

A REVIEW OF THE CONTEMPORARY CONCEPTS OF GIFTEDNESS AND TALENT

Ahmad Mohammad Al-Shabatat
Faculty of Education, Al-Baha University

Abstract_ Gifted, talented, precocious, high aptitude, high achieving, and creative are all terms used to designate children of high ability, skills, or performance. There is no agreement about one definition of giftedness and talent. Since the definition and conception of giftedness and talent is guiding the identification process and the nurturing options as well, more efforts need to be taken to highlight the cross points among these definitions. In this regard, four perspectives of giftedness and talent models were reviewed in this paper. In domain-general perspective, giftedness is measured by conventional intelligence tests. Domain-specific perspective is shedding the light on more specific fields of giftedness and talent. System perspectives added other psychological variables to the construct of giftedness and talent such as motivation. The developmental perspectives include variables external to the individual such as the environment.

Keywords: *giftedness, talent, domain-general, domain-specific, system models, developmental models.*

I. INTRODUCTION

Giftedness as a concept has been defined variously by many civilizations. In the Ancient Sparta giftedness was introduced in military terms. Athenian boys attended private schools for academics such as mathematics, logic, and politics. Whereas, in Rome, boys and girls appeared in first-level schools, but higher education was confined for boys only [1]. Renaissance Europe rewarded its gifted artist, architects, and writers with wealth and honour. In China, the seventh-century Tang Dynasty brought child prodigies to the imperial court. At that reign,

multiple-giftedness/talent conception was accepted, and it was recognized that talents had to be nurtured, and educated according to their abilities [2]. Furthermore, in the 1800s, Japanese Samurai children were the only ones to be supplemented with higher - level education. Regardless of the gifted children of birth, few private academies accepted them [3].

Over the past 40 years, the development of gifted education has grown noticeably, and became very sophisticated in various ways [4]. Before the 1970s, gifted students identification was done on a large case-by-case basis, if at all; and assessments were frequently uni-dimensional, assisting general cognitive ability as in the studies of Hollingworth [5], Pressey [6], and Terman [7,8]. In 1972, however, Stanley presented two essential changes to the identification of intellectual giftedness: Group and specific abilities testing [9,10]. These changes affected on the education of giftedness, not only enabling talent searches to explicitly identify huge amount of intellectually precious students, but they also introduced a better understanding of the psychological diversity breadth within this particular population .

During the 1950's, giftedness was described mainly in terms of intelligence; high IQ individuals were labelled as gifted by many researchers and psychologists. Consequently, IQ tests had become the main screening vehicle for programs selection. IQ tests failed to measure

practical knowledge, creativity, problems solving, analytical, and verbal skills. On the other hand, the predictive abilities of IQ tests deteriorated once populations or situations changed. Further, IQ tests are not suitable instruments to measure gifted and students could be talented in various fields e.g. sports, business and performing arts [11].

Many of analytical approaches to human abilities have been implemented to identify individuals' aptitudes in giftedness and as models for educational programs for gifted individuals. In each approach, there is an emphasis not just on advancing general giftedness or on the traditional enrichment, curricula offered in gifted' programs, but rather on curriculum and instruction. However, the main focus in programming gifted is based on nurturing students' special abilities. If the identification process shifts beyond the traditional model based on intelligence, achievement tests and rating scales, the process of identification might appear more informal, be focused on observation of performance and become a more long-term process [12].

Gifted identification is essential for appropriate nurturing, and individual diagnosis for specific individual programs. In addition, identification is important from a societal perspective because there is a growing public awareness that gifted people from a significant recourses in society [13]. The purpose of gifted education is to provide youngsters with maximum opportunities for self-fulfilment through the development of one or more of the combination of performance areas, in which superior potential may be presented, such as drawing, sports, writing, poem etc. Furthermore, gifted education increases society's supply of persons who will help to solve the problems of contemporary civilization by becoming producers of knowledge and art rather than mere consumers

of existing information [14]. Gifted students' education must be provided with extra resources. Those children are the future leaders and innovators and they are considered as national resources [17,18,19].

