

Conceptions of Intelligence, Giftedness, and Talent Over Time

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The concept of giftedness has evolved significantly over the past century, shifting from a narrow, IQ-based perspective to a more inclusive and multifaceted understanding. Early theories, such as those developed by Alfred Binet and Lewis Terman, primarily focused on intelligence as a fixed, measurable trait. However, modern theories, including those by Joe Renzulli and Fran çoi Gagn é have expanded the definition to include creativity, motivation, and task commitment. This review aims to explore the evolution of giftedness definitions, addressing two main questions: How has the definition of giftedness developed over time, and to what extent do current definitions support equitable educational practices for gifted learners? The review analyses models such as Renzulli's Three-Ring Model and Gagn é's Differentiated Model of Giftedness and Talent (DMGT), highlighting the importance of recognizing both innate potential and developed talent. The findings suggest that inclusive definitions of giftedness foster more effective, equitable educational practices, but challenges remain in implementing these frameworks universally.

Keywords: giftedness, talents, definitions, differentiation, inclusivity

Introduction

For over a century, scholars from diverse fields have sought to define, understand, and assess giftedness. Early theories emphasized genetic factors, intelligence, and inherited traits; however, these approaches alone have proven inadequate in shaping effective educational frameworks for gifted students (Alamer, 2010). A common misconception is that gifted students require minimal support due to their advanced abilities. However, like all students, gifted children benefit from supportive and challenging learning environments that foster equity and engagement (Jung et al., 2022). Reis (2007) emphasized the significance of providing stimulating experiences to promote the growth of all students. Despite this, many gifted students encounter mismatches with their educational needs. Research shows that differentiated learning practices improve outcomes for gifted students, with 88% of gifted learners reporting school as "too easy" and 92% wanting real-life skills integration in their curriculum (Wolniak et al., 2012).

Inadequate engagement can lead to adverse outcomes, such as early school dropout, particularly among gifted students from low socioeconomic backgrounds who may feel compelled to leave school for employment due to limited challenging opportunities (Renzulli & Park, 2000). Effective gifted education depends on teachers' understanding of giftedness, as their beliefs inform instructional practices.

The purpose of the review is to explore the evolution of theories and perspectives in defining giftedness and talent, addressing two central questions:

1. How has the process of developing an inclusive and comprehensive definition of giftedness evolved?
2. To what extent do current definitions inform equitable education practices for gifted learners?

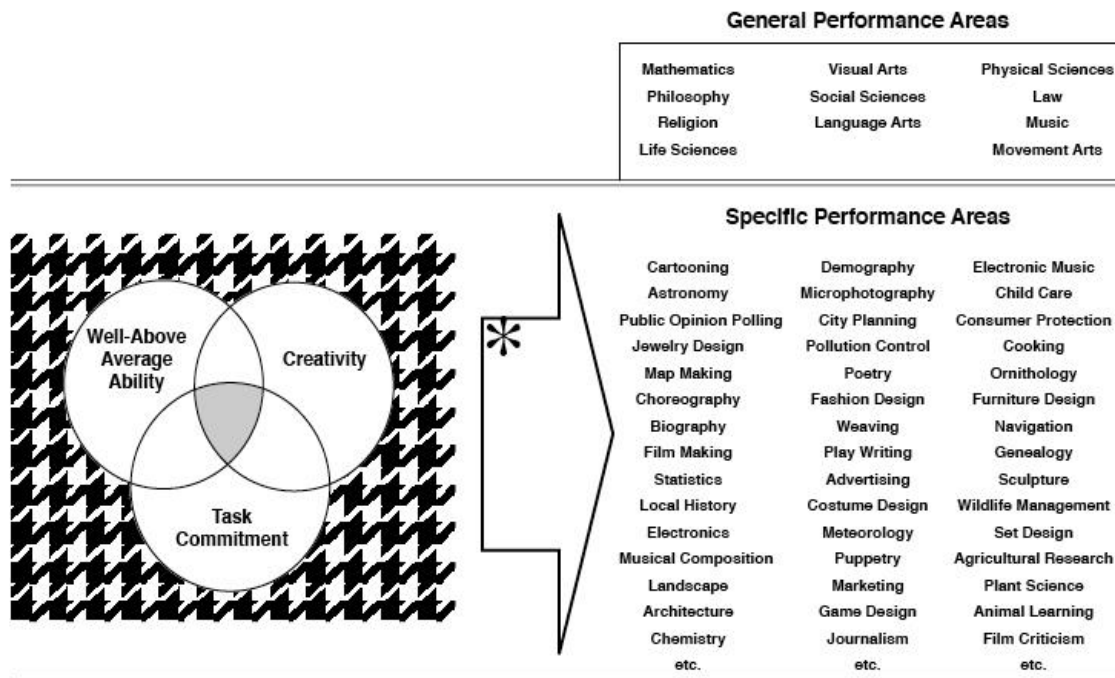
Intelligence Theory and Giftedness: A Historical and Evolving Concept

