STORIES FROM THE SPECTRUM:

HOW SPECIAL INTEREST AREAS AFFECT WRITING QUALITY FOR STUDENTS WITH AUTISM SPECTRUM DISORDERS

THESIS

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To Joe.

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Chapter 1 Statement of the Problem

The Center for Disease Control's Autism and Developmental Disabilities Monitoring Network found that, on average, one in 110 American children is classified as having an Autism Spectrum Disorder (ASD). That is approximately 1% of children, including one in 70 boys. The Center for Disease Control refers to ASD as "an urgent public health concern" (Rice, 2009). The prevalence of children with ASD in our school systems has led to a need for better understanding of ASD and how to most effectively instruct students on the spectrum.

Previous research on autism has focused on instruction in the areas of reading, social skills, social communication and life skills. Little research has centered on the area of writing instruction (Delano, 2007; Eikeseth & Jahr, 2000). Other studies have discussed the prevalence of learning disabilities in children with autism (Mayes & Calhoun, 2005) and using writing as a form of communication (Eikeseth & Jahr, 2000). A few studies have been conducted regarding the use of specific writing strategies such as sentence combining as a technique for increasing adjective use (Rousseau, Krantz, Poulson, Kitson & McClannahan, 1994). Delano (2007) completed a study on the effects of Self-Regulated Strategy Development on story writing with one child in a one-to-one setting. In this study, one of the limitations of her research involved only incorporating writing topics that are of student interest. Winter-Messiers (2007) specifically introduced the theory of using a strength-based model incorporating Special Interest Areas (SIAs) in areas typically thought of as deficits for people with ASD, including academics. However, Winter-Messiers' study indicated "a need for more expressive writing samples

from children and youth about their SIA" (p.150). This study addresses the question asked by Delano; do topics of special interest influence the writing of people with autism (Delano, 2007)?

Understanding how different writing prompts influence students with ASD is an important consideration, with the advent of No Child Left Behind (NCLB) and the focus on high-stakes testing. In these tests, students are required to write about a specific prompt, which more than likely is not related to their SIA. By better understanding the relationship between writing strategies and SIAs, teachers of students with autism can instruct their students more effectively.

Autism is defined by the *Diagnostic and Statistical Manual of Mental Disorders* as:

"a qualitative impairment in social interaction...qualitative impairments in communication... [and] restricted, repetitive and stereotyped patterns of behavior, interests and activities. Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: social interaction, language as used in social communication and symbolic or imaginative play" (APA, 2000).

While the definition of autism identifies areas that may be perceived as differences or weaknesses, special interests of people with autism may be seen as an area of strength (Winter-Messiers, Herr, Wood, Brooks, Gates, Houston, & Tingstad, 2007). Winter-Messiers et.al (2007) identify six deficit areas of people with ASD: social, communication, sensory, emotion, fine motor and executive function. However, the research suggests that individuals with ASD can show greater strength in the deficit areas when they are accessed through their SIA. These interests vary greatly from person to

person and can change over time. Some examples of specific areas of interest include movies (Cars or James Bond), television shows (Zoboomafoo and Spongebob), animals (dogs, horses and meercats), history (World War II, medieval England), mechanical devices (such as vacuums, car washes and computers), science (natural resources and tornados), or toys (Hot Wheels and action figures). From informal observations in the educational setting, the researcher has noted students with ASD are usually able to complete their assignments or better understand social and communication rules when they are within the context of their SIA. Some examples include a Social Story written from the perspective of a pilot for a student with a SIA of airplanes, or using the SIA of horses to choose a topic for a report.

The shift from a disease/deficit-based model to that of a strength-based model of treatment has been occurring in the field of psychology since counseling psychology began after World War II. Strength-based counseling focused on the assets and strengths of individuals, the importance of cultural diversity and its impact on strengths, and bringing about social change (Smith, 2006). Why not extend this model into special education? When Individual Education Programs (IEPs) are based on strengths rather than deficits, students and their families are more likely to be engaged in the educational process and use their strengths to achieve desired goals (Epstein, 2000). Winter-Messiers et. al (2007) observed that deficits diminished when subjects with autism were engaged in their SIAs. This study investigates how use of this SIA strength-based model affects students with autism academically.

A diagnosis of autism includes a "qualitative impairment in communication". Allen and Rapin (1980, 1992) found that 67% of students with autism had mixed expessive/receptive language delay. Writing a story from a prompt involves both receptive and expressive language. First, a student must be able to receptively understand a story prompt created by a teacher or publisher of standardized tests. The student must not only process the language of the prompt, but also respond to the prompt using expressive language. Research has found that a learning disability in written expression is the most commonly found learning disability in students with ASD (Calhoun & Mayes, 2003). Considering one of the three core features of autism is impairment in communication, it is important to consider what kind of accommodations or adaptations may need to be made when it comes to writing.

The purpose of this study is to compare writing quality for students with autism using both teacher- selected prompts and prompts based on student SIAs. This action research design involved collecting quantitative data to determine the answers to the research question: How do Special Interest Areas influence writing quality for students with autism?

With the great increase in the number of students being identified on the autism spectrum and the focus of No Child Left Behind on high-stakes testing, it is more important than ever to ensure teachers have knowledge of the most effective strategies to teach students on the autism spectrum how to write. It is also critical for publishers of

standardized tests to understand how their writing prompts may affect the quality of writing for students on the autism spectrum.

Chapter 2 Literature Review

This study examines how the strength based model applies to the SIAs of students with autism and asks the question: How do Special Interest Areas influence writing quality for students with autism? There are three predominant themes in the literature on special interests in writing. First, this review will address the research that discusses the characteristics of autism spectrum disorders and how these contribute to writing deficits. Next, the research addresses the strength-based model and how SIAs can be used as strengths rather than deficits for individuals with ASD. Finally, the topic of designing writing instruction and educational interventions for students with ASD while considering SIAs will be discussed.

Writing Deficits in ASD

As previously noted the DSM-IV defines autism as qualitative impairments in social interaction and communication as well as restricted, repetitive and stereotyped patterns of behavior, interests and activities. These characteristics contribute in myriad ways to the difficulties with writing that individuals with autism often face.

Calhoun and Mayes (2003) found that school-age children with autism and high IQs had average reading, math and spelling scores and a weakness in writing. The authors comment that "the significant discrepancy between IQ and written expression is consistent with that reported for other neurobiological disorders, such as attention deficit hyperactivity disorder (Mayes et al., 2000)" (Calhoun and Mayes, 2003, p.77). In 2005, Calhoun and Mayes found that children with neurological disorders (including autism)

have lower Processing Speed Index and Freedom from Distractibility Index scores compared to their Perceptual Organization and Verbal Comprehension Index scores on the Wechsler Intelligence Scale-Third Edition. These scores suggest processing speed, attention and writing weaknesses among students with these disorders. Additional research conducted by Calhoun and Mayes (2006) focused on the frequencies of learning disabilities (LD) in children with clinical disorders. They found that 67% of students with autism had a comorbid learning disability. Of that 67%, 6% of students had a reading disability, 23% had a math disability, 9% had a spelling disability and 60% had a disability in written expression. The authors also note that written expression is a neglected area in LD research; most studies in LD focus on reading, math and sometimes spelling. They feel that this is unfortunate because studies comparing reading, math and writing disabilities have found that learning disabilities in written expression are more common in students with autism than LD in math or reading.

According to Kay (n.d.), "The primary requirements for written language include an intact central nervous system, intact cognitive ability, intact language skills (both receptive and expressive), motivation, skill development, practice and emotional stability" (p.1). For anyone familiar with the indicators of autism it is no wonder that writing is often the most difficult subject in school.

Winter -Messiers, et.al (2007) described a number of "deficits" that are recognized in the diagnostic criteria for ASD which may influence writing including a fine motor deficit. Wing (1981), found that 90% of the 34 children with ASD she studied

had poor penmanship skills. Also mentioned by Winter-Messiers et.al (2007) is the executive function deficit. Important aspects of executive function that relate to writing tasks include concentration, decision-making, planning and sequencing. Killiany, Moore, Rehbein & Moss (2005) suggest that students may have difficulty recalling a topic due to recent memory-deficits. In addition, the perseveration on a particular behavior may make it difficult for a student to recall that a task has been completed. Killiany et al. (2005) also found that children with ASD had impairments in information processing and organization, which are important to the writing process and completing assignments in general. Stimulus overselectivity is another explanation for the difficulties people with ASD have with writing tasks. In a test of the concept of stimulus overselectivity, Lovaas, Koegel, & Schreibman (1979) determined that children with ASD were only attending to one of the three aspects of a complex stimulus (light, sound and touch) presented to them. In writing tasks, children are being asked to perform various different tasks simultaneously—handwriting, organizing, generating ideas and storing them in short-term memory, etc. If stimulus overselectivity is indeed a factor for individuals with ASD, they could be focusing on only one aspect of the writing procedure, making it difficult to see the larger picture.

An expressive language deficit can also affect a person with ASD's ability to perform writing tasks. Included among the adverse affects of impaired language skills is the inability to communicate effectively (Tager-Flusberg, 2003). Temple Grandin (2006), a person with autism, said that these differences in thinking and processing information have made learning to communicate effectively a life-long struggle. Luckily

for Grandin, she was encouraged by a school counselor to pursue her Special Interest Area of cattle chutes and became a world-renowned designer of livestock handling facilities and Professor of Animal Science at Colorado State University.

Strength Based Model of Special Interest Areas

Since Leo Kanner first wrote about "inborn autistic disturbances of affective contact" in 1943 and pointed out that early repetitiousness later assumes the form of "obsessive preoccupations", people have been intrigued by the SIAs of individuals with autism. Hans Asperger (1944) referred to these interests by noting that "a special interest enables them to achieve quite extraordinary levels of performance in a certain area". These preoccupations have been referred to as "obsessions and compulsions" by Baron-Cohen (2000), "fascinations" by Kluth (2008) and "odd all-absorbing interests" by Gillberg (1991). Attwood has referred to them as "special interests" (1998) and more recently "circumscribed interests" (2003). Whatever the term, SIAs can be viewed within the deficit model as an obsession that distracts from meaningful social interaction or, shifting perspectives, from a strength-based model as a platform for participation in society.

