Inovasi Kurikulum

Gifted education: A survey on the theories and models of giftedness

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ABSTRACT	ARTICLE INFO
This paper explores the multifaceted landscape of gifted education, underpinned by diverse theoretical models that seek to define, identify, and nurture giftedness in individuals. The primary objective is to synthesize and critically examine these models, providing a comprehensive understanding of their historical context, key components, criticisms, and implications for educational practice. Through a systematic review of literature, the paper analyzes prominent theories and models, including those proposed by Lewis Terman, Francoys Gagné, Joseph Renzulli, Robert Sternberg, Howard Gardner, J.P. Guilford, George Betts, and Donald Treffinger and Edwin Selby. The findings reveal a rich array of perspectives on giftedness, moving from singular definitions to more nuanced understandings that encompass various domains, and highlight the importance of considering cognitive, creative, practical, and socio-emotional factors. The paper concludes by emphasizing the need for judicious application of these diverse theories and models to foster the potential of gifted learners and guide educators, policymakers, and parents in creating supportive learning environments.	

ABSTRAK

Penelitian ini mengeksplorasi lanskap pendidikan berbakat yang multifaset, didasarkan pada berbagai model teoretis yang berusaha untuk mendefinisikan, mengidentifikasi, dan mengembangkan bakat pada individu. Tujuan utama penelitian ini adalah untuk mensintesis dan secara kritis mengkaji model-model ini, memberikan pemahaman komprehensif tentang konteks sejarah, komponen kunci, kritik, dan implikasinya untuk praktik pendidikan. Melalui tinjauan sistematis terhadap literatur, makalah ini menganalisis teori dan model terkemuka, termasuk yang diusulkan oleh Lewis Terman, Francoys Gagné, Joseph Renzulli, Robert Sternberg, Howard Gardner, J.P. Guilford, George Betts, serta Donald Treffinger dan Edwin Selby. Hasil temuan menunjukkan beragam perspektif tentang bakat, bergerak dari definisi tunggal ke pemahaman yang lebih halus yang mencakup berbagai domain, dan menyoroti pentingnya mempertimbangkan faktor kognitif, kreatif, praktis, dan sosial-emosional. Penelitian ini diakhiri dengan menekankan perlunya penerapan yang bijaksana dari berbagai teori dan model ini untuk memfasilitasi potensi pelajar berbakat dan membimbing pendidik, pembuat kebijakan, dan orang tua dalam menciptakan lingkungan belajar yang mendukung.

Kata Kunci: bakat; pelajar berbakat; pendidikan berbakat; pengembangan bakat

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INTRODUCTION

Gifted education, according to Chan in "*Education for The Gifted and Talented*" an area of educational theory and practice dedicated to nurturing the exceptional potential of students who demonstrate high capabilities in various domains, is underpinned by a diverse array of theoretical models that seek to explain and guide the identification, instruction, and support of gifted learners. These models, which have evolved over nearly a century of scholarly inquiry, offer frameworks for understanding the multifaceted nature of giftedness, the developmental trajectories of talent, and the societal factors that influence talent development (Lo & Porath, 2017). The conceptualization of giftedness has undergone significant transformation, shifting from a singular focus on general intellectual ability to a more nuanced understanding that encompasses a spectrum of talents and potentials across diverse domains (Birch & Reynolds, 1963). This paper explores the multifaceted landscape of gifted education, underpinned by diverse theoretical models that seek to define, identify, and nurture giftedness in individuals. The primary objective is to synthesize and critically examine these models, providing a comprehensive understanding of their historical context, key components, criticisms, and implications for educational practice.

LITERATURE REVIEW

Definition of Giftedness

The term "giftedness" has garnered widespread international acceptance, evidenced by numerous studies and publications (Kontostavlou & Drigas, 2021). Giftedness manifests across varied domains of human activity, including cognitive, creative, artistic, psychomotor, and psychosocial realms (Sivevska, 2010). For Renzulli, giftedness is composed of an interaction among three basic clusters of human traits: above-average general and/or specific abilities, high levels of task commitment (motivation), and high levels of creativity (Smedsrud, 2020). Sternberg, meanwhile, describes giftedness as an individual's potential to successfully pursue valued skills, which depends on their ability to adapt to, shape, and select environments via a balance of analytical, creative, and practical abilities (Sternberg, 2020). Gagne's perspective posits that giftedness represents the possession and utilization of innate, untrained natural abilities within one or more domains, setting an individual apart from approximately 90% of their peers (Gagné, 1995).

