of the practice (intervention), such that the practice is clearly understood and can be reasonably replicated.
4.1. The study describes detailed intervention procedures (e.g., intervention components, instructional behaviors, critical or active elements, manualized or scripted procedures, dosage) and intervention agents' actions (e.g., prompts, verbalizations, physical behaviors, proximity), or cites one or more accessible sources that provide this information. 4.2. When relevant, the study describes materials (e.g., manipulatives, worksheets, timers, cues, toys), or cites one or more accessible sources providing this information.
5.0. Implementation fidelity. The practice is implemented with fidelity.
5.1. The study assesses and reports implementation fidelity related to adherence using direct, reliable measures (e.g., observations using a checklist of critical of critical elements of the practice).
5.2. The study assesses and reports implementation fidelity related to dosage or exposure using direct, reliable measures (e.g., observations or self-report of the duration, frequency, curriculum coverage of implementation).
5.3. As appropriate, the study assesses and reports implementation fidelity (a)

regularly throughout implementation of the intervention (e.g., beginning, middle, end of the intervention period), and (b) for each interventionist, each setting, and each participant or other unit of analysis. If either adherence or dosage is assessed and reported, this item applies to the type of fidelity assessed. If neither adherence nor dosage is assessed and reported, this item is not applicable.
6.0. Internal validity. The independent variable is under the control of experimenter. The study describes the services provided in control and comparison conditions and phases. The research design provides sufficient evidence that the independent variable causes change in the dependent variable or variables. Participants stayed with the study, so attrition is not a significant threat to internal validity.
6.1. The researcher controls and systematically manipulates the independent variable.
6.2. The study describes baseline (single-subject studies) or control/comparison (group comparison studies) conditions, such as the curriculum, instruction, and interventions (e.g., definition, duration, length, frequency, learner: instructor ratio).
6.3. Control/comparison-condition or baseline-condition participants have no or extremely limited access to the treatment intervention.
6.4. The study clearly describes assignment to groups, which involves participants (or classrooms, schools, or other unit of analysis) being assigned to groups in one of the following ways: (a) randomly; (b) nonrandomly, but the comparison groups are matched very closely to the intervention group (e.g., matched on prior test scores, demographics, a propensity score; see Song & Herman, 2010); (c) nonrandomly, but techniques are used to measure differences and, if meaningful differences are identified—for example, statistically significant difference, difference greater than 5% of a standard deviation (What Works Clearinghouse, 2011)—to statistically control for any differences between groups on relevant pretest scores or demographic characteristics (e.g., statistically adjust for confounding variable through techniques such as ANCOVA or propensity score analysis); or (d) nonrandomly on the basis of a reasonable cutoff point (regression discontinuity design).
6.5. Overall attrition is low across groups (e.g., < 30% in a 1-year study).
6.6. Differential attrition (between groups) is low (e.g., ≤10%) or is controlled for by adjusting for noncompleters (e.g., conducting intent-to-treat analysis).
7.0. Outcome measures/dependent variables. Outcome measures are applied appropriately to gauge the effect of the practice on study outcomes. Outcome measures demonstrate adequate psychometrics.
7.1. Outcomes are socially important (e.g., they constitute or are theoretically or empirically linked to improved quality of life, an important developmental/learning outcome, or both).
7.2. The study clearly defines and describes measurement of the dependent variables.
7.3. The study reports the effects of the intervention on all measures of the outcome targeted by the review (p levels and effect sizes or data from which effect sizes can

be calculated for group comparison studies; graphed data for single-subject studies), not just those for which a positive effect is found.
7.4. Frequency and timing of outcome measures are appropriate.
7.5. The study provides evidence of adequate internal reliability, interobserver reliability, test-retest reliability, or parallel-form reliability, as relevant (e.g., score reliability coefficient ≥ .80, interobserver agreement ≥ 80%, kappa ≥ 60%).
7.6. The study provides adequate evidence of validity, such as content, construct, criterion (concurrent or predictive), or social validity.
8.0. Data Analysis. Data analysis is conducted appropriately. The study reports information on effect size.
8.1. Data analysis techniques are appropriate for comparing change in performance of two or more groups (e.g., t tests, ANOVAs/MANOVAs, ANCOVAs/MANCOVAs, hierarchical linear modeling, structural equation modeling). If atypical procedures are used, the study provides a rationale justifying the data analysis techniques.
8.2. The study reports one or more appropriate effect size statistic (e.g., Cohen's d, Hedge's G, Glass's Δ, h2) for all outcomes relevant to the review being conducted, even if the outcome is not statistically significant, or provides data from which appropriate effect sizes can be calculated.

Figure 3. Quality indicators apply to those studies that examine the effect of an operationally defined practice or program on student outcomes (CEC, 2014).

Appendix B: Examples of *TAGG* Assessment Items

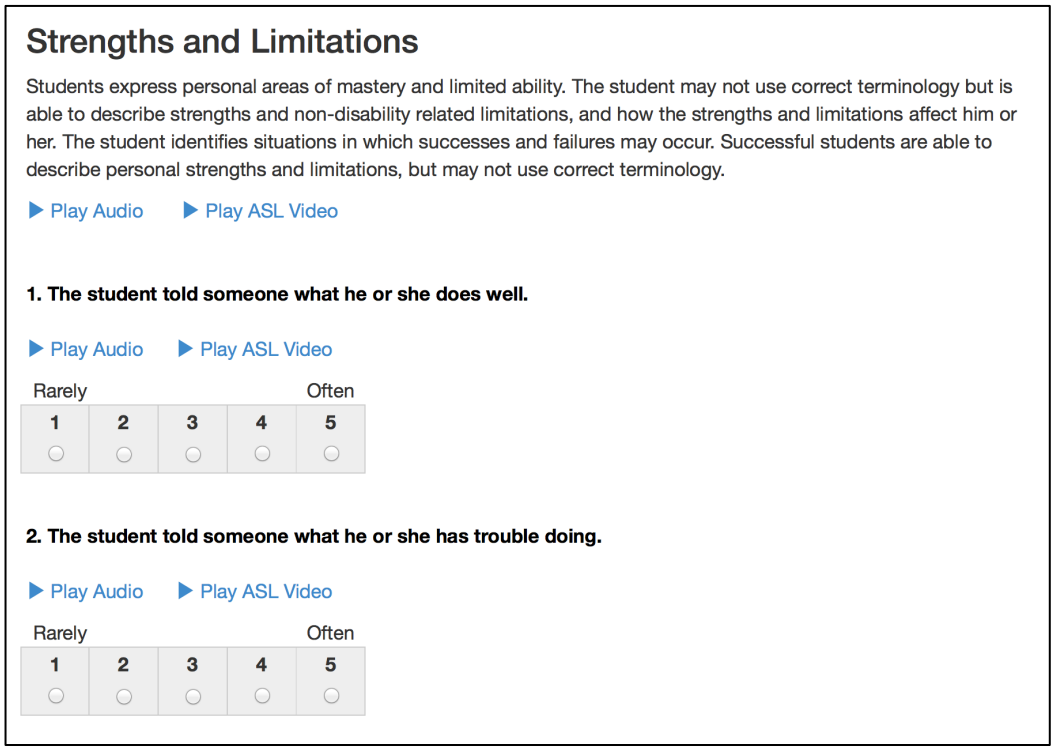

Figure 4. Examples of *TAGG-P* assessment items for Strengths and Limitations Construct.

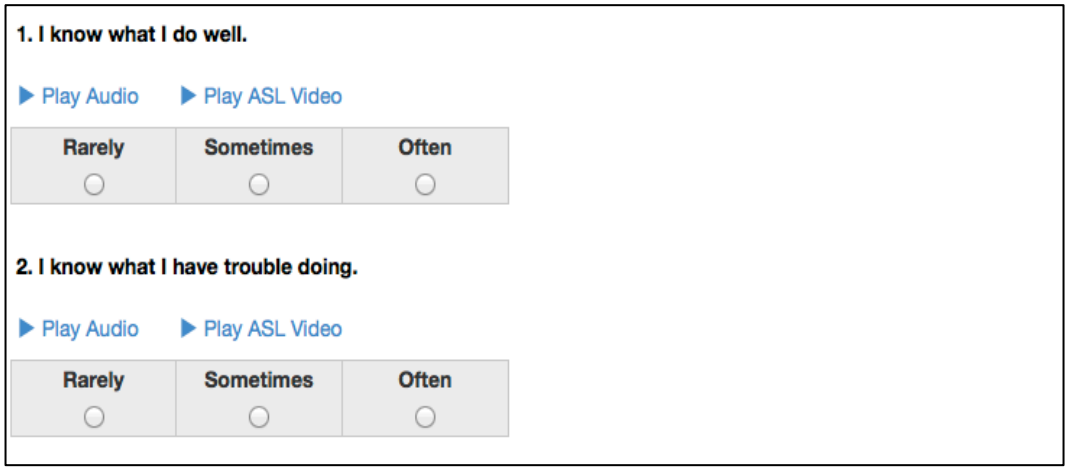

Figure 5. Examples of *TAGG-S* assessment items for Strengths, Limitations, and Supports construct.

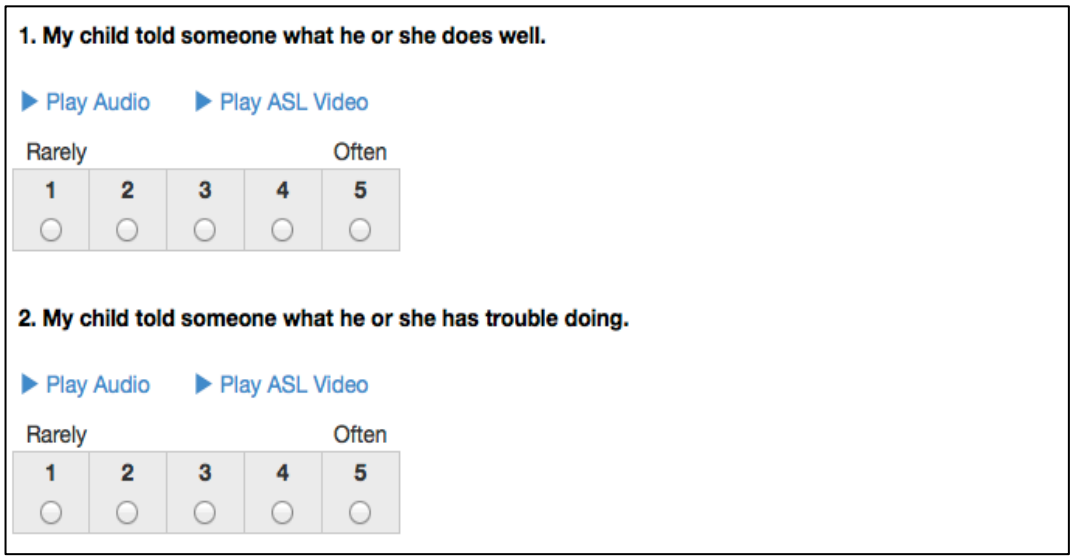

Figure 6. Examples of *TAGG-F* assessment items for Strengths and Limitations construct.

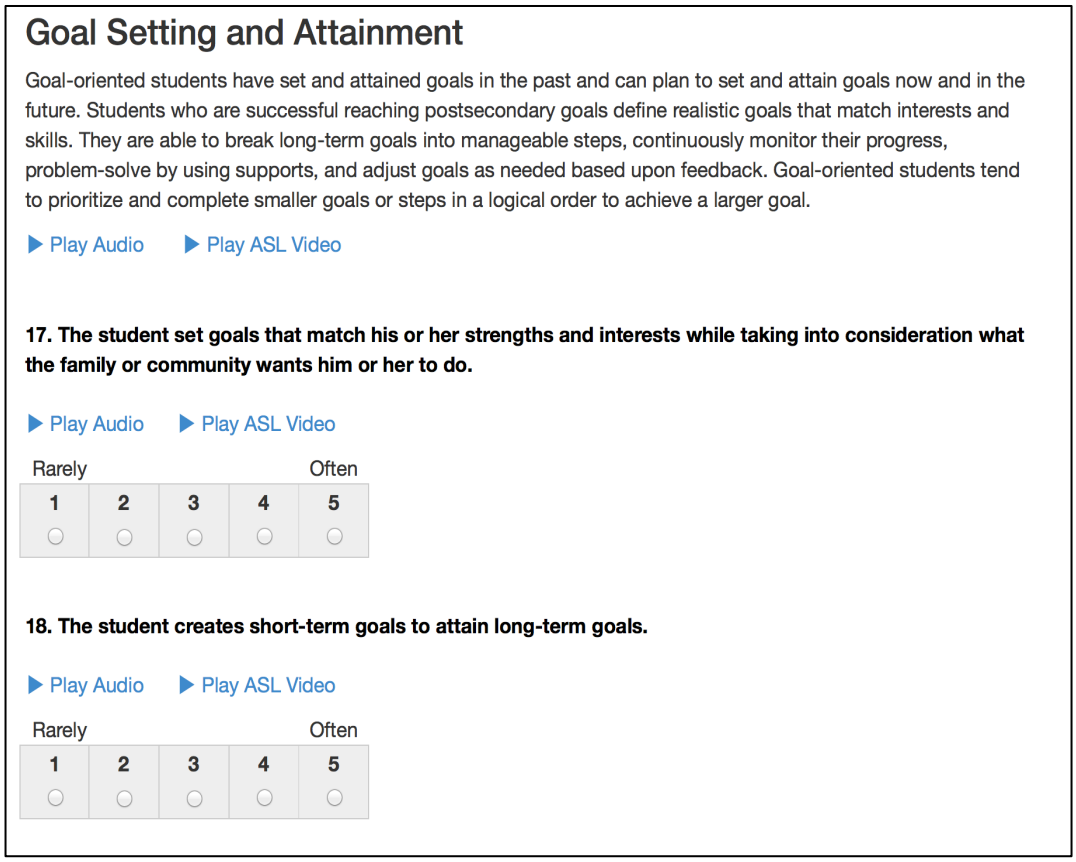

Figure 7. Examples of *TAGG-P* assessment items for Goal Setting and Attainment construct.

