

THE IMPACT OF DISCONTINUE CRITERIA ON POTENTIAL GIFTED
STUDENTS' SCORES ON THE WECHSLER INTELLIGENCE SCALE FOR
CHILDREN- FIFTH EDITION

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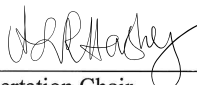
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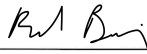
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Abstract

Gifted identification varies across the United States between states, districts, and school psychologists. Although multiple measures of cognitive ability exist, one of the most popular tools is the Wechsler Intelligence Scale for Children- Fifth Edition, published in 2014. This standardized assessment measures cognitive abilities and is now in its fifth edition. The most notable difference is the use of five primary index scales, rather than four, that combine to yield a Full Scale IQ score. Another change is that the discontinue criteria are shorter for a few subtests within the measure. Although this leads to a shorter test administration time, many gifted advocates believe that this shortened discontinue criteria may underestimate gifted students' abilities by not allowing them to demonstrate knowledge beyond those three missed items (National Association for Gifted Children, 2018; Silverman and Gilman, 2020). The purpose of this study is to begin to explore how those shortened discontinue criteria on the Verbal Comprehension Index may or may not impact potentially gifted students' scores and moreover, gifted eligibility. Understanding how these shortened discontinue criteria may or may not impact scores will help to guide districts and school psychologists into proper identification methods and criteria and a further understanding of the Verbal Comprehension Index on the WISC-V. This study will focus on the following questions: How do shortened discontinue criteria impact potential gifted students' scores on the Similarities subtest? How do shortened discontinue criteria impact potential gifted students' scores on the Vocabulary subtest? With limited verbal subtests, how does the WISC-V's shortened discontinue criteria impact potential gifted scores on the Verbal Comprehension Index? How do these discontinue criteria impact how school psychologists and schools determine eligibility?

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Chapter 1 - Introduction

Background and Purpose

Although many would likely agree that giftedness means superior ability, most would also likely agree that defining giftedness is more difficult. Early definitions began at the turn of the twentieth century as educators and psychologists acknowledged children with above average intelligence and studied the inheritance of mental characteristics (National Association for Gifted Children, n.d.a). Early pioneers of the term gifted, such as Lewis Terman, shaped the many definitions that are used today. Although Terman utilized a very specific definition, indicating giftedness as the top 1% of ability as measured by the Stanford Binet Intelligence Scale, or other similar instrument (Terman, 1926, as cited in Renzulli, 2011), others eventually established broader definitions with more flexibility. Joseph Renzulli defines giftedness as an interaction between three things: above-average general and/or specific abilities, high levels of task commitment, and high levels of creativity (Renzulli, 2011). The Elementary and Secondary Education Act of 1965 and the Jacob Javits Gifted & Talented Students Education Act of 1988 helped gifted identification become recognized by federal law (National Association for Gifted Children, n.d.b). The Jacob Javits Gifted & Talented Students Education Act is still the only federal program that is dedicated to students who are gifted and talented. It does not, however, fund local gifted education programs (National Association for Gifted Children, n.d.b). The federal Elementary and Secondary Education Act of 1965 (ESEA) defines gifted and talented students as:

Students, children, or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific

academic fields, and who need services and activities not ordinarily provided by the school in order to fully develop those capabilities.

Gifted Criteria

The downfall, however, is that students with gifts and talents are *recognized* within the federal language, although there are no mandates or provisions to serve these children (National Association for Gifted Children, n.d.d). Because of this, it is up to state agencies and in some cases, local authorities, to determine identification criteria of gifted students and how their gifts and talents are serviced. Leaving this responsibility up to local authorities leads to not only inconsistencies in funding, but also to inequities among gifted students nationwide (National Association for Gifted Children, n.d.c). Furthermore, this leads to the underrepresentation of minorities, students of low socioeconomic status, and those who are twice exceptional, with both special education needs and enrichment or acceleration needs (Ford, 2010).

Identifying children who are gifted varies across states and districts (Kendrick-Dunn, 2019). While strict cut off scores restrict some districts' identification models for children, other districts use multiple criteria and sources of cognitive abilities. Improper identification can result in students not receiving services they need to reach their academic potential. Additional evidence is needed to support the use of multiple criteria and to dismantle the strict cut off score criteria of cognitive ability tests (National Association for Gifted Children, n.d.e). In addition, more data is needed in the field to determine if the claims made regarding discontinue criteria on standardized tests are too short for identifying gifted children are accurate. Discontinue criteria are a predefined criterion in which the examiner would cease administration of the current subtest given to

the examinee. For example, a discontinue criteria may be three missed items in a row.

After that criteria is met, the examiner would cease the administration of that subtest and move on to the next.

Measuring Cognitive Ability

The process of identification often includes measuring cognitive ability or intelligence quotients. While the identification models used for gifted students vary across the United States, the assessments to measure cognitive ability or intelligence quotients (IQ) also vary. One of the most widely used tools in many countries, including the United States, is the Wechsler Intelligence Scale for Children-V (WISC-V) (Pfeiffer, 2015; Rowe, Dandridge, Pawlusch, Thompson, & Ferrier, 2014). This standardized assessment measures cognitive abilities and is now in its fifth edition. The most notable difference is the use of five primary index scales, rather than four, that combine to yield a Full Scale IQ score. Since the new edition has five primary index scales, there is now less weight on verbal abilities within the Full Scale IQ score due to an added nonverbal measure. The verbal-visual balance that once existed on the WISC-IV has now shifted to more nonverbal tasks (Silverman and Gilman, 2020). The WISC-V has fewer verbal subtests, thus limiting the verbal content that is asked of students.

Another change is that the discontinue criteria are shorter for a few subtests within the measure. As an example, the Similarities and Vocabulary subtests, the two subtests that comprise the Verbal Comprehension primary index score, now have a ceiling, or discontinue criteria, of only three items. In simpler terms, an examiner would discontinue the administration of a subtest once the examinee has missed three items in a row. Although this leads to a shorter test administration time, many gifted advocates

believe that this shortened discontinue criteria may underestimate gifted students' abilities by not allowing them to demonstrate knowledge beyond those three missed items (National Association for Gifted Children, 2018; Silverman and Gilman, 2020).

According to Silverman and Gilman (2020), examiners have reported that examinees *can* correctly answer items beyond the ceiling. Therefore, by continuing to use the WISC-V to identify gifted students, are verbally gifted students' cognitive abilities being underestimated due to shortened discontinue criteria and limited verbal content?

Theoretical Framework

Identification of gifted students continues to be a topic that has little agreement among professionals due in part to the varying definitions and the lack of mandates set forth by federal laws. Little research can be found that suggest the shortened discontinue criteria may underestimate truly gifted children's abilities (Silverman, 2018; Silverman & Gilman, 2020). However, the National Association for Gifted Children (NAGC) uses this hypothesis as one of their three concerns when using the Wechsler Intelligence Scale for Children-V to identify gifted children (2018). The NAGC also promotes the use of ancillary index scores, not just a Full Scale IQ score, to identify gifted strengths. By looking at and acknowledging more indices, gifted students have a chance to showcase their cognitive strengths, as many have asynchronous abilities, or stronger abilities in one cognitive area compared to another. This study will focus on the discontinue criteria of the Verbal Comprehension Index, which includes the Similarities and Vocabulary subtests with discontinue criteria of three items, when used for referrals of potentially gifted students. Because most students are referred for gifted evaluations due to their verbal strengths (Silverman & Gilman, 2020), this study will analyze how those

discontinue criteria on the WISC-V impact the verbal ability subtests and resulting index score.

This study will help to determine how critical it is for districts and school psychologists to use multiple criteria when determining eligibility for gifted and talented programs. Due to the lack of research in this area, the evidence will help to clarify or dismantle the argument for multiple criteria. In addition, this study focuses on the Verbal Comprehension Index of the WISC-V, or verbal abilities, which are now outnumbered by nonverbal reasoning tasks. According to NAGC, children are often referred for gifted testing due to verbal expression, and those children who are either bilingual or multilingual need intense verbal measures (2018). This study will determine if more robust measures should be taken when students are referred due to their verbal abilities or if they are bilingual or multilingual. Having an understanding of how these measures may or may not impact scores may help to identify those underrepresented groups. Overall, this research will aide to study current presumptions in identifying gifted students and will help to support or reject the hypothesis that shorter discontinue criteria will inhibit gifted identification.

Definition of Terms

Ancillary Index Score- The ancillary index scores represent cognitive abilities using different primary and secondary subtest groupings than do the primary index scales. The ancillary index scores are on a standard score metric with a mean of 100 and an SD of 15 (Wechsler, 2014b).

Child Find- A school district must locate and identify all students of school age who reside within the district who are thought to be gifted and in need of specially designed instruction (Pennsylvania Department of Education, 2014).

Discontinue Criteria/Discontinue Rule- After a certain number of items are answered incorrectly, there is less than a 10% chance that the examinee will respond to any of the remaining items correctly (Weiss, 2016).