The phenomenon of SIAs can, in part, be explained by a psychological theory developed by Frith and Happe (1994). Their theory suggests that people with ASD process information differently, focusing on the details rather than the larger picture. These individuals may not perceive the larger context due to something Frith and Happe term "central coherence." For an individual who struggles with empathy and theory-of-

mind, codes of conduct that rely on thoughts and feelings seem illogical. If a person is unable to pick up on the social cues of carrying on a conversation, they will often steer the conversation toward their SIA—an area in which they feel confident participating in a conversation (Attwood, 2003). It is interesting that this theory may shift the idea of stimulus overselectivity as a deficit to explaining how SIAs help people with ASD cope in the social world.

Another theory discusses the possibility that impaired executive function causes individuals with ASD to perseverate on specific topics. Turner (1997) describes how the frontal lobes control when behaviors start and stop. Executive function impairment may explain why people with ASD get "stuck" on their SIAs and are not able to move on to another topic or activity. This "impairment" however, may be one of the keys that will help people with autism unlock their hidden potential.

In a 2007 study conducted by Winter-Messiers (2007), the research team consistently observed that when children and youth with Asperger's Syndrome (AS) were engaged in their SIA, their deficits diminished. For example, the subjects' language improved consistently when they spoke of their SIA. Similar strengths were discovered when participants who had fine-motor difficulties engaged in SIA-related tasks that required sophisticated fine-motor abilities. The participants' passion for their SIAs motivated them to complete tasks that were otherwise difficult for them. The executive function deficit that contributes to difficulties with academic tasks also diminished when combined with SIAs. Participants discussed successfully engaging in SIA activities that

require skills such as organization, planning, and sequencing. As the children and youth were able to speak freely about their SIAs, their ability to organize themselves physically, intellectually, orally and socially was improved. These tasks are otherwise extremely difficult for people with AS. Recommendations for future research from this study include a need for more expressive writing samples from children and youth with AS about their SIA and a comparison of expressive writing and handwriting of these students when writing about SIA versus non-SIA topics.

A similar study by Mercier, Mottron and Belleville (2000) involved semi-structured interviews with individuals 14 years and older who have high-functioning Pervasive Developmental Disorder (PDD) and pattern of restricted interests. Among the positive aspects that the subjects felt their SIAs contributed to their lives was a calming, restful or relaxing effect. Talking about, or engaging in their SIAs provided a source of pleasure and made them feel happy. The researchers also learned that restricted interests can also provide a sense of validation for the individuals with PDD. One subject noted that his SIA allows him to 'master something, to be responsible for it'. Others used the terms 'identity' and 'pride' to describe positive aspects of their special interests.

Baron-Cohen (2000) challenges the view that the characteristics of high-functioning autism or Asperger's Syndrome are deficits. He asks, should individuals with high functioning autism be considered disabled? Baron-Cohen maintains that the social and communication deficits and narrow interests of individuals with ASD are only deficits in a social society. As our society further develops technology we have created a

niche for individuals on the spectrum. We are creating opportunities for employment and economic prosperity for those people who are otherwise considered "disabled". Baren-Cohen states, "In a world where individuals are all expected to be social, people with AS are seen as disabled. The implication is that if environmental expectations change, or in a different environment, they may not necessarily be seen as disabled... In the social world there is no great benefit to such a precise eye for detail, but in the world of maths, computing, cataloguing, music, linguistics, craft, engineering or science, such an eye for detail can lead to success rather than disability" (p. 16).

It seems that these SIAs could be considered more of a benefit to individuals with ASD than the deficit SIAs had originally appeared to be. A strength-based model has been used previously with individuals with disabilities often in the area of assessment. Strength-based assessment has been defined as "the measurement of those emotional and behavioral skills, competencies, and characteristics that create a sense of personal accomplishment; contribute to satisfying relationships with family members, peers, and adults; enhance one's ability to deal with adversity and stress; and promote one's personal, social, and academic development" (Epstein & Sharma 1998). It is founded on the basic beliefs that (Nelson & Pearson 1991):

1) Every child has strengths that are unique to the individual.
2) A child is influenced and motivated by the way others respond to them. Motivation is enhanced when strengths are pointed out.
3) Failure to demonstrate a strength does not mean a deficit, rather, it means the child has not received the necessary experiences to master the skill

4) IEP goals and objectives must be based on strengths of the child and family.

Winter-Messiers (2007) asserts that although we are "accustomed to defining AS by a deficit model, we must also define AS by a strength-based model" (p. 150). The SIA is a strength and when deficits are addressed through an SIA we see that they are significantly affected and transformed into strengths. The model created by Winter-Messiers et al. (2007) includes strengths in the areas of socialization, communication, emotions, sensory processing, fine-motor, executive function and academics when SIAs are included. Following this model, both Winter-Messiers and Attwood (2007) suggest integrating SIAs into core academic curriculum for students with ASD. They believe that teachers who integrate SIAs into academic work will not only see a student's true level of ability in academic assignments, but also find the generalization of motivation and skills in other academic areas. Grandin (2006) states, "The thinking patterns of individuals with ASD are markedly different from the way in which 'normal' people think. Because of this, too much emphasis is placed on what they 'can't do.' While impairments and challenges do exist, greater progress can be made teaching these individuals when parents and teachers work on building the child's strengths and teach in a manner that is aligned with their basic pattern of thinking."

Designing Writing Instruction and Interventions for Students with ASD

Popular adaptations and interventions.

A literature review of recent and current research on educational interventions for children with autism was conducted by Jordan, Jones and Murray (1998). After an

extensive analysis of various research in approaches to interactive interventions, approaches to communication, integration approaches, Treatment and Education of Autistic and related Communication Handicapped Children (TEACCH), Daily Life Therapy, and behavioral approaches, the team concluded that in addition to the social and communication functions of these interventions that children with ASD have the right to access the conventional academic curriculum, with adaptations to meet their needs. They include that this education should build on the child's interests and strengths, not solely a concentration on their difficulties.

Educational strategies for individuals with ASD typically include visual teaching strategies as outlined by Tissot and Evans (2003). These strategies include movement-based systems such as American Sign Language and the UK system of Makaton in which a series of hand movements represent a concept or idea. Materials-based systems include TEACCH, Nina Lovaas' Reading and Writing System and Picture Exchange Communication System (PECS). The Lovaas program uses pictures to communicate with children in a similar manner to PECS and TEACCH. This program also teaches the child to read words by matching the pictures to text. This program includes both receptive and expressive communication and eventually leads to having the child write or type their thoughts in order to communicate. These strategies are among those most commonly used; yet do not consider the use of SIAs.

For the more high-functioning individual Siegel, Goldstein and Minshew (1996) focused on strategy instruction primarily in the academic areas of reading and math.

Some attention is paid to communication and language deficits and strategies; however the accommodations recommended pertain only to spoken language. This is an unfortunate trend in much of the research on academic interventions for individuals with ASD.

The implications for educational intervention included in the study by Calhoun and Mayes (2003) include capitalizing on students' visual strengths while bypassing the writing weakness by teaching strategies such as keyboarding and word processing, allowing dictation and additional time for writing assignments. Other adaptations included reducing the amount of written work (multiple choice, true/false and cloze answers rather than open-ended essays) and providing structured notes.

These strategies are backed by research and have been effective for many students. The purpose of this study was not to disprove or invalidate the work of any researcher. Instead, this study builds upon proven strategies and adds the use of SIAs to determine if the SIAs affect the quality of writing for a person on the spectrum.

Incorporating SIAs in writing instruction and intervention.

Academically, SIAs can be incorporated into homework assignments to provide motivation to complete assignments (Hinton & Kern, 1999). Students are more engaged in an assignment that covers the appropriate topics, but incorporates their interest area. They can also be used as a reward. Completing an assignment or working for a number of minutes could earn time engaging in the SIA (Mercier, Mottron, & Belleville, 2000).

Kluth (2008) noted the use of a strengths focus and utilizing student "areas of expertise" within an inclusive classroom. In this way, all students are recognized for their strengths and their knowledge is utilized as a resource. Kluth also discusses incorporating the "fascinations" of students with ASD in order to engage them in reading and learning vocabulary.

Delano (2007) conducted an exploratory study with a student with Asperger's Syndrome to evaluate the use of Self-Regulated Strategy Development (SRSD) writing instruction. Self-Regulated Strategy Development is an evidence-based writing intervention for students with learning disabilities developed by Graham, Harris, MacArthur, and Schwartz (1991). Delano found the SRSD instruction to be an effective intervention and produced positive changes in the subject's writing samples. Limitations of this study include a small sample size and prompts designed around the subject's interests. Delano commented that "additional research is needed to determine whether incorporating student interest into the writing topics is a necessary part of the intervention or whether similar results can be achieved without considering student interest"(p.257).

Summary of Literature

In summary, prior research suggests that individuals on the autism spectrum exhibit a number of traits that make writing challenging including stimulus overselectivity and fine motor, executive function and expressive language deficits. Research also indicates that individuals with ASD and high IQs struggle more in written expression compared to other core academic areas. However, research also suggests that

utilizing the Special Interest Areas of individuals with ASD can increase their abilities, even in deficit areas. Until now, researchers have not looked specifically at how SIAs affect writing interventions. The purpose of this study is to determine how Special Interest Areas influence writing quality for students with autism.

Chapter 3 Methodology

Introduction

The focus of this study was to determine how different topics affect writing quality for students with autism. Research has found that students with autism perform better when engaged in their Special Interest Areas (SIAs). However, there is a gap in the research pertaining specifically to written expression, an area in which students with autism have the highest rate of learning disabilities. This study asks the question: Do Special Interest Areas influence writing quality for students with autism? To address this question, a single-subject AB design was used to measure student writing. A baseline measure was taken of each subject's expressive writing using prompts from the general curriculum. An intervention was introduced using prompts based on students' SIAs. Writing samples were measured using a rubric from the Six Traits Writing curriculum and by measuring the length of each story. Hypotheses addressed by the research include:

Hypothesis 1-Special Interest prompts will positively influence students' written responses in the areas of word count, ideas and content, organization, voice, word choice, sentence fluency and conventions.

Hypothesis 2- Teacher-selected prompts will negatively influence students' written responses in the areas of word count, ideas and content, organization, voice, word choice, sentence fluency and conventions.

Subjects

The subjects in this study were five 2nd-4th grade students in special education identified with Autism Spectrum Disorders ranging in age from eight to ten years old. All subjects were Caucasian males from varying socio-economic backgrounds. At the time of the study, no female or ethnic minority students with ASD were enrolled in the school. The subjects were chosen because they were elementary school students identified with an Autism Spectrum Disorder and special interests who had been in the same school for at least one year. All subjects have been exposed to the same writing method in their classrooms. Parental consent (Appendix B) and subject assent (Appendix C) were obtained for each subject. Pseudonyms have been randomly assigned to protect the identity of the subjects. Table 1 provides a description of all subjects. Although all subjects with Written Expression scores fall within the average range, all five students have great difficulty initiating and completing writing tasks in the classroom. It should be noted that the Woodcock-Johnson Test of Achievement, Third Edition Written Expression subtests of Writing Fluency and Writing Samples require students ages 8-10 to write no more than two complete sentences to receive an average score. Assessments are conducted in a quiet, one-on-one setting and both subtests include visual cues.

