

A Concept Synthesis of Talent in Medical Sciences: A Multi-Attribute Talent Model

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Abstract

Background: Talented individuals are particularly important nowadays due to their potential abilities, creativity, and high initiative toward scientific progress. Due to the passage of time and conducting studies on the concept of talent by researchers, this concept has been observed in the last few decades generally, partially, or in combination with other concepts.

Objectives: The present research aimed to provide a more comprehensive understanding of the concept of talent and its adjacent substructures and abstract structures.

Methods: Concept synthesis in this study was implemented using the stages of the Walker-Avant approach in 2024. After extensive searching on scientific databases of Magiran, SID, Medlib, Iran Doc, Scopus, PubMed, Science Direct, Cochrane, Web of Science, Google Scholar, Eric and using keywords related to the article, resulting in approximately 706 items. After reviewing the articles based on their titles and related content, and given the theoretical data saturation and using 82 articles, analytical concepts and definitions were collected and categorized, and the model was finally presented.

Results: According to the findings, after categorizing and narrowing down the categories and considering the literature review, the present study's multi-attribute talent model was obtained (a model comprising of stages: acquisition of competency, accomplishment leading to achievement, and culmination into talent") that concept of talent were synthesized with more complete and precise definitions.

Conclusion: According to the research findings in the present model, talent encompasses high levels of achievement and performance defined by expertise, giftedness, and individual characteristic (such as grit, perseverance, and commitment) based on acquiring competencies and higher-order thinking rooted in intelligence and aptitude within a specific dimension. Finally, based on the available reviews, limited studies were obtained regarding talent models, in which concepts had been used interchangeably, and talent had been assessed limitedly, which we tried to resolve this issue in the current model.

Keywords: Talent; Giftedness; Intelligence; Aptitude; Achievement

Background

Investing in human resources, particularly talented individuals, is crucial in today's world because they possess high potential, creativity, and initiative toward scientific progress.

Talent concept

Numerous and sometimes different definitions of talent have been proposed in different articles (1).

Some researchers build their framework for conceptualizing talent based on objective or subjective approaches. The objective approach views talent as individuals' characteristics, including natural ability, mastery, commitment, and fit (1).

According to Gagné, talent is the superior mastery of systematically developed abilities or skills (2). Williams (2000) suggests that individuals who consistently

demonstrate high competency in a broad spectrum of activities and situations, in a specialized field, or in a narrow area of expertise (i.e., in potential situations) are considered talented (3). Ulrich defines talent as competency (knowledge, skills, and values required for current and future occupations, and the appropriate skill, place, occupation, and time) $\times$ commitment (willingness to engage in an activity) $\times$ engagement (finding meaning and purpose in their activities) (4).

Aptitude concept

Achievements typically serve as aptitude; for instance, reading skills are crucial aptitudes for academic learning. Aptitude indeed encompasses most cognitive structures, such as abilities or success. Furthermore, aptitude is not always positive; for example, some individuals tend to cause accidents or some may be good liars. Lastly, and most importantly, context or conditions can influence aptitude (5).

Giftedness concept

Moreover, the term “giftedness”, one of the terms hidden in talent, is defined by Renzoli as a clever individual who may not have a very high intelligence quotient (IQ) but stands out due to nurturing other qualities, such as task commitment, above-average abilities, and creativity (6). In addition, Gagné (2011) describes giftedness as possessing and utilizing salient innate abilities, known as aptitude, that place an individual among the top 10% of their peers in at least one ability dimension (7).

Creating a deemed concept is a mental process in which a mental structure is created and its related opinions are formed based on experience. Consequently, the ultimate outcome of the process establishes criteria for identifying concepts and perceptions existing in a particular scenario, resulting in a shared understanding and influential communication. In the process of dissemination of scientific theories, the development of concepts and the establishment of deemed concepts are pivotal stages. During the synthesis stage, the concepts concerning the intended phenomenon are exclusive, precise, and clearly defined (8). Due to the passage of time and conducting studies on the concept of talent by researchers, this concept has been observed in the last few decades generally, partially, or in combination with other concepts.