English Language Learner- a student whose primary language is not English, and whose English proficiency or lack thereof provides a barrier to successful learning (Council for Exceptional Children, n.d.).

Full Scale IQ Score- The Full Scale IQ is a score derived from administration of selected subtests from the Wechsler Intelligence Scales designed to provide a measure of an individual's overall level of general cognitive and intellectual functioning. It is a summary score derived from an individual's performance on a variety of tasks that measure acquired knowledge, verbal reasoning, attention to verbal materials, fluid reasoning, spatial processing, attentiveness to details, and visual-motor integration. (Lange, 2011)

Gifted and Talented Students- The federal Elementary and Secondary Education Act defines gifted and talented students as "Students, children, or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership

capacity, or in specific academic fields, and who need services and activities not ordinarily provided by the school in order to fully develop those capabilities,” (Elementary and Secondary Education Act, 1965). Many states and districts follow the federal definition.

Identification- The process of determining students qualified for gifted or advanced programming, identification most commonly occurs through the use of intelligence or other testing. Many researchers place emphasis on using multiple pathways for identification, adding teacher, parent, or peer nominations or authentic assessments such as portfolios of student work to the process (National Association for Gifted Children, 2018).

Individual Education Plan (IEP)- An IEP is a document that delineates special education services for special-needs students. The IEP includes any modifications that are required in the regular classroom and any additional special programs or services. Federal law and the majority of states do not require IEPs for gifted learners (National Association for Gifted Children, 2018).

Intelligence- The ability to learn, reason, and problem solve. Debate revolves around the nature of intelligence as to whether it is an innate quality or something that is developed as a result of interacting with the environment. Many researchers believe that it is a combination of the two (National Association for Gifted Children, 2018).

Intelligence Quotient (IQ)- A number used to express the relative intelligence of a person (The Editors of Encyclopaedia Britannica, 2019).

Similarities- The subtest is designed to measure verbal concept formation and abstract reasoning (Wechsler, 2014b).

Primary Index Scores- Represent intellectual functioning in five cognitive areas: Verbal Comprehension Index (VCI), Visual Spatial Index (VSI), Fluid Reasoning Index (FRI), Working Memory Index (WMI), and the Processing Speed Index (PSI) (Wechsler, 2014b).

Standardized- Psychologists often use standardized tests of various abilities to compare an individual's performance to an appropriate peer group. These tests are developed and "normed" under standard conditions, using prescribed instructions, materials, and scoring to ensure reliable and valid comparisons. Scores are generally provided as a standard score or percentile rank (National Association of Secondary School Principals, 2003).

Twice Exceptional- Being gifted and also having a disability (National Association for Gifted Children, 2018).

Verbal Comprehension- A measure of crystallized intelligence. It measures the child's ability to access and apply acquired word knowledge. The application of this knowledge involves verbal concept formation, reasoning, and expression (Maccow, 2015).

Vocabulary- The subtest is designed to measure word knowledge and verbal concept formation (Wechsler, 2014b).

Wechsler Intelligence Scale for Children-V- an intelligence test that measures a child's intellectual ability and 5 cognitive domains that impact performance (Wechsler, 2014b)

Chapter 2 - Literature Review

The identification of gifted children can be thought of as a continuum of criteria, dependent upon the state and district. Although giftedness has been defined in multiple ways, most educators agree that the best evaluation methods use a multiple criteria approach for identification, rather than one that focuses solely on standardized test performance (National Association for Gifted Children, 2018). Educators must understand the characteristics of gifted students and be able to interpret various pieces of evidence that support identification. Many school district evaluations consist of parent and teacher input, checklists, academic record reviews, and at the forefront, standardized cognitive assessments, which yield many scores like the Full Scale Intelligence Quotient and the General Abilities Index. Having a thorough understanding of how these sources of information yield valid evaluation results is important. More specifically, understanding the impact of cognitive assessments is critical as intelligence is a cornerstone of giftedness under many definitions.

Wechsler Intelligence Scale for Children-V: New Changes

A commonly used cognitive assessment is the Wechsler Intelligence Scale for Children-V (WISC-V), which was published in 2014. Changes on this test from the previous version include fewer verbal tasks, more emphasis on processing speed tasks and timed measures, and shortened discontinue criteria. A quick view of these differences is outlined in Table 1.

Table 1

Comparing WISC-V Changes to the WISC-IV (Primary Index Scales)

Difference	WISC-IV	WISC-V
fewer verbal tasks	Similarities Vocabulary Comprehension	Similarities Vocabulary
more processing speed tasks and timed measures	Block Design Coding Symbol Search	Block Design Figure Weights Visual Puzzles Coding Symbol Search
shortened discontinue criteria	four or five missed items (Block Design is three missed items)	three missed items (Block Design is two missed items)

Note. The three differences between the WISC-IV and WISC-V are compared.

Therefore, it is essential for school psychologists to understand how these changes may impact the ability to identify gifted children, which, in turn, may support a multiple criteria approach.

The purpose of this research study is to determine if the shortened discontinue criteria on the Verbal Comprehension subtests on the WISC-V underestimate a potentially gifted child's score. How much of an impact do discontinue criteria on the Vocabulary and Similarities subtests have on scores when compared to scores that disregard the discontinue criteria? Lastly, as a result of changes to subtest level scores, this study will investigate the impact of those changes to summary level scores such as the Verbal Comprehension Index (VCI), which can be used in eligibility decisions.

Understanding how these changes may impact scores of gifted referrals will improve school districts' gifted criteria and school psychologists' evaluation process. These results will help states and districts that utilize strict cut off scores on cognitive assessments realize that an overall interpretation and analysis of the data as a whole is

more reliable. Strict assessment score criteria may be faulty, as it may underestimate a child's true abilities, especially with the new discontinue criteria used for the WISC-V (National Association for Gifted Children, 2018). Understanding the impact of these changes will also help to ensure students are given fair opportunities to showcase their cognitive strengths, especially those that may be verbally gifted.

This chapter will focus on the definition of giftedness and how school psychologists must carefully evaluate for this exceptionality. The first section discusses how the definition of gifted has evolved over time. The second section identifies the role of school psychologists in gifted identification, as well as problems with training. The third section focuses on evaluation considerations of gifted students. Finally, the last section identifies the WISC-V as a primary cognitive assessment tool and the changes from previous editions, which may contribute to the need for a multiple criteria approach for identification.

Gifted Defined

Throughout history, humans have been intrigued by the idea of superior ability and talent. The Olympics have glorified superb athletic talent and strength. The Nobel Prize awards those who have made a significant impact on mankind (Britannica, 2020). However, the concept of giftedness is a socially constructed paradigm (Borland, 2003). The ideas and definitions of giftedness vary greatly among states and school districts, and even more so among educators and researchers.

In 1926, Lewis Terman fueled a specific, conservative definition indicating that giftedness was, "the top 1% level in general intellectual ability, as measured by the Stanford-Binet Intelligence Scale or a comparable instrument" (Terman, 1926, as cited in

Renzulli, 2011). This type of definition requires very specific criteria to identify giftedness, with little room for interpretation. Soon after, others began taking a more liberal approach, allowing for flexibility in the criteria. Paul Witty suggested giftedness to include children with outstanding performance in a valuable human activity (Witty, 1958, as cited in Renzulli, 2011). Even though this definition allows for more opportunities to display giftedness, rather than just through objective measures, it also allows for subjectivity across multiple domains. It is much more difficult to establish standards related to subjective criteria; therefore, practitioners' definitions evolved to include theories of multiple intelligences. Multiple intelligences can allow for strengths in multiple areas to be used as a basis for giftedness. An agreed upon federal definition of giftedness was developed in the 1972 Education of the Gifted and Talented: Report to Congress, or the Marland report, which read:

Gifted and talented children are those identified by professionally qualified persons who by virtue of outstanding abilities are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society.

Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:

1. general intellectual ability
2. specific academic aptitude
3. creative or productive thinking

4. leadership ability
5. visual and performing arts
6. psychomotor ability (U.S. Commissioner of Education, 1972, p. 2)

This definition inspired Joseph Renzulli who proposed a theory that giftedness is an interaction between above-average general and/or specific abilities, high levels of task commitment, and levels of creativity (Renzulli, 2011). The Differentiated Model of Giftedness and Talent by Francoys Gagné was introduced after critically examining other models, such as Renzulli's, which led to the separation of giftedness and talents (Gagné, 1985; National Association for Gifted Children, n.d.f). Gagné suggested that giftedness can be defined by natural or innate abilities that are untrained (Gagné, 1985). Talents, on the other hand, point to mastery of a trained ability and knowledge of that ability (Gagné, 1985). With this separation of giftedness and talents, Gagné went on to describe five aptitude domains: intellectual, creative, socioaffective, sensorimotor, and "others" (e.g., extrasensory perception) (Gagné, 1985). He argued that each of those domains could be observed within an educational setting (Gagné, 1985). This popular idea of one being naturally gifted or having the ability to master an aptitude made it seem quite simple for educators to observe.