Table 3.1

Description of Subjects

Name	Grade	Age	Full Scale IQ	Written Expression	Special Interest
Thomas	2	8	108	n/a	Animals
Andy	3	8	105	112	Sports
James	3	9	142	96	Sonic X
Michael	4	10	94	96	Rocky & Bullwinkle, hunting
Daniel	4	10	113	104	Science, inventing

Note: Full Scale and Written Expression results were taken from special education evaluations performed within the past three years. Full Scale IQ was measured by the Weschler Intelligence Scale for Children, Fourth Edition for Andy, Michael, and Daniel. Thomas was assessed using the Stanford-Binet Intelligence Scales, Fifth Edition and James was assessed using the Weschler Abbreviated Scale of Intelligence. Both Andy and Michael's full scale results were reported using the General Ability Index. Written Expression was assessed using the Woodcock-Johnson Tests of Achievement, Third Edition. Thomas did not have a Written Expression score on file. Average scores range from 90-110 on both assessments.

Setting/Context

The study of written expression and SIAs was conducted with 2nd-4th grade students with autism at Meadowbrook Elementary School (pseudonym). Meadowbrook is a K-5 charter school of 400 students in an urban district of a large Midwestern community. According to demographics published by the state Department of Education the majority of the students are Caucasian with approximately 18% of the students from American Indian, Asian, Black and Hispanic ethnicities. The socioeconomic status of Meadowbrook families ranges from abject poverty to upper middle class; 42% of students receive free or reduced price lunch. Sixteen percent of the school is receiving special education services and at the end of the 2009-2010 school year there were twelve students identified with Autism Spectrum Disorders at Meadowbrook.

Students met individually with the researcher for sessions that did not last longer than 40 minutes. Interviews and writing sessions were conducted in available private spaces including the researcher's office, teacher's lounge, computer lab, and library

within the school setting. The first two writing prompts were completed in early April, before students began required standardized testing. During testing, no writing prompts were completed. The third and fourth writing prompts were completed in May and early June. Subjects could decide if they wanted to participate on a day to day basis and often chose to delay story writing until another time. Sessions were rescheduled when subjects chose not to participate.

Research Design

This study followed a single subject AB design. Subjects were provided with two teacher-selected writing prompts from the regular curriculum during the A phase. During the B phase, subjects were provided with two individualized prompts based on their SIAs.

Materials/Instrumentation

The subjects' Special Interest Areas were determined using a survey from a study by Winter-Messiers (2007). Permission was received from Winter-Messiers to use her survey (see Appendix G). This survey (see Appendix F) included thirteen open-ended questions and ideas for prompts to provide the students if needed. Survey questions include "What is your favorite thing in the whole world?" and, "What do you like to tell people you meet for the first time about [SIA]?" The researcher met individually with each subject and read the survey questions in an interview format. Interviews were digitally recorded with the subject's permission.

Subjects were provided with two writing prompts provided by Meadowbrook's Writing Curriculum Coordinator (carefully selected not to include SIAs) and two

individualized prompts based on their SIAs. The following teacher-selected prompts were provided for all subjects:

1) "Whether it's for a special occasion, a holiday or a party at a friend's house, everyone enjoys a good celebration. Write a story telling about a memorable celebration."
2) "Have you ever wanted to be able to turn back the clock so you could change something you wish you had done differently? Write a story about a time you did something you wish you had done differently."

The stories were coded using the Six Trait Writing 4-Point Rubric (see Appendix D) published by the Bellingham Public Schools and story length. Permission to use the rubric was obtained prior to beginning research (see Appendix E). The characteristics evaluated within the rubric include: ideas and content, organization, voice, word choice, sentence fluency and conventions. Compositions are typically rated on a one to four point scale:

1 = Ideas are unclear, inconsistent, and/or lack a central theme and/or purpose.

2 = The ideas are somewhat unclear or the attempted development is minimal, too simple, irrelevant, or incomplete.

3 = The writing is mostly focused, and the reader can easily understand the main idea.

4 = The writing is clear and focused. It holds the readers' attention. Main ideas are developed by supporting details suitable to audience and purpose.

For the purpose of this study, each characteristic was rated from one to four and the total score calculated out of a possible 24 points. The Six Trait Rubric offers the abstract descriptions necessary for assessing writing quality.

Data Collection

This study was a single subject AB design. In this study, the researcher determined how the dependent variable, writing quality, is affected by the dependent variable, writing prompts. The researcher conducted individual interviews with each subject using a survey to determine SIAs in order to develop prompts based on each subjects' SIA.

Each student met individually with the researcher to write stories based on the writing prompts. The researcher provided each student with a piece of lined paper with the prompt printed at the top. The researcher verbally provided each student with a standardized set of directions ("Remember, a good story has a beginning, middle and end. You can write about who is there, what is happening, where they are, and when the story takes place.") If students became distracted the researcher would reread the prompt or what the student had written. When a student finished, they were asked to reread the story to see if they wanted to make any changes. Sessions were not timed, however they did not last longer than 40 minutes. If a subject did not finish a story in the allotted time or if the subject wanted to stop writing for that session, but had not finished the story, it could be completed at a later time.

The subjects' writing samples were collected after individual writing tasks were completed using A-curriculum-based prompts or B-SIA based prompts. Writing quality

in each sample was measured using the Six Trait Writing 4 Point Rubric. Two special education teachers coded each of the stories and scores were averaged for inter-rater reliability.

Data Analysis

The data was analyzed using student's paired t-test and analysis of variance (ANOVA). T-tests were run on word count and total rubric score to compare the difference between the teacher-selected SIA prompts for each subject. An ANOVA was run using mean scores among subjects in each of the six traits of the rubric, total rubric score and word count within each phase of the AB design to determine if there were significant differences between the two kinds of prompts. Finally, median scores were compared for all traits in both A and B phases.

Summary

Five students with autism in grades 2-5 participated in this study. Each participant was interviewed to determine his special interest area. Participants then met individually with the researcher to complete two teacher-selected writing prompts and two individualized SIA-based writing prompts. The data was coded using word count and the Six Traits Writing Four Point Rubric and statistical analysis was completed to determine the significance of the results.

Chapter 4 Results

The purpose of this study was to determine if prompts based on the special interests of students with autism have an effect on writing quality. Subjects were provided with four different writing prompts. The first two prompts were teacher-selected from the regular curriculum. The second set of prompts was individualized to include the subjects' special interests. The subjects' stories were scored using word count and total score on the Six Trait Writing Rubric. Two special education teachers individually scored each story. A 71% inter-rater reliability rate was found with both raters agreeing on 79 out of 112 possible scores. Final scores were determined using the mean score of both raters. Although consent and assent was received for five subjects, four subjects completed the study.

Thomas, a second grader with a special interest in animals, dropped out of the study before completing any writing tasks. He participated in the interview portion, but after three separate attempts to complete the first story, he requested to withdraw from this study. Therefore, results are reported for only the four remaining subjects.

Word Count

Each word written in the stories was counted, including story titles and "The End" when included. Story length is one of a number of indicators of written expression measured in this study.

Figure 4.1 represents word count across four subjects. Andy, a third grader, showed an increase in the number of words written when presented with prompts based on his special interest of sports. Given the teacher selected prompts, Andy scored 59 for

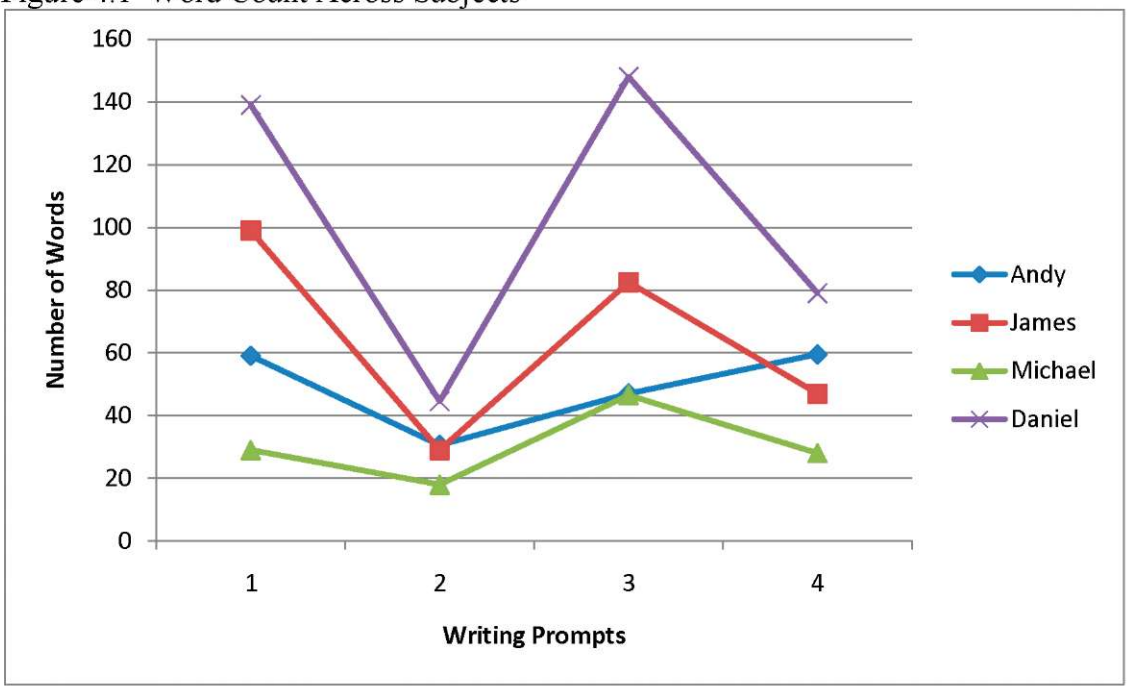
Prompt 1 and 30.5 for Prompt 2. On the special interest focused prompts Andy scored 47 for Prompt 3 and 59.5 for Prompt 4.