Gagne's definition of giftedness provides a quantity criterion, setting gifted individuals in the top 10% of their age group with exceptional skill. Meanwhile, Howard Gardner proposes a multiple-perspective approach in understanding giftedness. In his Multiple Frames of the Mind book, Gardner argues that individuals may exhibit exceptional abilities in one or more of eight distinct intelligences: linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic. Gagne in Carrasquillo book titled "*Howard Gardner's Nine Theories of Intelligence and the Importance of Personal Incentives in Maximizing Intellect*" explains that giftedness may not be a generalized trait but a collection of specific talents and abilities that manifest differently in different individuals. Tanenbaum conceptualizes giftedness as a multifaceted construct encompassing general intelligence, specific abilities, non-intellective and environmental factors, and the element of chance. He further explains that gifted individuals possess the latent capacity to evolve into distinguished achievers and groundbreaking innovators, whose contributions significantly enrich the moral, physical, emotional, social, intellectual, or aesthetic dimensions of human experience. These definitions of giftedness are the cornerstone of the establishment of specialized education for the gifted. Presented with this array of definitions, this paper will critically examine the diverse theories and models on giftedness to provide a comprehensive understanding of its components, criticism, and implications for educational practice.

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METHODS

This study employs a qualitative research methodology, specifically a systematic literature review, to examine the foundational theoretical models in gifted education. This approach is chosen to provide a comprehensive understanding of the historical context, key components, strengths, and limitations of these models. A systematic literature review allows for a rigorous and transparent process of identifying, evaluating, and synthesizing existing scholarly work, ensuring a thorough exploration of the subject matter (Okoli, 2015; Senivongse et al., 2017; Snyder, 2019). The initial phase involved clearly defining the research questions to guide the literature search, focusing on prominent theories and models of giftedness. A multi-database search was conducted across academic databases to identify relevant scholarly articles, books, and other peer-reviewed publications. This included searching for keywords such as "gifted education," "theoretical models of giftedness," "talent development," and the names of specific theorists. This systematic search aimed to capture a broad range of perspectives and historical developments (Almıla, 2021; Teare & Taks, 2019). The identified literature was then screened based on criteria such as direct relevance to theoretical models of giftedness, academic rigor, and contribution to the understanding of the field. This involved reviewing titles, abstracts, and, where necessary, the full text of articles to determine their suitability for inclusion (Butijn et al., 2020). Subsequently, the selected articles were subjected to a thorough analysis, extracting key information related to the theoretical underpinnings, assumptions, components, and applications of each model.

RESULTS AND DISCUSSION

Lewis Terman's Longitudinal Studies of Gifted Children

Lewis Terman initiated a groundbreaking longitudinal study in the 1920s, meticulously tracking the lives of approximately 1,500 children identified as intellectually gifted based on their high scores on standardized intelligence tests (Hodges et al., 2020; Sternberg, 2020). Terman operationalized giftedness as cognitive ability that placed individuals within the top 1% of the population, as measured by the Stanford-Binet Intelligence Scale by Stephens and Karnes in "*State Definitionsfor the Gifted and Talented Revisited*". Terman and his colleagues assiduously collected data on various aspects of the participants' lives, encompassing their academic achievements, career trajectories, personal relationships, and overall well-being, amassing a comprehensive dataset that spanned several decades. Terman's study challenged prevailing stereotypes surrounding gifted individuals, demonstrating that they were not necessarily socially inept, emotionally unstable, or physically frail (Türkman, 2020).

The findings revealed that gifted children tended to exhibit superior academic performance, attain higher levels of education, and achieve greater occupational success compared to their non-gifted peers, thereby debunking the myth of the "early ripe, early rot" phenomenon. Terman's research underscored the importance of providing gifted children with access to enriched educational opportunities and supportive environments that fostered their intellectual and personal development. Furthermore, Terman's findings highlighted the enduring impact of cognitive giftedness on various life outcomes, emphasizing the need for early identification and tailored educational interventions to nurture the potential of gifted individuals (Warne, 2018). Terman's perspective was deeply influenced by the prevailing scientific and societal norms of his time, including the eugenics movement, which advocated for selective breeding to improve the genetic quality of the human population (Warne, 2018).