II. DEFINITIONS AND CONCEPTIONS OF GIFTEDNESS AND TALENT

The definition of giftedness has been a long debated topic [4,20,21] and the words gifted and talented were often used interchangeably or at times the concept of "talent" was seen as being in some way lesser compared with the idea of giftedness as shown in table (1). Morelock [22] referred to a hierarchical categorisation with "talent" referring to specialised aptitudes that are assumed to be unrelated – and inferior - to general intelligence and giftedness. Although many theorists and researchers pose multi dimensions for giftedness, which reflects as complex definitions [23,24,25,26,27] it has become more flexible to include uniqueness in individuals such as creativity, memory, and motivation that were not previously included in the traditional concept of giftedness [28]. However, terms such as gifts, talents or genius were suggested as causal explanations [29].

Stankowski [30] demonstrates five categories of definitions of giftedness and talent namely: "After the fact" definitions emphasize fame professions and distinguished achievements in a valuable area of human activities, IQ definitions a cut-off point on the IQ scale, in which any individual scores above this point is classed as gifted, percentage definitions set a fixed percent of the population as gifted i.e. 1-5 percent or 15-20 percent, talent definitions consider the students who are outstanding in a specific performance e.g. music, art, sports etc., and creativity definitions focus on the superior of creative abilities.

A. Domain-General perspective

The scientific basis of giftedness had been investigated in the early giftedness researchers from a domain-general perspective, as mentioned early using the words “genius,” “gifted” and “talented” almost interchangeably. Galton [31] conceptualized genius as a high, exceptional, and inborn ability. He analyzed the family ancestry of distinguished European men, and found that genius ran in families, and must be genetically inherited, in much the same way as physical attractiveness. In the meanwhile Spearman discovered the g factor, Binet and Simon [32] were developing a mental scale to identify students in need of alternative education. The scale comprised a variety of tasks that were thought to be representative of a typical child’s ability at various ages [33].

Terman adapted Galton’s theory of the nature of genius, and viewed giftedness as a single entity, equating giftedness with a high IQ [34]. He also adapted Binet’s scale and produced the Stanford-Binet Intelligence Scale, one of the first intelligence tests used to identify gifted children [35]. According to Webb, Meckstroth, and Tolan [36], Terman established a classification scheme in the schools in which a student with an IQ score above 135 is described as “moderately gifted”, above 150 as “exceptionally gifted,” and above 180 as “severely and/or profoundly gifted”.

B. Domain-Specific Models

Thurstone [37] emphasizes the variety of ways an

individual can be gifted. He identified seven primary mental abilities that he claimed were statistically independent of each other:

- (a) Verbal comprehension (involved in the ability to understand verbal material).
- (b) Verbal fluency (involved in the ability to rapidly generate a large number of words or concepts with specific characteristics)
- (c) Number (involved in rapid arithmetic computation).
- (d) Perceptual speed (involved in rapid recognition of symbols).
- (e) Inductive reasoning (involved in reasoning from the specific to the general).
- (f) Spatial visualization (involved in mentally visualizing and rotating objects).
- (g) Memory (involved in remembering information).

The hierarchical theory of fluid and crystallized general intelligences [38] and Carroll’s [39] three-stratum theory of cognitive abilities have had significant influence on modern intelligence tests. Horn and Cattell [38] proposed that general intelligence consists of two major parts: fluid intelligence (gf) and crystallized intelligence (gc). Fluid intelligence is thought to be dependent on the efficient functioning of the central nervous system, rather than on prior experience and cultural context. Whereas crystallized intelligence is thought to be more dependent on experience and cultural context.