James, a third grader, showed a small increase in the number of words written when presented with prompts based on his special interest of the cartoon Sonic X. Given the teacher selected prompts, James scored 99 for Prompt 1 and 29 for Prompt 2. On the special interest focused prompts James scored 82.5 for Prompt 3 and 47 for Prompt 4.

Michael, a fourth grader, showed an increase in the number of words written when presented with prompts based on his special interests of Rocky and Bullwinkle and hunting. Given the teacher selected prompts, Michael scored 29 for Prompt 1 and 18 for Prompt 2. On the special interest focused prompts Michael scored 46.5 for Prompt 3 and 28 for Prompt 4.

Daniel, a fourth grader, showed an increase in the number of words written when presented with prompts based on his special interest of science. Given the teacher selected prompts, Daniel scored 139 for Prompt 1 and 44.5 for Prompt 2. On the special interest focused prompts Daniel scored 148 for Prompt 3 and 79 for Prompt 4.

Figure 4.1 Word Count Across Subjects



Note. Prompts 1 and 2 are teacher-selected prompts and prompts 3 and 4 are based on individual student special interests.

Table 4.1 shows T-tests run on word count for each individual subject. T-tests were run to determine if there was any statistical significance between mean scores for teacher-selected prompts and SIA-focused prompts in the area of word count.

Andy showed an increase in the average number of words written when presented with prompts based on his special interest of sports. Andy scored an average of 44.75 words on the teacher selected prompts and an average of 53.25 words on the special interest focused prompts. For Andy, there was no statistical significance between the two kinds of prompts when using the student paired t-test for word count.

James had a slight increase in the number of words written when presented with prompts based on his special interest of the cartoon Sonic X. James scored an average of

64 words on the teacher selected prompts and an average of 64.75 words on the special interest focused prompts. For James, there was no statistical significance between the two kinds of prompts when using the student paired t-test for word count.

Michael showed an increase in the number of words written when presented with prompts based on his special interests of Rocky and Bullwinkle and hunting. Michael scored an average of 23.5 words on the teacher selected prompts and an average of 37.25 words on the special interest focused prompts. For Michael, there was no statistical significance between the two kinds of prompts when using the student paired t-test for word count.

Daniel showed an increase in the number of words written when presented with prompts based on his special interest of science. Daniel scored an average of 91.75 words on the teacher selected prompts and an average of 113.5 words on the special interest focused prompts. For Daniel, there was no statistical significance between the two kinds of prompts when using the student paired t-test for word count.

Table 4.1

Student Paired t-test for Word Count

Subject	Teacher-Selected Mean	SIA Mean	# of Participants	SD	t
Andy	44.75	53.25	4	12	0.415
James	64	64.75	4	28	0.044
Michael	23.5	37.25	4	10	3.667
Daniel	91.75	113.5	4	43	1.706

Note. Table 1 indicates the student paired t-test results to determine if there is any statistical significance between teacher-selected mean scores and Special Interest focused mean scores for Word Count.

An Analysis of Variance (ANOVA) was run using mean scores across subjects in the area of word count to determine if there were significant differences between the two kinds of prompts. Table 4.2 demonstrates that for word count, a P-value of 0.121 was obtained, indicating little to no evidence against the null hypothesis. There is not a statistical significance between mean word count scores for teacher-selected or SIA-based writing prompts.

Table 4.2

Word Count ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*p*
Between groups	500.641	1	500.641	3.105	0.121

Note. *SS*= Sum of squares; *df*= degrees of freedom; *MS*= Mean Square; *F*= F-ratio; p= probability
* $0.05 <= p < 0.10$ ** $0.01 <= p < 0.05$ *** $p < 0.01$

Total Rubric Score

The Six Trait Writing 4 Point Rubric was used to score six additional areas of written expression. The rubric consists of the traits of Ideas & Content, Organization, Voice, Word Choice, Sentence Fluency, and Conventions. Each area was rated on a scale from one to four with a possible total of 24 points.

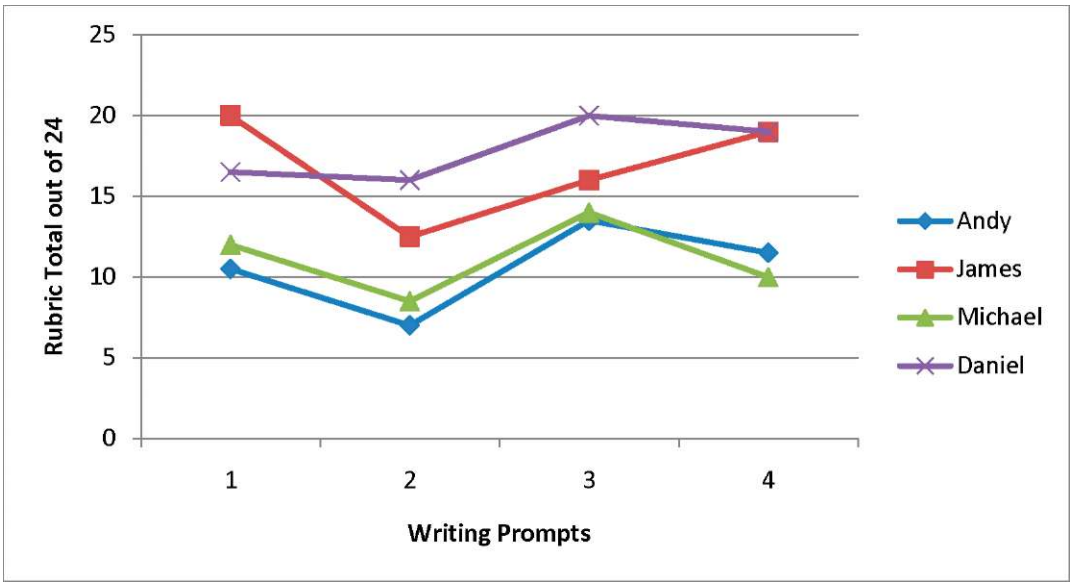
Figure 4.2 represents total rubric score across four subjects. Andy showed an increase in the total rubric score when presented with prompts based on his special interest of sports. Given the teacher selected prompts, Andy scored 10.5 for Prompt 1 and 7 for Prompt 2. On the special interest focused prompts Andy scored a total of 13.5 for Prompt 3 and 11 for Prompt 4.

James showed a small increase in the total rubric score when presented with prompts based on his special interest of the cartoon Sonic X. Given the teacher selected prompts, James scored 20 for Prompt 1 and 12.5 for Prompt 2. On the special interest focused prompts James scored 16 for Prompt 3 and 19 for Prompt 4.

Michael showed an increase in the total rubric score when presented with prompts based on his special interests of Rocky and Bullwinkle and hunting. Given the teacher selected prompts, Michael scored 12 for Prompt 1 and 8.5 for Prompt 2. On the special interest focused prompts Michael scored 14 for Prompt 3 and 10 for Prompt 4.

Daniel showed an increase in the total rubric score when presented with prompts based on his special interest of science. Given the teacher selected prompts, Daniel scored 16.5 for Prompt 1 and 16 for Prompt 2. On the special interest focused prompts Daniel scored 20 for Prompt 3 and 19 for Prompt 4.

Figure 4.2 Rubric Total for Each Story Across All Subjects



Note: Prompts 1 and 2 are teacher-selected prompts and prompts 3 and 4 are based on individual student special interests.

Table 4.3 displays T-tests run on total rubric score for each individual subject. T-tests were run to determine if there was any statistical significance between mean scores for teacher-selected prompts and SIA prompts in the area of total rubric score.

Andy showed an increase in his average total scores out of 24 when presented with prompts based on his special interest of sports. Given the teacher selected prompts, Andy scored an average of 8.75 points on the teacher selected prompts and an average of 12.5 points on the special interest focused prompts. For Andy, there was borderline statistical significance between the two kinds of prompts when using the student paired t-test for total rubric score with a two-tailed p-value equaling .09.

James demonstrated a small increase in his average total scores when presented with prompts based on his special interest of the cartoon Sonic X. Given the teacher selected prompts, James scored an average of 16.25 points on the teacher selected

prompts and an average of 17.5 points on the special interest focused prompts. For James, there was no statistical significance between the two kinds of prompts when using the student paired t-test for total rubric score.

Michael showed an increase in his average total score when presented with prompts based on his special interests of Rocky and Bullwinkle and hunting. Given the teacher selected prompts, Michael scored an average of 10.25 points on the teacher selected prompts and an average of 12 points on the special interest focused prompts. For Michael, there was borderline statistical significance between the two kinds of prompts when using the student paired t-test for total rubric score with a two-tailed P value equaling 0.090.

Daniel showed an increase in his average total score when presented with prompts based on his special interest of science. Given the teacher selected prompts, Daniel scored an average of 16.5 points on the teacher selected prompts and an average of 19.5 points on the special interest focused prompts. For Daniel, there was a statistical significance between the two kinds of prompts when using the student paired t-test for total rubric score with a two-tailed P value equaling 0.049.

Table 4.3

T-tests for Total Rubric Score

Subject	Teacher-Selected Mean	SIA Mean	# of Subjects	SD	t
Andy*	8.75	12.5	4	2.4	5
James	16.25	17.5	4	2.9	0.238
Michael*	10.25	12	4	2.1	7
Daniel**	16.25	19.5	4	1.7	13

Note. Student paired t-tests for total rubric score found statistically significant total rubric scores for both Michael and Daniel.

* $0.05 <= p < 0.10$ **$0.01 <= p < 0.05$ ***$p < 0.01$

An Analysis of Variance (ANOVA) was run using mean scores among subjects in the area of Total Rubric Score to determine if there were significant differences between the two kinds of prompts. Table 4.4 demonstrates that for Total Rubric Score, a P-value of 0.053 was obtained, indicating moderate evidence against the null hypothesis. There is a statistical significance between mean Total Rubric Scores for teacher-selected or SIA-based writing prompts.

Table 4.4

Total Rubric Score ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*
Between groups	25	1	25	5.385	0.053**

Note. SS= Sum of squares; *df*= degrees of freedom; *MS*= Mean Square; *F*= F-ratio; p= probability

* $0.05 <= p < 0.10$ **$0.01 <= p < 0.05$ ***$p < 0.01$

Traits

A comparison of the two kinds of writing prompts can be made by looking at the median score of each trait for all subjects. There are six traits, ideas and content, organization, voice, word choice, sentence fluency and conventions.

Ideas make up the content of the piece of writing; this is the heart of the message that the writer is trying to share with an audience (Culham, 2003). The mean score for ideas & content increased from 2.3 on teacher-selected prompts to 2.5 on SIA-based prompts.