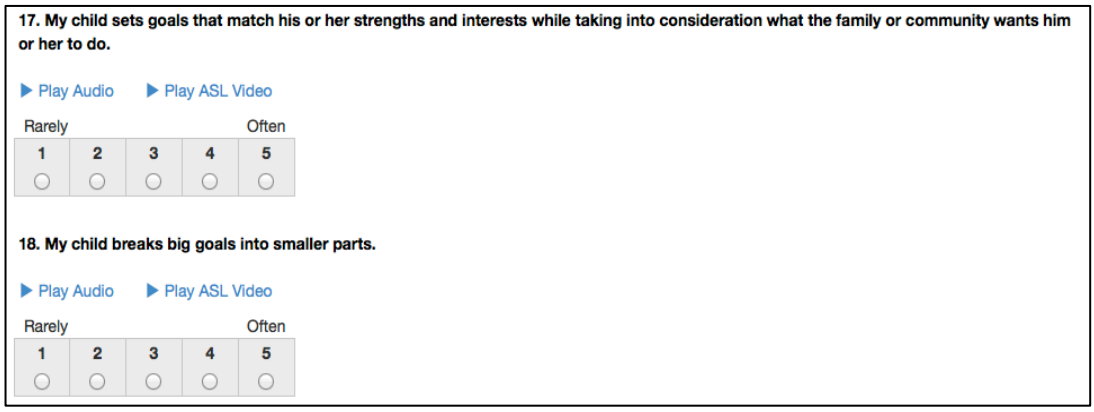

Figure 8. Examples of *TAGG-F* assessment items for Goal Setting and Attainment Construct.

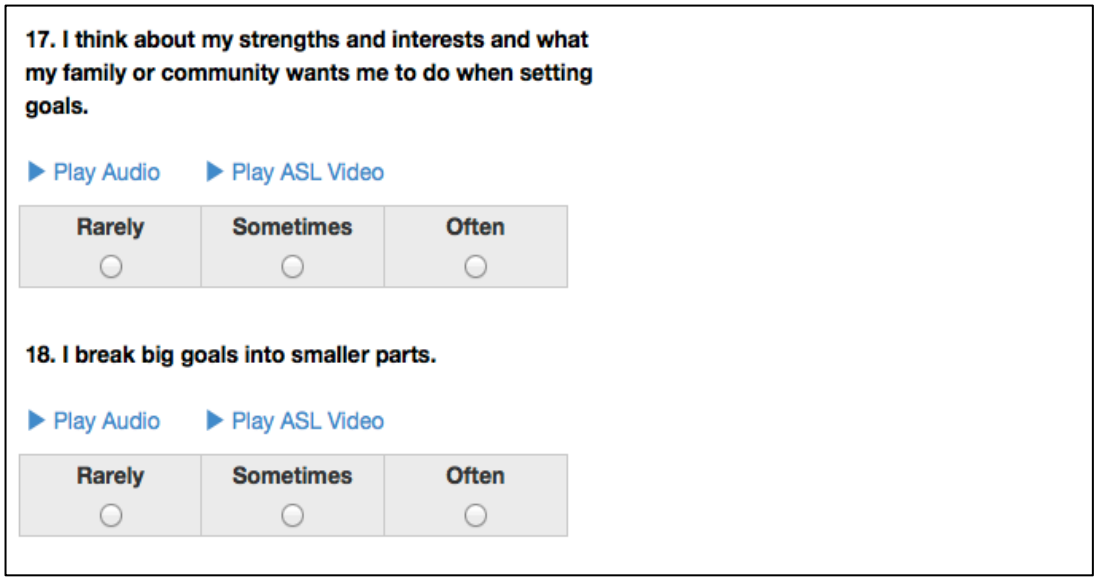

Figure 9. Examples of *TAGG-S* assessment items for Goal Setting and Attainment Construct.

Appendix C: *TAGG* Follow-Up Survey

TAGG Follow-Up Survey

University of Oklahoma

Institutional Review Board Informed Student Consent to Participate in a Research Study

Project Title: Transition Assessment and Goal Generator Development Project

Principal Investigator: James Martin, Ph.D.

Department: Educational Psychology, Zarrow Center for Learning Enrichment

You are being asked to volunteer for this research study. This study will develop a new transition assessment called the Transition Assessment and Goal Generator (TAGG). You were selected because you previously participated in an earlier phase of the study. In this Phase, you will be asked to complete a follow-up survey describing your career and education decisions since leaving high school. Please read this form and ask any questions you may have before agreeing to take part in this study.

Purpose of the Research Study

The purpose of this study is to develop a new tool to help teachers, family members, and students to set annual student transition goals to prepare students for life after high school.

Number of Participants

At the end of the study, almost 5,000 high school teachers, students, and family members will have helped to make this new transition assessment.

Procedures

If you agree to be in this study, you will be asked to do the following:

• Complete the follow-up survey

Length of Participation

It will take you approximately 15 minutes to complete the survey.

Risks of being in the study are

There is no risk associated with participation in this study.

Benefits of being in the study are

You will know that you helped create a new assessment that students across the nation will use in the future to prepare for life after high school.

Compensation

You will receive a $10 gift card for the survey participation.

Confidentiality

No information that could identify you will be included in any published papers. Research records will be stored securely at OU. Only approved researchers will have access to the records. The U.S. Department of Education's National Center for Special Education Research, and the OU Institutional Review Board may view or copy research records kept at OU's Zarrow Center.

Voluntary Nature of the Study

Participation in this study is voluntary. You do not have to participate in this study. If you do not want to participate in this study, you will not be penalized or lose benefits or services unrelated to the study. If you decide to participate, you may change your mind at any time and decide not to participate later.

Contacts and Questions

Call or email Dr. Amber McConnell, ambermcc@ou.edu, or Dr. Jim Martin, jemartin@ou.edu, if you have questions about this study. You may contact them at OU's Zarrow Center (405-325-8951 or zarrow@ou.edu). You may ask questions at any time.

For questions about your rights, you may call or email the University of Oklahoma – Norman Campus Institutional Review Board at 405-325-8110 or irb@ou.edu. You may use this contact if you want to talk to someone other than the people on the research team.

Contact Amber or Jim, if you have questions or if you have experienced a research-related injury. Statement of Consent I understand the above information. I have asked questions, and my questions have been answered. I agree to participate in the study.

- ❍ Yes, I agree to participate in this study. (1)
- ❍ No, I do NOT agree to participate in this study. (2)

If No, I do NOT agree to parti... Is Selected, Then Skip To End of Survey

Is the person entering the information the former student, the educator, or OU Zarrow Center staff? (Remember: Educators will enter the information on behalf of the student. The survey is written as though the student will be answering the questions.)

- ❍ I am the the former student. (1)
- ❍ I am the educator. (2)
- ❍ I am OU Zarrow Center Staff (3)

Answer If University of Oklahoma Institutional Review Board Inf... Yes, I agree to participate in this study. Is Selected

Please enter your (the student's) FIRST NAME.

Please enter your (the student's) LAST NAME.

Enter the complete address to where you would like your (the student's) gift card sent.

Who sent you (the former student) the link to this survey?

- ❍ My teacher (1)
- ❍ OU Zarrow Center Staff (2)

Enter the name of the school you attended when you completed the TAGG.

In what state was the school you attended when you completed the TAGG?

- ❍ Alabama (1)
- ❍ Alaska (2)
- ❍ Arizona (3)
- ❍ Arkansas (4)
- ❍ California (5)
- ❍ Colorado (6)
- ❍ Connecticut (7)
- ❍ Delaware (8)
- ❍ District of Columbia (9)
- ❍ Florida (10)
- ❍ Georgia (11)
- ❍ Hawaii (12)
- ❍ Idaho (13)
- ❍ Illinois (14)
- ❍ Indiana (15)
- ❍ Iowa (16)
- ❍ Kansas (17)
- ❍ Kentucky (18)
- ❍ Louisiana (19)
- ❍ Maine (20)
- ❍ Maryland (21)
- ❍ Massachusetts (22)
- ❍ Michigan (23)
- ❍ Minnesota (24)
- ❍ Mississippi (25)
- ❍ Missouri (26)
- ❍ Montana (27)
- ❍ Nebraska (28)
- ❍ Nevada (29)
- ❍ New Hampshire (30)
- ❍ New Jersey (31)
- ❍ New Mexico (32)
- ❍ New York (33)
- ❍ North Carolina (34)
- ❍ North Dakota (35)
- ❍ Ohio (36)
- ❍ Oklahoma (37)
- ❍ Oregon (38)
- ❍ Pennsylvania (39)

- ❍ Rhode Island (40)
- ❍ South Carolina (41)
- ❍ South Dakota (42)
- ❍ Tennessee (43)
- ❍ Texas (44)
- ❍ Utah (45)
- ❍ Vermont (46)
- ❍ Virginia (47)
- ❍ Washington (48)
- ❍ West Virginia (49)
- ❍ Wisconsin (50)
- ❍ Wyoming (51)

Enter the name of the teacher who gave you the TAGG.

Answer If University of Oklahoma Institutional Review Board Inf... Yes, I agree to participate in this study. Is Selected

What year did you stop attending high school?

Did you graduate high school?

- ❍ Yes (1)
- ❍ No (2)

Answer If Did you graduate high school? Yes Is Selected

What type of diploma did you earn?

- ❍ Certificate of completion (1)
- ❍ Certificate of attendance (2)
- ❍ High School Diploma (3)
- ❍ GED (4)
- ❍ Other (5) _____

Answer If Did you graduate high school? No Is Selected

What is the highest grade you completed?

Answer If Did you graduate high school? No Is Selected

Did you earn a General Equivalency Degree/Diploma (GED)?

- ❍ Yes (1)
- ❍ No (2)

Answer If What is the highest grade you completed? Text Response Is Displayed

Why did you stop attending high school?

- ❍ Changed career goals (1)
- ❍ Couldn't get along with other students (2)
- ❍ Couldn't get along with teachers/administrators (3)
- ❍ Couldn't get child care (4)
- ❍ Decided to get a job (5)

- ❍ Didn't feel accepted (6)
- ❍ Didn't get the services I needed (7)
- ❍ Didn't have time/schedule conflicts (8)
- ❍ Didn't get into the program I wanted (9)
- ❍ Didn't like going to school (10)
- ❍ Didn't have the skills to continue (11)
- ❍ Failed required tests/exams (12)
- ❍ Finished courses I wanted (13)
- ❍ Friends weren't in school/dropping out (14)
- ❍ Got Married (15)
- ❍ Got Pregnant/Had a child (16)
- ❍ Homeless/living on street/ couch surfing (17)
- ❍ Illness/health problems (18)
- ❍ Involved in criminal justice system (19)
- ❍ Joined military (20)
- ❍ Lack of appropriate curriculum (21)
- ❍ Lacked enough credits to graduate (22)
- ❍ Language difficulty (23)
- ❍ Moved (24)
- ❍ Needed to take care of family responsibilities (25)
- ❍ Not important in my family (26)
- ❍ Parents/family didn't want me to go (27)
- ❍ Poor grades/ not doing well (28)
- ❍ Problems with behavior (29)
- ❍ Religion (30)
- ❍ School too dangerous (31)
- ❍ School Vacation (32)
- ❍ Taking a break from school (33)
- ❍ Transportation problems (34)
- ❍ Wanted to Travel (35)
- ❍ Was expelled/suspended (36)
- ❍ Other (37) _____

How many education or training programs have you been enrolled in since leaving high school?

- ❍ 0 (1)
- ❍ 1 (2)
- ❍ 2 (3)
- ❍ 3 (4)
- ❍ 4 (5)
- ❍ 5 (6)
- ❍ 6 (7)
- ❍ 7 (8)
- ❍ 8 (9)
- ❍ 9 (10)
- ❍ 10 + (11)

Are you currently participating in any skill- or experience-building program that required formal admission (such as the Peace Corps, or Military Service)?

- ❍ Yes (1)
- ❍ No (2)

Answer If Are you currently participating in any skill- or experien... Yes Is Selected

What type of program are currently participating in?

- ❍ Military Service (1)
- ❍ Mission Program (2)
- ❍ Peace Corps/America/Vista (3)
- ❍ Other (4)

Are you currently enrolled in any education or training programs that take place at a community college, junior college, university, or vocational school?

- ❍ Yes (1)
- ❍ No (2)

Answer If Are you currently enrolled in any education or training p... Yes Is Selected

In what type of setting does your program take place?

- ❍ Vocational or Technical School (1)
- ❍ Community College or Junior College (2-year) (2)
- ❍ University (4-year) (3)

Answer If Are you currently enrolled in any education or training p... No Is Selected

What is the primary reason you are not attending a college or vocational program?