TABLE 1
DICTIONARIES AND ENCYCLOPEDIAS DEFINITIONS OF GIFTEDNESS AND TALENT

Year	Dictionary / Encyclopaedia	Giftedness	Talent
2013	Encarta World English Dictionary	1. Having great natural talent or intelligence 2. exceptional: requiring special education because of great natural talent or intelligence a gifted student	1. Natural ability: an unusual natural ability to do something well, especially in artistic areas that can be developed by training. 2. somebody with exceptional ability: a person or people with an exceptional ability
2013	Dictionary Britannica,	1 : having great natural ability : TALENTED <gifted children> 2 : revealing a special gift <gifted voices>	1. The natural endowments of a person. 2. a : a special often creative or artistic aptitude b : general intelligence or mental power
2013	Merriam-Webster Online Dictionary	1 : having great natural ability : TALENTED <gifted children> 2 : revealing a special gift <gifted voices>	1. The natural endowments of a person. 2. (a) a special often creative or artistic aptitude (b): general intelligence or mental power. 3. (a) person of talent or a group of persons of talent in a field or activity
2013	© Cambridge University Press	Gift: a special ability to do something: e.g.: He has a gift for languages. Gifted: 1 having special ability in a particular subject or activity: a gifted dancer/musician. 2 clever or having a special ability: Schools often fail to cater for the needs of gifted children.	1 [C or U] (someone who has) a natural ability to be good at something, especially without being taught: Her talent for music showed at an early age. His artistic talents were wasted in his boring job.
2013	Dictionary.com	1. Having great special talent or ability: the debut of a gifted artist. 2. having exceptionally high intelligence: gifted children	1. A special natural ability or aptitude: a talent for drawing. 2. A capacity for achievement or success; ability: young men of talent. 3. A talented person: The cast includes many of the theatre's major talents.
2013	Ultralingua Online Dictionary	Showing a natural aptitude for something;	A person who possesses unusual innate ability in some field or activity
2013	Online Etymology Dictionary	"Innate qualities, ability," lit. "that which is inborn	special natural ability, aptitude
2013	OneLook® Dictionary Search	showing a natural aptitude for something	Intellectual ability, natural or acquired; mental endowment or capacity; skill in accomplishing; a special gift, particularly in business, art, or the like
2013	Wikipedia	Intellectual giftedness is an intellectual ability significantly higher than average	Talent, a personal gift/skill
2013	Wiktionary	endowed with special, in particular intellectual, abilities	1. A marked ability or skill. e.g.: He has the talent of touching his nose with his tongue. 2. The potential or factual ability to perform a skill better than most people. E.g.: She has a talent to sing.
2013	Word Central Student Dictionary	having great natural ability	1. a special and usually inborn ability 2 : the natural abilities of a person 3 : a special often athletic, creative, or artistic ability 4 : persons of talent in a field or

2013	Wordsmyth Dictionary	1. endowed with a special quality, talent, or ability. Example: a gifted racehorse ; a gifted singer	activity 1. A natural ability or aptitude. E.g.: a talent for singing. 2. The capacity to excel. E.g.: a young executive who shows talent.
2013	The American Heritage® Dictionary of the English Language:4 th Ed	1. Endowed with great natural ability, intelligence, or talent: a gifted child; a gifted pianist. 2. Revealing special talent: a gifted rendition of the aria	1. A marked innate ability, as for artistic accomplishment. 2. (A). Natural endowment or ability of a superior quality. (b). A person or group of people having such ability: The company makes good use of its talent.

More recently, Carroll [39] proposed the three-stratum model after an extensive analysis of more than 460 data sets from the psychometric literature. In Carroll's model, Stratum I reflects highly specialized skills, some of which represent Thurstone's primary mental abilities. Stratum II reflects –to some extent- specialized abilities that occur in broad domains of intelligent behavior. They include: fluid intelligence, crystallized intelligence, general memory and learning, broad visual perception, broad auditory perception, broad retrieval ability, broad cognitive speediness, and processing speed. Stratum III has the *g* factor, which supposedly underlies all aspects of intellectual activity. Recently, Carroll's model and the Horn–Cattell model have been synthesized into the Cattell–Horn–Carroll (CHC) theory [40].