Organization is the internal structure of the piece; it is how the story is put together and sequenced (Culham, 2003). The mean score for organization increased from 2 on teacher selected prompts to 2.5 on SIA-based prompts.

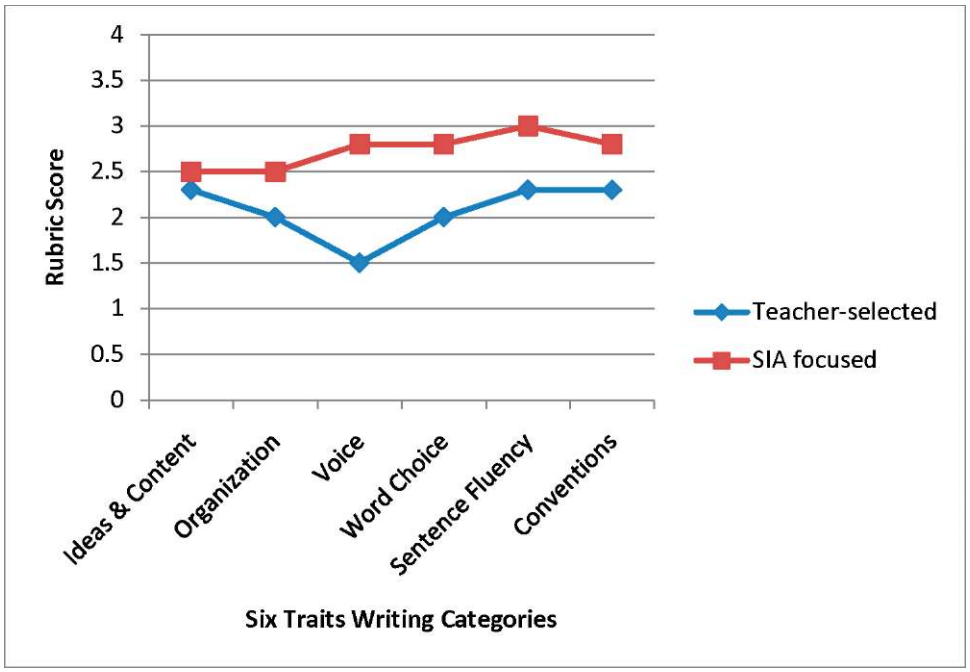
Voice is the soul of the piece. It's what makes the piece the writer's own and shares his or her beliefs and feelings through the words (Culham, 2003). The mean score for voice increased from 1.5 on teacher-selected prompts to 2.8 on SIA-based prompts.

Word choice is includes the use of rich, colorful, precise language that moves and enlightens the reader (Culham, 2003). The mean score for word choice increased from 2 on teacher-selected prompts to 2.8 on SIA-based prompts.

Sentence fluency is the sound of word patterns and the way the language flows—the way the writing plays to the ear, not just the eye (Culham, 2003). The mean score for sentence fluency increased from 2.3 on teacher-selected prompts to 3 on SIA-based prompts.

Conventions represent the piece's level of correctness—the extent to which the writer uses grammar and mechanics with precision (Culham, 2003). The mean score for conventions increased from 2.3 on teacher-selected prompts to 2.8 on SIA-based prompts.

Figure 4.4 Comparisons of Median Scores Across Traits



Note: Figure 3 compares the median scores of all students in each trait for both teacher-selected and SIA focused writing prompts.

An Analysis of Variance (ANOVA) was run using mean scores among subjects within each rubric trait to determine if there were significant differences between the two kinds of prompts. Table 4.5 demonstrates that for ideas and content, a P-value of 0.732 was obtained, indicating little to no evidence against the null hypothesis. There is not a statistical significance between mean ideas and content scores for teacher-selected or SIA-based writing prompts.

In the trait of organization, a P-value of 0.104 was obtained, indicating suggestive evidence against the null hypothesis. There is borderline statistical significance between mean organization scores for teacher-selected or SIA-based writing prompts.

In the trait of voice, a P-value of 0.006 was obtained, indicating very strong evidence against the null hypothesis. There is a statistical significance between mean voice scores for teacher-selected or SIA-based writing prompts.

In the trait of word choice, a P-value of 0.155 was obtained, indicating little to no evidence against the null hypothesis. There is not a statistical significance between mean word choice scores for teacher-selected or SIA-based writing prompts.

In the trait of sentence fluency, a P-value of 0.018 was obtained, indicating very strong evidence against the null hypothesis. There is a statistical significance between mean sentence fluency scores for teacher-selected or SIA-based writing prompts.

In the trait of conventions, a P-value of 0.875 was obtained, indicating little or no real evidence against the null hypothesis. There is not a statistical significance between mean conventions scores for teacher-selected or SIA-based writing prompts.

Table 4.5

Traits ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*
Ideas & Content	0.063	1	0.063	0.127	0.732
Organization*	1	1	1	3.5	0.104
Voice***	3.063	1	3.063	14.913	0.006
Word Choice	0.766	1	0.766	2.541	0.155
Sentence Fluency* *	1	1	1	9.333	0.018
Conventions	0.016	1	0.266	0.875	0.875

Note. Note. SS= Sum of squares; *df*= degrees of freedom; *MS*= Mean Square; F= F-ratio; p= probability Statistically significant scores were found in the areas of voice and sentence fluency.
* $0.05 <= p < 0.10$ **$0.01 <= p < 0.05$ ***$p < 0.01$

Chapter 5 Discussion

Summary

This study examined the effect of Special Interest Areas on written expression for students with Autism Spectrum Disorders. The results indicate an increase in word count and total rubric score for all subjects when given a writing prompt based on Special Interest Areas in place of teacher-selected prompts. The median scores for each trait also increased with prompts based on SIAs. This section reviews the teacher-selected and Special Interest Area-based prompts and resulting participant stories. The discussion also reviews the word count and total rubric score results, as well as results for the traits of voice, sentence fluency and organization. This section concludes with connections to the literature, strengths and limitations of the study.

Teacher-Selected Prompts

Students were provided with two prompts selected by the Meadowbrook Writing Curriculum Coordinator and the researcher. Prompts were carefully chosen not to include special interest areas and only narrative writing prompts were included. The first teacher-selected writing prompt, "Whether it's for a special occasion, a holiday or a party at a friend's house, everyone enjoys a good celebration. Write a story telling about a memorable celebration," provided students with the opportunity to choose a celebration to write about.

Andy wrote a story about plans for his birthday party. Later, his paraprofessional shared that birthday parties had become a frequent topic of discussion in Andy's classroom. Michael and James wrote about Christmas. Michael's story consisted of two

sentences written in large letters covering the entire page. However, James wrote his longest and highest scoring story on this topic. Daniel's story began with a description of the bombing of Hiroshima and then went on to describe the parties going on in America after the bomb was dropped, focusing on the largest celebration in San Francisco.

This first story prompt involved celebrations, a topic that most children can relate to. The participants were excited to talk aloud about different celebrations and this excitement was conveyed in all of the stories except Michael's. This prompt was completed in early April, before students began standardized testing.

The second teacher-selected prompt, "Have you ever wanted to be able to turn back the clock so you could change something you wish you had done differently? Write a story about a time you did something you wish you had done differently," was much more difficult for the participants to write about.

Andy changed the prompt wording to "turn forward the clock" and wrote a two sentence story about how he would send a football player forward to the year 4016. Michael's story consisted of one sentence that basically restated the prompt but began with "once upon a time" and ended with "the end". James wrote his story about going back in time to save Abraham Lincoln. He planned to threaten to kill "Jhon Lyx Booth [sic]" if he killed Lincoln. James told his story in great detail orally, but did not write many of the descriptors that he said aloud. Daniel was the only subject who wrote a story that actually fit the intention of this writing prompt. His story was about making the choice to take dance classes for one more year. He said that if he could "turn back the hands of time" he would change his answer from yes to no.

All subjects completed the second story in one session, but all struggled with getting started. The concept of change can be very difficult for students with ASD, who are often rigid and ritualistic. This topic of this story prompt, involving the concept of changing something that has already happened, may have had some affect on the participants' results. This prompt was completed just before standardized testing began in April.

Special Interest-Focused Prompts

Andy's Special Interest Area-focused prompts were tailored to his special interest of sports; although he continued to modify the prompts further to meet his needs. Michael's prompts focused on his interest in the cartoon and video game Sonic-X. James' prompts were focused on his special interests of Rocky and Bullwinkle and hunting. Daniel's prompts focused on his interest in science and inventing.

The difference in attitude toward the special interest focused prompts was quite noticeable. The participants smiled after they read the prompts and began writing almost immediately. It was noted that the participants needed fewer redirections to stay on task. Two students asked the researcher how she knew about their special interests and she reminded them about the interviews they had completed in March. The third prompt was completed at the end of May. This time of the year is difficult because there are so many special events, field trips, etc. that often students were unavailable or did not want to write at their scheduled time. The fourth prompt was completed during the last two weeks of school in June. At this time, most students are no longer involved in much rigorous academic work but are focused on parties, concerts, hikes, field day, and other

fun events. It was difficult to find a time when the subjects were available and willing to write a story.

Word Count

All subjects demonstrated an overall increase in word count on stories written using the SIA-based writing prompts. Although not statistically significant, these results indicate an increased motivation to write more words when prompts are selected based on an individual's special interest.

Andy wrote two stories with nearly the same word count average (59, 59.5). It is interesting to note that the first story was a teacher-selected prompt and the second story was a SIA-based prompt. For the first prompt Andy chose to write a story about his plans for his upcoming birthday party. Before he began writing he made lists in the margins of the page of various holidays. Once he decided on his birthday he listed all the months of the year and made the researcher guess when his birthday was. He appeared excited about the party planning and filled the margins of his pages with the names of his guests and the order in which they would play video games together. He also brought his special interest of sports into the story when he planned for his guests to watch baseball and tennis on television. Andy's other story with a similar word count was an SIA-focused prompt focused on his special interest of sports. Andy would only write if the prompt was further modified to fit his needs. The original prompt involved writing a story pretending he was at a famous event in sports history. Instead, he chose to write about a World Series game in the future and the celebration afterwards.

Michael's longest story (46.5 words) was about his special interest in the cartoon Sonic X. He wrote a story pretending he was Knuckles, a character from the cartoon. This was Michael's most appropriately sequenced story and his highest scoring story on the Six Traits Rubric. It was interesting to note that Michael's writing was on the lines, but each sentence after the first two began in the middle of the page or further to the right. This may be an indication of difficulty crossing midline. Midline is an imaginary line down the center of the body from head to toe. The inability to cross midline has to do with connections in the brain and is another writing roadblock for some students with ASD.