The concept of giftedness has evolved significantly, lacking a universally accepted definition. Early views closely linked giftedness to intelligence, often assessed through IQ tests. Alfred Binet's development of the Binet-Simon Scale in 1905 marked the beginnings of intelligence testing (Esping & Plucker, 2014). In the early 20th century, Lewis Terman introduced IQ as a numerical intelligence measure, yet this sparked criticism. Researchers like Kaufman (2009) argued that IQ tests often fail to account for the complexity of intelligence, overlooking essential contextual factors. Tools, such as the Stanford-Binet and Wechsler scales have fluctuated in their giftedness cutoffs, generally ranging between 120 and 130 (Kaufman, 2009). Recognizing these limitations, Joe Renzulli (1978) redefined giftedness, proposing it as a dynamic interaction of creativity, motivation, and commitment to achievement. Renzulli's model expanded the focus beyond an elitist IQ-based view, suggesting a more inclusive approach that values diverse abilities and traits (Borland, 2009; Reis & Renzulli, 2009).

Giftedness Beyond IQ Levels

In 1978, Joseph Renzulli introduced the Three-Ring Model of Giftedness, challenging the idea that giftedness should be defined solely by IQ. His model highlights three key elements: above-average ability, task commitment, and creativity. The first element, above-average ability, includes both general intelligences, typically measured by aptitude tests, and specific abilities in non-academic domains like arts, leadership, and psychomotor skills. Task commitment emphasizes the importance of sustained effort and motivation to develop abilities over time, acknowledging that giftedness is dynamic, not fixed. The third element, creativity, refers to the ability to produce original and innovative works, marking a critical aspect of giftedness beyond academic achievement. Renzulli's model broadens the definition of giftedness, recognizing that exceptional abilities go beyond intellectual intelligence and include passion, perseverance, and creative potential. This more inclusive view of giftedness has significantly influenced gifted education, emphasizing the importance of nurturing all forms of talent.

Renzulli's model of giftedness, which links above-average general ability, creativity, and task commitment, promotes a broader perspective on gifted education, particularly for Academically and Intellectually Gifted (AIG) students. A focus solely on IQ, a quantitative measure, can risk limiting access to gifted programs, potentially overlooking latent potential (Borland, 2009). Renzulli's framework has broadened gifted education, inspiring more comprehensive programs for gifted and talented education (GATE). However, it does not fully address two critical distinctions: competence (potential or capability) and performance (the actual demonstration of skills) (Gagné 1985). This distinction underscores the need for a nuanced approach to identifying and supporting giftedness beyond intellectual measures alone.



* This arrow should read as "... brought to bear upon ..."

Figure 1. A visual illustration of the Three-Ring Giftedness definition (Renzulli & Reis, 2021).