Gardner [26] is one of the researcher who considered abilities in a more domain specific way. He described the Multiple Intelligences model of intellectual ability in his first edition and subsequent editions of his book *Frames of Mind* [26,41,42] which emphasizes the need for psychologists and educators to expand their definitions of human intelligence. According to Kaufman and Sternberg [34], multiple intelligences are not static abilities hierarchically nested under a general factor, but rather are each an independent cognitive system in its own right. Another researcher of the domain specific perspective is Stanley [43], who developed a

domain-specific conception of giftedness through his experiences with precocious youth. As a matter of fact, Stanley used the word “precocious” instead of “gifted” to emphasize that giftedness is precocity demonstrated in a specific domain not in a domain general [44].

Researchers in the domain-specific conception of giftedness stress specific areas of aptitude, and focus on the needs of those who are precocious in those areas to receive the enrichment or acceleration they need to progress at the appropriate skill level. Therefore, the focus is on acquiring a knowledge base and the development of intellectual abilities in a specific domain. The domain-specific researchers often do not include additional psychological processes in their model of giftedness as in the system models [44,45]. Other psychological variables such as creativity are an output of giftedness, not an input, and can only come about after mastering a large amount of content [45].

C. Systems perspective

In this perspective of conceptualizing giftedness, researchers propose giftedness as a system. According to Kaufman and Sternberg [34], this system is the total operation dependent on a confluence of psychological processes operating together, as a rigid network of interacting psychological variables which is conceived to play a role across a broad range of creative behavior.

Renzulli's [23,14] Three-Ring Definition views giftedness as the interaction of three characteristics: task commitment, well-above-average ability, and creativity. According to Renzulli [14], each characteristic plays a significant role in the development of giftedness. Renzulli [23] defines Well-above-average ability as either general ability that can be applied across all domains and/or specific ability, which consists of the ability to perform at a high level within a specific domain as that possessed by those individuals performing in the top 15–20% of any domain.

Another important systems model of giftedness is Sternberg's [46] WICS model of giftedness, in which giftedness is conceptualized as a synthesis of wisdom, intelligence, and creativity [46,47]. According to Sternberg's WICS model, people need creative skills and attitudes to produce new and original ideas; analytical skills and attitudes to evaluate the quality of these ideas; practical skills and attitudes to carry out ideas and to convince others of their value; and wisdom related skills and attitudes in order to ensure that one's ideas help to promote a common good. In this view, gifted recognize and capitalize on their strengths, and compensate for their weaknesses, in order to adapt and shape real-world environments. Additionally, they are not necessarily extremely strong in all of these aspects.

D. Developmental perspectives

Developmental perspectives were highly emphasized on the genetic determinants of giftedness. Rather, they emphasize the constantly changing nature of these gifts, and enlarge the platform even wider than the systems model by including various external variables that might interact with the internal variables of the individual to produce giftedness [34]. Mönks [48]

was one of the first researchers who included the environment in a model of giftedness, he modified Renzulli's three-ring model to come up with the Multifactor model of giftedness. He essentially took Renzulli's model, and added environmental factors such as the family, school, and peers to the three psychological factors (creativity, motivation, and exceptional abilities) already proposed by Renzulli.

Gagné [49] proposed a model of giftedness that emphasizes the talent-development process. He proposed the Differentiated Model of Gifted and Talented (DMGT) to highlight the difference in these terms, in which he demonstrated that the words "gifted" and "talented" are often used interchangeably in the field of gifted education. The main aim of Gagné's model is to find out the environmental influences (home, school, parents, activities, encounters, etc.), non-intellective variables (motivation, temperament), and learning, training, and practicing, that transform basic, naturally determined "gifts" (intellectual, creative, sensorimotor, etc.) into specific talents (language, science, mathematics, art, music, leadership, etc.).