In 1993, the U.S. Department of Education's definition of giftedness changed in a more culturally responsive way (Ford, Wright, Washington, & Henfield, 2016). The definition evolved to include three critical concepts: talent, potential, and environment and experience (Ford, Wright, Washington, & Henfield, 2016). Talent was considered an area that could be developed and could occur across cultures and races (Ford, Wright,

Washington, & Henfield, 2016). Potential was the concept that could close the achievement gap in students caused by race and income (Ford, Wright, Washington, & Henfield, 2016). The concept of environment and experience opened the door for consideration of gaps that might occur due to differences in economic status and race.

Still, other practitioners continued to form their own ideas of giftedness. Robert Sternberg's Theory of Successful Intelligence focused on the ability to set a goal and accomplish that goal (Sternberg, n.d.). His Theory of Practical Intelligence identified tacit knowledge, or common sense, as the basis of intelligence (Sternberg, n.d.). This ability would come naturally through the environment, without being explicitly taught. Another idea came from Howard Gardner, who conceptualized multiple avenues of intelligence, including spatial, bodily-kinesthetic, musical, linguistic, logical-mathematical, interpersonal, intrapersonal, and naturalistic (MI Oasis, n.d.). These areas went beyond the context of academics. This idea of including talents outside of the academic domain became a growing endeavor in the field. While including talents in the definition of giftedness led to greater opportunities for many students, it also made identification less clear for educators.

It can be concluded then, that attempting to define giftedness is not the fundamental issue; instead, it is the competing theories and definitions that make gifted identification difficult. Intelligence was and will continue to be defined in many ways by many theorists. However, the National Association for Gifted Children (NAGC) defines five key elements that educators in all settings must address in order to ensure proper identification and adequate services (2018). Those elements state that gifted children:

- Come from all racial, ethnic, and cultural populations, as well as all economic strata.
- Require sufficient access to appropriate learning opportunities to realize their potential.
- Can have learning and processing disorders that require specialized intervention and accommodation.
- Need support and guidance to develop socially and emotionally as well as in their areas of talent.
- Require varied services based on their changing needs. (National Association for Gifted Children, 2018)

These key elements are general, but focus on the complex nature of giftedness in students. Overall, the guidance encompasses a diverse population of children, who may also have other exceptionalities. These children need access to opportunities that will allow them to advance socially and emotionally and enhance their gifted potential. The support for gifted children should be frequently assessed, to make sure that their needs are being met throughout their educational careers. Although NAGC is a national association, there is no federal guidance nor are there any requirements for gifted services (National Association for Gifted Children, n.d.c). Therefore, school psychologists rely on state and local education agencies to help guide identification. While many districts may use a multiple criteria approach for identification, there is still opportunity for growth in this area. In addition to understanding state and district evaluation guidelines, school psychologists also need specific training on how to interpret intelligence tests and use other information. The additional information that is gathered, along with accurate

intelligence testing, will allow for a comprehensive evaluation that is fair for all students who are being evaluated for gifted identification.

Role of School Psychologists

Because there is no federal mandate to identify or serve gifted students, there are a variety of services and programs among states and districts (Kendrick-Dunn, 2019). Many states establish gifted identification guidelines, but only some provide funding for districts to implement services (National Association for Gifted Children, n.d.c). In some rare cases, states choose not to identify gifted students at all, and as a result, there are no direct gifted services provided. This ambiguity within the United States gives way for variations of gifted programs and unclear guidelines for those who are given the responsibility to ensure services to students.

Due to this inconsistency among states, districts and school psychologists are burdened with establishing their own identification criteria. School psychologists, alone or with a team, are often viewed as leaders of gifted identification and services. When surveyed, teachers' perceptions were that school psychologists take the lead role in assessment and identification of gifted students (Gilmen & Medway, 2007).

Given the perception that school psychologists take the lead, it is useful to understand how they are prepared and trained to take on this role. Unfortunately, many school psychology graduate programs offer little to no training on gifted identification and programming (Roberston, Pfeiffer, & Taylor, 2011). As a result, certified school psychologists are often tasked with implementing gifted assessment and identification procedures despite having little familiarity with the needs of gifted students (Roberston, Pfeiffer, & Taylor, 2011). Although there is much research that explores the training and

role of gifted teachers, as well as the roles of psychologists in general, there is little research that focuses on school psychologists' training in gifted education. A survey of school psychologists conducted by Robertson, Pfeiffer, and Taylor (2011) indicated that 94% reported little or no training in gifted screening and assessment. In addition, only 42% reported training in characteristics of the gifted and only 29% reported having experience in evaluating a student for gifted eligibility during their practicum experience (Robertson, Pfeiffer, & Taylor, 2011). This research highlights how little some school psychologists know about gifted education, even though they are often expected to take the lead within their schools.

In addition to lacking formal training in gifted assessment and identification, school psychologists also lack training in understanding students who may be twice exceptional, or those groups of students that are underrepresented in the gifted population, such as English language learners. Not all referrals for gifted are clear. Robertson, Pfeiffer, and Taylor (2011) identified 37% of school psychologists surveyed received no training regarding gifted assessments, characteristics, theories, curriculum, socioemotional needs, or twice-exceptional, while another 48% indicated that their school utilized a strict intelligence quotient (IQ) score for identification. Despite the lack of training that is reported, school psychologists are still burdened with the task of becoming the key player for a resolution of gifted identification and evaluation. More evidence of the lack of training and guidance for school psychologists can be seen in the National Association of School Psychologists' (NASP) (2010) guidelines for graduate programs. These guidelines do not reference gifted identification or programming in any of the ten standards.

Given the various definitions of giftedness, lack of federal guidance, and poor training of school psychologists, it is not hard to imagine that many gifted students are never even identified. Furthermore, students who are twice exceptional, English language learners, or from a minority group are greatly underrepresented in gifted programming (Ford, Wright, Washington, & Henfield, 2016; Josephson, Wolfgang, & Mehrenberg, 2018; National Center for Research on Gifted Education, 2019). As school psychologists continue as evaluators, they must become knowledgeable on gifted identification and programming, and also how to ensure underrepresented populations are given fair opportunities.

Challenges in Identifying Nontraditional Gifted Students

Just as the definition of giftedness varies, so do the children who make up that population. School psychologists are burdened with the task of identifying children despite having little to no training (Roberston, Pfeiffer, & Taylor, 2011). Challenges for identification are even more paramount for those gifted children that may also have a disability. These children have a disability that may mask or obscure their gifted characteristics.

Twice Exceptional

A student who is gifted and also has a disability is often referred to as “twice exceptional.” This concept was not recognized until the reauthorization of the Individuals with Disabilities Education Act in 2004 (Josephson, Wolfgang, & Mehrenberg, 2018). Educators have difficulty in identifying these students, as the abilities of giftedness may mask the disability, whereas the disability may also mask giftedness. In addition, research over the past decade concluded that twice exceptional students are difficult to identify

due to inconsistent evaluation practices (Wormald, Rogers, & Vialle, 2015), teachers' expectations of students based on their disability (Missett, Azano, Callahan, & Landrum, 2016), and the limited information on how to engage and instruct these students (Winebrenner, 2003). Furthermore, identifying just how many twice exceptional students there may be is problematic.

Research on how to identify gifted children who may also have a learning disability is sparse, but began in the 1980s. Schiff, Kaufman, and Kaufman (1981) compared the Wechsler Intelligence Scale for Children-Revised (WISC-R) scores of children with at least one intelligence quotient index score above 120. These scores were examined to determine if a pattern of subtest or index scores was present and could be used to identify if they also had a learning disability. Index discrepancies were found in the Verbal and Performance areas, but there were no patterns among the subtest scores to determine giftedness and a learning disability. Shortly thereafter, in 1989, Barton and Starnes completed similar research and compared the WISC-R scores of two groups of students: gifted and gifted with a learning disability. They also found Verbal and Performance index discrepancies, with the Verbal index score generally being higher (Barton & Starnes, 1989). A more recent study concluded that the General Abilities Index (GAI) may be a more valid score to identify both gifted *and* students with a specific learning disability (twice exceptional), as well as a comprehensive evaluation (Assouline, Foley Nicpon, and Whitman, 2010). In most cases where a child is twice exceptional, their disability is often not severe enough, whereas a student with a learning disability does not display more than average achievement, which oftentimes leads to non-identification of giftedness. It is critical for school psychologists to be able to distinguish

between a child's strengths and weaknesses, allowing for a more precise interpretation of their abilities (National Association for Gifted Children, 2018).

English Language Learners

Another population of students who are underrepresented in gifted education are those who are English language learners and those from minority backgrounds.

According to Miller (2004), "African Americans, Latinos (especially Mexican Americans and Puerto Ricans), and Native Americans are currently severely underrepresented among the nation's highest achieving students, by virtually all traditional academic achievement measures, including GPA, class rank, and standardized tests scores" (p. 2).