Terman's work has been subject to criticism for his reliance on standardized intelligence tests as the primary criterion for identifying giftedness, potentially overlooking other forms of talent and creativity that may not be captured by such assessments. Critics have also raised concerns about the potential for bias

in Terman's sampling methods, as his study predominantly included individuals from privileged backgrounds, thereby limiting the generalizability of his findings to more diverse populations. His research also sparked debates surrounding the nature versus nurture debate, with Terman placing a strong emphasis on the genetic determinants of intelligence, a perspective that has been challenged by contemporary researchers who highlight the significant role of environmental factors in shaping cognitive development (Holahan, 2020; Vialle, 1994; Warne, 2018). Despite these criticisms, Terman's longitudinal study remains a seminal contribution to the field of gifted education, providing valuable insights into the characteristics, developmental trajectories, and long-term outcomes of gifted individuals (Vialle, 1994; Wai & Liang, 2023). Terman's dedication to empirical investigation was evident throughout his career, as he actively sought and incorporated new evidence to refine his hypotheses regarding the nature and development of giftedness, showcasing a commitment to the scientific method and a willingness to adapt his views in light of emerging data (Khatena, 1978; Warne, 2018). Terman's recognition of the interconnectedness between cognitive, developmental, educational, and socioemotional factors in the lives of gifted children laid the groundwork for future research and interventions that address the holistic needs of these individuals. This led him to be called the "Father of Gifted Education" (Warne, 2018).

Francoys Gagné: Differentiated Model of Giftedness and Talent

Gagné's Differentiated Model of Giftedness and Talent (Gagné, 1997) posits a clear distinction between giftedness and talent, wherein giftedness represents innate potential and talent signifies demonstrated competence in a specific domain (Gagné, 1985). Gagné conceptualizes giftedness as the possession of above-average natural abilities, or aptitudes, in various domains, including intellectual, creative, socio-affective, sensorimotor, and others. These natural abilities, according to Gagné, constitute the raw material from which talents are developed through a complicated combination of intrapersonal catalysts, environmental factors, and learning experiences. Intrapersonal catalysts encompass personality traits, motivational factors, and self-regulatory skills that influence an individual's engagement in learning and skill development.

Environmental factors encompass a range of influences, including educational opportunities, parental support, mentorship, and access to resources that facilitate talent development. Gagné posits that the transformation of natural abilities into systematically developed skills necessitates a pivotal role for learning and practice, asserting that talent emerges as the cultivated manifestation of giftedness, refined and honed through deliberate effort and sustained engagement within specific fields of endeavor. In stark contrast to definitions that conflate the terms "giftedness" and "talent," Gagné emphasizes their distinct meanings, with giftedness representing innate potential and talent representing demonstrated competence (Göksu & Gelişli, 2023).

Gagné's DMGT emphasizes that not all gifted individuals will necessarily develop into talented individuals, as the realization of potential depends on the interplay of various facilitating factors and the individual's active engagement in talent development activities (Gagné, 2015). The DMGT proposes that giftedness can manifest in various domains, not solely limited to intellectual abilities, but also encompassing creative, socioaffective, and sensorimotor domains (Gagne, 2000). Additionally, the framework underscores the significance of environmental factors, such as access to specialized training, mentorship, and supportive learning environments, in nurturing talent development.

However, the DMGT model is criticized by Gagne in "*Building Gifts Into Talents: Brief overview of the DMGT 2*" for not being very specific in detailing the types of interventions that are more useful than others in talent development. As a model, it only introduces the phases that an individual may undergo in their talent development but fails to provide specific steps or interventions to facilitate the development of gifts and talents. With this, it becomes difficult for educators to use the DMGT framework for designing

individualized programs that address the unique needs and strengths of gifted and talented students. Despite this, the DMGT framework has implications for educational practices, such as emphasizing the importance of early identification of giftedness, providing differentiated instruction and enrichment opportunities, and fostering supportive learning environments that promote talent development (Subotnik et al., 2023).

Joseph Renzulli: Three-Ring Conception of Giftedness

Renzulli's Three-Ring Conception of Giftedness offers a nuanced perspective, diverging from traditional definitions centered solely on intellectual prowess and academic achievement. As mentioned, Renzulli underscores that giftedness arises from the intricate interplay of three essential clusters: above-average ability, task commitment, and creativity (Renzulli, 2002, 2021; Smedsrud, 2020). Above-average ability, according to Renzulli, encompasses a spectrum of general and specific aptitudes, acknowledging the multifaceted nature of human potential (Renzulli, 2012). According to Renzulli in "*The Three-Ring Conception of Giftedness: A developmental model for promoting creative productivity*" task commitment, the second ring, signifies a profound level of motivation, enthusiasm, and perseverance directed toward a specific task or area of interest. Creativity, the third ring, embodies the capacity to generate novel ideas, approaches, and solutions, reflecting a spirit of innovation and originality. Renzulli's model posits that true giftedness emerges when these three rings intersect, resulting in exceptional performance and creative productivity.