A literature review even in texts related to health and medical sciences shows that talent, aptitude, and giftedness are often used interchangeably, and there is no single definition of the aforementioned concepts in studies (5).

Objectives

The present research aimed to provide a more comprehensive explanation and clarification of the concept of talent and its adjacent substructures and abstract structures (Such as aptitude and giftedness concept) using the Walker-Avant concept synthesis approach in 2024.

Methods

Concept Synthesis Stages in the present study

According to Walker-Avant concept synthesis approach:

- “We will discuss the steps of concept synthesis sequentially but, as in most of the strategies, they are really iterative. That is, you do not always progress from step to step but may cycle through steps several times or go back and forth between steps.
- During the time you are becoming theoretically saturated, begin to classify the data you acquire. The system of classification need not be rigorous. Indeed, it is better if the system stays fairly loose at this stage.
- While you are classifying the data, look for clusters of phenomena that seem to relate closely to each other or overlap considerably and combine them.
- The new concept has been reduced as much as possible, a name should be chosen for it that accurately describes it and that facilitates communication about it. Once the concept is named, the next step is to verify the new concept empirically and modify it as necessary.
- Verification involves a return to literature, field studies, data collection, and colleagues to discover if the concept is empirically supported.
- The new concept should then be described in a theoretical definition that includes its defining attributes.
- Finally, determine, if possible, where the new concept fits into existing theory in the area.”

Walker-Avant asserted that the process of conceptual synthesis method can be done in an iterative process and there is no need to follow step by step (9).

In this research, we utilized a literary approach for concept synthesis because the preferred and practical approach to assessing the concept of talent.

Search Strategy

This study suggests that the goal of this process is to reach theoretical saturation. To this purpose, we need to get totally acquainted with our field of interest by utilizing various sources, including reviewing the literature and case studies. All of these sources offer

potential sources of usable data.

In this study, articles and books were collected by searching the electronic databases of Magiran, Iranmedex, SID, Medlib, IranDoc, Scopus, PubMed, Science Direct, Cochrane, Web of Science, Google Scholar, Eric and using keywords General Intelligence, Intelligence, IQ, Aptitude, Effort, Supporting context, context, Competency, Attitude, Mindset, HOTS, High performance/ Achievement, Performance, Grit, Perseverance, Commitment, Expertise, Giftedness, Talent related to the title, No time limit. Boolean operators (AND, OR, NOT) were used appropriately to construct the search query. Examples of English search queries included as follows: ((IQ OR Giftedness OR Aptitude) AND Talent)

Inclusion and exclusion criteria

The inclusion criteria for articles included full-text articles published in English and Persian and the exclusion criteria included articles in languages other than English and Persian and duplicates resulting in a total of 706 documents.

After reviewing and examining the abstracts and content of the texts and removing duplicates, 82 articles that covered the subject of the study and were available in full text, including research and review articles, were selected (Figure 1).

The Figure 1 depicts the flowchart of the search strategy and a diagram for the paper's selection. After

reviewing the documents in the Table 1 presents an abstract of a review of articles that have examined concepts and definitions related to talent.

Data Extraction

In this stage, while categorizing the data, we integrated a cluster of phenomena apparently closely related or considerably overlapped.

Choosing a name for the cluster that accurately described the phenomenon and facilitated communication regarding it: After narrowing down the new concept as much as possible, a name was chosen for it that accurately described it and facilitated communication regarding it (Table 2).

Results

From the 82 articles obtained in the concept synthesis process, the method of identifying factors that are related to the focal concept (talent) and related sub-constructs such as competency, high performance, exceptional personal characteristics in the conceptual model was used. Finally, all related concepts and related sub-constructs were integrated into our model.

After categorizing and narrowing down the categories, and according to reviewing the texts for the second time, the following multi-attribute talent model was obtained (Figure 2).