James' longest story was based on the teacher-selected prompt about celebrations. James wrote his story about Christmas. He wrote about presents and eating a Christmas feast. He completed his story in one session, but spent about fifteen minutes reciting conversations from television before he began. This was also James' highest scoring story on the Six Traits Rubric.

Daniel's longest story was written using an SIA-focused prompt on his interest in science and inventing. He wrote a story pretending he was scientist who had invented a Monster Maker. In his story he described how the Monster Maker works to a group that is visiting his lab. He puts the DNA of various creatures into the machine to create monsters such as "the Crazy Cat". This was also Daniel's highest scoring story on the Six Traits Rubric.

Although writing quality should not be judged only by the number of words written, it is one indicator of how extensively each subject expresses himself in writing.

It is interesting to note that in this study, the subjects' longest stories were also their highest scoring using the Six Traits Rubric.

Total Rubric Score

Total rubric score increased for all subjects on stories written using the SIA-based writing prompts. Andy's results indicated borderline statistical significance between the two kinds of prompts, however, it should be noted that he brought his special interest into all four stories, regardless of the prompt given. Andy also modified three out of the four prompts to fit his own purposes and refused to write unless he could use his modified prompts. The original prompt for Andy's highest scoring story was to write a story about the first televised game of a totally made up sport. Instead, Andy changed the prompt to write about the first televised game of his own made up league, named after him ("Andy" League Baseball). He wrote the story in the style of a sports announcer describing the game.

Michael showed an increase in his average total score when presented with prompts based on his special interest in the Sonic X cartoon and video games. The difference between his stories from teacher-selected and SIA-focused prompts showed borderline significance. Michael's highest scoring story was also his longest story about Knuckles, as noted previously.

James had a very slight increase when comparing the teacher-selected and SIA-based prompt means. James' first story about Christmas was his highest scoring. However, his fourth story, from an SIA-based prompt about a boy's first hunting experience, was only one point behind. In this story, James described the scene of the

hunt in detail, but once the deer was shot, there was a very brief explanation of the skull being mounted in the boy's bedroom and the story ended abruptly.

Daniel obtained borderline statistically significant total rubric scores when writing about his special interests in science and inventing. In addition to the story about the Monster Maker, Daniel's second highest scoring story resulted from a prompt to write a story about his first time meeting with a famous scientist or inventor. Daniel chose to write about meeting Nikola Tesla. He described using a time machine to visit him in the 20th century and some of the questions he would ask him.

ANOVA results indicated statistically significant scores across all subjects when comparing mean total rubric scores of the two kinds of prompts. This indicates that overall writing quality improves when subjects are provided with writing prompts that reflect their special interests.

Traits

Each of the traits within the Six Traits Four Point Rubric was also evaluated across all subjects to determine if there was a difference between the teacher-selected and SIA-focused prompts. The raw data show clearly higher median scores for all traits using the SIA-based prompts. ANOVA were run for each trait and identified a statistical significance between means of the two kinds of prompts for both voice and sentence fluency. Borderline statistical significance was found in the area of organization.

Voice

Voice can be described as how the writer brings the topic to life. The writer may show humor, excitement, conviction and may share insights (see Appendix D). ANOVA found a statistically significant difference between mean scores for teacher-selected prompts and SIA-based prompts in the area of voice. One possible explanation for increased scores in the voice trait is that when students are able to write about their interests, their passion shows through in their writing. When a writer is able to write about topics that they love and have special knowledge of, this comes through in the way in which they communicate their message to an audience.

Sentence Fluency

Sentence fluency includes well-built sentences with strong and varied structures that invite oral reading. The writer may show stylistic control, utilize appropriate cadence and vary the sentence structure to strengthen the meaning of the text (see Appendix D). ANOVA found a statistical significance between mean scores for teacher-selected and SIA-based prompts in the area of sentence fluency. A possible explanation for increased scores in the sentence fluency trait is that when the writer feels comfortable with the topic, the words flow more easily and key ideas are clearly conveyed.

Organization

Organization enhances the central idea of the story. Strong sequence and structure move the reader through the text (see Appendix D). Borderline statistical significance was found when comparing the two kinds of prompts in the trait of

organization. One possible explanation for increased scores in the organization trait is the writer more fully understands the purpose of a story and how to convey this to the audience when the topic is a Special Interest Area. When the writer is writing about something they are an expert on, they are better able to present the information in a clear and logical manner.

Connection to Literature

The results of this study begin to fill a gap in the literature on the topic of Special Interest Areas and writing for individuals with Autism Spectrum Disorders. To date, there has been limited research in the area of writing interventions for individuals with autism. This study supports the recommendations of Winter-Messiers (2007), Attwood (2007), and Kluth (2008) to integrate special interests into the curriculum for students with ASD. This study also expands the research of Winter-Messiers and provides support for her strength-based model in the area of written expression. In addition, these results support Delano's (2007) work to determine effective strategies for instruction of students with autism by adding to the research base and supporting the incorporation of Special Interest Areas with writing instruction.

Strengths of the Current Study

The current study has several strengths. First, student interviews were conducted using a survey that has been utilized by Winter-Messiers (2007) in her research of the strength-based model of Special Interest Areas. In addition, the stories were scored utilizing the Six Trait Writing 4-Point Rubric descriptors, which offer detailed description

of each rubric trait. Scoring was completed by two special education teachers and scores were averaged to increase inter-rater reliability.

Limitations

This study was also limited because the AB design does not allow for replication of the procedure within the current study. Also, the small sample size of four subjects makes it difficult to generalize these results to all students with ASD. It was also not possible for the researcher to conduct all of the research during a consistent timeframe due to the constraints of the school day, special events and standardized testing. Research was conducted in any available private space including the researcher's shared office, school library, computer lab, or temporarily empty classrooms. The inconsistencies in time and locations may have had an impact on the participants because individuals with autism often thrive on maintaining consistent schedule patterns.

Chapter 6 Summary and Conclusions

Educational Implications

The educational implications of this study are numerous. There was a noticeable increase in the scores of subjects when they were writing about their Special Interest Areas. In order to allow students to reach their fullest potential, teachers should allow their students with ASD to write about topics that interest them, as long as the purpose of the lesson does not change. For example, if Andy's class is writing persuasive letters to the President about off-shore drilling, Andy's assignment could be to write a persuasive letter to the Commissioner of Baseball about allowing instant replays. In this way, Andy is learning to write a persuasive letter, while giving him the opportunity to showcase his knowledge of sports and providing him with a motivation to write.

The current study has provided data to suggest that publishers of standardized writing assessments create writing prompts that are adaptable to any number of student interests. One such example comes from the Minnesota Graduation-Required Assessment for Diploma-Written Composition Item Sampler (Minnesota Department of Education, 2007).

"What would be your dream job? Tell about that job and explain why it would be a good job for you. Include details so your reader will understand your choice" (p.3).

This kind of writing prompt makes it possible for students to incorporate their own interests into their composition and allows students to write on a topic that they are knowledgeable about.

Finally, it is important for the educational system to change the way in which it views the special interests of people with autism. When it is recognized that special interests can be a positive influence, they can be framed more appropriately as "passions" than "obsessions". In this way, education professionals will recognize that Special Interests can be used as more than just rewards. They can and should be incorporated into assignments, particularly those that are not the student's area of strength.

Directions for Future Research

The results of this study suggest a number of future directions for research in the area of autism and writing. In particular, future research should examine how writing prompts based on Special Interest Areas affect the motivation of students to write. Future research should consider student attitudes toward the prompts themselves, student behavior in response to different prompts, the amount of time before students initiate writing and the number of cues to stay on task while writing. Additional research is also needed to determine whether incorporating student interests into writing prompts is effective only for students with autism, or if there is an effect on written expression for students with other disabilities or neurotypical students as well.

Similar studies could be completed with other types of writing prompts, such as expository or persuasive prompts, or with older students. Further research could also include a study of how subjects independently incorporate their special interests into writing.

Significant findings

This study begins to answer the question asked by Delano (2007); do topics of special interest influence the writing of people with autism? The results of this study indicate an increase in word count when individuals with autism write about their Special Interest Areas. Utilizing descriptors from the Six Trait Writing 4-Point Rubric, an increase was found in individuals' total rubric score indicating an increase in overall writing quality when writing about Special Interest Areas. Finally, the specific traits of voice, sentence fluency and organization were found to have significantly increased scores when individuals with autism were given the opportunity to write about their interests.

Summary

Autism Spectrum disorders affect one in 110 children in the United States today. Research has found that 60% of individuals with autism also have a learning disability in the area of writing (Calhoun & Mayes, 2006). Previously, the "fascinations" or "obsessions" of individuals with autism have been viewed as a deficit. No study to date has determined if written expression can be improved by incorporating special interests. Utilizing a strength-based model, the purpose of this study was to determine if Special Interest Areas affect writing quality for students with Autism Spectrum Disorders. Five participants in grades 2-5 were interviewed to determine their interest areas and each participant was provided with four writing prompts; two teacher-selected prompts and two SIA-based writing prompts. The results of this study indicate that Special Interest Areas positively affect writing quality for students with Autism Spectrum Disorders.

Incorporating Special Interest Areas into writing prompts can increase word count and overall writing quality. More specifically, scores in the areas of voice, sentence fluency and organization are significantly increased with the use of SIA-based writing prompts.

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Appendix A
IRB approval

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Human Research Protection Program
Office of the Vice President for Research

D528 Mayo Memorial Building
420 Delaware Street S.E.
MMC 820
Minneapolis, MN 55455

Office: 612-625-7654
Fax: 612-626-6061
E-mail: irb@umn.edu or irb2@umn.edu
Website: http://research.umn.edu/subjects/

December 31, 2009

Krista L Sivertson
4937 Apple Avenue
Duluth, MN 55804-3012

RE: "The Effect of Special Interest Areas on Written Expression for Individuals with Autism"
TRB Code Number: **0911P74595**

Dear Dr. Sivertson

The Institutional Review Board (IRB) received your response to its stipulations. Since this information satisfies the federal criteria for approval at 45CFR46.111 and the requirements set by the IRB, final approval for the project is noted in our files. Upon receipt of this letter, you may begin your research.

IRB approval of this study includes the consent form received December 28, 2009 and recruitment materials received November 23, 2009.

The TRB would like to stress that subjects who go through the consent process are considered enrolled participants and are counted toward the total number of subjects, even if they have no further participation in the study. Please keep this in mind when calculating the number of subjects you request. This study is currently approved for 5 subjects. If you desire an increase in the number of approved subjects, you will need to make a formal request to the IRB.