Renzulli's model emphasizes the dynamic and contextual nature of giftedness, recognizing that it is not a fixed trait but rather a manifestation of potential that varies depending on the situation and task at hand (Türkman, 2020). Unlike traditional definitions of giftedness, Renzulli's model broadens the scope to include students who demonstrate exceptional potential in various domains, including the arts, leadership, and practical skills (Daniels, 2005). The Three-Ring Conception of Giftedness has significant implications for identifying and nurturing gifted students, highlighting the importance of assessing not only their intellectual abilities but also their task commitment and creativity. The Enrichment Triad Model, a pedagogical approach developed by Renzulli, complements the Three-Ring Conception of Giftedness by providing a framework for differentiating instruction and fostering creative productivity in students (Renzulli, 1990). This model advocates for providing students with opportunities to explore their interests, engage in self-directed learning, and develop authentic products that reflect their unique talents and abilities (Renzulli, 2012).

In the model, there are three types of enrichment activities. Type I enrichment activities involve exploratory experiences designed to expose students to a wide range of topics, ideas, and fields of knowledge, aiming to spark their curiosity and stimulate their interests. Type II enrichment activities focus on developing students' thinking skills, research skills, and learning strategies, equipping them with the tools and techniques necessary for independent inquiry and problem-solving. While, Type III enrichment activities involve in-depth investigations of real-world problems or topics of interest, culminating in the creation of original products or performances that contribute to a specific field of knowledge (Renzulli, 1999). This underscores the importance of cultivating personalized learning environments that resonate with students' passions and aspirations, thereby fostering intrinsic motivation and a profound sense of ownership over their educational journey (Reis et al., 2021; Renzulli, 2021).

Although Renzulli's model broadened the conception of giftedness beyond solely relying on IQ scores, some critics argue that the model's emphasis on task commitment and creativity can be subjective and difficult to measure reliably. It is also argued that the model may inadvertently overlook gifted individuals who possess exceptional abilities but lack the motivation or opportunities to demonstrate their talents (Renzulli, 1990). For instance, students from under-resourced backgrounds may not have access to the

resources and support necessary to pursue their interests and develop their creative potential, leading to an underestimation of their giftedness. However, recent developments in assessment and identification offer a variety of measuring task commitment and creativity (Sorrentino, 2019). Despite these criticisms, Renzulli's in "*The Three-Ring Conception of Giftedness*" Three-Ring Conception of Giftedness has had a significant impact on the field of gifted education, inspiring educators to adopt more holistic and student-centered approaches to identifying and nurturing gifted potential. By recognizing the importance of task commitment and creativity alongside intellectual ability, Renzulli's model encourages educators to look beyond traditional measures of achievement and identify students who demonstrate exceptional potential in diverse areas.

Robert Sternberg: Theory of Successful Intelligence

Sternberg's theory of successful intelligence in "*The Triarchic Theory of Successful Intelligence*" presents a comprehensive framework for understanding human intelligence as a multifaceted construct encompassing analytical, creative, and practical abilities. Sternberg's theory posits that intelligence is not a fixed entity but rather a set of developing competencies that individuals utilize to achieve success in their lives, within their sociocultural context (Smedsrud, 2020). Unlike traditional views of intelligence that primarily emphasize analytical and logical reasoning skills, Sternberg's theory recognizes the importance of creative and practical intelligence in navigating real-world challenges and achieving personal goals (Sternberg & Grigorenko, 2002).

Analytical intelligence involves the ability to analyze, evaluate, compare, and contrast information, as well as to solve problems using logical and critical thinking skills. Creative intelligence, on the other hand, involves the ability to generate novel ideas, invent new solutions, and adapt to changing circumstances, reflecting a spirit of innovation and originality (Sternberg, 1999). Practical intelligence involves the ability to apply knowledge and skills to real-world situations, to adapt to one's environment, and to effectively manage everyday tasks (Sternberg, 1999). According to Sternberg's theory, successful individuals are those who can effectively balance and integrate these three aspects of intelligence to achieve their goals and adapt to their environment (Sternberg & Grigorenko, 2002). Therefore, gifted individuals are particularly adept at achieving success by combining analytical, creative, and practical abilities.

Sternberg's theory of successful intelligence has significant implications for gifted education, suggesting that gifted programs should focus on developing students' analytical, creative, and practical abilities, rather than solely emphasizing academic achievement or IQ scores (Sternberg, 2020, 2022; Sternberg et al., 2021). This means that educators should provide opportunities for gifted students to engage in challenging and open-ended tasks that require them to think critically, generate novel ideas, and apply their knowledge to real-world situations. By fostering the development of all three aspects of intelligence, educators can help gifted students become more successful and well-rounded individuals who are able to make meaningful contributions to society.