These students, for varying reasons, are also underrepresented in gifted education. The National Center for Research on Gifted Education (NCRGE) implemented a study in 2014 that lasted five years. The goal of this research was to determine what practices successful schools were implementing to identify English language learners as gifted. The NCRGE published multiple key findings, indicating that there is extensive use of cognitive tests to identify gifted students, with most identification occurring around third grade, and that universal screenings and nonverbal assessments do not provide solutions for identifying those students who are underrepresented (National Center for Research on Gifted Education, 2019). Instead, the research indicated that universal screening should occur at multiple instances, should be an ongoing process, and should include nonverbal ability assessments, observations, and monitoring of English language acquisition (National Center for Research on Gifted Education, 2019). In addition, an in-depth case study of one district identified the theoretical and practical barriers to identifying gifted English language learners effectively. These barriers include possible population

challenges, state support, current programming, assessment practices, parental involvement, and staff challenges (Harris, Plucker, Rapp, & Martinez, 2009). Identifying gifted students presents its own challenges, while identifying those that are also English language learners poses even more barriers.

Research and guidelines for identifying gifted students who are twice exceptional or an English language learner are important areas that should continue to be a focus in the field of giftedness. However, valid gifted evaluations must begin by being comprehensive and robust. One common tool utilized by school psychologists to identify gifted students is the WISC-V. Still, with little gifted training in school psychology programs and throughout their careers, it is more critical than ever to assure that school psychologists can properly analyze the scores and data that the WISC-V provides.

Wechsler Intelligence Scale for Children- Fifth Edition

The NAGC released a position statement in 2018 on the use of the WISC-V to identify gifted students and those who may be twice exceptional. The paper provides three clear concerns when using the WISC-V: there are large discrepancies between the composites that may make the Full Scale IQ (FSIQ) uninterpretable, there is an overemphasis on processing skills, which is often lower in gifted students, and there are administrative changes such as shorter discontinue criteria and more timing on subtests (National Association for Gifted Children, 2018). This information was based on a study of 390 gifted children from seven U.S. sites by the NAGC Assessments of Giftedness Special Interest Group. The results yielded some concerns and considerations.

One of the major guidelines for the use of the WISC-V for gifted identification is to abandon the use of the FSIQ (National Association for Gifted Children, 2018). The

FSIQ is typically deemed the standard score to use when determining a student's intelligence quotient (IQ) for purposes of gifted identification. It is a summary score that reflects a student's performance on subtests that make up the five composites on the WISC-V. However, the FSIQ becomes less reliable if those five composites are significantly different from one another. This is not uncommon, as gifted students often possess asynchronous abilities. More specifically, students who are twice exceptional may have even more significant discrepancies between their strengths and weaknesses (Silverman, 2013). When these differences occur, the evaluator should analyze each composite individually (Silverman & Gilman, 2020). By not using the FSIQ, the evaluator can better examine the student's strengths and weaknesses.

Another consideration when using the WISC-V to evaluate for giftedness is the impact of cognitive efficiency skills, which include Working Memory and Processing Speed subtests. The NAGC indicates that gifted children may earn higher mean scores on composites that are more heavily loaded on abstract reasoning (Verbal Comprehension, Visual Spatial, and Fluid Reasoning) and earn lower mean scores on composites that assess cognitive efficiency (National Association for Gifted Children, 2018). Both gifted groups in the NAGC study had statistically higher mean scores on the Verbal Comprehension, Visual Spatial, and Fluid Reasoning composites than in the Processing Speed and Working Memory groups (National Association for Gifted Children, 2018). More specifically, the Verbal Comprehension Index was the highest score and the Processing Speed Index was the lowest score (Silverman & Gilman, 2020). Therefore, if a student has weaker cognitive efficiency skills, it may pull down their FSIQ score and not accurately reflect strengths in abstract reasoning tasks.

Lastly, the structural changes to the WISC-V include the number of composites, timing of subtests, and shorter discontinue criteria. The WISC-V includes five composites rather than four, and only two subtests within each composite. With this odd number of composite scores, the balance of verbal and nonverbal tasks now becomes unequal (National Association for Gifted Children, 2018). Therefore, if a child with strong verbal abilities is recommended for a gifted evaluation, there is less testing in their perceived area of strength. Also, the use of timing on the WISC-V is more prominent, with two subtests allowing for only 30 seconds on the hardest items. This may pose an issue for gifted students who take a longer time to process information. The discontinue criteria are also much shorter. While previous editions required a student to miss four or even five items before discontinuing the subtest, now subtests are discontinued after missing just three items. Block Design was reduced to missing only two items before discontinuing.

With much debate on the definition of what being gifted means, as well as limited training, school psychologists rely on intelligence measures like the WISC-V. This tool is widely used but has characteristics that may inhibit gifted abilities, such as the FSIQ and shortened discontinue criteria. Given this information, it is critical for schools to identify giftedness using multiple criteria. This is especially important for children whose true abilities and strengths are higher than their scores on a standardized intelligence assessment. It should not be just a checklist of more criteria for children to meet (Silverman and Gilman, 2020), but should include observations and parent and teacher input. However, because the WISC-V will likely remain a common aspect of gifted evaluations, it is critical to continue to examine ways in which the structure of this

assessment may underestimate a student's true abilities. This is especially important for districts that rely on the FSIQ. The discrepancies identified throughout this literature review, in addition to the challenges researchers have shared regarding the gifted identification of English language learners and twice exceptional students raise questions regarding the impact of discontinue criteria on gifted identification. This study will specifically focus on the discontinue criteria of subtests in the Verbal Comprehension Index, which includes the Similarities and Vocabulary subtests with discontinue criteria of three items, when used with potentially gifted referrals.

Chapter 3 - Methodology

Introduction

The current research investigation aimed to uncover data regarding the use of the Wechsler Intelligence Scale for Children-V (WISC-V) for potentially gifted students. Due to changes in the current edition, the WISC-V has undergone some scrutiny about the validity of the assessment for gifted students. The National Association for Gifted Children (2018) indicates that the Full Scale score may be un-interpretable due to variation among index scores, the processing speed score hindering gifted identification, and structural changes. More specifically, the shortened discontinue criteria has been a suggested area of fault by the National Association for Gifted Children (2018) and Silverman (2018, pp. 193-196).

Purpose and Hypotheses

The WISC-V is a cognitive assessment that is commonly used as a tool for gifted evaluations. However, the fifth edition has some changes that may impact the scores of gifted students (National Association for Gifted Children, 2018). Fewer verbal tasks and more processing speed tasks and timed measures are two changes that exist with the new fifth edition. Another change is the shortened discontinue criteria of subtests. Discontinue criteria is now three missed items, rather than previous version which required four or five missed items, depending upon the subtest. The goal of this study was to determine the following information on the WISC-V:

- How do shortened discontinue criteria impact potential gifted students' scores on the Similarities subtest?

- How do shortened discontinue criteria impact potential gifted students' scores on the Vocabulary subtest?
- With limited verbal subtests, how does the WISC-V's shortened discontinue criteria impact potential gifted scores on the Verbal Comprehension Index?
- How do these discontinue criteria impact how school psychologists and schools determine eligibility?

The hypothesis of this research study was that shortened discontinue criteria inhibit potentially gifted students' scores on the Verbal Comprehension Index, including the Similarities and Vocabulary subtests.

Research Design- Data Collection

For this quantitative research study, a comparison was conducted using paired sample *t-tests* to determine if there was a significant difference between scores of the Verbal Comprehension Index on the WISC-V when using standardization and when ignoring the discontinue criteria. This type of test was used to compare the differences between the two variables, or scores, for each participant. Participants in this study were students who were being evaluated for the gifted program within the Plum Borough School District. Students may have been nominated for a gifted evaluation by teachers, parents, or themselves, or may have been nominated as a result of child find procedures that the district uses. Child find procedures in the District include a cognitive ability, group administered assessment for all students in second grade. In addition, all teachers are reminded yearly about the referral process for gifted education, as well as common characteristics and false beliefs. For the purpose of this study, participants could have varied in grade level, from kindergarten to twelfth grade. Based on a three year average,

approximately 38 students are evaluated for the gifted program per year (Table 2).

Therefore, the goal of this study was to reach an average number of participants for this setting.

Table 2

Average Gifted Evaluations

School Year	Number of Gifted Evaluations
2019-2020	16
2018-2019	43
2017-2018	55
<i>Three Year Average</i>	<i>38 (19 per school psychologist)</i>

Site Permission

The Institutional Review Board at Slippery Rock University granted permission (Appendix A) for this study using the Full Review due to the involvement of minors, although minimal risk was identified. Additional permission was obtained by Plum Borough School District from which the participants were obtained. Parental consent was obtained for all participants, and that consent form was shared and approved by the Slippery Rock University Institutional Review Board, as well as Plum Borough School District (Appendix B). In addition, an assent form was given and read to the students prior to testing.