For your records and for grant certification purposes, the approval date for the referenced project is December 13, 2009 and the Assurance of Compliance number is FWA000003 12 (Fairview Health Systems Research FWA00000325, Gillette Children's Specialty Healthcare FWA00004003), Research projects are subject to continuing review and renewal, approval will expire one year from that date. You will receive a report form two months before the expiration date. If you would like us to send certification of approval to a funding agency, please tell us the name and address of your contact person at the agency.

As Principal Investigator of this project, you are required by federal regulations to:
*Inform the IRB of any proposed changes in your research that will affect human subjects, changes should not be initiated until written IRB approval is received.
*Report to the IRB subject complaints and unanticipated problems involving risks to subjects or others as they occur.
*Respond to notices for continuing review prior to the study's expiration date.
*Cooperate with post-approval monitoring activities.

Information on the IRB process is available in the form of a guide for researchers entitled, What Every Researcher Needs to Know, found at
http://wwwTesearch.umn.edu/irb/WERNK/indexxfm

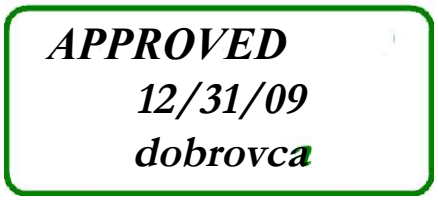
The IRB wishes you success with this research. If you have questions, please call the IRB office at 612-626-5654.

We have created a short survey that will only take a couple of minutes to complete. The questions are basic, but will give us guidance on what areas are showing improvement and what areas we need to focus on:

https://umsurvey.umn. edu/index.php?sid=36122&lang=um

Sincerely,

Felicia Mroczkowski, CIP
Research Compliance Supervisor
FM/pm
CC: Trudie Hughes



Appendix B
Parental Consent Form

CONSENT FORM
Autism, Special Interests and Writing Quality

Your child, [insert name here], is invited to be in a research study of writing quality and Special Interest Areas. Your child was selected as a possible participant because he/she is a student who has qualified for special education services in the autism spectrum disorders category at Kenwood Edison Charter School. We ask that you read this form and ask any questions you may have before agreeing for your child to be in the study.

This study is being conducted by Krista Sivertson, Graduate Student, College of Education and Human Service Professions as part of a Master's in Special Education program at the University of Minnesota-Duluth. Mrs. Sivertson is the Autism Teacher on Special Assignment (TOSA) at the Duluth Edison Charter Schools.

Phone #: 218-728-9556 x2203

Email: ksivertson@duluth.edisonlearning.com

Background Information

As a special education teacher I have noticed over the years that many students on the autism spectrum have difficulty with writing. I have found in the research and through informal observation that incorporating Special Interest Areas (like football, animals, and cars) can improve areas of difficulty for students. For my Masters in Special Education program, I would like to study how Special Interest Areas affect writing quality for individuals with Autism Spectrum Disorders.

Procedures:

If you agree for your child to be in this study, I would ask him/her to do the following things:

Your child will be involved in a 20 minute interview with me, Mrs. Sivertson, to determine their special interest areas, if any.

Your child will meet with the researcher to complete writing assignments based on four different writing prompts during a minimum of four different school days. The writing sessions will take place in a private, quiet environment like a small special education classroom and will take no longer than 40 minutes per session.

If your child does not participate in this study, he/she will continue to take part in normal school activities.

Risks and Benefits of being in the Study

The study poses minimal risks for your child. Your son or daughter may miss some class time to complete the study tasks, however, the tasks will be scheduled to avoid disruption as much as possible. Your child may experience mild distress over a change in the schedule. If this occurs, I will provide your child with a sensory break if needed and reassurance that we can do that task at another time. Your child and his/her classroom teacher will have advance notice of meetings and writing sessions.

The results of the study may provide insight into the effect of Special Interest Areas on writing quality and may offer important ideas regarding autism and the use of strength-based interventions.

Compensation:

Students will not receive payment or grades for participation in this study. Students will be provided with an additional sensory break after the completion of each task before transitioning back to class.

Confidentiality:

The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify your child or you. In any reporting of the study, your child will be assigned a pseudonym. Research records will be stored securely and only the researcher will have access to the records. Records will be destroyed when they are no longer needed for the purpose of this study.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to have your child participate will not affect your current or future relations with the University of Minnesota or with the Duluth Edison Charter Schools. If you decide that your child will participate, they are free to not answer any question or withdraw at any time without affecting those relationships. In addition to your consent, your child will be able to choose if he/she is willing to participate in this study. Your child may choose not to complete a task and can complete it later without any negative consequences. Your child can choose to withdraw from participating without any negative consequences.

Contacts and Questions:

The researcher conducting this study is Krista Sivertson, Graduate Student, College of Education and Human Service Professions. If you have questions, **you are encouraged** to contact the researcher at Kenwood Edison Charter School, 728-9556 x2203, ksivertson@duluth.edisonlearning.com. You may also contact the researcher's advisor at the University of Minnesota-Duluth, Trudie Hughes, 726-7174, thughes@d.umn.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher or advisor, **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

Please find enclosed a copy of this consent form keep for your records.

Statement of Consent:

I have read the above information. I have had the opportunity to ask questions and have received answers. I consent to participate in the study.

Signature of parent or guardian:_____ Date:

(If minors are involved)

Signature of Investigator: Date:

Appendix C
Subject Assent Form

I am asking if you are willing to write some stories for me, because I am trying to learn more about how kids' writing changes when they write about different things. Because you go to Kenwood Edison and you love to talk about some things, I am asking if you want to be in a study. It seems like kids' writing changes when they are writing about something they love to talk about. I think that your writing will change when you are writing about something you love. But I don't know if it will change until we try.

If you agree to be in this study, we will meet once for about 20 minutes and I will ask you about your favorite things. You will come see me about four more times for no more than 40 minutes. Each time I will ask you to write a story about a question I give you. If you can't finish your story in 40 minutes, we can finish it another day.

You may not like the question I give you. The question might not be about your favorite things. You should do your best to write a good story anyway. You will miss a little class time to be in this study. Your teacher will give permission for you to leave and you will not be in trouble for missing class. You might not want to leave class when I come to get you. You can tell me if it is not a good time and we can try later.

You will still be in the same class and still have writing class if you say no to being in this study. And, if you change your mind during the study, you can always go back to your class instead. Being in this study is totally up to you, and no one will be mad at you if you don't want to do it. Saying yes or no to this study will not change your writing grade.

You can ask any questions that you have about this study. If you have a question later that you didn't think of now, you can ask me next time. Signing here means that you have read this paper or had it read to you and that you are willing to be in this study. If you don't want to be in this study, don't sign. Remember, being in this study is up to you, and no one will be mad at you if you don't sign this or even if you change your mind later.

If you have any questions you can ask me in person, or talk to your parents and they can call me.

Signature of participant

Signature of person explaining study.

Date

Appendix D
Six Trait Rubric

Six Trait Writing 4-Point Rubric

Score Ideas and Content

4 **The writing is clear and focused. It holds the reader's attention. Main ideas are developed by supporting details suitable to audience and purpose. The writer does most or all of the following:**

- clearly addresses topic, purpose (mode), and audience;
- provides thorough, balanced, relevant support of topic;
- provides strong, credible support (details, or examples, and/or fact) using appropriate resources;
- selects details/ideas which go beyond the obvious or predictable; shares insights.

3 **The writing is mostly focused, and the reader can easily understand the main idea. Support is present although it may be too general. The writer does most or all of the following:**

- generally addresses the topic, purpose (mode), and audience;
- provides support which at times may be too general or out of balance with the main idea;
- generally provides credible support (details, and/or examples, facts); may use appropriate resources;
- expresses mostly predictable details/ideas; may occasionally share insights.

2 **The ideas are somewhat unclear or the attempted development is minimal, too simple, irrelevant, or incomplete. The writer does most or all of the following:**

• attempts to address the topic, purpose (mode), and audience;
• attempts support but may be limited or irrelevant;
• provides evidence which is not supported by credible resources;
• limits details/ideas to the predictable.

1 **The ideas are unclear, inconsistent, and/or lack a central theme and/or purpose. The writer does most or all of the following:**

• shows little attempt to address the topic, purpose (mode), or audience;
• includes little or no support;
• expresses only simplistic or random ideas.

Score Organization

4 **The organization enhances the central ideas; the sequence and structure are strong and move the reader through the text. The writer does most or all of the following:**

• selects an organizational structure that advances the purpose (mode) and is appropriate for the audience;
• constructs an inviting introduction/opening and a satisfying conclusion;
• selects effective transitions which clearly show how ideas connect among all elements (sentences and paragraphs);
• employs well-controlled, purposeful pacing.

3 **The organization is generally clear and logical; a structure is present but may be predictable. The writer does most or all of the following:**

• uses an organizational structure that fits the purpose (mode) and audience;

• develops a recognizable beginning that may not be particularly inviting and/or a conclusion that may lack insight or overview;
• provides adequate transitions which serve to connect ideas but may be stilted or formulaic;
• pacing is fairly well controlled, but at times the writer may speed up or slow down without a sense of purpose.

2 **The writer has made an attempt to organize the text, but the overall structure may be inconsistent. The writer does most or all of the following:**

• uses a structure that is not always consistent with the purpose (mode) and/or audience;
• writes a beginning and/or conclusion which is undeveloped or too obvious;
• provides weak, overused, or ineffective transitions;
• demonstrates little knowledge of pacing; all parts of the text seem equally important.

1 **The writing lacks organizational structure and may be haphazard and/or disjointed. The writer does most or all of the following:**

• uses a structure that is not appropriate for purpose (mode) and/or audience;
• provides no apparent beginning and/or conclusion;
• provides transitions that are poorly chosen or fails to provide transitions;
• demonstrates no knowledge of pacing.

Score Voice

4 **The writer has chosen a voice appropriate for the topic, purpose, and audience. The writer demonstrates commitment to the topic, purpose, and audience. There is a clear sense of "writing to be read." The writer does most or all of the following:**

• creates a strong interaction with the reader. There is a sense of a person and a purpose behind the words;
• demonstrates a strong audience awareness which

communicates the message effectively, and an appropriate voice or tone is consistently employed;
• brings the topic to life; when appropriate, the writing may show originality, liveliness, honesty, conviction, excitement, humor, or suspense; may share insights.