However, there are criticism towards Sternberg's theory, such as, the lack of empirical evidence supporting the distinctiveness of the three types of intelligence and the challenges of measuring creative and practical intelligence accurately (Sternberg & Grigorenko, 2002). Also, some researchers argue that the theory overemphasizes the role of individual abilities in achieving success and neglects the influence of external factors such as socioeconomic status, cultural background, and access to resources. Despite these criticisms, Sternberg's theory of successful intelligence has had a significant impact on the field of gifted education, inspiring educators to adopt more holistic and student-centered approaches to identifying and nurturing gifted potential (Rahayu, 2020). This view of Sternberg has influenced curriculum development and assessment practices in gifted education by advocating for instructional approaches that develop all

three types of intelligence and assess students through diverse methods, promoting more inclusive identification and programming approaches.

Howard Gardner: Theory of Multiple Intelligences

Gardner's theory of multiple intelligences accord to Carrasquillo in book titled "*Howard Gardner's Nine Theories of Intelligence and the Importance of Personal Incentives in Maximizing Intellect*" proposes that intelligence is not a single, unified construct but rather a collection of distinct and relatively independent intelligences that individuals use to solve problems, create products, and navigate their environment. Gardner originally identified seven intelligences: linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, and intrapersonal. Later, Gardner added naturalist intelligence to the list, and has considered the possibility of existential intelligence (Renzulli, 2021). Linguistic intelligence involves the ability to use language effectively, both orally and in writing, to express oneself, understand others, and learn new information.

Logical-mathematical intelligence involves the ability to reason logically, solve mathematical problems, and think critically and systematically. Spatial intelligence involves the ability to perceive and manipulate visual and spatial information, to create mental images, and to understand spatial relationships. Musical intelligence involves the ability to perceive, create, and appreciate musical patterns, rhythms, and melodies (Gardner, 1987; Goyibova et al., 2025). Bodily-kinesthetic intelligence involves the ability to use one's body effectively, to coordinate movements, and to manipulate objects with skill and precision. Interpersonal intelligence involves the ability to understand and interact effectively with others, to empathize with their feelings, and to build strong relationships. Intrapersonal intelligence involves the ability to understand oneself, to recognize one's own strengths and weaknesses, and to regulate one's emotions and behavior (Renzulli, 2021). Existential intelligence involves the ability to reflect on fundamental questions about human existence, such as the meaning of life, death, and the universe. For Gardner, all individuals possess a unique combination of these intelligences, and that people learn and express themselves in different ways depending on their strengths and preferences (Chen et al., 2022).

Despite its popularity, Gardner's theory has also faced criticism from some researchers, who question the empirical evidence supporting the existence of distinct intelligences and the validity of measuring them (Waterhouse, 2023). Other critics mention that these types of intelligences are considered as talents or traits instead of separate forms of intelligences (Shearer & Karanian, 2017). Some argue that the intelligences are not truly independent of each other and that they may be better understood as different aspects of a single, general intelligence. Critical philosophical perspectives underscore the challenge of establishing objective and universally accepted criteria for defining and validating the various intelligences, thereby prompting ongoing debate regarding the theory's capacity for empirical verification and scientific validation. Despite these criticisms, the theory has undeniably fostered a paradigm shift in educational thought, specifically on the teaching and identification of gifted students (Ferrero et al., 2021; Türkman, 2020).

J.P. Guilford: Structure of Intellect Model and Theory of Creativity

J.P. Guilford's Structure of Intellect model is a comprehensive framework for understanding the multifaceted nature of human intelligence, proposing that intelligence is not a single, unitary construct but rather a collection of distinct intellectual abilities that operate across different dimensions (Richards, 2001). Guilford's model identifies three dimensions of intelligence: operations, contents, and products, which intersect to form a three-dimensional matrix comprising 120 (later expanded to 150) distinct intellectual

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abilities. The "operations" dimension refers to the different cognitive processes involved in thinking, such as cognition, memory, divergent production, convergent production, and evaluation.

The "contents" dimension refers to the types of information or stimuli that are processed, such as visual, auditory, symbolic, semantic, and behavioral. The "products" dimension refers to the different forms or structures that information takes as it is processed, such as units, classes, relations, systems, transformations, and implications (Richards, 2001; Smedsrud, 2020; Sternberg, 2020). Guilford's Structure of Intellect model departs from the notion of a singular, general intelligence factor, instead positing that intelligence is composed of multiple, relatively independent abilities (Guilford, 1981).