- ❍ Changed Career Goals (1)
- ❍ Can't get along with other students (2)
- ❍ Can't get along with teachers/administrators (3)
- ❍ Can't get child care (4)
- ❍ Changed career goals (5)
- ❍ Decided to get a job (6)
- ❍ Don't feel accepted (7)
- ❍ Didn't get the services I needed (8)
- ❍ Don't have time/schedule conflicts (9)
- ❍ Didn't get into the program I wanted (10)
- ❍ Don't like going to school (11)
- ❍ Don't have money to continue (12)
- ❍ Don't have the skills to continue (13)
- ❍ Failed required tests/exams (14)
- ❍ Finished courses I wanted (15)
- ❍ Friends aren't in school/dropping out (16)
- ❍ Got Married (17)
- ❍ Got pregnant/ had a child (18)
- ❍ Homeless/living on street/couch surfing (19)
- ❍ Illness/health problems (20)
- ❍ Involved in the criminal justice system (21)

- ❍ Joined military (22)
- ❍ Lack of appropriate curriculum (23)
- ❍ Lacked enough credits to graduate (24)
- ❍ Language difficulty (25)
- ❍ Moved (26)
- ❍ Need to take care of family responsibilities (27)
- ❍ Not important in my family (28)
- ❍ Parents/family don't want me to go (29)
- ❍ Poor Grades/ Not doing well (30)
- ❍ Problems with behavior (31)
- ❍ Religion (32)
- ❍ School too dangerous (33)
- ❍ School Vacation (34)
- ❍ Taking a break from school (35)
- ❍ Transportation problems (36)
- ❍ Wanted to travel (37)
- ❍ Was expelled/suspended (38)
- ❍ Other (39) _____

Answer If Are you currently enrolled in any education or training p... No Is Selected

Do you want to attend a college or vocational program in the next year?

- ❍ Yes (1)
- ❍ No (2)

Answer If Do you want to attend a college or vocational program in ... No Is Selected

What is the main reason you do not want to attend a college or vocational program in the next year?

- ❍ Changed Career Goals (1)
- ❍ Can't get along with other students (2)
- ❍ Can't get along with teachers/administrators (3)
- ❍ Can't get child care (4)
- ❍ Decided to get a job (5)
- ❍ Don't feel accepted (6)
- ❍ Don't get the services I needed (7)
- ❍ Don't have time/schedule conflicts (8)
- ❍ Didn't get into the program I wanted (9)
- ❍ Don't like going to school (10)
- ❍ Don't have money to continue (11)
- ❍ Don't have the skills to continue (12)
- ❍ Failed required tests/exams (13)
- ❍ Finished courses I wanted (14)
- ❍ Friends aren't in school/dropping out (15)
- ❍ Got Married (16)
- ❍ Got pregnant/ had a child (17)
- ❍ Homeless/living on street/couch surfing (18)
- ❍ Illness/health problems (19)

- ❍ Involved in the criminal justice system (20)
- ❍ Joined military (21)
- ❍ Lack of appropriate curriculum (22)
- ❍ Lacked enough credits to graduate (23)
- ❍ Language difficulty (24)
- ❍ Moved (25)
- ❍ Need to take care of family responsibilities (26)
- ❍ Not important in my family (27)
- ❍ Parents/family don't want me to go (28)
- ❍ Poor Grades/ Not doing well (29)
- ❍ Problems with behavior (30)
- ❍ Religion (31)
- ❍ School too dangerous (32)
- ❍ School Vacation (33)
- ❍ Taking a break from school (34)
- ❍ Transportation problems (35)
- ❍ Wanted to travel (36)
- ❍ Was expelled/suspended (37)
- ❍ Other (38) _____

Answer If Are you currently enrolled in any education or training p... Yes Is Selected

Does your school consider you a full-time or part-time student?

- ❍ Full-time (1)
- ❍ Part-time (2)
- ❍ I don't know (3)

Answer If Are you currently enrolled in any education or training p... Yes Is Selected

Have you completed one term (semester, quarter, course, etc.) of the program?

- ❍ Yes (1)
- ❍ No (2)

If No Is Selected, Then Skip To What is the primary reason you have n...

Answer If Are you currently enrolled in any education or training p... Yes Is Selected

What was your last GPA?

- ❍ My GPA was: (1) _____
- ❍ Don't Know (2)

Answer If Have you completed one term (semester, quarter, course, e... No Is Selected

What is the primary reason you have not completed one term of the program?

- ❍ Program still in session (1)
- ❍ Changed Career Goals (2)
- ❍ Couldn't get along with other students (3)
- ❍ Couldn't get along with teacher's/administrators (4)
- ❍ Couldn't get child care (5)
- ❍ Changed career goals (6)
- ❍ Decided to get a job (7)

- ❍ Didn't feel accepted (8)
- ❍ Didn't get the services I needed (9)
- ❍ Didn't have time/schedule conflicts (10)
- ❍ Didn't get into the program I wanted (11)
- ❍ Didn't like going to school (12)
- ❍ Didn't have money to continue (13)
- ❍ Didn't have the skills to continue (14)
- ❍ Decided to get a job (15)
- ❍ Failed required tests/exams (16)
- ❍ Friends weren't in school/dropping out (17)
- ❍ Got Married (18)
- ❍ Got pregnant/ had a child (19)
- ❍ Homeless/living on street/couch surfing (20)
- ❍ Illness/health problems (21)
- ❍ Involved in the criminal justice system (22)
- ❍ Joined military (23)
- ❍ Lack of appropriate curriculum (24)
- ❍ Language difficulty (25)
- ❍ Moved (26)
- ❍ Needed to take care of family responsibilities (27)
- ❍ Not important in my family (28)
- ❍ Parents/family didn't want me to go (29)
- ❍ Poor Grades/ Not doing well (30)
- ❍ Problems with behavior (31)
- ❍ Religion (32)
- ❍ School too dangerous (33)
- ❍ Taking a break from school (34)
- ❍ Transportation problems (35)
- ❍ Wanted to travel (36)
- ❍ Was expelled/suspended (37)
- ❍ Other (38) _____

Answer If Are you currently enrolled in any education or training p... Yes Is Selected

Do you think you will complete your program? (Persistence)

- ❍ Yes (1)
- ❍ No (2)

Answer If Do you think you will complete your program? (Persistence) No Is Selected

What is the primary reason you do not think you will complete your program?

- ❍ Changed Career Goals (1)
- ❍ Can't get along with other students (2)
- ❍ Can't get along with teacher's/administrators (3)
- ❍ Can't get child care (4)
- ❍ Decide to get a job (5)
- ❍ Don't feel accepted (6)
- ❍ Don't get the services I need (7)

- ❍ Don't have time/schedule conflicts (8)
- ❍ Didn't get into the program I wanted (9)
- ❍ Don't like going to school (10)
- ❍ Don't have money to continue (11)
- ❍ Don't have the skills to continue (12)
- ❍ Failed required tests/exams (13)
- ❍ Finished courses I wanted (14)
- ❍ Friends aren't in school/dropping out (15)
- ❍ Marriage (16)
- ❍ Pregnant/ had a child (17)
- ❍ Homeless/living on street/couch surfing (18)
- ❍ Illness/health problems (19)
- ❍ Involved in the criminal justice system (20)
- ❍ Joined military (21)
- ❍ Lack of appropriate curriculum (22)
- ❍ Lacked enough credits to graduate (23)
- ❍ Language difficulty (24)
- ❍ Moved (25)
- ❍ Need to take care of family responsibilities (26)
- ❍ Not important in my family (27)
- ❍ Parents/family don't want me to go (28)
- ❍ Poor Grades/ Not doing well (29)
- ❍ Problems with behavior (30)
- ❍ Religion (31)
- ❍ School too dangerous (32)
- ❍ School Vacation (33)
- ❍ Taking a break from school (34)
- ❍ Transportation problems (35)
- ❍ Want to travel (36)
- ❍ Was expelled/suspended (37)

Other (38) _____

Answer If Are you currently enrolled in any education or training p... Yes Is Selected

Have you requested disability support services for your program? (Disability Awareness)

- ❍ Yes (1)
- ❍ No (2)

Answer If Have you requested disability support services in this se... Yes Is Selected

Do you receive disability support services requested? (Disability Awareness)

- ❍ Yes (1)
- ❍ No (2)

Answer If Have you requested disability support services in this se... Yes Is Selected

Do you think you get enough disability support services at the school? (Disability Awareness)

- ❍ Yes (1)
- ❍ No (2)

Did you attend any career development, vocational, or employment training program while you were in high school?

- ❍ Yes (1)
- ❍ No (2)

Answer If Did you attend any career development, vocational, or emp... Yes Is Selected

Describe the types of programs in which you attended during high school

- ❑ Career awareness day (1)
- ❑ College visits (2)
- ❑ Internships/ Apprentice (3)
- ❑ Job Corps (4)
- ❑ Job shadowing (5)
- ❑ Online Courses (6)
- ❑ Religious or Church sponsored mission (7)
- ❑ Short-term education or employment training (8)
- ❑ 2-or 4-year university (9)
- ❑ Vocational, technical, trade school (10)
- ❑ Other (11) _____

Answer If Did you attend any career development, vocational, or emp... Yes Is Selected And Describe the types of programs in which you attended duri... q://QID33/SelectedChoicesCount Is Greater Than or Equal to 1

Did you Complete the program you attended during high school?

- ❍ Yes (1)
- ❍ No (2)

Answer If Did you Complete the program you attended during high sch... No Is Selected

What is the primary reason you chose not to complete the program in which you were enrolled?

- ❍ Changed Career Goals (1)
- ❍ Couldn't get along with other students (2)
- ❍ Couldn't get along with teacher's/administrators (3)
- ❍ Couldn't get child care (4)
- ❍ Changed career goals (5)
- ❍ Decided to get a job (6)
- ❍ Didn't feel accepted (7)
- ❍ Didn't get the services I needed (8)
- ❍ Didn't have time/schedule conflicts (9)
- ❍ Didn't get into the program I wanted (10)
- ❍ Didn't like going to school (11)
- ❍ Didn't have money to continue (12)
- ❍ Didn't have the skills to continue (13)

- ❍ Decided to get a job (14)
- ❍ Failed required tests/exams (15)
- ❍ Finished courses I wanted (16)
- ❍ Friends weren't in school/dropping out (17)
- ❍ Got Married (18)
- ❍ Got pregnant/ had a child (19)
- ❍ Homeless/living on street/couch surfing (20)
- ❍ Illness/health problems (21)
- ❍ Involved in the criminal justice system (22)
- ❍ Joined military (23)
- ❍ Lack of appropriate curriculum (24)
- ❍ Lacked enough credits to graduate (25)
- ❍ Language difficulty (26)
- ❍ Moved (27)
- ❍ Needed to take care of family responsibilities (28)
- ❍ Not important in my family (29)
- ❍ Parents/family didn't want me to go (30)
- ❍ Poor Grades/ Not doing well (31)
- ❍ Problems with behavior (32)
- ❍ Religion (33)
- ❍ School too dangerous (34)
- ❍ School Vacation (35)
- ❍ Taking a break from school (36)
- ❍ Transportation problems (37)
- ❍ Wanted to travel (38)
- ❍ Was expelled/suspended (39)
- ❍ Other (40) _____

Are you currently working in a paid job?
- ❍ Yes (1)
- ❍ No (2)

Answer If Are you currently working in a paid job? No Is Selected

What is the primary reason you are not currently working in a paid job?
- ❍ Enrolled in training program, college, or university (1)
- ❍ Not interested in working (2)
- ❍ Do not have transportation (3)
- ❍ Cannot find any job (4)
- ❍ Cant find a job in the career I want (6)
- ❍ Work not be accepted (7)
- ❍ Do not have the skills to work (8)
- ❍ Drugs and/or alcohol (9)
- ❍ My housing is not stable enough for me to keep a job (10)
- ❍ Would not get the support I need to do a job (11)
- ❍ Do not have the information or help I need to find a job (12)
- ❍ Have money without needing to work (13)

- ❍ Involved in the criminal justice system (14)
- ❍ Child care not available (15)
- ❍ My family or other adults do not want me to work (16)
- ❍ Health problems (17)
- ❍ Would lose my benefits if I got to work (medical insurance, SSI) (18)
- ❍ Was fired from my last job (19)
- ❍ Quit last job (20)
- ❍ Other (21) _____

If Not interested in working Is Selected, Then Skip To For what reasons have you decided not...

Answer If Are you currently working in a paid job? Yes Is Selected

Have you had your current job more than three months?

- ❍ Yes (1)
- ❍ No (2)

Answer If Have you had your current job more than three months? No Is Selected

In the past year or since leaving high school, have you worked for a TOTAL of three months at any of your jobs?

- ❍ Yes (1)
- ❍ No (2)

Answer If Have you had your current job more than three months? Yes Is Selected

Do you make at least minimum wage ($7.25)

- ❍ Yes (1)
- ❍ No (2)

Answer If Have you had your current job more than three months? Yes Is Selected

Do you work at least 20 hours a week, every week?

- ❍ Yes (1)
- ❍ No (2)

Answer If Do you work at least 20 hours a week, every week? No Is Selected

Do you work an average of 20 hours a week? (i.e. 15 hours one week, and then 25 hours the next week)?

- ❍ Yes (1)
- ❍ No (2)

Answer If Have you had your current job more than three months? Yes Is Selected

How much are you are you allowed to work?