Two Different Concepts: Aptitudes and Competences

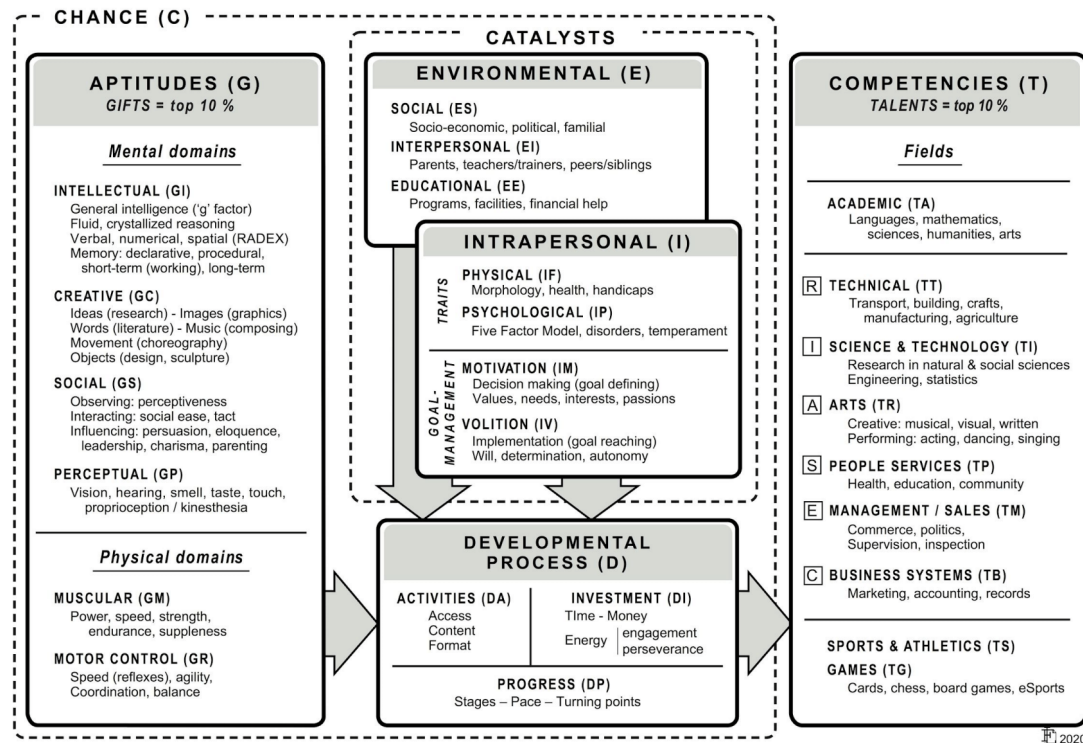


Figure 2. 2020 version of DMGT (Gagné, 2020).

Gagné's Differentiated Model of Giftedness and Talent (DMGT) (1985) clarifies the distinction between giftedness and talent. Giftedness refers to natural aptitude or potential in one or more developmental domains, without the need for prior training. Individuals demonstrating giftedness are typically ranked among the top 10% of their age group. In contrast, talent refers to systematically developed performance, where an individual has honed their abilities in one or more domains to a level that also places them within the top 10% of their peers. Gagné's model effectively differentiates these two concepts, emphasizing that giftedness pertains to innate potential, while talent reflects the refined competence gained through learning and experience (Gagné 1985; 2020a).

In the first version of the DMGT in 1985, Gagné introduced a fundamental distinction between giftedness (aptitude) and talent (performance), alongside two key catalysts, environmental and personal factors, which influence the transformation from giftedness to talent. In 1993, Gagné refined the model by specifying the traits and factors of these catalysts, while acknowledging the need for further enhancements. This led to the release of "DMGT 2.0/2008" at the Iowa Symposium, which included more detailed subcomponents of the model.

The 2020 version of DMGT, as described by Gagné presents a developmental pathway from aptitude to competency. The key updates in this version include five subdivisions: aptitudes (G), competencies (T), developmental processes (D), and two types of catalysts-environmental (E) and intrapersonal (I). Each subdivision contains specific units that together explain both the learning process and the transformation of giftedness into talent (Dixon, 2022; Gagné 2009; 2020a; 2020b; Johnsen, 2018).

Gagné's DMGT distinguishes between giftedness (aptitude) and talent (developed performance). To refine the model, Gagné introduced a metric-based system, classifying giftedness into four levels based on IQ benchmarks: gifted and talented (IQ 120-134), highly gifted (IQ 135-144), exceptionally gifted (IQ 145-154), and profoundly gifted (IQ 155+). This quantification helps identify gifted individuals in educational settings. Gifted individuals exhibit exceptional aptitude in areas ranging from academics to the arts, sports, and digital gaming (Gagné 2020). The model also links giftedness to talent ("T") and applies Holland's RIASEC model to categorize domains of talent into six groups: realistic, investigative, artistic, social, enterprising, and conventional. Gagné's inclusive model extends beyond traditional academic fields to encompass a wider range of domains (Gagné 1999; 2009).

The model also incorporates two major catalysts influencing talent development: environmental and intrapersonal factors. These interact with the developmental process, which includes the access, identification, and stages of talent growth. The developmental process itself is divided into three subcategories: activities (DA), investment (DI), and progress (DP). Activities include structured learning environments, supportive curricula, and teaching strategies. Investment represents the time and effort spent on developing intellectual abilities, such as through schooling. Progress measures the pace at which talent is developed and refined over time (Gagné 1999; 2009).

The intrapersonal catalyst includes traits, which Gagné classified into physical and psychological subcategories. Physical traits, such as size, appearance, and health, can influence talent development in areas like music or sports. Psychological traits are categorized according to the five-factor model, encompassing neuroticism, extraversion, openness, agreeableness, and conscientiousness (Szalma & Taylor, 2011). These traits, along with personality disorders or temperament, can either positively or negatively affect an individual's potential. Gagné also highlighted the importance of goal management, which involves motivation (goal identification) and violation (the actions taken toward achieving goals), grounded in the Action Control Theory (ACT) (Eckensberger et al., 1984).

The environmental catalyst is divided into three key areas: social, interpersonal, and educational environments. The social environment encompasses familial factors, including family size, structure, and socioeconomic status, which may influence talent development. Interpersonal environments refer to the interactions between talented individuals and their peers, mentors, and educators. These interactions can positively or negatively shape the talent development process (Alamer, 2010). Finally, the educational environment consists of the programs and resources available to gifted individuals, such as specialized curricula and support systems, which are essential for nurturing talent (McCoach & Siegle, 2007).