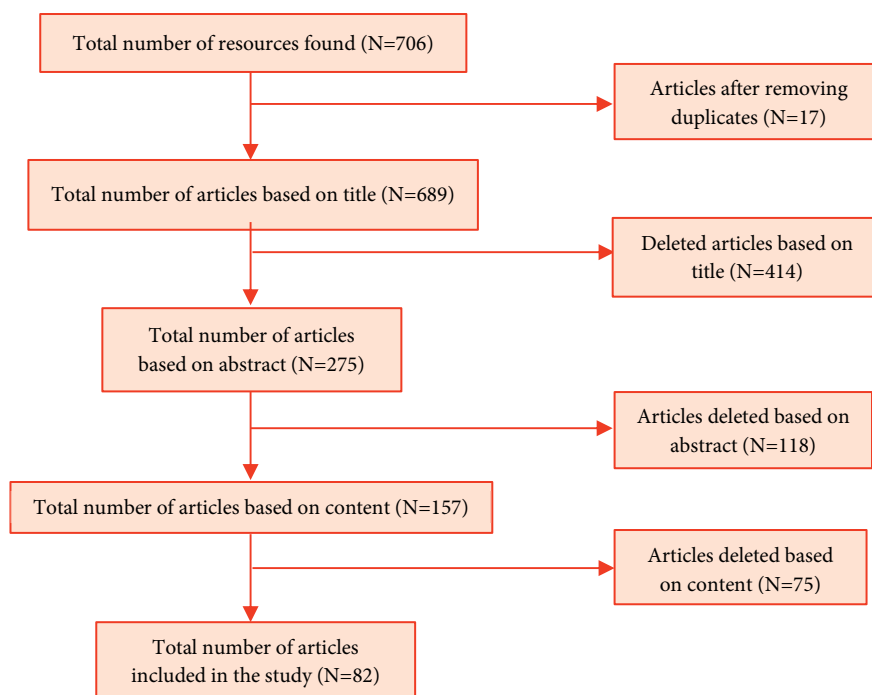


Figure 1. The flowchart illustrates the search strategy

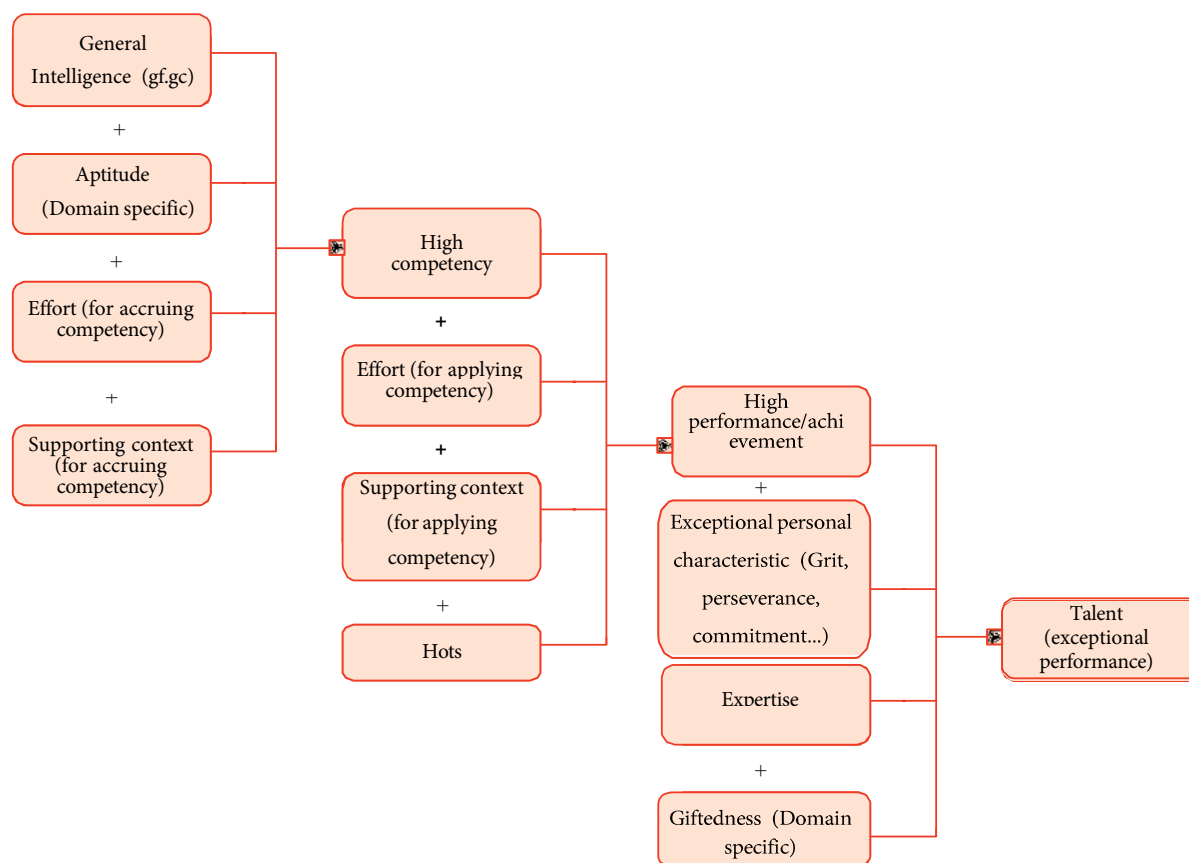


Figure 2. Multi Attribute Talent Model

In the present model Talent encompasses high levels of achievement and performance defined by expertise, giftedness, and individual characteristics (such as grit, perseverance, and commitment) based on acquiring competencies and higher-order thinking based on intelligence and aptitude in a certain dimension

Definition of the Multi-Attribute Talent Model

In the initial stage, the multi-attribute talent model encompasses acquiring high competencies based on general intelligence (fluid and crystallized intelligence) and aptitude in a specific dimension, which can be achieved via effort and the necessary supporting context for acquiring these competencies. In the middle stage, high achievements and performances resulting from the high competencies acquired in the previous stage plus higher-order thinking (productive and critical thinking) and effort and the necessary supporting context for applying competencies are accomplished. In the final stage, these high achievements and performances, combined with expertise, giftedness, and exceptional individual characteristics (such as grit, perseverance, and commitment), can culminate in talent. Some of the above factors, such as higher-order thinking, personality traits, expertise, and grit, are not specific to the middle and final stages, and the individual may have already attained them at a lower level in the previous stage.

Theoretical Definitions in the Multi-Attribute Talent Model

• General Intelligence

General intelligence in the multi-attribute talent model involves general mental ability for reasoning, abstract thinking, problems-solving, planning, and learning in various dimensions, which is associated with working memory, mental processing speed, general knowledge, and visual and verbal perception. In other words, general intelligence comprises fluid (non-verbal) and crystallized (verbal) intelligence.

• Aptitude

Aptitude refers to an individual's abilities and capacities to acquire knowledge and skills in a specific dimension that are defined under the influence of a context or conditions.

• Effort

Effort for Acquiring Competency: It refers to a mental or practical, optional or compulsory, intermittent or continuous activity to achieve something in attaining advancement and acquiring competency.

Effort for Applying Competency: It refers to a mental or practical, optional or compulsory, intermittent or continuous activity to achieve something in attaining

advancement and acquiring competency with doubled effort in applying abilities and skills to attain achievement.