Guilford viewed creativity as a subset of intelligence (Sternberg & Grigorenko, 2001). Divergent thinking, or the ability to generate multiple responses to open-ended questions, was central to this view of the creative process (Richards, 2001). This contrasts with convergent thinking which involves finding the single best answer to a well-defined problem. Key characteristics of divergent thinking include fluency (generating a large number of ideas), flexibility (generating diverse categories of ideas), originality (generating unique or novel ideas), and elaboration (adding details and developing ideas). Guilford's work emphasized the importance of divergent thinking as a key component of creativity, arguing that the ability to generate a wide range of ideas and solutions is essential for creative problem-solving and innovation (Richards, 2001).

While Guilford's theory has been influential in the field of gifted education and creativity, it has also faced serious criticism from various lenses. One major critique revolves around the model's inherent complexity and the challenge of providing robust empirical validation for each of the 120 distinct intellectual abilities it proposes (Foster & Schleicher, 2022; Maker, 2021; Pahrudin et al., 2024). Critics argue that the model is overly complex and challenging to fully prove and that it doesn't fully show how human intelligence is connected and whole. Another criticism lies in the model's emphasis on divergent thinking as the primary indicator of creativity, overlooking the significance of other cognitive and non-cognitive factors, such as domain-specific knowledge, motivation, and personality traits, in fostering creative achievement.

The sheer number of factors within Guilford's model has led some researchers to view it as an impractical fragmentation of intelligence, questioning whether such a detailed dissection of cognitive abilities truly reflects the holistic and integrated nature of human thought. Despite such criticism, Guilford's conceptualization of divergent production as a multifaceted cognitive operation has indelibly shaped subsequent research on creativity, prompting investigations into the cognitive processes underlying creative thought and inspiring the development of assessment tools designed to measure divergent thinking abilities (Guilford, 1971; Silvia et al., 2008).

George Betts: Autonomous Learner Model

The Autonomous Learner Model, developed by George Betts, represents a holistic approach to gifted education, emphasizing the development of self-directed learning skills, personal autonomy, and social-emotional well-being in gifted and talented students. Betts's model underscores the importance of fostering students' independence, intrinsic motivation, and self-regulation skills, empowering them to take ownership of their learning experiences and pursue their intellectual passions with confidence and enthusiasm (Betts, 2004).

The Autonomous Learner Model comprises five interconnected dimensions: orientation, individual development, enrichment activities, seminars, and in-depth study. The "orientation" dimension focuses on helping students understand their own strengths, interests, and learning styles, as well as the characteristics of giftedness and the unique challenges and opportunities that come with it. The "individual development" dimension provides opportunities for students to develop their self-esteem, interpersonal

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skills, and coping strategies for dealing with stress and perfectionism. The "enrichment activities" dimension offers a wide range of opportunities for students to explore their interests and talents in depth, through participation in clubs, competitions, mentorships, and other extracurricular activities.

The "seminars" dimension provides a forum for students to engage in intellectual discussions, share their ideas and perspectives, and learn from experts in various fields. While the "in-depth study" dimension allows students to pursue independent research projects and creative endeavors that align with their interests and passions. Each dimension is meant to work together in developing the learner's autonomy (Betts et al., 2021; Pahrudin et al., 2024; Pawilen, 2018).

A key tenet of the Autonomous Learner Model is the creation of a supportive and stimulating learning environment that fosters student agency, choice, and self-direction (Henshon, 2015). Teachers act as facilitators, mentors, and guides, providing students with the resources, support, and encouragement they need to pursue their learning goals and develop their full potential (Betts et al., 2021). They are no longer considered as a sage on the stage, but rather a guide on the side of the learners. Bett's model accord ton McCombs in "*Developing responsible and autonomous learners: A key to motivating students*" proposes that autonomous learners need to have some actual choice and control in the classroom, and teachers should provide opportunities for students to make appropriate choices and take responsible control over their own learning.

Teachers should also support the basic psychological needs of autonomy, competence and relatedness in their students (Earl, 2019). This means that they should be free to act on their own will, rather than being forced to behave according to the desires of another (Renzulli, 2021). While this model shares significant ideas about learner agency, there are some criticisms against it. One critique involves the practical challenges of implementing the model in diverse educational settings with limited resources and varying levels of teacher training (Henshon, 2015). According to Chan in "*Education for the gifted and talented*" some express concern about the model's potential to inadvertently widen achievement gaps if not implemented equitably, as students from disadvantaged backgrounds may lack the resources and support needed to fully benefit from the model's emphasis on self-directed learning.