- ❍ I am allowed to have a job with no restrictions (1)
- ❍ I am allowed to have a job as long as it doesn't interfere with school (2)
- ❍ I am allowed to have a job with restrictions (close to home, not late hours, etc.) (3)
- ❍ My job opportunities are limited to doing the chores where I live (4)

Answer If Do you work at least 20 hours a week, every week? Yes Is Selected
What bests describes your job?

- ❍ In a company, business, or service (1)
- ❍ In the military (2)
- ❍ In supported employment (Paid work in a community setting with on-going support services with job coach) (3)
- ❍ Self-employed (4)
- ❍ In your family's business (5)
- ❍ In sheltered employment (6)
- ❍ Employed while in jail or prison (7)
- ❍ Other (8) _____

Answer If Have you had your current job more than three months? Yes Is Selected
How did you find your job?

- ❍ Newspaper (1)
- ❍ Completed/submitted applications (2)
- ❍ Working with an employment agency or service (e.g. Department of Labor) (3)
- ❍ Getting help from a job coach or supported employment (4)
- ❍ Using a job training service (5)
- ❍ Talking with family or friends (6)
- ❍ Working with an agency for people with disabilities (e.g. Rehabilitation Services) (7)
- ❍ Had this job as a work experience or training setting while in high school (8)
- ❍ Other (9) _____

Answer If Have you had your current job more than three months? Yes Is Selected
At your job did you receive any of these benefits (check all that apply)?

- ❑ Vacation (1)
- ❑ Sick Days (2)
- ❑ Health Insurance (3)
- ❑ Pension/Retirement (4)
- ❑ Free or Reduced cost of food (5)
- ❑ Free or Reduced cost of services (6)
- ❑ Other (7) _____

Answer If Have you had your current job more than three months? Yes Is Selected
Is your job in a career area that interests you most?

- ❍ Yes (1)
- ❍ No (2)

Answer If Have you had your current job more than three months? Yes Is Selected
Have you requested accommodations at your job?

- ❍ Yes (1)
- ❍ No (2)

Answer If Have you had your current job more than three months? Yes Is Selected
Do you receive accommodations at your job?
- ❍ Yes (1)
- ❍ No (2)

Answer If Have you had your current job more than three months? Yes Is Selected
How well do you get along with your boss?
- ❍ Very Well (1)
- ❍ Pretty Well (2)
- ❍ Mixed (3)
- ❍ Not Very Well (4)
- ❍ Not Well at All (5)

Answer If Have you had your current job more than three months? Yes Is Selected
How well do you get along with your coworkers?
- ❍ Very Well (1)
- ❍ Pretty Well (2)
- ❍ Mixed (3)
- ❍ Not Very Well (4)
- ❍ Not Well at All (5)

Answer If In the past year or since leaving high school, have you w... Yes Is Selected
Of the jobs you worked for three months or more, did you make at least minimum wage ($7.25)
- ❍ Yes (1)
- ❍ No (2)

Answer If In the past year or since leaving high school, have you w... Yes Is Selected
Of the jobs you have worked for 3 months or more, did you work at least 20 hours a week every week?
- ❍ Yes (1)
- ❍ No (2)

Answer If Of the jobs you have worked for 3 months or more, did you... No Is Selected
Did you work an average of 20 hours per week? For example, 15 hours one week, and then 25 hours the next week?
- ❍ Yes (1)
- ❍ No (2)

Answer If In the past year or since leaving high school, have you w... Yes Is Selected
How much are you are you allowed to work?
- ❍ I am allowed to have a job with no restrictions (1)
- ❍ I am allowed to have a job as long as it doesn't interfere with school (2)
- ❍ I am allowed to have a job with restrictions (close to home, not late hours, etc.) (3)
- ❍ My job opportunities are limited to doing the chores where I live (4)

Answer If In the past year or since leaving high school, have you w... Yes Is Selected

What bests describes your past job?

- ❍ In a company, business, or service (1)
- ❍ In the military (2)
- ❍ In supported employment (Paid work in a community setting with on-going support services with job coach (3)
- ❍ Self-employed (4)
- ❍ In your family's business (5)
- ❍ In sheltered employment (6)
- ❍ Employed while in jail or prison (7)
- ❍ Other (8) _____

Answer If In the past year or since leaving high school, have you w... Yes Is Selected

How did you find your job?

- ❍ Newspaper (1)
- ❍ Completed/submitted applications (2)
- ❍ Working with an employment agency or service (e.g. Department of Labor) (3)
- ❍ Getting help from a job coach or supported employment (4)
- ❍ Using a job training service (5)
- ❍ Talking with family or friends (6)
- ❍ Working with an agency for people with disabilities (e.g. Rehabilitation Services) (7)
- ❍ Had this job as a work experience or training setting while in high school (8)
- ❍ Other (9) _____

Answer If In the past year or since leaving high school, have you w... Yes Is Selected

At your job did you receive any of these benefits (check all that apply)?

- ❑ Vacation (1)
- ❑ Sick Days (2)
- ❑ Health Insurance (3)
- ❑ Pension/Retirement (4)
- ❑ Free or Reduced cost of food (5)
- ❑ Free or Reduced cost of services (6)
- ❑ Other (7) _____

Answer If In the past year or since leaving high school, have you w... Yes Is Selected

Was the job you had for more than three months in the career area that interests you most?

- ❍ Yes (1)
- ❍ No (2)

Answer If In the past year or since leaving high school, have you w... Yes Is Selected

Did you request accommodations at the job you had for more than three months?

- ❍ Yes (1)
- ❍ No (2)

Answer If In the past year or since leaving high school, have you w... Yes Is Selected

Did you receive accommodations at the job you had for more than three months?

- ❍ Yes (1)
- ❍ No (2)

Answer If In the past year or since leaving high school, have you w... Yes Is Selected

How well did you get a long with your boss at the job you had for more than three months?

- ❍ Very Well (1)
- ❍ Pretty Well (2)
- ❍ Mixed (3)
- ❍ Not Very Well (4)
- ❍ Not Well At All (5)

Answer If In the past year or since leaving high school, have you w... Yes Is Selected

How well did you get a long with your coworkers at the job you had for more than three months?

- ❍ Very Well (1)
- ❍ Pretty Well (2)
- ❍ Mixed (3)
- ❍ Not Very Well (4)
- ❍ Not Well At All (5)

Answer If Are you currently working in a paid job? No Is Selected

Are you actively looking for work?

- ❍ Yes (1)
- ❍ No (2)

Answer If Are you Actively working for work? Yes Is Selected

What have you done in the past month to find a job? (Mark all that apply)

- ❑ Nothing (1)
- ❑ Checked with state or private employment agency (2)
- ❑ Checked with a military recruiter (3)
- ❑ Checked with employer directly (4)
- ❑ Checked with a family member (5)
- ❑ Checked with friends/acquaintances (6)
- ❑ Placed/answered ads (7)
- ❑ Looked in the newspaper (8)
- ❑ Checked on the web/computer job listings (9)
- ❑ Used a school employment agency (10)
- ❑ Applied for jobs (11)
- ❑ Other (12) _____

Answer If Are you actively looking for work? No Is Selected Or What is the primary reason you are not currently working ... Not interested in working Is Selected

For what reasons have you decided not to look for work? (Mark all that apply)

- ❑ Didn't want to look/it was too hard to look (1)
- ❑ Going to school/training program (2)
- ❑ Don't want to work/need the money (3)
- ❑ Don't know how to find a job (4)
- ❑ Available jobs aren't worth having/interesting (5)
- ❑ Tried to get a job but couldn't/ no one will hire me (6)
- ❑ No jobs available (7)
- ❑ Parents don't want me to work (8)
- ❑ Jobs are too hard to get to/ transportation problems (9)
- ❑ Would lose SSI/Disability/Unemployment benefits (10)
- ❑ Have a job that hasn't started yet/waiting to hear about a job/program which I've applied (11)
- ❑ Illness/disability (12)
- ❑ Incarcerated (13)
- ❑ Other (14) _____

Please state two goals you have for next year

Please state two goals you have for the next five years

Please describe one goal you have met in the last year and how you met it.

Do you remember your IEP transition goals from high school?
- ❍ Yes (1)
- ❍ No (2)

Answer If Do you remember your IEP transition goals from high school? Yes Is Selected

How useful were your parents in helping you meet the goals of your IEP transition plans?
- ❍ Not helpful at all (1)
- ❍ A little helpful (2)
- ❍ Pretty helpful (3)
- ❍ Very helpful (4)
- ❍ Not applicable (5)

Answer If Do you remember your IEP transition goals from high school? Yes Is Selected

How useful were your Special Education Teacher(s) in helping you meet the goals of your IEP transition plans?
- ❍ Not helpful at all (1)
- ❍ A little helpful (2)
- ❍ Pretty helpful (3)
- ❍ Very helpful (4)
- ❍ Not applicable (5)

Answer If Do you remember your IEP transition goals from high school? Yes Is Selected

How useful were your teachers in helping you meet the goals of your IEP transition plans?

- ❍ Not helpful at all (1)
- ❍ A little helpful (2)
- ❍ Pretty helpful (3)
- ❍ Very helpful (4)
- ❍ Not applicable (5)

Answer If Do you remember your IEP transition goals from high school? Yes Is Selected

How useful were your Rehabilitation Services caseworker in helping you meet the goals of your IEP transition plans?

- ❍ Not helpful at all (1)
- ❍ A little helpful (2)
- ❍ Pretty helpful (3)
- ❍ Very helpful (4)
- ❍ Not applicable (5)

Answer If Do you remember your IEP transition goals from high school? Yes Is Selected

How useful were your IEP Case Manager in helping you meet the goals of your IEP transition plans?

- ❍ Not helpful at all (1)
- ❍ A little helpful (2)
- ❍ Pretty helpful (3)
- ❍ Very helpful (4)
- ❍ Not applicable (5)

Answer If How useful were your Rehabilitation Services caseworker i... Not applicable Is Not Selected

Do you know who your Rehabilitation Services (Vocational Rehab) caseworker is?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Not Applicable (3)

Have you received help for any of the following since leaving high school? (Mark all that apply)

- ❑ Financial Assistance (1)
- ❑ Disability Assistance (2)
- ❑ Health/Insurance Assistance (3)
- ❑ Housing Assistance (4)
- ❑ Legal Assistance (5)
- ❑ Other (6) _____

Answer If Do you know who your Rehabilitation Services (Vocational ... Yes Is Selected

How often do you communicate with your Vocational Rehabilitation Services caseworker?

- ❍ Never (1)
- ❍ Daily (2)
- ❍ Weekly (3)
- ❍ Monthly (4)
- ❍ Yearly (5)

Answer If Do you know who your Rehabilitation Services (Vocational ... Yes Is Selected

How well does your Vocational Rehabilitation Services caseworker respond to your needs?

- ❍ Very Well (1)
- ❍ Pretty Well (2)
- ❍ Mixed (3)
- ❍ Not Very Well (4)
- ❍ Not Well At All (5)

Answer If Do you know who your Rehabilitation Services (Vocational ... Yes Is Selected

How long have you had this Vocational Rehabilitation Services caseworker?

Answer If Do you know who your Rehabilitation Services (Vocational ... Yes Is Selected

Did you have the same Vocational Rehabilitation Service caseworker in high school that you have now?

- ❍ Yes (1)
- ❍ No (2)

Do you use the phone/internet as often as you would like?

- ❍ Yes (1)
- ❍ No (2)

Which best describes how much you are allowed to use the phone/internet to communicate with others?

- ❍ I have no limits on using the telephone or internet to communicate with others (1)
- ❍ I have only a few guidelines about using the telephone or internet, but no firm rules (2)
- ❍ I have some rules that limit me using the telephone or internet (for example: time limits) (3)
- ❍ I have very limited access, with many rules about using the telephone or internet (4)

- ❍ I am usually not allowed to communicate via telephone or internet (5)

Do you go out into the community as often as you would like?
- ❍ Yes (1)
- ❍ No (2)

Which best describes how much you are allowed to do out in the community?
- ❍ I can go wherever I want in the community, whenever I want (1)
- ❍ My freedom is limited slightly (for example: certain places off limits, curfew) (2)
- ❍ I can go outside but must always have an escort (3)
- ❍ I am usually not allowed to leave the place I live (4)

Where do you currently live?
- ❍ By myself in my own house/apartment (1)
- ❍ Apartment with other people (2)
- ❍ Home, with relative (3)
- ❍ Group home (4)
- ❍ Residential Center (5)
- ❍ Transition housing/center (6)
- ❍ College dorm (7)
- ❍ Military barracks (8)
- ❍ Job corps housing (9)
- ❍ Homeless (living on street, or couch surfing) (10)
- ❍ Shelter (11)
- ❍ Choose not to answer (12)
- ❍ Other (13) _____

Is this the same place you lived one year ago?
- ❍ Yes (1)
- ❍ No (2)

Before you left high school, did you know where you would be living after high school?
- ❍ Yes (1)
- ❍ No (2)

Do you have a partner/spouse living with you right now?
- ❍ Yes (1)
- ❍ No (2)

Do you have children?
- ❍ Yes (1)
- ❍ No (2)

Answer If Do you have children? Yes Is Selected
How old are your children?

Answer If Do you have children? Yes Is Selected

How much time do you spend directly caring for your children?