Another important development perspective of giftedness is Tannenbaum's Star Model [50]. He proposed a related theoretical model that attempts to define the contributing factors linking gifted potential to talent fulfillment. Tannenbaum [51] suggested five social and psychological linkages between promise and fulfillment: (a) superior intelligence, (b) exceptional special aptitude, (c) non-intellective facilitators, (d) environmental influences, and (e) chance, or luck. These five factors are considered to interact to produce high levels of productivity, and are all necessary to become a "gifted" individual.

Feldman [52] proposed a model of how talent develops in young people. He suggested seven

dimensions for the development of giftedness: (a) cognitive processes, (b) social/emotional processes, (c) family aspects (i.e., birth order and gender within the family), (d) education and preparation (informal and formal), (e) characteristics of the domain and field, (f) social/cultural contextual aspects, and (g) historical forces, events, and trends [52,53].

Feldhusen [54] further synthesized the various models of giftedness to formulate a developmental model of giftedness based on talent development. He included domain specific abilities [39,26] with the idea that these basic abilities are naturally determined (as in Gagné's Model), with the acknowledgement of the emergence and development of the specific through facilitating experiences, and within a particular sociocultural context [55].

III. CONCLUSION

In order to identify gifted children for a special program, those who are organizing the program need to define giftedness as they understand it. The identification should be tied to the definition of giftedness. If the definition includes multiple abilities, the identification process should search for all of these abilities. The definition should also suit the program objectives [56,57,23]. There is no one absolute definitions of giftedness and talent. Cultural, social, and political factors have influence on the definitions. When the definition is applied to children it does not promise that this child will achieve eminence, but it only states that a child shows characteristics denoting evidence of giftedness [56].

Modern conceptions of giftedness and talent are a result of an evolution of thoughts. Each generation of giftedness and talent models is depending on earlier ones, integrating the previous generation's ideas and adding extra components

that reflect the current state of research. Domain-general researchers laid the foundation by asking the question, "what is giftedness?" in the first place, and introducing intelligence tests to measure it. Domain-specific researchers built on the foundation of intelligence theories by discovering multidimensional factors lead to giftedness. System models recognized the importance of both domain-general and domain-specific proclivities, but also added other psychological variables they felt were important components of giftedness.

Developmental researchers shed the light more, taking many of the ideas of the first three generations of giftedness researchers, but placing talent within a developmental context that includes variables external to the individual such as the motivation and environment. Looking at the big picture, it is clear that modern giftedness researchers share the same goal: the identification and nurturance of specific talents. No serious giftedness researcher today believes that general intelligence is the whole picture, or believes that gifted abilities are solely the result of innate, genetic endowment. If anything, the trend over the past 20 years has been to emphasize external factors over internal factors. There seems to be a shift toward *explaining* the talent-development process (fourth perspective) instead of merely listing static traits that are important to achieve giftedness (third perspective).

Differences between the various conceptions of giftedness do emerge. Three main areas of argument include the importance of non-intellective abilities, the role of creativity in giftedness, and whether giftedness is a potential or an achievement. Domain-specific researchers such as Stanley have tended to argue that precocious students need to build up their base of expertise in a particular domain. As a result, they view

giftedness as, in large part, an achievement. They downplay the importance of non-intellective abilities and view creativity as part of the end product instead of part of the process. Systems researchers such as Renzulli and Sternberg place creativity on equal footing with intelligence, and emphasize the need to teach creativity-based skills in addition to critical-thinking skills.

Systems researchers agree with the domain-specific researchers that giftedness is achievement. Developmental theorists such as Gagné view giftedness as potential, and talent as performance. In addition, developmental theorists emphasize, to a large extent, the role of no intellective abilities such as motivation and creativity for talent to emerge.

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