Population and Sample

The Plum Borough School District is a suburban district located in southwestern Pennsylvania, approximately 13 miles east of the city of Pittsburgh. It is the second largest borough in the state and covers an area of twenty-nine square miles with a population of approximately 27,000 persons according to the 2019 U.S. Census

Bureau. Most of the community is a suburban residential area with some light industry. The population is comprised of 93.8% White, 3.2% Black or African American, 1.3% Hispanic or Latino, 0.1% American Indian and Alaska Native, 0.1% Asian, and 2.5% two or more races (U.S. Census Bureau, 2019). The Plum Borough School District is comprised of approximately 3,600 students and five buildings (two K-4 elementary schools, one 5-6 elementary school, one junior high grade 7-8, and one high school grades 9-12).

The students from this district, who were nominated for a gifted evaluation in the 2020-2021 school year and whose parents gave consent, were evaluated using the WISC-V. On the Similarities and Vocabulary subtests, students continued on with items even after they missed three consecutive items, which under standard conditions meets the ceiling/discontinue rule. The additional items beyond the ceiling that were answered correctly were added to the raw score to establish a comparison score when discontinue criteria were ignored.

Instrumentation

For this study, the Wechsler Intelligence Scale for Children- Fifth Edition (WISC-V) was utilized with all participants. This instrument is utilized for assessing intelligence of children ages six years and zero months up to 16 years and 11 months (6:0-16:11) and is known and used throughout the world. The WISC-V is a current version of what started as the Wechsler-Bellevue Intelligence Scale in 1939 and has since been revised seven times.

Due to the WISC-V's reliability and validity, it is a popular choice by clinicians to assess cognitive abilities. The reliability of a test refers to "the consistency of scores

across replications of a testing procedure” (Wechsler, 2018). Furthermore, the test can be considered reliable if on two separate occasions, scores were consistent with one another. The WISC-V has a test-retest reliability across all ages for the Full Scale IQ of 0.92, with coefficients for the primary index scores ranging from 0.75 to 0.94 (Wechsler, 2014b). The General Ability Index has a test-retest reliability of 0.91 (Wechsler, 2014b). More specifically, the Vocabulary subtest has a test retest reliability coefficient of 0.90 across all ages, while the Similarities subtest has a coefficient of 0.88 (Wechsler, 2014b). These coefficients indicate that there is strong consistency among the WISC-V.

Validity measures “the degree to which evidence and theory support the interpretations of test scores for proposed uses of tests” (Wechsler, 2018). The WISC-V has strong criterion validity when compared against the KABC-II, the KTEA-3, and WIAT-III (Wechsler, 2014b). The comparisons indicated that the WISC-V test scores can be used as a measure of intelligence in children and can be used for identification, placement, and resource allocation (Wechsler, 2014b). In regards to children identified as intellectually gifted, the WISC-V obtains consistent scores of those identified children as their previous identification scores (Wechsler, 2014b). The mean Full Scale IQ score of the control sample had a standard difference of -2.05 when compared to the clinical sample of intellectually gifted children (Wechsler, 2014b). Table 3 presents the differences between the control mean and clinical mean of intellectually gifted children in the additional areas that are pertinent to this study as well as the Full Scale IQ score. Overall, the reliability and validity of the WISC-V is adequate for a cognitive assessment.

Table 3*Mean Performance of Intellectually Gifted and Matched Control Groups*

Subtest/Composite	Clinical Mean	Control Mean	Mean Diff.	<i>p</i> value	Std. Diff.
Similarities Subtest	15.1	10.9	-4.16	<.01	-1.63
Vocabulary Subtest	14.9	11.2	-3.77	<.01	-1.47
Verbal Comprehension Composite	127.7	105.8	-21.97	<.01	-1.74
General Ability Index Composite	127.1	106.3	-20.83	<.01	-1.88
Full Scale IQ	127.5	105.7	-21.85	<.01	-2.05

Note. $n = 95$. The table demonstrates only those areas of the WISC-V pertinent to this study. However, intellectually gifted students significantly outperformed their matched control counterparts on all WISC-V subtests and composites, with effect sizes ranging from 0.39 to 2.05. Adapted from “Mean Performance of Intellectually Gifted and Matched Control Groups” from Wechsler, D. (2014b). *WISC-V: Technical and interpretive manual*. Bloomington, MN: Pearson.

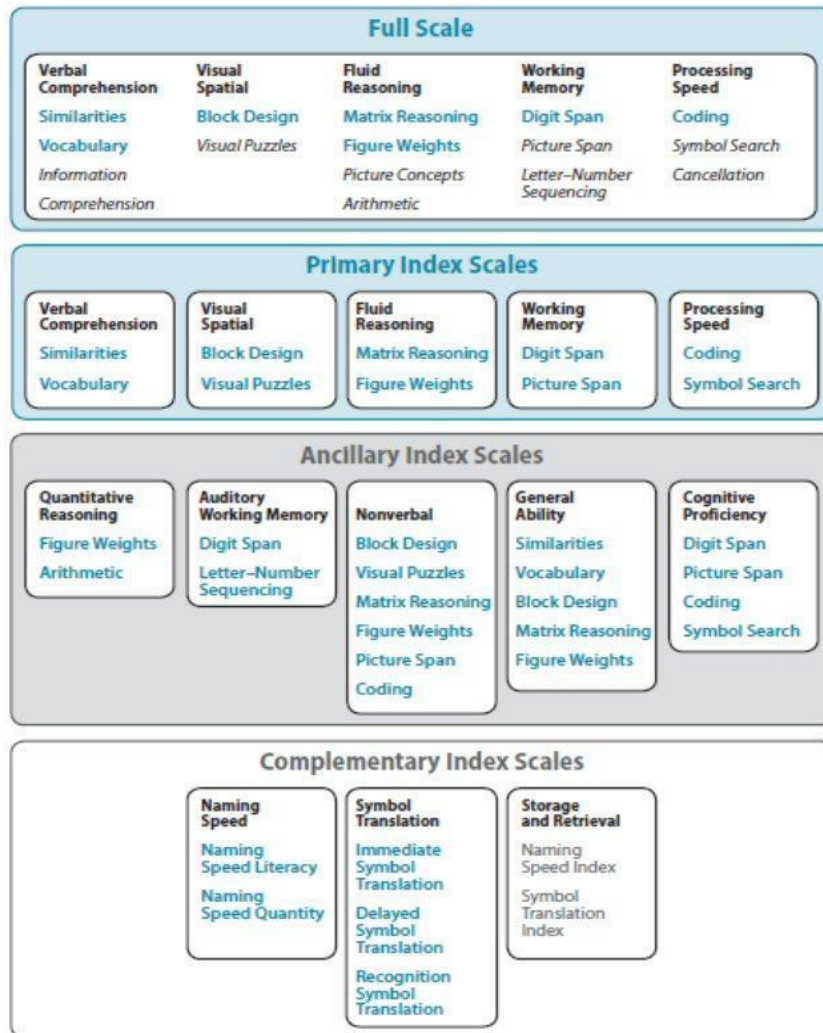
The WISC-V is composed of 21 subtests, which are: Block Design, Similarities, Matrix Reasoning, Digit Span, Coding, Vocabulary, Figure Weights, Visual Puzzles, Picture Span, Symbol Search, Information, Picture Concepts, Letter-Number Sequencing, Cancellation, Naming Speed Literacy, Naming Speed Quantity, Immediate Symbol Translation, Comprehension, Arithmetic, Delayed Symbol Translation, and Recognition Symbol Translation. Subtests are categorized into three groups: primary subtests, secondary subtests, or complementary subtests. There are 10 primary subtests that are

recommended in order to complete a comprehensive evaluation of intellectual and cognitive ability. Using these 10 subtests will allow an assessor to obtain a Full Scale IQ score (which only requires the use of 7 subtests), as well as individual subtests scores and scores for the Verbal Comprehension Index, the Visual Spatial Index, the Fluid Reasoning Index, the Working Memory Index, and the Processing Speed Index. Index scores are comprised of administration of two specific subtests. While obtaining the Full Scale IQ with 10 subtests (rather than just the needed 7), the assessor will also gain access to the Visual Spatial Index, the Working Memory Index, and the Processing Speed Index. The WISC-V has a total of 14 composite scores, which includes the Full Scale IQ and 13 index scales.

While the Full Scale IQ score is comprised of seven subtests and two primary index scores (Verbal Comprehension and Fluid Reasoning), there are also Ancillary Index scales and Complementary Index scales. Ancillary Index scales include the Quantitative Reasoning Index, the Auditory Working Memory Index, the Nonverbal Index, the General Ability Index, and the Cognitive Proficiency Index. The Ancillary Index scales are comprised of primary subtests or primary and secondary subtests. They provide additional data regarding cognitive performance. Complementary Index scales include Naming Speed, Symbol Translation, and Storage and Retrieval. While Naming Speed and Symbol Translation are comprised of subtests, Storage and Retrieval are comprised of index scores (Naming Speed and Symbol Translation Index). Figure 1 demonstrates the framework of the WISC-V as presented in the Administration and Scoring Manual (Wechsler, 2014a).