- ❍ Daily Care (1)
- ❍ Weekend Care (2)
- ❍ Frequent Care as needed (3)
- ❍ Occasional Care as needed (4)
- ❍ Rarely (5)
- ❍ None at all (6)

Answer If How much time do you spend directly caring for your child... None at all Is Selected

Please Explain

Are there children other than your own living in your home?

- ❍ Yes (1)
- ❍ No (2)

Answer If Are there children other than your own living in your home? Yes Is Selected

What is your relationship to these children?

Answer If Are there children other than your own living in your home? Yes Is Selected

How old are these children?

Answer If Are there children other than your own living in your home? Yes Is Selected

How much time do you spend directly caring for these children?

- ❍ Daily Care (1)
- ❍ Weekend Care (2)
- ❍ Frequent Care as needed (3)
- ❍ Occasional Care as needed (4)
- ❍ Rarely (5)
- ❍ None at all (6)

What is your primary method of transportation?

- ❍ Walk (1)
- ❍ Ride a bike, scooter, or skateboard (2)
- ❍ Drive a vehicle (3)
- ❍ Ride a public bus or mass transit (4)
- ❍ Ride a taxi (5)
- ❍ Use mobility assistance (6)
- ❍ Ask friends or family to take me places (7)

Other (8) _____

Since leaving high school, have you had problems in any of the following areas? (Mark all that Apply)

- ❑ Became disabled (1)
- ❑ Can't find a job (2)

- ❑ Financial problems (3)
- ❑ Getting health insurance (4)
- ❑ Getting medical care (5)
- ❑ Legal problems (6)
- ❑ Loss of benefits, such as SSI, if I work (7)
- ❑ Loss of a friend/family member (8)
- ❑ Not having enough money to live on (9)
- ❑ Not having a place to live (10)
- ❑ Not having transportation to visit friends or work (11)
- ❑ Not having help from a service agency (12)
- ❑ Not understanding where to go for help (13)
- ❑ Not having friends (14)
- ❑ Not having a boyfriend/girlfriend (15)
- ❑ Not getting along with boss/co-workers (16)
- ❑ Parent(s) doesn't/don't agree with what I want to do (17)
- ❑ None (18)

In the past 12 months have you run away?
- ❍ Yes (1)
- ❍ No (2)

Answer If In the past 12 months have you run away? Yes Is Selected
How many times have you run away in the past 12 months?

Answer If In the past 12 months have you run away? Yes Is Selected
How many nights total have you run away?

Since leaving high school, have you received help for alcohol or drug abuse?
- ❍ Yes (1)
- ❍ No (2)

Since leaving high school, have you been arrested?
- ❍ Yes (1)
- ❍ No (2)

Answer If Since leaving high school, have you been arrested? Yes Is Selected
Were you convicted of a felony?
- ❍ Yes (1)
- ❍ No (2)

Do you have any of the following in your own name? (Mark all that apply)
- ❑ An allowance or trust (1)
- ❑ Checking account (2)
- ❑ Debit/ATM card (3)
- ❑ Savings account (4)
- ❑ Credit card in your name (5)

- ❑ College financial aid (6)
- ❑ Money market/stocks/bonds (7)
- ❑ Other (8) _____

Rate your health now.
- ❍ Poor (1)
- ❍ Fair (2)
- ❍ Good (3)
- ❍ Very Good (4)
- ❍ Excellent (5)

Rate your health now compared to one year ago.
- ❍ Much Better (1)
- ❍ Better (2)
- ❍ Somewhat Better (3)
- ❍ About the Same (4)
- ❍ Somewhat Worse (5)
- ❍ Worse (6)
- ❍ Much Worse (7)

Rate your happiness now.
- ❍ Poor (1)
- ❍ Fair (2)
- ❍ Good (3)
- ❍ Very Good (4)
- ❍ Excellent (5)

Rate your happiness now compared to one year ago.
- ❍ Much Better (1)
- ❍ Better (2)
- ❍ Somewhat Better (3)
- ❍ About the Same (4)
- ❍ Somewhat Worse (5)
- ❍ Worse (6)
- ❍ Much Worse (7)

Appendix D: Univariate Logistic and Poisson Regression Results for Each Outcome of Interest

Table 21

Statistics for Univariate Logistic Regression Models for Postsecondary Education Outcome, "Has the student been enrolled in an education or training program since leaving high school?"

	N	Wald X^2	p-val
TAGG Professional Constructs			
Strengths and Limitations	293	0.17	0.68
Disability Awareness	291	0.76	0.38
Persistence	292	1.87	0.17*
Interacting with Others	292	8.97	0.003*
Goal Setting and Attainment	293	1.67	0.20*
Employment	293	0.90	0.34
Student Involvement in the IEP	291	0.15	0.70
Support Community	291	6.16	0.01*
TAGG Family Constructs			
Strengths and Limitations	184	3.62	0.06*
Disability Awareness	186	1.47	0.22*
Persistence	186	0.65	0.42
Interacting with Others	186	0.02	0.88
Goal Setting and Attainment	186	0.03	0.87
Employment	183	0.01	0.92

Student Involvement in the IEP	183	0.00	0.97
Support Community	183	0.19	0.67
TAGG Student Constructs			
Strengths and Limitations, Supports	289	0.15	0.71
Disability Awareness	291	0.12	0.73
Persistence	292	0.06	0.81
Interacting with Others	292	1.70	0.19*
Goal Setting and Attainment	292	0.21	0.65
Employment	291	1.23	0.27
Student Involvement in the IEP	290	0.05	0.82

Note. N is the number of observations used in univariate model. Wald X^2 is a test of the overall fit of the model. P-values designated with * indicate constructs that were entered into the multivariate logistic regression model. Multivariate models were run for each assessment version.

Table 22

Statistics for Univariate Poisson Regression Models for Postsecondary Education Outcome, "Is the student currently participating in any skill- or experience- building program that required formal admission?"

	N	Wald X^2	p-val
TAGG Professional Constructs			
Strengths and Limitations	294	1.40	0.24*
Disability Awareness	292	1.90	0.17*
Persistence	293	0.14	0.70
Interacting with Others	293	0.77	0.38

Goal Setting and Attainment	294	0.08	0.78
Employment	294	0.75	0.39
Student Involvement in the IEP	292	0.34	0.56
Support Community	292	1.94	0.16*
TAGG Family Constructs			
Strengths and Limitations	185	0.03	0.86
Disability Awareness	187	0.20	0.66
Persistence	186	0.62	0.43
Interacting with Others	186	1.16	0.28
Goal Setting and Attainment	186	0.01	0.94
Employment	184	0.30	0.59
Student Involvement in the IEP	184	0.02	0.89
Support Community	184	0.12	0.73
TAGG Student Constructs			
Strengths and Limitations, Supports	290	3.50	0.06*
Disability Awareness	292	3.04	0.08*
Persistence	293	2.80	0.09*
Interacting with Others	293	0.79	0.37
Goal Setting and Attainment	293	2.14	0.14*
Employment	292	0.01	0.90
Student Involvement in the IEP	291	0.12	0.73

Note. N is the number of observations used in univariate model. Wald X^2 is a test of the overall fit of the model. P-values designated with * indicate constructs that were entered into the multivariate Poisson regression model. Multivariate models were run for each assessment version.

Table 23

Statistics for Univariate Logistic Regression Models for Postsecondary Education Outcome, "Is the student currently enrolled in an education or training program that takes place at a community college, junior college, university, or vocational school?"

	N	Wald X^2	p-val
TAGG Professional Constructs			
Strengths and Limitations	294	11.75	0.00*
Disability Awareness	292	18.64	< .0001*
Persistence	293	26.35	< .0001*
Interacting with Others	293	18.68	< .0001*
Goal Setting and Attainment	294	29.21	< .0001*
Employment	294	7.09	0.01*
Student Involvement in the IEP	292	24.14	< .0001*
Support Community	292	22.83	< .0001*
TAGG Family Constructs			
Strengths and Limitations	185	.18	0.67
Disability Awareness	187	1.86	0.17*
Persistence	186	3.61	0.06*
Interacting with Others	186	1.29	0.26
Goal Setting and Attainment	186	7.65	0.01*
Employment	184	1.21	0.27
Student Involvement in the IEP	184	0.88	0.35
Support Community	184	2.35	0.12*

TAGG Student Constructs			
Strengths and Limitations, Supports	290	2.26	0.13*
Disability Awareness	292	3.12	0.08*
Persistence	293	6.14	0.01*
Interacting with Others	293	10.74	0.00*
Goal Setting and Attainment	293	5.64	0.02*
Employment	292	0.00	0.99
Student Involvement in the IEP	291	2.66	0.10*

Note. N is the number of observations used in univariate model. Wald X^2 is a test of the overall fit of the model. P-values designated with * indicate constructs that were entered into the multivariate logistic regression model. Multivariate models were run for each assessment version.

Table 24

Statistics for Univariate Logistic Regression Models for Postsecondary Employment outcome, "Is the student currently working in a paid job?"

	N	Wald X^2	p-val
TAGG Professional Constructs			
Strengths and Limitations	292	2.98	0.08*
Disability Awareness	290	1.45	0.23*
Persistence	291	0.37	0.54
Interacting with Others	291	2.85	0.09*
Goal Setting and Attainment	292	0.92	0.34
Employment			<
	292	15.81	.0001*

Student Involvement in the IEP	290	1.02	0.31
Support Community	290	0.73	0.39
TAGG Family Constructs			
Strengths and Limitations	184	0.03	0.86
Disability Awareness	186	0.73	0.39
Persistence	185	0.14	0.71
Interacting with Others	185	1.07	0.30
Goal Setting and Attainment	185	0.24	0.62
Employment	183	2.92	0.09*
Student Involvement in the IEP	183	3.08	0.08*
Support Community	183	0.05	0.82
TAGG Student Constructs			
Strengths and Limitations, Supports	288	0.00	0.97
Disability Awareness	290	0.69	0.41
Persistence	291	2.71	0.10*
Interacting with Others	291	0.84	0.36
Goal Setting and Attainment	291	0.18	0.67
Employment	290	0.01	0.94
Student Involvement in the IEP	289	3.09	0.08*

Note. N is the number of observations used in univariate model. Wald X^2 is a test of the overall fit of the model. P-values designated with * indicate constructs that were entered into the multivariate logistic regression model. Multivariate models were run for each assessment version.

Table 25

Statistics for Univariate Logistic Regression Models for Postsecondary Employment Outcome, "Is the student actively looking for work?"

	N	Wald X^2	p-val
TAGG Professional Constructs			
Strengths and Limitations	140	0.58	0.45
Disability Awareness	139	4.81	0.03*
Persistence	139	3.65	0.06*
Interacting with Others	139	0.47	0.49
Goal Setting and Attainment	140	1.91	0.17*
Employment	140	9.48	0.00*
Student Involvement in the IEP	138	2.16	0.14*
Support Community	138	1.76	0.18*
TAGG Family Constructs			
Strengths and Limitations	85	2.32	0.12*
Disability Awareness	86	0.58	0.44
Persistence	85	0.70	0.40
Interacting with Others	85	0.78	0.38
Goal Setting and Attainment	85	1.75	0.18*
Employment	84	3.19	0.07*
Student Involvement in the IEP	84	6.14	0.01*
Support Community	84	5.92	0.01*
TAGG Student Constructs			

Strengths and Limitations, Supports	137	0.16	0.69
Disability Awareness	140	0.01	0.93
Persistence	140	1.61	0.20*
Interacting with Others	140	0.08	0.78
Goal Setting and Attainment	140	7.31	0.01*
Employment	139	0.56	0.45
Student Involvement in the IEP	138	11.69	0.00*

Note. N is the number of observations used in univariate model. Wald X^2 is a test of the overall fit of the model. P-values designated with * indicate constructs that were entered into the multivariate logistic regression model. Multivariate models were run for each assessment version.

Table 26

Statistics for Univariate Logistic Regression Models for Postsecondary Employment Outcome, "Has the student had current job for more than three months?"

	N	Wald X^2	p-val
TAGG Professional Constructs			
Strengths and Limitations	146	0.84	0.36
Disability Awareness	145	3.17	0.08*
Persistence	146	3.96	0.05*
Interacting with Others	146	5.04	0.02*
Goal Setting and Attainment	146	0.12	0.73
Employment	146	0.79	0.37
Student Involvement in the IEP	146	0.04	0.84
Support Community	146	5.67	0.02*

TAGG Family Constructs			
Strengths and Limitations	96	0.14	0.71
Disability Awareness	97	1.15	0.28
Persistence	97	2.17	0.14*
Interacting with Others	97	1.97	0.16*
Goal Setting and Attainment	97	0.15	0.70
Employment	96	0.06	0.81
Student Involvement in the IEP	96	0.12	0.73
Support Community	96	0.00	0.96
TAGG Student Constructs			
Strengths, Supports and Limitations	145	0.45	0.50
Disability Awareness	144	0.02	0.89
Persistence	145	1.07	0.30
Interacting with Others	145	0.05	0.83
Goal Setting and Attainment	145	0.12	0.73
Employment	145	3.58	0.06*
Student Involvement in the IEP	145	0.54	0.46

Note. N is the number of observations used in univariate model. Wald X^2 is a test of the overall fit of the model. P-values designated with * indicate constructs that were entered into the multivariate logistic regression model. Multivariate models were run for each assessment version.