3 **The writer's voice is present. The writer seems committed to the topic, and there may be a sense of "writing to be read." The writer does most or all of the following:**

• interacts with the reader; at times there is a sense of a person and purpose behind the words;
• demonstrates a sense of audience and seems to be aware of the reader, but may not consistently employ an appropriate tone or voice;
• may employ liveliness, sincerity, or humor when appropriate; at times, the writing may be either too casual, personal, formal, or stiff.

2 **The writer's voice may emerge at times. The writer's commitment to the topic seems inconsistent, and there is little sense of "writing to be read." The writer does most or all of the following:**

• seldom provides a sense of interaction between reader and writer; there is little sense of the person and purpose behind the words;
• demonstrates a limited sense of audience or fails to use an appropriate tone or voice;
• uses a voice that is likely to be overly informal and personal or too impersonal and flat.

1 **The writer's voice provides little, if any, sense of involvement or commitment, and there is no sense of "writing to be read." The writer does most or all of the following:**

• shows no sense of interaction between reader and writer; it is hard to sense the person and purpose behind the words;
• demonstrates no audience awareness;
• uses a voice that is consistently flat, lifeless, and impersonal.

Score	Word Choice
4	**Words convey the intended message in an interesting, precise, and natural way appropriate to audience and purpose. The writer does most or all of the following:** • chooses specific, accurate language which seems natural; uses ordinary words in an unusual way; • chooses fresh, lively, vivid expressions; • includes the purposeful, effective selection of figurative language and/or slang.
3	**The variety of words employed is functional and appropriate to audience and purpose. The writer does most or all of the following:** • mainly uses familiar words or phrases; may occasionally employ ordinary words in an unusual way; • attempts to use fresh, vivid expressions although they may be ineffective and/or cliched; • attempts to use figurative language which may occasionally seem overdone or ineffective.
2	**Language is predictable, ordinary, and/or imprecise, and at times may not be appropriate for intended audience and/or purpose. The writer does most or all of the following:** • uses words that are colorless, flat, or imprecise, e.g. fun, thing, a lot, nice; language may be repetitious or misused; • relies on predictable vocabulary; • uses little figurative language; images, if present, are fuzzy.
1	**Language is limited, monotonous, and/or misused; only the most general kind of message is communicated. The writer does most or all of the following:** uses an extremely limited range of words; relies upon words that do not fit the text; they may

be imprecise, inadequate, or just plain wrong;
• makes no attempt to use figurative language; uses general, vague words that fail to communicate.

Score	Sentence Fluency
4	**Sentences are well built, with strong and varied structures that invite oral reading. The writer does most or all of the following:** • shows stylistic control; dialogue and fragments, if used, sound natural; • utilizes appropriate cadence for the genre/mode; • varies the sentence structure, length, and beginnings to strengthen the meaning of the text and draw attention to key ideas.
3	**The text flows; sentence patterns are somewhat varied and contribute to the ease of reading aloud. The writer does most or all of the following:** • shows occasional lapses in stylistic control; dialogue, if used, may sometimes sound stilted; • moves the reader easily through the text, though perhaps without rhythm or grace; • varies patterns of sentence structure, length, and beginnings; sentences are functional but may sometimes lack energy.
2	**The sentence structure tends to be mechanical rather than fluid; occasional awkward constructions may force the reader to slow down or reread. The writer does most or all of the following:** • shows little awareness of stylistic control; dialogue does not sound natural; run-ons and/or fragments may impede readability; • forces the reader to reread in place in order to make sense of the writing; • uses limited variety in sentence structure, length, and beginnings but may fall into repetitious patterns; structures may sometimes cause reader to hunt for meaning.

1 **The writing is difficult to follow or read aloud; sentences tend to be incomplete, run-on, or awkward. The writer does most or all of the following:**

- shows no awareness of stylistic control; confusing word order is often jarring and/or irregular;
- requires the reader to reread several times in order to make sense of the writing;
- uses little or no variety in sentence structure, length, and beginnings; sentence structure may obscure meaning.

Score Conventions

4 **The writing demonstrates strong control of standard writing conventions and uses them effectively to enhance communication. Errors are so few and minor that the reader can easily skim right over them unless specifically searching for them. Little editing is needed. The writer does most or all of the following:**

- selects effective punctuation that guides the reader through the text;
- uses correct spelling, even of more difficult words;
- uses capitalization that is correct;
- consistently plans paragraph breaks that reinforce organization and meaning;
- writes with correct grammar and usage that contribute to clarity and style.

3 **The writing demonstrates reasonable control of standard writing conventions. There may be a few errors, but they do not impede readability. Some editing is needed. The writer does most or all of the following:**

- utilizes correct end-of-sentence punctuation; internal punctuation may be incorrect;
- uses spelling that is usually correct, especially of common words;
- uses basic capitalization that is correct (e.g., proper

nouns, beginnings of sentences, "I")
• employs paragraph breaks that, in general, reinforce the organizational structure;
• makes occasional errors in grammar and usage; problems are not severe enough to distort meaning or cause confusion.

2

The writing demonstrates limited control of standard writing conventions. Errors begin to impede readability. Significant editing is needed. The writer does most or all of the following:

• makes many end-of-sentence punctuation errors; internal punctuation contains frequent errors;
• makes spelling errors that distract the reader; misspells common words;
• capitalizes inconsistently and often incorrectly;
• runs paragraphs together or inserts paragraph breaks ineffectively;
• makes errors in grammar and usage that interfere with readability and meaning.

1

The writing demonstrates little or no control of standard writing conventions. The severity and frequency of errors are so overwhelming that the reader finds it difficult to focus on the message and must reread for meaning. Extensive editing is needed. The writer does most or all of the following:

• uses haphazard or incorrect punctuation, or punctuation is omitted;
• makes frequent spelling errors that significantly impair readability;
• uses capitalization which appears to be random;
• inserts paragraph breaks that may be highly irregular or so frequent (every sentence) that they bear no relation to the organization of text;
• makes errors in grammar and usage that block the meaning and/or distract from the piece of writing.

Adapted from the work of Vancouver Public Schools and Nikki Elliot-Schuman

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Bellingham Public Schools 1306 Dupont St. Bellingham WA 98225-3198

Appendix E

Six-Trait permission

RE: Six Trait Rubric

Reed, Ann (areed@bham.wednet.edu)

Sent: Wed 7/15/09 11:24 AM

To: Krista Sivertson (k_loraine@hotmail.com)

Hi Krista,

Thank you for your interest in the Bellingham Public Schools website. You have permission to use the site noted in your email below in both written and presentation format with proper citation given to Bellingham Public Schools.

Let me know if I can be of further assistance in your studies.

Ann

Appendix F

Interview Questions

1. What is your favorite thing in the whole world?
   Prompts, if needed, or wording for older students:
   - What do you like to do best?
   - What is your favorite thing to do?
2. What do your parents think your favorite thing is?
3. How long has [answer to question 1] been your favorite thing?
4. Do you remember how you started liking [answer to question 1]?
   Prompt, if needed:
   - Tell me more about that.
5. When do you like to think about [answer to question 1]?
6. What do you like to tell people you meet for the first time about [answer to question 1]?
7. What do you wish other people knew about [answer to question 1]?
8. What is your favorite way to learn about [answer to question 1]?
   Prompts, if needed:
   - Reading books
   - Going to the library
   - Doing Internet activities
   - Watching television
   - Watching videotapes or DVDs
   - Asking other people
   - Asking experts
9. How much time do you spend each day thinking about [answer to question 1]?
   Prompts, if needed:
   - 1 hour
   - 2 hours
   - 3 hours
   - More than 3 hours
   - A little bit of the time
   - Some of the time
   - Most of the time
10. Do you ever talk to kids about [answer to question 1]?
    Prompt for high school students:
    - Peers
11. What do you want to be when you grow up?
    Prompt for middle and high school students:

- What do you want to be after you finish high school?

12. Is there anything else you want to tell us about [answer to question 1]?
13. Is there anything else you want to tell us about you?

If yes, prompt, if needed:

- Please tell us more

Appendix G

Interview Questions Permission

Re: Autism/Special Interest Area Questions

From:**mary ann Winter-Messiers** (messiers@uoregon.edu)
Sent: Sun 7/19/09 1:09 PM
To: Krista Sivertson (k_loraine@hotmail.com)

Hello Krista,

Thank you so much for your interest in my research in special interest areas! I am happy to allow you to use the question tree from our interviews, and if you have any other questions, feel free to ask. I greatly appreciate your asking before using the questions--thank you very much! My only request is that in any writing or publications you produce, you cite me (or the articles I published) as the source of the interview questions. Determining a child's specific interest can be challenging in itself, and may take a lot of effort before moving on to the ways in which they impact writing quality.

As you may recall from my recommendations on future research, the impact of special interests on writing is a particular interest of my own. This topic is fascinating and makes a wonderful research focus.

All the best for your work and keep me posted on outcomes if you wish. I would love to hear what you find!

Sincerely,

Mary Ann Winter-Messiers

Appendix H
Raw Data

1 dropped out of study
Total of 24 points possible
Scores are averaged from two raters

#2 Andy	Word Count	Ideas & Content	Organization	Voice	Word Choice	Sentence Fluency	Conventions	Total
Prompt 1	59	3	1.5	1.5	1.5	1	2	10.5
2	30.5	1	1	1	1	1	2	7
3	47	2.5	2	2.5	2	2	2.5	13.5
4	59.5	2	1.5	2	3	2	1	11.5

#3 Michael	Word Count	Ideas & Content	Organization	Voice	Word Choice	Sentence Fluency	Conventions	Total
Prompt 1	29	2	2	1.5	2	2	2.5	12
2	18	1	2	1	1	1.5	2	8.5
3	46.5	2.5	2.5	2.5	2	3	1.5	14
4	28	2	2	1.5	1.5	2	1	10

#4 James	Word Count	Ideas & Content	Organization	Voice	Word Choice	Sentence Fluency	Conventions	Total
Prompt 1	99	4	3.5	3.5	3	3	3	20
2	29	2.5	2	1.5	2	2.5	2	12.5
3	82.5	2	2.5	3	2.5	3	3	16
4	47	3	3	3	3	3	4	19

#5 Daniel	Word Count	Ideas & Content	Organization	Voice	Word Choice	Sentence Fluency	Conventions	Total
Prompt 1	139	3	2	2.5	3	3	3	16.5
2	44.5	2	2	2	3	3	4	16
3	148	3	3	4	3	3	4	20
4	79	2.5	3.5	3	3	3	4	19