Figure 1

Test Framework for the WISC-V



Note. The test framework for the WISC-V includes a Full Scale score, Primary Index Scales, Ancillary Index Scales, and Complementary Index Scales. Subtests listed below each scale in bold indicate the required subtests to comprise the aforementioned scale.

Adapted from Wechsler, D. (2014). *WISC-V: Administration and scoring manual*.

Bloomington, MN: PsychCorp.

For this study, the Verbal Comprehension Index was the index utilized to compare standard scoring procedures with those conditions that ignore the discontinue

criteria. The two subtests that comprise the Verbal Comprehension Index are Similarities and Vocabulary. On both of these subtests, the discontinue criteria is three incomplete items. On previous versions of the Wechsler Intelligence Scale for Children, the discontinue criteria was four or five items. Currently on the WISC-V, the discontinue criteria for both Similarities and Vocabulary is three missed items in a row. As a result, this may prevent students from being able to show all that they know in these areas. See Table 4 for the specifics on each subtest.

Table 4

Similarities and Vocabulary Subtests

	Similarities	Vocabulary
measures	measures verbal concept formation and abstract reasoning	measures word knowledge and verbal concept formation
discontinue criteria	3 missed items	3 missed items

Data Collection

For this study, participants' scores were collected on the WISC-V from the Similarities and Vocabulary subtests, as well as the Verbal Comprehension Index. Raw scores on the two subtests were converted into scaled scores, which then were utilized to establish the standard score of the Verbal Comprehension Index. These scores were established by adhering to the standardized testing procedures. In addition to these scores, comparison scores were also gathered when ignoring the discontinue criteria on these two subtests. For example, if a student missed three items in a row, rather than discontinuing that subtest, the student was asked the remaining items. The raw score on these

comparison scores includes any correct items obtained after the ceiling. These raw scores were then converted into scaled scores for the two subtests, which were then converted into the standard score of the Verbal Comprehension Index. In conclusion, all participants in this research had six scores: Similarities and Vocabulary subtest scaled scores following standardized procedures, Similarities and Vocabulary subtest scaled scores ignoring standardized procedures, a Verbal Comprehension Index score following standardized procedures, and a Verbal Comprehension Index score ignoring standardized procedures.

Data Analysis

For this repeated measures design, data were analyzed using paired samples T-tests to obtain p-values of all scores, to identify whether differences occur between scores and whether any differences are meaningful. The data for all subjects on the Similarities and Vocabulary subtests, as well as their Verbal Comprehension Index score, were entered into the SPSS Statistics software platform. A paired samples T-test was used between each of the scaled scores for a subject using the standardized ceilings, as well as the score when administered the entire subtest. In addition, paired samples T-tests comparisons were used between the subjects' Verbal Comprehension Index scores following the standardized ceiling rules, as well as the scores when administered the entire subtests.

For this research, the IBM SPSS Statistics platform version 28.0.0.0 was utilized to enter data sets and make comparisons using the paired sample T-tests. The significance level used for the comparisons was 0.05 with a 95% confidence level.

Limitations

Limitations of this study do exist and should be noted and acknowledged. The population of this sample was limited in its scope and may not generalize to other districts and students of more diverse backgrounds. The subjects in this study were from only one suburban district and of one ethnicity. The results of this study should be used as only a starting point for further exploration of this topic. The study does, however, provide a starting point for further research to clarify these results. Further research should include a more diverse sample that is representative of the larger student sample of gifted students. In addition, further studies may include a larger sample, which will allow a further breakdown of age groups, demographics, gender, and socioeconomic status.

Another limitation was that all students were given all items on the subtest in order to provide consistency. However, for younger students especially, this included many items that may have been difficult for the students. This may have created testing fatigue or frustration on behalf of the student. While it is not believed that this would impact the overall results of the assessment, it may have impacted their levels of frustration during those subtests.

Yet another limitation of this study was that for the purposes of time, and to limit frustration on the students, data collected beyond the ceiling was only collected for the Verbal Comprehension Index, which consisted of the Similarities and Vocabulary subtests. The results of this study cannot be generalized to the other areas of the test. Future research should be conducted to determine if premature ceilings are an issue on the other subtests and indices.

Chapter 4 - Results

Introduction

As stated, this study examined one component of the position statement by the NAGC in 2018 regarding the use of the WISC-V to identify gifted students: shortened discontinue criteria on the WISC-V may hinder results for gifted children subtests (National Association for Gifted Children, 2018). The goal of this study was to determine the following information on the WISC-V:

- How do shortened discontinue criteria impact potential gifted students' scores on the Similarities subtest?
- How do shortened discontinue criteria impact potential gifted students' scores on the Vocabulary subtest?
- With limited verbal subtests, how does the WISC-V's shortened discontinue criteria impact potential gifted scores on the Verbal Comprehension Index?
- How do these discontinue criteria impact how school psychologists and schools determine eligibility?

The hypothesis of this research study is that shortened discontinue criteria do not inhibit potentially gifted students' scores on the Verbal Comprehension Index, including the Similarities and Vocabulary subtests. This chapter is organized in terms of the four specific research questions.

Participants

Participants in this study were students who were being evaluated for the gifted program within the Plum Borough School District. Students may have been nominated for a gifted evaluation by teachers, parents, or themselves, or may have been nominated

as a result of child find procedures that the district uses. The evaluation for these students were conducted using the scores from standardized testing conditions and therefore identification was not impacted by the results of this study.

Nineteen students in the Plum Borough School District were participants in this study while being evaluated for the gifted support program. Participant ages ranged from 6 years 11 months to 13 years 10 months ($M = 8-8$). Of the 19 participants, 10 were females and nine were males. All student participants were noted to be of White/Caucasian ethnicity in the student information system utilized by the district. Grade levels ranged from first grade to ninth grade. Referrals for the gifted evaluation were driven by either the parent or the school district. Five evaluations were requested by the parent and the remaining 14 evaluations were initiated by the school district, due to either screening results or an out-of-state transfer who had gifted services in their previous school.

Before testing was conducted, parents were notified in writing and by phone of the study. They were given the parental consent form to review. Questions were answered by the researcher and parents were assured that the research would have no impact on their child's gifted evaluation eligibility. Once parental consent was obtained, students were tested as part of the normal district procedures. Prior to testing, students were read the volunteer assent form and were asked if they had any questions, which were then answered by the researcher. Students were asked to indicate whether they agreed or disagreed to participate in the study by checking one of the boxes on the assent form. Of all parents and students asked to participate, 100% participated in this research study.

Table 5*Demographic Characteristics of Participants*

Characteristic	<i>n</i>	%
Gender		
Female	10	52%
Male	9	48%
Ethnicity		
White/Caucasian	19	100%
Grade Level		
K	0	0%
1	1	5%
2	6	32%
3	9	47%
4	2	11%
5	0	0%
6	0	0%
7	0	0%
8	0	0%
9	1	5%
Referral Type		
Parent	5	26%
District	14	74%

Note. $n = 19$.

Similarities

The first question posed is: how do shortened discontinue criteria impact potential gifted students' scores on the Similarities subtest? The hypothesis is that there is no difference in scores when students are given items past the ceiling. A paired- samples t- test was conducted to compare Similarities scaled scores with standardized ceiling rules and Similarities scaled scores without ceiling rules (known in Table 6 as Similarities Adjusted). There was a difference in scores between the ceiling rule ($M = 13.53$, $SD =$

2.44) and without the ceiling rule conditions ($M = 13.95$, $SD = 2.27$) (Table 6). This difference is moderately strong ($t(18) = -3.02$, $p = .007$, $d = -.69$).

Table 6

Paired Samples Statistics for Each Subtests and Composite

Subtest/Composite	Mean	Standard Deviation	t	df	Two- Sided p	Cohen's d
Pair 1						
Similarities	13.53	2.44				
Similarities Adjusted	13.98	2.27	-3.02	18	.007	-.69
Pair 2						
Vocabulary ^a	14.32	1.83				
Vocabulary Adjusted ^a	14.32	1.83				
Pair 3						
Verbal Comprehension Index	121.11	11.13				
Verbal Comprehension Index Adjusted	122.32	10.76	-2.82	18	.011	-.65

Note. $N = 19$

^aThe correlation and t cannot be computed for Pair 2 because the standard error of the difference is 0.

On average, Similarities scaled scores when following the ceiling rule were .42 points less (95% CI (-0.71, -2.11)) than Similarities scaled scores when rejecting the ceiling rule (Table 7).

Table 7*Paired Samples Correlations*

Subtest/Composite	Mean	95% Confidence Interval of the Difference	
Pair 1			
Similarities- Similarities Adjusted	-.42	-.71	-.13
Pair 3			
Verbal Comprehension- Verbal Comprehension Index Adjusted	-1.21	-2.11	-.31

There is a significant difference ($p = .01$), and the effect size using Cohen's d is moderately strong ($d = .69$). Of the 19 participants, seven had increased scaled scores on the Similarities subtest when tested beyond the ceiling (Table 8). The largest increase was two points between the Similarities scaled score and the Similarities scaled score adjusted, testing beyond the ceiling. Given the small sample size of this study, that significance would be projected to increase to a stronger degree when the sample size increases.