Table 27

Statistics for Univariate Poisson Regression Models for Postsecondary Employment Outcome, "Has the student had any job for more than three months?"

	N	Wald X^2	p-val
TAGG Professional Constructs			
Strengths and Limitations	146	0.06	0.81
Disability Awareness	145	0.16	0.69
Persistence	146	0.26	0.61
Interacting with Others	146	0.19	0.67
Goal Setting and Attainment	146	0.00	0.98
Employment	146	0.07	0.79
Student Involvement in the IEP	146	0.01	0.93
Support Community	146	0.48	0.49
TAGG Family Constructs			
Strengths and Limitations	96	0.00	0.95
Disability Awareness	97	0.07	0.80
Persistence	97	0.23	0.63
Interacting with Others	97	0.10	0.75
Goal Setting and Attainment	97	0.01	0.93
Employment	96	0.17	0.68
Student Involvement in the IEP	96	0.13	0.72
Support Community	96	0.00	0.95
TAGG Student Constructs			

Strengths and Limitations, Supports	145	0.21	0.65
Disability Awareness	144	0.02	0.89
Persistence	145	0.13	0.72
Interacting with Others	145	0.15	0.70
Goal Setting and Attainment	145	0.08	0.78
Employment	145	0.02	0.88
Student Involvement in the IEP	145	0.02	0.89

Note. N is the number of observations used in univariate model. Wald X^2 is a test of the overall fit of the model. P-values designated with * indicate constructs that were entered into the multivariate Poisson regression model. Multivariate models were run for each assessment version.

Table 28

Statistics for Univariate Logistic Regression Models for Postsecondary Employment Outcome, "Is the job in a career that interests the student the most?"

	N	Wald X^2	p-val
TAGG Professional Constructs			
Strengths and Limitations	262	2.81	0.09*
Disability Awareness	260	0.72	0.40
Persistence	261	0.83	0.36
Interacting with Others	261	2.97	0.09*
Goal Setting and Attainment	262	0.27	0.60
Employment	262	15.39	< .0001*
Student Involvement in the IEP	260	1.33	0.25*
Support Community	260	0.76	0.38

TAGG Family Constructs			
Strengths and Limitations	164	3.16	0.08*
Disability Awareness	166	4.94	0.03*
Persistence	165	3.39	0.07*
Interacting with Others	165	6.84	0.01*
Goal Setting and Attainment	165	3.08	0.08*
Employment	163	4.15	0.04*
Student Involvement in the IEP	163	6.44	0.01*
Support Community	163	3.05	0.08*
TAGG Student Constructs			
Strengths and Limitations, Supports	258	0.39	0.53
Disability Awareness	260	0.00	0.95
Persistence	261	2.75	0.10*
Interacting with Others	261	0.13	0.72
Goal Setting and Attainment	261	0.34	0.56
Employment	260	0.27	0.61
Student Involvement in the IEP	259	0.18	0.67

Note. N is the number of observations used in univariate model. Wald X^2 is a test of the overall fit of the model. P-values designated with * indicate constructs that were entered into the multivariate logistic regression model. Multivariate models were run for each assessment version.

Appendix E: ROC Curves for Significant Models

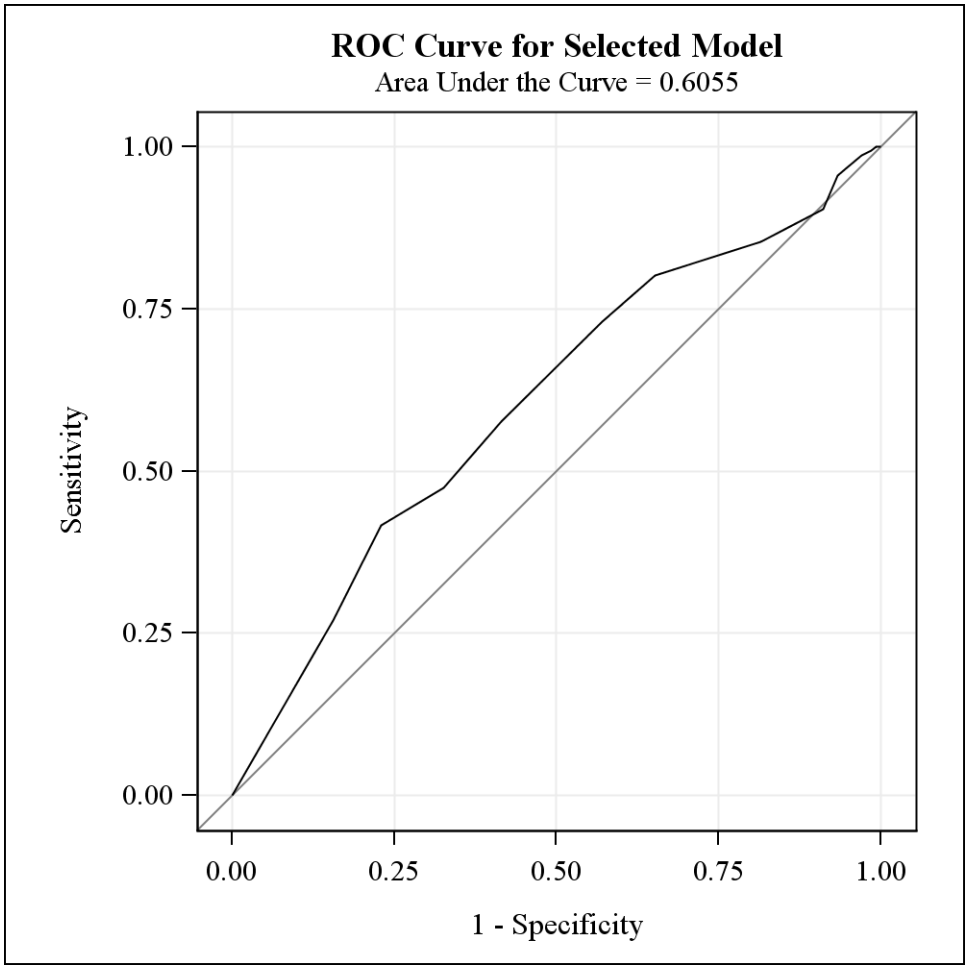

Figure 10. *TAGG-P* predictor Interacting with Others for the postsecondary education outcome, "Has the student been enrolled in an education or training program since leaving high school?" The model has some discriminatory power, but it is not strong.

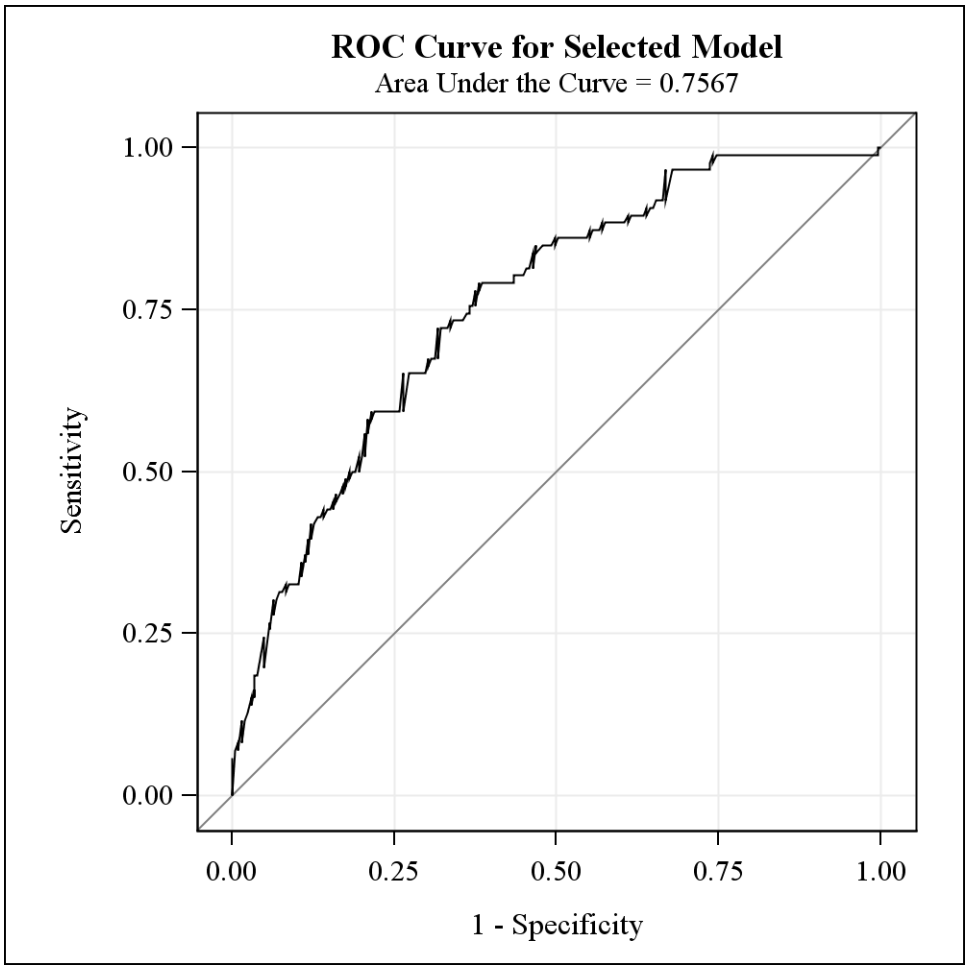

Figure 11. *TAGG-P* predictors Interacting with Others, Student Involvement in the IEP, and Support Community for the postsecondary education outcome, "Is the student currently enrolled in an education or training program?" Area under the curve indicates excellent discrimination of the model.

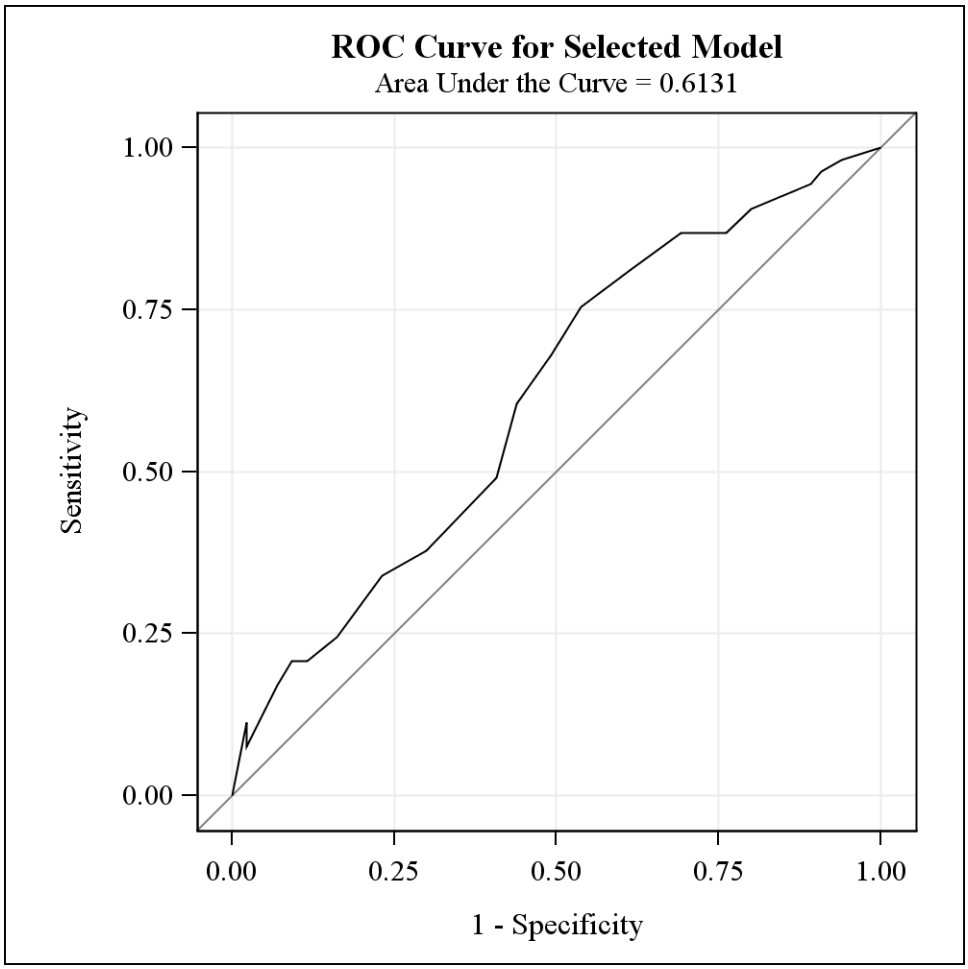

Figure 12. *TAGG-F* predictor Goal Setting and Attainment for the postsecondary education outcome, "Is the student currently enrolled in an education or training program?" The model has some discriminatory power, but it is not strong.