Donald Treffinger and Edwin Selby: Levels of Service Model

The Levels of Service model, conceived by Donald Treffinger and Edwin Selby, presents a multifaceted approach to talent development, offering a spectrum of services designed to nurture the unique potential of gifted students (Treffienger & Selby, 2023). This model is built upon the premise that talent development is a dynamic process that requires a flexible and responsive system of support, tailored to meet the evolving needs of individuals as they progress along their developmental trajectories (Treffinger, 2013). At its core, the Levels of Service model emphasizes the importance of differentiating instruction, recognizing strengths, talents, and interests, and nurturing the potential among all students (Treffinger et al., 2013).

The Levels of Service model comprises five distinct levels, each offering a progressively intensive level of support and challenge. Level 1 focuses on providing high-quality, differentiated instruction within the regular classroom setting, ensuring that all students have access to challenging and engaging learning experiences. Level 2 involves providing targeted interventions and enrichment activities for students who demonstrate potential or interest in specific areas, offering opportunities for exploration, skill development, and talent identification. Level 3 provides services within the school or through other agencies to help students reach a higher level of accomplishment and build a commitment in a particular talent area or domain, and may involve collaborative efforts among schools to make advanced offerings practical from a scheduling or cost perspective (Treffinger et al., 2013).

Level 4 offers specialized programs and services for highly gifted students who require more intensive support and challenge, such as advanced placement courses, mentorships, and independent study opportunities. Level 5 provides individualized programming, guidance and direction to students by experts outside of the school, and may include opportunities to work alongside professionals or experts in their field of interest, engaging in research, creative projects, or real-world problem-solving experiences (Laili et al., 2020; Smedsrud, 2020; Treffinger & Selby, 2023). Each of these levels addresses the needs of a different group of students.

The Levels of Service model underscores the importance of ongoing assessment and evaluation to monitor student progress, identify emerging talents, and adjust the level of support and challenge accordingly (Treffinger et al., 2013). Therefore, the Levels of Service model posits that talent development is not a static endpoint, but rather a fluid and iterative process that requires continuous attention, adaptation, and refinement (Treffinger & Selby, 2023). The model also promotes collaboration among educators, parents, and community members to create a comprehensive and supportive ecosystem for talent development (Treffinger, 2013). This means that stakeholders must work together to identify and nurture the talents of gifted students, providing them with the resources, opportunities, and encouragement they need to thrive (Treffinger & Selby, 2023).

While the model serves as a guide for the planning of effective programs in talent development, it has its problems. One major concern involves the potential for inequitable access to higher levels of service, particularly for students from marginalized backgrounds or those attending under-resourced schools. Some worry that the model's emphasis on differentiated instruction and individualized support may place additional burdens on teachers, particularly in classrooms with large student-to-teacher ratios or limited resources. In sum, the Levels of Service model provides a valuable framework for understanding and addressing the diverse needs of gifted students, offering a continuum of services designed to nurture their talents and help them reach their full potential (Treffinger, 2013; Treffinger & Selby, 2023).

Discussion

The systematic review of prominent theories and models in gifted education reveals a dynamic and evolving understanding of giftedness, moving from initial monolithic definitions to more nuanced, multi-faceted conceptualizations. This evolution underscores a critical insight: giftedness is not a singular, fixed attribute but a complex interplay of cognitive abilities, personality traits, environmental factors, and opportunities for development (Subotnik et al., 2011). Indeed, the field has undergone significant "paradigm shifts" from viewing giftedness as "manifested wonders" to "measurable predictions" and now to the "effectuation of human possibilities" (Lo & Porath, 2017).

A central theme emerging from the analysis is the ongoing debate regarding the definition and identification of giftedness. For over seven decades, a consensus on an operational definition of giftedness or the most reliable identification methods has remained elusive (Hamza et al., 2020). While Terman's work provided early empirical evidence of the academic and life success of intellectually gifted individuals through tests and measurement, it has been widely criticized for its narrow focus on standardized intelligence tests, its potential for bias, and its historical ties to eugenics. Subsequent models, such as Renzulli's Three-Ring Conception, broadened the scope by integrating creativity and task commitment, recognizing that exceptional performance arises from the dynamic intersection of these elements. However, Renzulli's model has been critiqued for a "lack of school-based assessment procedures" that could guide a wider range of program options for diverse needs. Similarly, Gardner's Theory of Multiple Intelligences and Sternberg's Theory of Successful Intelligence challenged the traditional IQ-centric view by proposing a wider spectrum of intelligences, including linguistic, musical, practical, and creative abilities. This

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expansion has significant implications for identification practices, advocating for diverse assessment methods beyond traditional tests to capture the full range of a student's potential.