Table 8*Similarities Subtest Scaled Score Comparison*

Participant	Similarities Scaled Score	Similarities Scaled Score Adjusted
1	13	13
2	11	12
3	17	17
4	13	15
5	13	14
6	14	14
7	11	12
8	13	13
9	10	11
10	15	15
11	12	13
12	15	15
13	17	17
14	11	11
15	12	12
16	11	11
17	15	15
18	15	16
19	19	19

Vocabulary

The second question posed is: how do shortened discontinue criteria impact potential gifted students' scores on the Vocabulary subtest? The hypothesis is that there is no difference in scores when students are given items past the ceiling. A paired-samples t-test was conducted to compare Vocabulary scaled scores with standardized ceiling rules and Vocabulary scaled scores without ceiling rules (known in Table 6 as Vocabulary Adjusted). There was not a significant difference in scores between the ceiling rule ($M = 14.32$, $SD = 1.83$) and without the ceiling rule ($M = 14.32$, $SD = 1.83$) (Table 6). Because the standard error of the difference between these two variables was zero, the correlation

and t-value could not be computed. Although some participants were able to answer items past the ceiling, there were not any participants whose scaled score changed because of those additional points past the ceiling.

A non-parametric test was conducted for the Vocabulary pair. A sign test indicated that Vocabulary and Vocabulary adjusted had no difference ($p = 1.00$) (Table 9) and all comparisons were equal for each participant (Table 10).

Table 9

Vocabulary Sign Test – Frequencies

	N
Negative Differences ^a	0
Positive Differences ^b	0
Ties ^c	19
Total	19

a. Vocabulary Adj < Vocabulary

b. Vocabulary Adj > Vocabulary

c. Vocabulary Adj = Vocabulary

Table 10

Vocabulary Sign Test – Test Statistics^a

	Vocabulary Adj - Vocabulary
Asymp. Sig (2- tailed)	1.00

a. Sign Test

Verbal Comprehension Index

After analyzing the data between the two Similarities subtest scores and the two Vocabulary subtest scores for each participant, it is critical to then examine the Verbal

Comprehension Index scores between both conditions for each participant. The interpretation of this data will address the third question posed: how does the WISC-V's shortened discontinue criteria impact potential gifted scores on the Verbal Comprehension Index? The hypothesis is that there is no difference in the Verbal Comprehension Index scores when students are given items past the ceiling. A paired-samples t-test was conducted to compare the Verbal Comprehension Index scores with standardized ceiling rules and the Verbal Comprehension Index scores without ceiling rules (known in Table 6 as Verbal Comprehension Index Adjusted). There was a difference in scores between the ceiling rule ($M = 13.53$, $SD = 2.44$) and without the ceiling rule conditions ($M = 13.95$, $SD = 2.27$). This difference is moderately strong ($t(18) = -2.81$, $p = .011$, $d = .65$). Therefore, the shortened discontinue criteria, as evidenced through the research and participants of this study, does impact the Verbal Comprehension Index to a moderately strong degree. Seven participants had an increase in their Verbal Comprehension Index, with the largest increase being six additional standard score points (Table 11).

Table 11*Verbal Comprehension Index Score Comparison*

Participant	Verbal Comprehension Composite Score	Verbal Comprehension Composite Score Adjusted
1	116	116
2	111	113
3	142	142
4	121	127
5	111	116
6	127	127
7	116	118
8	118	118
9	108	111
10	118	118
11	116	118
12	133	133
13	133	133
14	113	113
15	113	113
16	108	108
17	121	121
18	130	133
19	146	146

New Discontinue Criteria

How do these discontinue criteria impact how school psychologists and schools determine eligibility? Although this study collected data from a small number of participants, the data reflects a moderately strong difference in the Similarities and Verbal Comprehension Index scores when using the ceiling rules and when testing beyond the ceiling rules. The NAGC claims that these shortened discontinue criteria may inhibit scores for gifted individuals (2018). While this may be true in some individual cases, overall, the ceiling rules do not impact scores significantly according to the results of this study. These results yielded a moderately strong change in scores for Similarities and the Verbal Comprehension Index. Seven of the participants' Verbal Comprehension

scores increased (the same participants who demonstrated an increase in their Similarities subtest scores when tested beyond the ceiling). For these students, the shortened discontinue criteria did inhibit their abilities when analyzing their scores to a moderately strong degree.

Overall, school psychologists and districts should be cautious in their use of the WISC-V Verbal Comprehension Index with the new shortened discontinue criteria. By using other criteria, as well as confidence intervals provided with the scores, their assessment of cognitive verbal abilities can be more accurate when testing for gifted abilities. In addition, districts should not be using strict cut off scores to make eligibility determinations, specifically for those students that may be gifted verbally. If districts are using strict cut off scores, then there could be a potential for some students to be unidentified, according to the results of this study. School psychologists and those that evaluate students, can continue to use the WISC-V, as well as other evidence to support verbal cognitive abilities, with confidence, so long as strict cut off scores are not used and multiple criteria are used.

Discussion

The WISC-V was given to the participants in this study and scores were interpreted with the ceiling rules and without the ceiling rules for the Similarities and Vocabulary subtests, as well as the Verbal Comprehension Index. The Similarities subtest did show a slight increase in the scaled scores (.42 points) when students were given items beyond the ceiling. The shortened ceiling rule did impact the scaled scores to a moderately strong degree. For seven participants, their scaled scores increased when they were tested beyond the ceiling. The results of this study suggest that for a small sample

size, a moderately strong change was found. This suggests that further research, with a larger population sample, could potentially find an even stronger significance in change when tested beyond the ceiling.

The Vocabulary subtest presented no data that supported any change for any of the participants when tested beyond the ceiling. Of all 19 participants, there were not any changes in scores from the Vocabulary scaled scores with the ceiling rule to the scaled scores without the ceiling rule, indicating no restrictions by the shortened ceiling rule within this sample. Although some participants did obtain points after the ceiling, there was no change in the scaled scores.

Based on the moderately strong change in Similarities scaled scores and no changes on the Vocabulary scaled scores, the Verbal Comprehension Index scores also demonstrated a moderately strong change. This index was impacted when students were given items beyond the ceiling. Therefore, examiners should be cautious when using this assessment of Verbal Comprehension abilities for potentially gifted students if they are using strict cut off scores. It is imperative the multiple criteria are utilized and that examiners consider a range of ability scores and reject the use of strict cut off scores.

Chapter 5 - Conclusion and Recommendations

Summary

The NAGC released a position statement in 2018 on the use of the WISC-V to identify gifted students and those who may be twice exceptional. The paper provides three clear concerns when using the WISC-V: there are large discrepancies between the composites that may make the Full Scale IQ (FSIQ) uninterpretable, there is an overemphasis on processing skills, which is often lower in gifted students, and there are administrative changes such as shorter discontinue criteria and more timing on subtests (National Association for Gifted Children, 2018). Many school psychologists utilize this tool as a measure of cognitive ability, which is the basis for gifted eligibility, making this claim critical to explore. The purpose of this research study was to determine if the shortened discontinue criteria on the Verbal Comprehension subtests on the WISC-V underestimate a potentially gifted child's score.

Nineteen students in the Plum Borough School District were participants in this study while being evaluated for the gifted support program. Participants' scores were collected on the WISC-V from the Similarities and Vocabulary subtests, as well as the Verbal Comprehension Index. Raw scores on the two subtests were converted into scaled scores, which then were utilized to establish the standard score of the Verbal Comprehension Index. These scores were established by adhering to the standardized testing procedures. In addition to these scores, comparison scores were also gathered when ignoring the discontinue criteria on these two subtests and then were used to establish a new Verbal Comprehension Index score. Comparisons were made between each set of scores.

The Similarities subtest did show a slight increase in the scaled scores (.42 points) when students were given items beyond the ceiling. This difference is considered moderately strong, suggesting that the shortened ceiling rule does impact the scaled scores to a moderately strong degree. The Vocabulary subtest presented no data that supported any change for any of the participants when tested beyond the ceiling. Of all 19 participants, there were not any changes in scores from the Vocabulary scaled scores with the ceiling rule to the scaled scores without the ceiling rule, indicating no restrictions by the shortened ceiling rule within this sample. Finally, the Verbal Comprehension Index scores also demonstrated a moderately strong change, impacted by the changes on the Similarities subtest, when students were tested beyond the standardized ceiling rules of the new WISC-V.