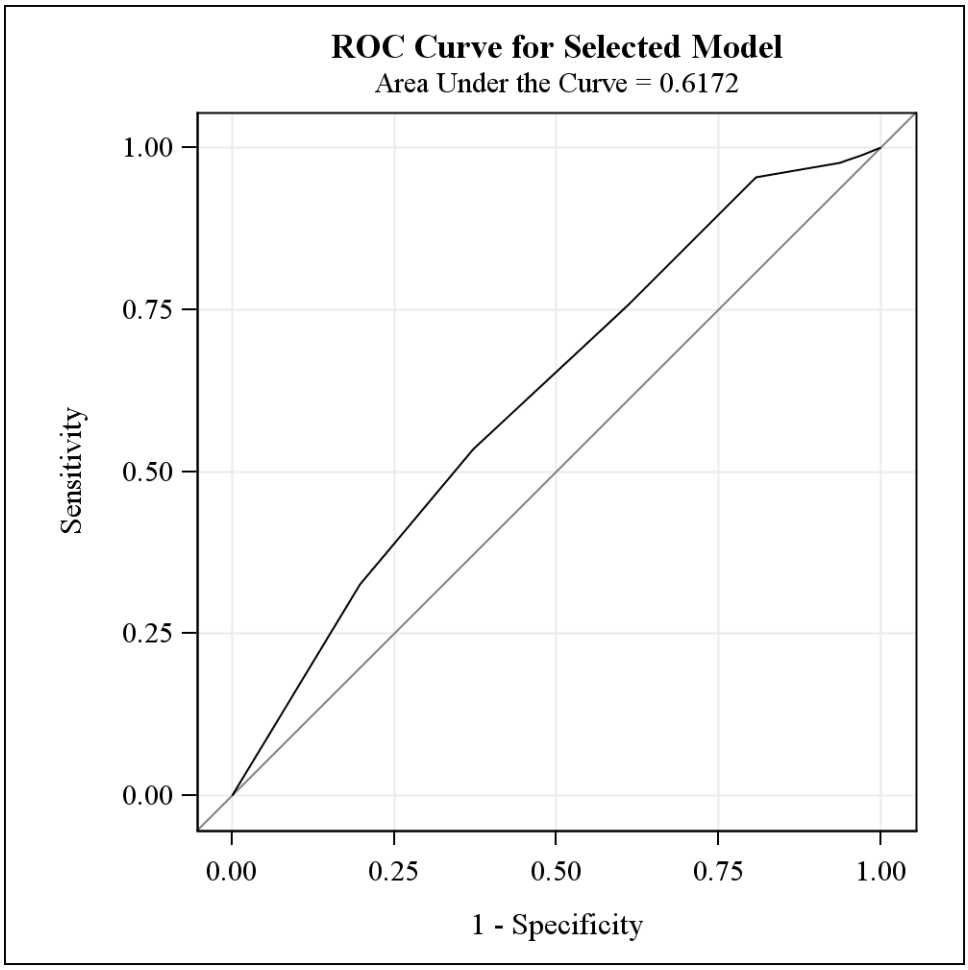

Figure 13. *TAGG-S* predictor Interacting with Others for the postsecondary education outcome, "Is the student currently enrolled in an education or training program?" The model has some discriminatory power, but it is not strong.

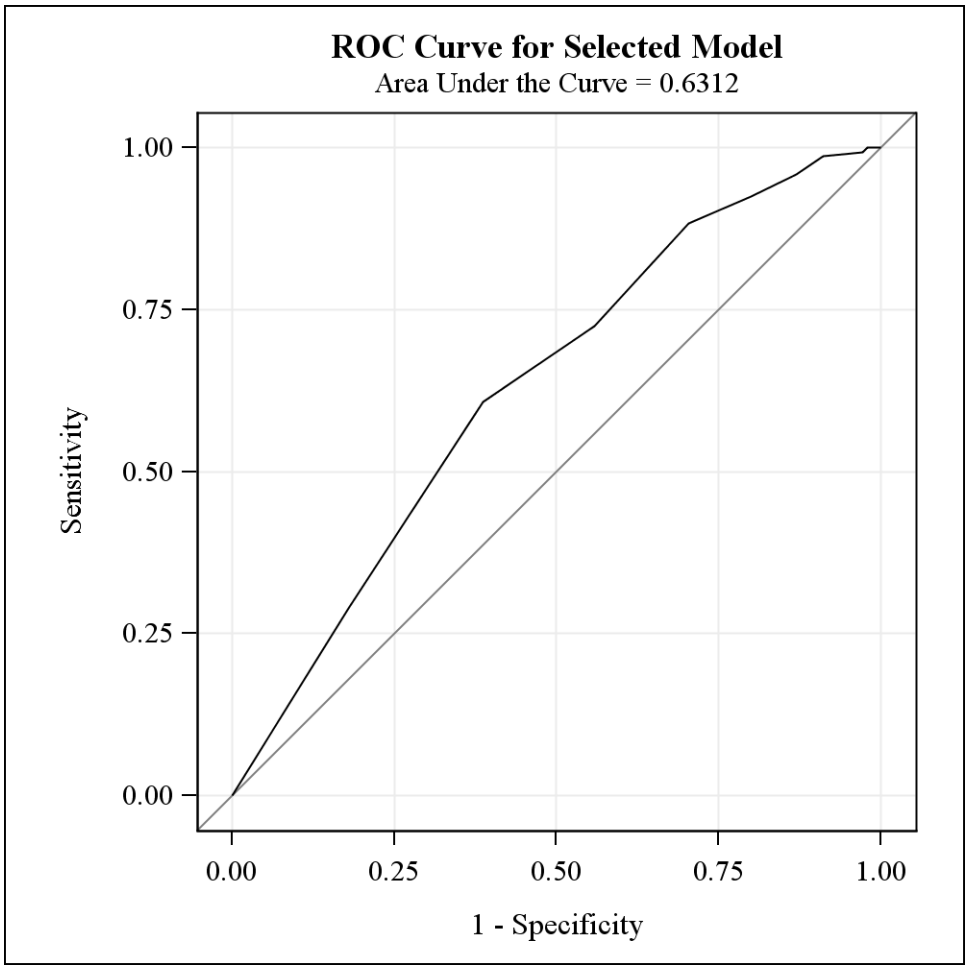

Figure 14. *TAGG-P* predictor Employment for the postsecondary education outcome, "Is the student currently working in a paid job?" The model has some discriminatory power, but it is not strong.

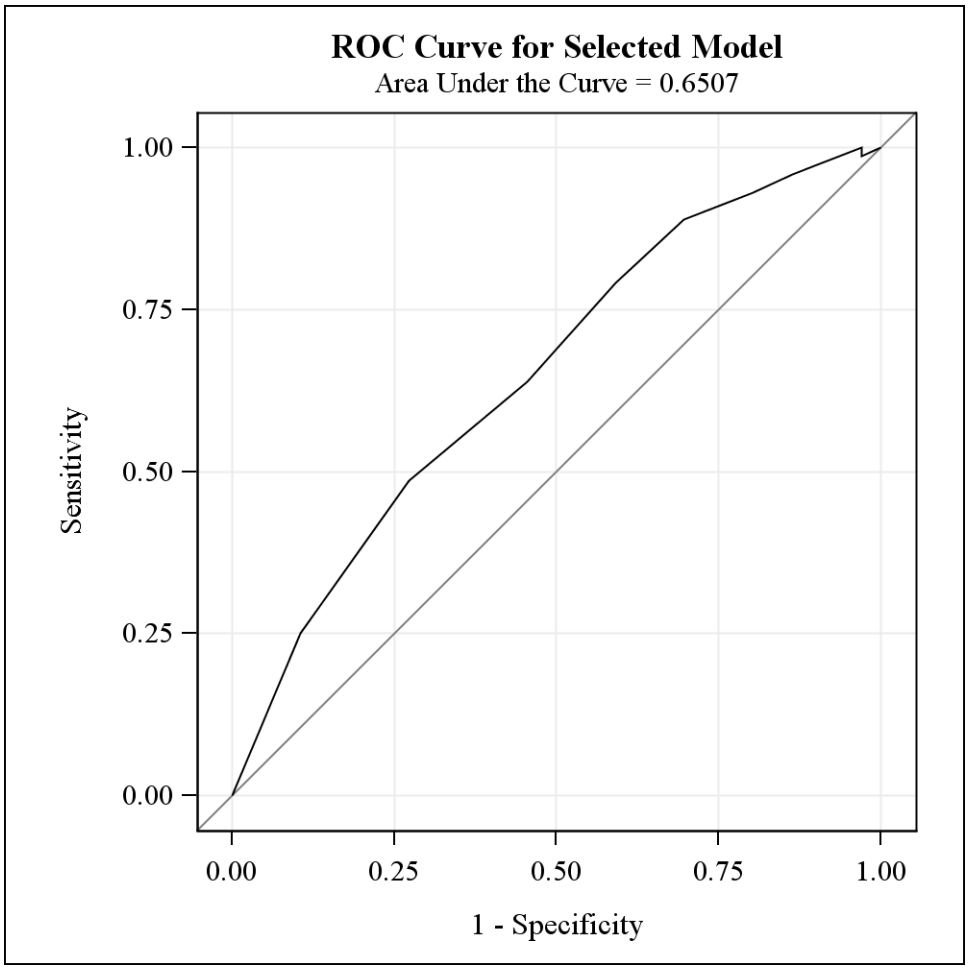

Figure 15. TAGG-P predictor Employment for the postsecondary education outcome, "Is the student actively looking for work?" Area under the curve indicates good discrimination of the model.

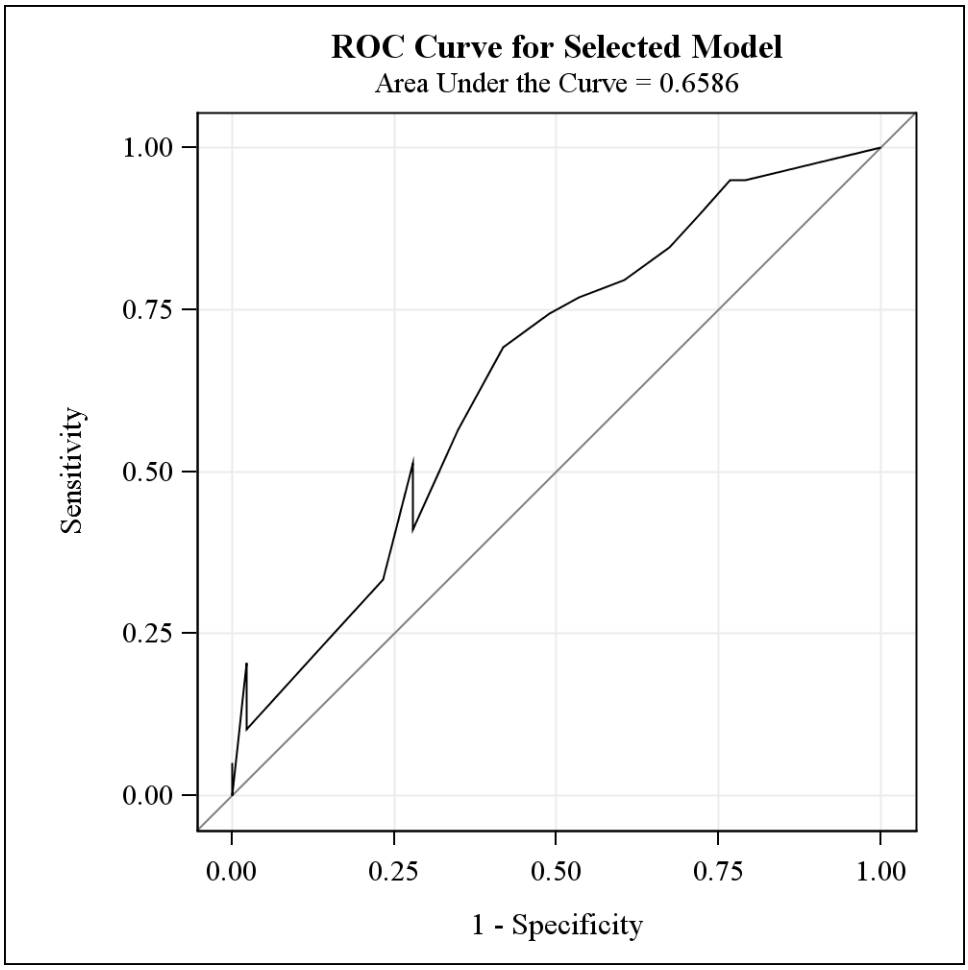

Figure 16. *TAGG-F* predictor Student Involvement in the IEP for the postsecondary education outcome, "Is the student actively looking for work?" Area under the curve indicates good discrimination of the model.