Lastly, Gagné's model recognizes the role of chance—both positive and negative—in talent development. Uncontrollable genetic factors and external events can either foster or hinder the development of an individual's potential (Gagné 2020). This recognition of chance adds complexity to the model, acknowledging that talent development is not solely dependent on personal effort or external support. Gagné's DMGT offers a comprehensive framework for understanding and nurturing giftedness and talent. By differentiating between aptitude and performance, and by emphasizing the influence of various internal and external factors, the model provides valuable insight into the complex process of talent development.

Discussion

The concept of giftedness has evolved significantly over time, driven by changing definitions of intelligence. Early theories, such as those based on Alfred Binet's intelligence tests and later expanded by Lewis Terman, defined giftedness primarily in terms of IQ. This psychometric approach viewed intelligence as a quantifiable, inherent trait, measured through standardized tests like the Stanford-Binet Intelligence Scale (Terman, 1916). In this model, IQ became the central criterion for identifying giftedness, often sidelining other important factors like creativity, motivation, and socio-environmental influences.

However, critiques of this narrow perspective have paved the way for a more comprehensive understanding of giftedness. Scholars such as Joe Renzulli (1978) and Gagné (1985; 2020) presented models recognizing giftedness as multifaceted. Renzulli's Three-Ring Model, for example, suggested that giftedness is not solely confined to intellectual ability but also includes creativity and task commitment. This dynamic view of giftedness posits that it is an interplay of multiple factors, challenging the idea that giftedness is a static, narrowly defined trait. It also highlights that individuals excelling in non-academic domains—such as leadership, artistic abilities, or athleticism—may be overlooked if identification is based solely on high IQ scores (Renzulli & Reis, 2021).

Gagné's DMGT further advanced this view by differentiating between “giftedness” as potential and “talent” as developed competence. His framework stresses the role of both environmental and personal catalysts in nurturing innate abilities. The distinction between competence and performance is crucial, as it addresses the gap in educational practices where giftedness may not manifest unless students are provided with appropriate developmental opportunities (Gagné 1985; 2020). This approach advocates for a more individualized approach in gifted education, where support systems, curricula, and mentorship play a vital role in transforming giftedness into tangible talent. While this broader view of giftedness is a significant advancement, it also raises challenges in identifying and educating gifted students. As noted by Paul Witty (1958), one critical factor often overlooked is socio-economic background. Students from lower socio-economic backgrounds may possess significant potential but lack access to the resources necessary for developing their talents. Moreover, gifted education systems in many parts of the world still predominantly favor those who align with traditional IQ-based models, potentially excluding individuals who demonstrate exceptional abilities in areas beyond academics.

As the understanding of giftedness expands to include a variety of domains—intellectual, creative, artistic, and leadership abilities—educational systems must adapt. Marland’s (1971) broadened definition of giftedness, which encompasses leadership, creativity, artistic aptitude, and intellectual prowess, highlights a more comprehensive viewpoint that acknowledges a range of abilities advancing society. This shift moves the focus away from elitism toward equity, promoting the idea that every student has the potential to demonstrate giftedness in their unique way, given the right resources and encouragement.

The concept of giftedness continues to evolve from a strictly IQ-based framework to a more inclusive understanding that considers cognitive, emotional, and environmental factors. Models like Renzulli’s and Gagné’s offer valuable insights into the multifactorial nature of giftedness and highlight the need for nuanced identification processes that take both aptitude and external factors into account. Gagné’s inclusion of environmental and personal catalysts adds complexity to this process, recognizing that giftedness is not simply an inherent trait but something that is nurtured through supportive environments and opportunities. As gifted education programs continue to evolve, it is essential that they recognize the full spectrum of giftedness and provide equitable opportunities for all students to develop their potential. Education systems must embrace this expanded view to ensure that no child is overlooked because their strengths do not fit within traditional academic categories.

Conclusion

The concept of giftedness has evolved significantly over time, moving from an early focus on IQ measurements to more inclusive frameworks that recognize the complex interplay of cognitive abilities, motivation, and creativity. Theories like Renzulli’s Three-Ring Model and Gagné’s DMGT have broadened the definition of giftedness, acknowledging that it encompasses a range of attributes beyond academic aptitude. These evolving models emphasize the importance of both environmental and personal factors in the development of talent, underscoring the need for inclusive educational practices (Gagné 1985; Renzulli, 1978). Despite these advancements, challenges persist, particularly in the identification and nurturing of giftedness, which calls for continued refinement of educational strategies to ensure all students have the opportunity to reach their full potential (Borland, 2009; Witty, 1958). As the field progresses, it is crucial to maintain a balanced view that incorporates both innate ability and the environmental factors that contribute to the full development of giftedness.

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