Further Discussion

The reason some students were able to obtain a higher score when tested beyond the ceiling on the Similarities subtest but not on the Vocabulary subtest can only be assumed by those examiners administering the assessment. When reflecting on the assessments for the subjects of this study, it appeared to be easier for the subjects to have more information to pull from when they were given two words per item, which is true for Similarities. On this subtest, examinees were asked how two things were alike. Given these two items, examinees could likely make an assumption of the similarity based on their knowledge of just one of those given words. However, the Vocabulary subtest presented a single word with each test item in order to determine if the examinee knows the meaning of that word. The examinees appeared more confident in their lack of knowledge of the meaning of that word on this subtest. The examinees also emerged as

more confident in stating that they did not know the meaning of the given word. On the other hand, the examinees could make an educated guess with the knowledge of one word on the Similarities subtest, thus possibly impacting the ability to earn more points when tested beyond the standardized ceiling.

Based on the findings of this study, school psychologists and their respective districts should evaluate their criteria for gifted programming eligibility. Using strict cut off scores could create instances in which verbally gifted students are not identified, specifically when using the WISC-V as the cognitive assessment tool. By allowing the use of a cognitive IQ range, along with other criteria that may suggest giftedness, schools could better identify verbally gifted students. It is also critical to remember that the WISC-V now has fewer verbal tasks, making it even more important to be sure the evaluation data encompasses a student's full verbal potential. Gathering other important information such as performance on reading comprehension tasks, teacher observations and input on classroom performance, as well as parent input on early indicators of verbal giftedness is critical in a multiple criteria approach for gifted evaluations. Only with a full evaluation that includes multiple sources of data can a school psychologist and their district have confidence in accurately identifying gifted students.

Further research is needed to determine if there is an impact on nonverbal tasks, such as the Block Design subtest. In addition, other changes in the WISC-V that were listed earlier in this report could be evaluated to determine how it impacts gifted evaluations and potentially gifted students. Those changes include more processing speed tasks and timed measures. Research has indicated that gifted persons often have lower performance on tasks of working memory and processing speed (National Association of

Gifted Children, 2018). Therefore, the WISC-V's use of the Full Scale IQ score could hinder a potentially gifted student's eligibility if it is brought down by lower working memory and processing speed. As stated before, the General Abilities Index (GAI) may be a more valid score to identify gifted students due to these known weaknesses, specifically with those that may be twice exceptional (Assouline, Foley Nicpon, and Whitman, 2010).

Implications

This study was an exploratory study to evaluate the claim made by the NAGC in 2018 that the shortened discontinue criteria is just one of many things that may inhibit a gifted individual's scores on the WISC-V. The results of this study, although limited by participants, provides school psychologists and districts some indication that those claims may be true for at least the Verbal Comprehension Index. For few individuals, their scores may improve when given the opportunity to be tested beyond the ceiling on the Similarities subtest. Those differences in scores are moderately strong when examinees were tested beyond the new ceiling of the WISC-V. This study found no difference in scores on the Vocabulary subtest when testing beyond the ceiling, although some examinees did earn more points. The Verbal Comprehension Index scores show a moderately strong change in scores when tested beyond the ceiling, impacted by the change in scores on the Similarities subtest.

It is critical that school psychologists and districts do not use a strict cut off score on cognitive assessments, specifically on the WISC-V, for gifted evaluations based on the results of this study. The results of this study indicate moderate changes in scores on the Similarities subtest and the Verbal Comprehension Index. Therefore, strict cut off scores

could cause a barrier for gifted identification for those that may obtain correct answers past the ceiling on Similarities, thus impacting the Verbal Comprehension Index as well. School psychologists and other examiners should consider utilizing a range of scores, or look to use a confidence interval to be sure they are accounting for any error in these types of scores.

Another implication from this study for identifying gifted students are for those that may be twice exceptional. Research suggests a comprehensive evaluation for those that may be twice exceptional, which would be applicable for the results of this small-scale study: some students have moderate changes in scores when tested beyond the ceiling (Assouline, Foley Nicpon, and Whitman, 2010). Students that are twice exceptional have an even greater need to utilize multiple criteria and evidence. Therefore, if districts are not using strict cut off scores and are using multiple criteria with a comprehensive approach, these students will be better represented in their abilities and more accurately identified as being gifted.

English language learners are a group of students who are underrepresented in gifted identification. Research suggests that multiple screenings throughout their educational career, nonverbal ability tests, observations, and monitoring of English language acquisition should be used to identify gifted English language learners (National Center for Research on Gifted Education, 2019). While these results may not directly impact the gifted evaluation of English language learners, it does provide evidence that this claim of a comprehensive evaluation is critical for not just English language learners, but for all. A comprehensive evaluation is not just critical for all students, but it is also essential.

Recommendations

Readers of this study should be cognizant that this was only a preliminary study to explore the claims made by the NAGC (2018). This study could be replicated at a larger scale that is representative of the WISC-V norming group, as presented in their statistical manual. If data were collected on a larger scale, there is a chance that the results could indicate more conclusive, significant results.

Larger scale studies could also include a more diverse sample group of various ages and grades, which would generalize to the larger population. In addition, larger studies that can include twice exceptional or English language learners would help to determine how these ceilings may impact these subgroups. This study included only 19 participants, most of which were in the primary grades. It may be useful to explore this study on a larger scale and compare how these ceilings impact different age groups or grade levels.

In addition, the WISC-V shortened discontinue criteria has also impacted nonverbal tasks, such as the Block Design subtest on the Visual Spatial Index. Although this study explored the impact on verbally gifted students, it would be just as useful to explore how nonverbally gifted students may be impacted on this assessment's nonverbal tasks. Furthermore, this exploration could look at each of the subtests that have shortened discontinue criteria.

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Appendix A**Letter of Approval From Institutional Review Board**

TO: Dr. Ashlea Rineer-Hershey
Special Education

A handwritten signature in black ink, appearing to read "Holmstrup", written over a light yellow rectangular background.

FROM: Michael Holmstrup, Ph.D., Interim Chairperson
Institutional Review Board (IRB)

DATE: April 27, 2021

RE: Protocol Approved

Protocol #: 2021-066-88-C
Protocol Title: The Impact of Discontinue Criteria on Potential Gifted
Students' Scores on the Wechsler Intelligence Scale for
Children-Fifth Edition

The Institutional Review Board (IRB) of Slippery Rock University has reviewed the above-referenced protocol at the IRB meeting on April 22, 2021. The protocol has been approved.

You may begin your project as of April 27, 2021. Your approved protocol will expire on April 26, 2022. You will need to submit a Progress/Final Report at least 7 business days prior to the expiration date.

Enclosed are copies of the approved consent and assent forms to be copied for participants to sign. (if applicable)

If you complete the study within the next year, please notify the IRB with a Final Report. The final report form and instructions can be found on the IRB website.

Please contact the IRB Office by phone at (724)738-4846 or via email at irb@sru.edu should your protocol change in any way.

Appendix B

Plum Borough School District Approval



September 14, 2020

Dr. Brendan Hyland
Plum Borough School District
900 Elicker Road
Plum, PA 15239

Dear Dr. Brendan Hyland,

I am writing this letter to ask for permission to obtain research data from Plum Borough School District students for my dissertation as I pursue my Doctoral Degree in Special Education from Slippery Rock University. For my dissertation project, titled *"The Impact of Discontinue Criteria on Potentially Gifted Students' Scores on the Wechsler Intelligence Scale for Children- Fifth Edition,"* I will be determining the impact of new scoring rules on the Wechsler Intelligence Scale for Children- Fifth Edition when evaluating gifted students. The purpose of this research is to answer the following questions:

- How do shortened discontinue criteria impact potential gifted students' scores on the Similarities subtest?
- How do shortened discontinue criteria impact potential gifted students' scores on the Vocabulary subtest?
- With limited verbal subtests, how does the WISC-V's shortened discontinue criteria impact potential gifted scores on the Verbal Comprehension Index?
- How do these discontinue criteria impact how school psychologists and schools determine eligibility?

Participants for this project will be those K -12th grade students who are referred for a gifted evaluation as the school year would normally permit, via teacher nomination, parent nomination, or through normal child-find testing that occur within the Plum School District. The data will be analyzed by comparing the standard procedure scores of potentially gifted students

on the Verbal Comprehension Index (Vocabulary and Similarities) to the scores that disregard the discontinue criteria of potentially gifted students on the Verbal Comprehension Index (Vocabulary and Similarities). It is possible that students in this research may feel frustrated or uncomfortable while continuing with the subtests after they have met the 3 item discontinue criteria. This study may add about 5-10 minutes to the total testing time.

Data would be collected pending the Slippery Rock University Institutional Review Board approval and could be collected until no later than September 1, 2021. All data collected will be kept confidential, with a coding system to remove student names and any identifying information from their data. This study will aide in the presumption that shortened discontinue criteria on the WISC-V may underestimate gifted students' abilities. If this hypothesis is true, it will help school districts and school psychologists to promote the multiple criteria approach for gifted identification, rather than strict Intelligence Quotient (IQ) scores.

If you approve, please sign and date below. I will provide you with a copy for your records. If you would like to schedule a time to discuss the research or have any further questions, please contact me. Thank you for your time and consideration.

Dana Iera

School Psychologist

Special Education Doctoral Student

412-999-6173

dx1003@sru.edu

Approval:



Plum Borough School District Superintendent

10/9/2020

Date