Table 2. Choosing a name for the clusters

	Intelligence
Concepts related to mental high capacity	IQ
	Giftedness
	Smart
	Fluid Intelligence
	Crystallize Intelligence
	Aptitude
	Linguistic Aptitude
	Auditory Aptitude
	Inductive reasoning Aptitude
	Numerical Aptitude
	Physical Aptitude
	Artistic Aptitude
	Analytical Aptitude
	Genius
	Grit
	Effort
	Persistence
Concepts related to exceptional personal characteristics	Commitment
	Creativity
	Motivation
	EI
	Skill
Concepts related to competency	HOTS
	Ability
	Natural ability
	Non intellectual ability
	Expertise
Concepts related to the norm of high performance	Achievement
	High Achievement
	Performance
	High Performance

Effort for Applying Competency: It refers to a mental or practical, optional or compulsory, intermittent or continuous activity to achieve something in attaining advancement and acquiring competency with doubled effort in applying abilities and skills to attain achievement.

• **Supportive Context**

Supporting Context for Acquiring Competency: The supporting context for acquiring competency in this model refers to the situation or conditions accompanying particular theoretical, practical, and ethical training, and also nurturing and growth opportunities together with more appropriate facilities (such as more capable teachers, stronger laboratory and infrastructure equipment, etc.), culminating in acquiring competency.

Supporting Context for Applying Competency: The supporting context for applying competency in this model refers to a situation or condition of the acquired competency together with its development and expansion and access to a higher degree of freedom of action, which is focused on a specific field. It also comprises unique training based on the enrichment and acceleration of educational content and training focused on future occupational performance.

• **Competency**

In the multi-attribute talent model, high competency is defined as the ability to engage in an activity involving a set of knowledge related to implicit knowledge and expertise based on experience and cognitive, practical, social, and technical skills, as well as perceptual ability, in the related profession in individuals with general intelligence that possess aptitude in a particular dimension and make efforts to acquire competency according to their supporting context.

• **Higher-Order Thinking Skills (HOTS)**

HOTS are defined as the ability to apply knowledge, skills, and values in creating meaning and reflection in reasoning, thinking, problem-solving, decision-making, innovation, and inducing new things.

• **High Achievement/Performance**

High achievement or performance in this model refers to the individual's best effort within the existing supporting context to acquire high competency by using higher-order thinking (such as productive thinking, critical thinking, and problem-solving).

• **Grit**

Grit includes perseverance, willpower, continuous determination, working hard despite challenges, maintaining effort and interest, and enthusiasm over time despite experiencing failures and tough times.

• **Perseverance**

Perseverance in the multi-attribute talent model refers to a permanent vigor to achieve goals and improve skills and performance via effort, making an individual dedicate herself/himself to an activity in the long run by being purposeful, disciplined, enthusiastic, and interested.

• **Commitment**

Commitment refers to the willingness to focus and invest energy in a specific area or in solving a problem, giving rise to achieving high levels of goals, productivity, and performance.

• **Expertise**

Expertise refers to an acquired ongoing process consisting of acquiring and stabilizing a collection of

specialized knowledge and skills in a field until reaching mastery over time (depending on the available type of field).

• Giftedness

Giftedness refers to the salient inherent and mental abilities in one or more particular dimensions that can be elevated under the influence of the environment and learning.

• Talent

Talent encompasses high levels of achievement and performance defined by expertise, giftedness, and individual characteristics (such as grit, perseverance, and commitment) based on acquiring competencies and higher-order thinking based on intelligence and aptitude in a certain dimension.

Discussion

According to the researchers' investigations, unfortunately, limited studies have been conducted on talent models involving the following two cases, each of which is explained separately.

The Differential Model of Giftedness and Talent (DMGT)

By presenting the DMGT, Gagné laid the foundation for the education of special systems across the world, from Australia to Canada. In his latest model, Gagné defined giftedness as an inherent and non-acquired phenomenon, with a hereditary structure consisting of the individual's natural abilities, among the top 10% of peers. Moreover, Gagné posits that two types of mental and physical abilities contribute to giftedness. The four mental abilities include intellectual ability (such as general intelligence, fluid intelligence, crystallized intelligence, and verbal, numerical, spatial memory), creativity, social ability, and perceptual ability (such as visual, auditory, olfactory, taste, and tactile). Physical abilities also include muscular abilities (strength, speed, and endurance) and motor control abilities (such as speed of reflexes, balance, and coordination). Furthermore, he described talent as upper-than-average abilities, skills, and performance compared to other individuals that are diverse and are shaped based on considerations and under environmental and educational conditions. From Gagné's perspective, the basic types of talent include academic, technical, scientific and technological, artistic, social services, trade and business, games, and kinetic and athletic talents. Thus, giftedness turns into talent through a development process influenced by individual factors (including motivation, awareness, will, and personality

traits), environmental factors (including individuals, society, etc.), and chance (7).