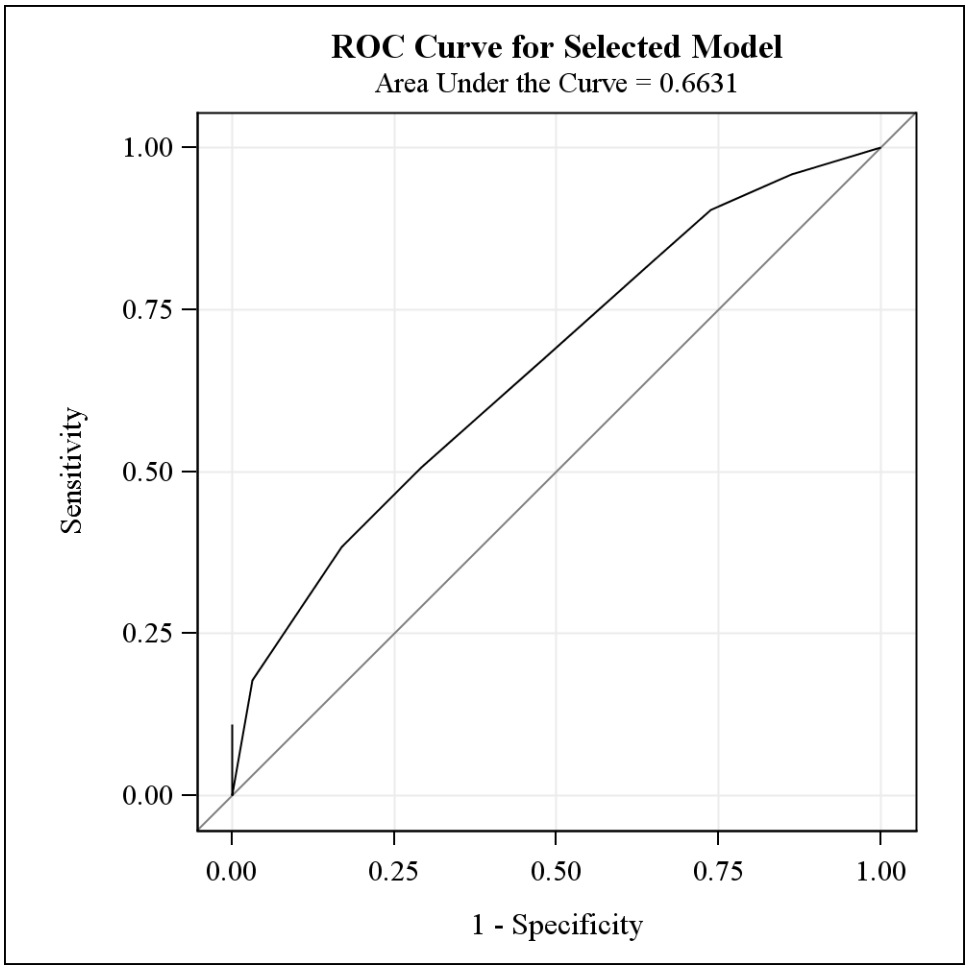

Figure 17. *TAGG-S* predictor Student Involvement in the IEP for the postsecondary education outcome, "Is the student actively looking for work?" Area under the curve indicates good discrimination of the model.

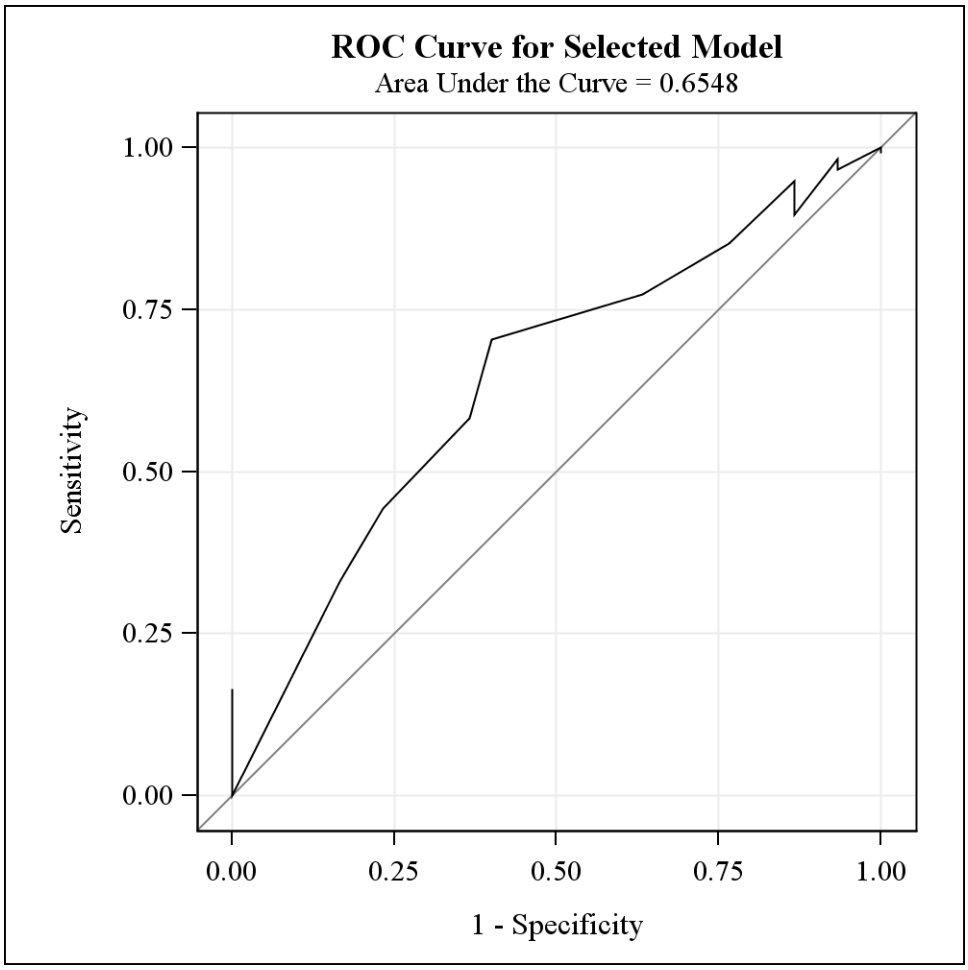

Figure 18. *TAGG-P* predictor Support Community for the postsecondary education outcome, "Has the student had current job for > 3 months?" Area under the curve indicates good discrimination of the model.

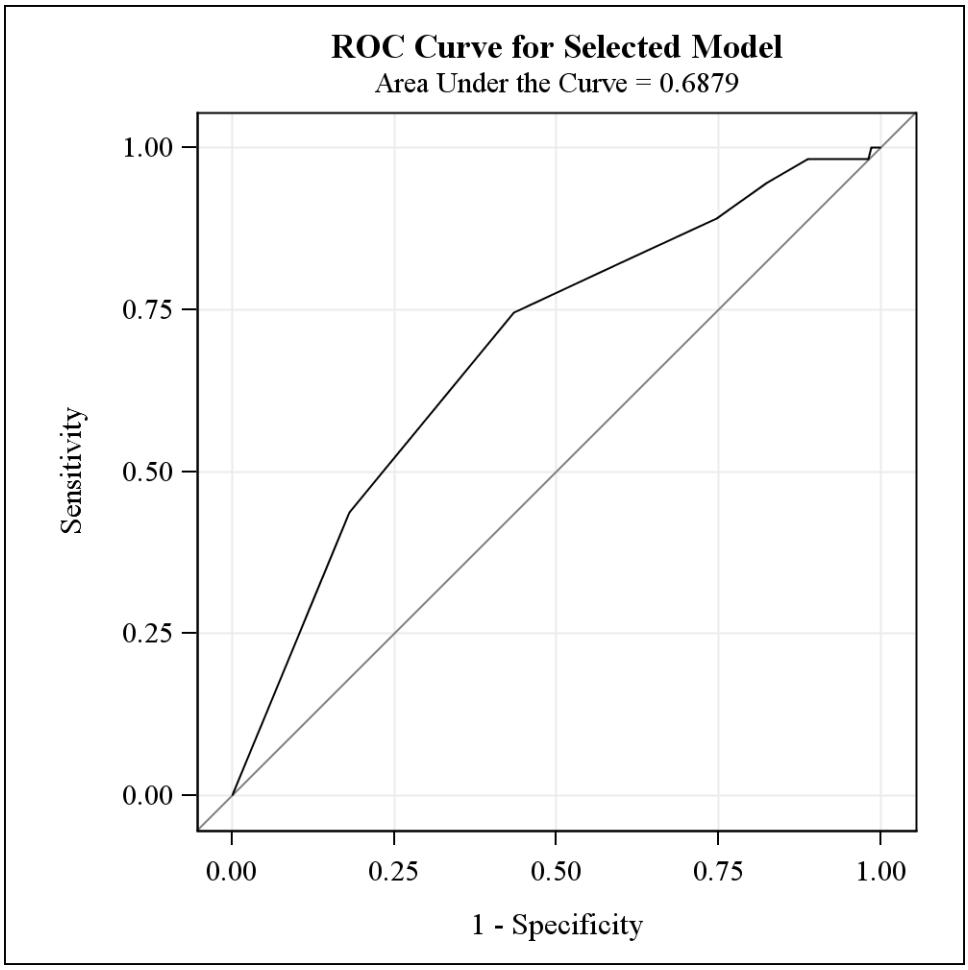

Figure 19. *TAGG-P* predictor Employment for the postsecondary education outcome, "Is your job in a career that interests you most?" Area under the curve indicates good discrimination of the model.

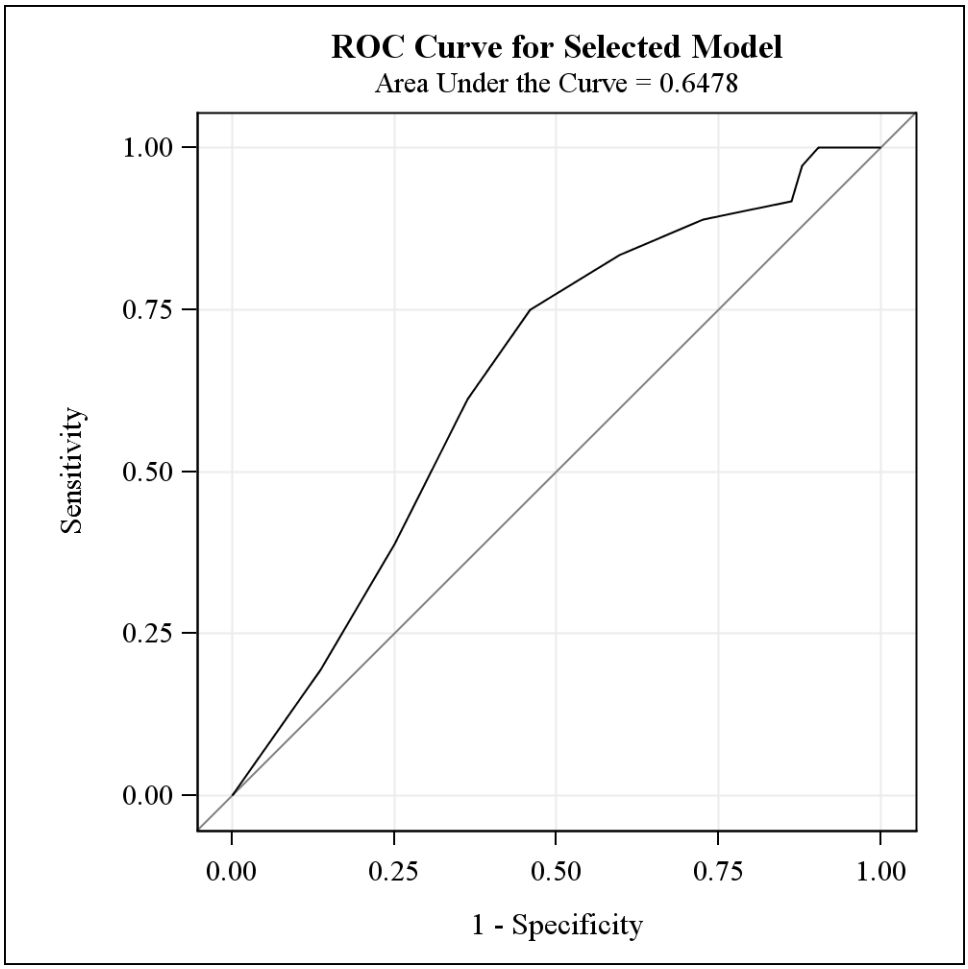

Figure 20. *TAGG-F* predictor Interacting with Others for the postsecondary education outcome, "Is your job in a career that interests you most?" Area under the curve indicates good discrimination of the model.

Appendix F: IRB Approval Letter

The UNIVERSITY of OKLAHOMA

Institutional Review Board for the Protection of Human Subjects

Continuing Review with Proposed Modification – Expedited Review – AP0

Date: January 15, 2015 **IRB#:** 0605

Principal Investigator: James E Martin, PHD **Approval Date:** 01/15/2015 **Expiration Date: 12/31/2015**

Expedited Category: 7 **Reference Number:** 635668

Study Title: NC-IRB 13020 Transition Success Assessment Development Project

Based on the information submitted, your study is currently: Active, open to enrollment. On behalf the Institutional Review Board (IRB), I have reviewed and approved your continuing review application. To view the documents approved for this submission, open this study from the *My Studies* option, go to *Submission History*, go to *Completed Submissions* tab and then click the *Details* icon.

Modification Summary:
Adding Phase V component, including new data collection instruments, recruitment materials, protocol, and consent forms.

As principal investigator of this research study, you are responsible to:

- Conduct the research study in a manner consistent with the requirements of the IRB and federal regulations 45 CFR 46.
- Obtain informed consent and research privacy authorization using the currently approved, stamped forms and retain all original, signed forms, if applicable.
- Request approval from the IRB prior to implementing any/all modifications.
- Promptly report to the IRB any harm experienced by a participant that is both unanticipated and related per IRB policy.
- Maintain accurate and complete study records for evaluation by the HRPP Quality Improvement Program and, if applicable, inspection by regulatory agencies and/or the study sponsor.
- Promptly submit continuing review documents to the IRB upon notification approximately 60 days prior to the expiration date indicated above.
- Submit a final closure report at the completion of the project.

You will receive notification approximately 60 days prior to the expiration date noted above. You are responsible for submitting continuing review documents in a timely fashion in order to maintain continued IRB approval.

If you have questions about this notification or using iRIS, contact the IRB @ 405-325-8110 or irb@ou.edu.

Cordially,

Aimee Franklin, Ph.D.
Chair, Institutional Review Board