Despite these advancements, the term "gifted" itself has faced "substantial criticism... for its lack of specificity and for the innateness that the term implies as the primary cause of individual differences in ability" (Matthews & Jolly, 2022). The ongoing debate about the necessity of a general definition for the field to progress further underscores the philosophical and practical complexities (Smedsrud, 2020). Likewise, the results of this debate have a significant impact on how students are identified and qualify for gifted services.

Despite their unique contributions, common criticisms surface across many of these models regarding their practical implementation. Issues of subjectivity in measuring non-cognitive factors, and challenges in implementing models within diverse educational settings with limited resources, are recurring themes. For instance, while Gagné's Differentiated Model provides a clear distinction between innate giftedness and developed talent, it has been critiqued for not offering specific interventions to facilitate this development.

Similarly, Guilford's complex Structure of Intellect model, though instrumental in highlighting divergent thinking, faces challenges in empirical validation and concerns about fragmenting intelligence. Furthermore, theories are not value-neutral; they "contain values and ideas for action," and sometimes they fail to "illuminate the inner life of gifted children," focusing instead on conditions that promote achievement rather than being truly "child-centered" (Grant & Piechowski, 1999). This highlights a crucial gap in how theoretical frameworks often translate into holistic support for the social-emotional needs of gifted learners and their families (Renati et al., 2022).

The models also highlight the critical role of environmental factors and specific interventions in nurturing giftedness into talent. Gagné explicitly posits that giftedness transforms into talent through the influence of intrapersonal catalysts, environmental factors, and learning experiences. Similarly, Betts's Autonomous Learner Model and Treffinger and Selby's Levels of Service Model emphasize creating supportive, flexible, and student-centered learning environments that empower gifted learners to take ownership of their education. These models collectively advocate for differentiated instruction, enrichment opportunities, and individualized support tailored to the unique needs and interests of gifted students. The shift from a teacher-centric to a learner-centric approach, as seen in Betts's model, signifies a move towards fostering self-regulation and intrinsic motivation among gifted individuals. This also necessitates a "closer working relationship with general educators" to address curricular, instructional, and evaluation needs.

However, the implementation of gifted education models often faces inherent challenges, particularly regarding equitable access and resource allocation. Concerns have been raised that models emphasizing self-directed learning may inadvertently widen achievement gaps, especially for students from disadvantaged backgrounds who may lack the necessary resources and support to fully benefit (Ircha & Gallagher, 1985; Sternberg et al., 2021). Similarly, approaches offering tiered services sometimes face critiques regarding the potential for inequitable access to higher levels of support, particularly for students from marginalized backgrounds or those in under-resourced schools (Kauffman, 2021). Furthermore, the emphasis on differentiated instruction and individualized support within these models can place additional burdens on teachers, especially in classrooms with large student-to-teacher ratios or limited resources (Aldossari, 2018; Sajedifard & Shahgoli, 2020). These practical challenges are consistent with broader findings in gifted education that identify "limited funding, limited time, and limited resources" as significant struggles (Lewis & Boswell, 2020). Additionally, deficiencies in policies and training for gifted education staff contribute to implementation difficulties, particularly in early childhood settings (Kettler et al., 2017).

CONCLUSION

The theories and models that were mentioned all provide a foundational basis for gifted education to thrive in this changing educational landscape. The differentiated definitions and constructs offer practitioners in gifted education multiple lenses for understanding and identifying gifted learners. It also provides a framework for educators and policymakers alike in addressing the special needs of gifted students. By designing programs and services that meet the cognitive, social, and emotional needs of gifted students, they are guaranteed to be pushed towards reaching their potential. Ultimately, by understanding the theoretical underpinnings of gifted education, educators, policymakers, and parents can work together to create learning environments that foster the intellectual, creative, and social-emotional growth of gifted students, enabling them to become engaged, productive, and contributing members of society (Olszewski-Kubilius et al., 2015).

It is critical to remember that these theories and models offer insights into encouraging the development of gifted and talented individuals, not as a basis for diagnostic classification. These perspectives offer helpful frameworks for comprehending and encouraging the multifaceted aspects of giftedness and talent development. Hence, educators and policymakers must use these theories and models judiciously, with a keen awareness of individual differences, sociocultural contexts, and the inherently dynamic processes of talent cultivation throughout the lifespan.

AUTHOR'S NOTE

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