The criticism of Gagné's DMGT model

The criticism raised about Gagné's DMGT is that he has taken concepts such as giftedness and aptitude as synonyms, since he regards giftedness as salient inherent abilities, called talent, which, according to his model, is more indicative of talent than giftedness, while based on existing evidence, these two concepts are entirely independent of each other. Moreover, given this confusion of concepts in his model, he has divided the dimensions of giftedness so that it may be said that he has limited the dimensions to some specific fields.

The second model that was obtained: The Talent Unlimited Model

In this model, Taylor (1986) introduced the multiple talent approach. Accordingly, each individual has a unique brain talent that needs to be nurtured, and the knowledge accumulation capability is only one of the various types of talent. Taylor developed the "totem pole (a timber or stick on which the motifs of the protective animals of various Indian tribes have been engraved) for the multiple talent" in identifying and fostering all human capacities via educational programs. In this pole, he suggests the academic talent and five types of talent, consisting of productive thinking talent, decision-making talent, planning talent, communication talent, and forecasting talent. Accordingly, every individual is considered to have a unique pattern of strengths in one or more fields and a unique growth curve in each field of talent. Thus, the development of the individual's generality by searching for talents and their fostering is profitable for both the individual and the society. He believes that if this approach is employed in education, it will culminate in the success of a large number of students inside and outside the school. Taylor also claims that 9 out of 10 children will be upper than average in at least one of these fields of talent (68).

The criticism of Taylor model

The model developed by Taylor, despite its name, i.e., the talent unlimited model, has categorized talent into specific fields. Also, since he believes that every individual possesses talent, it can be inferred that Taylor has used talent instead of the word aptitude.

Conclusion

In this section, the primary focus has been on examining the concept of talent from a theoretical and profound perspective. It is a concept that was necessary to be dealt with due to the numerous meanings and

concepts hidden in it, and it was essential that the position of numerous and significant concepts, such as intelligence, giftedness, aptitude, and talent, be explained as much as possible. Overall, in the present study intelligence can be known as the general mental ability, and giftedness can be regarded as salient inherent and mental abilities in one or more specific dimensions that bring an innate gift to the mind. On the other hand, aptitude refers to specific abilities, such as artistic, creative, intellectual, or athletic abilities and fosters in certain areas that are valued and rewarded by society and require many practices and efforts in a specific supporting context to acquire a high level of competency and, subsequently, high performance. It is worth noting that exceptional personality traits, such as grit, commitment, perseverance, and endurance, as well as acquisition and acquired stabilization of specialized knowledge and skills in one or more fields permanently over time are particularly important in achieving talent. Finally, based on the available reviews, limited studies were obtained regarding talent models, in which concepts had been used interchangeably, and talent had been assessed limitedly, which we tried to resolve this issue in the current model. Apart from distinguishing between the concepts of giftedness, intelligence, and talent, other related concepts that contribute to talent development, such as acquiring competency and expertise, need to be taken into account in the light of higher-order thinking. Limitations of the present study include of the unavailable to access the full text of some articles related to the research topic was, unfortunately, beyond the control of the researchers. Also, the choice of language of the articles (only English and Persian) also led to the neglect of articles related to other languages.

The present study can help organizations and institutions that deal with talented individuals to have a clearer and more precise definition of the term talent and to be able to make the best select among these people. Also, the present study can help in designing the curriculum of educational institutions at different levels (any type of educational institution, including all schools, especially gifted schools and universities). In addition, it is recommended that researchers in the fields of education and management take advantage of the findings of the synthesis of the present concept, which has led to further clarification of this concept, and design a measurable tool or tools that are effective in policymaking. Also, other researchers in the fields of

medical sciences can explore the relative weight of each attribute in the model.

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Table 1. Concepts related to talent in the articles

Genius						
Creativity	✓					
Innovation						
Expertise						
Persistence		✓				
Grit						
Commitment						
Performance						
Achievement						
Achievement motivation						
Extrinsic motivation						
Intrinsic motivation						
Motivation						
Effort						
competency						
Skill						
Attitude						
Analytical Aptitude						
Artistic Aptitude						
Physical Aptitude						
Numerical Aptitude						
Inductive reasoning Aptitude						
Auditory Aptitude						
Linguistic Aptitude						
Aptitude		✓				
Wisdom						
Smart						
Intellect						
Emotional Intelligence(EI)						
Fixed Mindset						
Growth mindset						
Giftedness						
Intelligent Quotient(IQ)						
Crystallize Intelligence						
Fluid Intelligence						
Intelligence						
Non intellective ability						
Natural ability						
Ability		✓				
Talent		✓				
Sternberg, Robert J, 2006 (12)						
F. Lohman D, 2005 (5)						
Ulrich, D., & Smallwood, N, 2012 (4)						
Williams, M, 2000 (3)						
Silzer R, F.Church A.H, 2010 (11)						
Gagné, F, 2000 (10)						
Gallardo-Gallardo E, Dries N, F. González-Cruz T, 2013 (1)						

Table 1. Concepts related to talent in the articles (continue)

Genius						
Creativity	✓	✓	✓			
Innovation						
Expertise						
Persistence						
Grit						✓
Commitment						
Performance						
Achievement				✓		
Achievement motivation					✓	
Extrinsic motivation				✓	✓	
Intrinsic motivation				✓	✓	
Motivation				✓	✓	
Effort						
competency						
Skill						
Attitude				✓		
Analytical Aptitude						
Artistic Aptitude						
Physical Aptitude						
Numerical Aptitude						
Inductive reasoning Aptitude						
Auditory Aptitude						
Linguistic Aptitude						
Aptitude						
Wisdom						
Smart						
Intellect						
Emotional Intelligence(EI)						
Fixed Mindset						
Growth mindset						
Giftedness						
Intelligent Quotient(IQ)						
Crystallize Intelligence						
Fluid Intelligence						
Intelligence						
Non intellective ability						
Natural ability						
Ability						
Talent						
	Wang, A. Y, 2011 (13)	Kesim, M, 2009 (14)	Yin Cheng, Viv and Mo, 2001 (15)	Glynn S.M, Brickman P, Armstrong N, 2011 (16)	Singh K,2011(17)	Heckhausen, H, 1967 (18)
						Bashant J, 2014 (19)

Table 1. Concepts related to talent in the articles (continue)

Genius							
Creativity							
Innovation							
Expertise							
Persistence							
Grit			✓				
Commitment			✓				
Performance	✓						
Achievement	✓						
Achievement motivation							
Extrinsic motivation							
Intrinsic motivation							
Motivation	✓		✓				
Effort	✓			✓			
competency							
Skill							
Attitude							
Analytical Aptitude							
Artistic Aptitude							
Physical Aptitude							
Numerical Aptitude							
Inductive reasoning Aptitude							
Auditory Aptitude							
Linguistic Aptitude							
Aptitude							
Wisdom							
Smart							
Intellect							
Emotional Intelligence(EI)							
Fixed Mindset							
Growth mindset							
Giftedness							
Intelligent Quotient(IQ)							
Crystallize Intelligence							
Fluid Intelligence							
Intelligence							
Non intellective ability							
Natural ability							
Ability							
Talent	✓						
Schmid S and X. Bogner F, 2015 (26)							
Dweck C. S, Chui C. & HongY, 1995 (25)							
Oxford University Press, Effort, 2015 (24)							
Jeremiah J, 2017 (23)							
Goodwin B, B. Miller K, 2013 (22)							
Brooks N and Seipel S. J, 2018 (21)							
Duckworth A. L, 2016 (20)							

Table 1. Concepts related to talent in the articles (continue)

✓	Genius						
	Creativity	✓	✓				
	Innovation						
	Expertise						
	Persistence				✓		
	Grit						
✓	Commitment						
	Performance		✓				
	Achievement						
	Achievement motivation						
	Extrinsic motivation						
	Intrinsic motivation						
	Motivation						
	Effort		✓				
	competency						
	Skill		✓				
	Attitude						
	Analytical Aptitude		✓				
	Artistic Aptitude						
	Physical Aptitude						
	Numerical Aptitude						
	Inductive reasoning Aptitude						
	Auditory Aptitude						
	Linguistic Aptitude						
	Aptitude						
	Wisdom						
	Smart		✓				
	Intellect						
	Emotional Intelligence(EI)						
	Fixed Mindset		✓				
	Growth mindset						
	Giftedness						
✓	Intelligent Quotient(IQ)						
	Crystallize Intelligence						
	Fluid Intelligence		✓				
	Intelligence		✓				
	Non intellective ability			✓			
	Natural ability						
	Ability						
✓	Talent						
Renzulli, 2000 (6)	Gardner H, 2011 (32)	Kanesan P, Fauzan N,2019 (31)	Taylor SP, 2017 (30)	J. Sternberg R, 2003 (29)	Dasta M, Shokri O, Pakdamani s, Fathabadi j, 2020 (28)	Kent P, 2017 (27)	

Table 1. Concepts related to talent in the articles (continue)

Genius						
Creativity						
Innovation						
Expertise						
Persistence						
Grit						
Commitment						
Performance	✓	✓	✓	✓		
Achievement						
Achievement motivation	✓					
Extrinsic motivation						
Intrinsic motivation						
Motivation						
Effort						
competency	✓			✓		
Skill	✓			✓		
Attitude						
Analytical Aptitude						
Artistic Aptitude						
Physical Aptitude						
Numerical Aptitude						
Inductive reasoning Aptitude						
Auditory Aptitude						
Linguistic Aptitude						
Aptitude						
Wisdom						
Smart						
Intellect						
Emotional Intelligence(EI)						
Fixed Mindset						
Growth mindset						
Giftedness						
Intelligent Quotient(IQ)						
Crystallize Intelligence						
Fluid Intelligence						
Intelligence						
Non intellective ability						
Natural ability						
Ability						
Talent						
McClelland D. C, 1958 (38)	Krause O, 2005 (37)	Neely A, Gregory M, Platts K, 1995 (36)	European Foundation for Quality Management(EFQM), 2003 (35)	Yazdani S, Akbari Farhad S, Farajpour A,2018 (34)	Guy M, Doris S, 2009 (33)	

[illegible]

Table 1. Concepts related to talent in the articles (continue)

Genius							
Creativity	✓						
Innovation							
Expertise	✓						
Persistence							
Grit							
Commitment							
Performance	✓			✓			
Achievement	✓			✓			
Achievement motivation							
Extrinsic motivation	✓						
Intrinsic motivation		✓					
Motivation	✓	✓		✓			
Effort							
competency							
Skill	✓			✓			
Attitude							
Analytical Aptitude							
Artistic Aptitude							
Physical Aptitude							
Numerical Aptitude							
Inductive reasoning Aptitude							
Auditory Aptitude							
Linguistic Aptitude							
Aptitude				✓			
Wisdom							
Smart							✓
Intellect							
Emotional Intelligence(EI)							
Fixed Mindset							
Growth mindset							
Giftedness				✓			
Intelligent Quotient(IQ)				✓			
Crystallize Intelligence							
Fluid Intelligence							
Intelligence	✓						
Non intellectual ability	✓						
Natural ability				✓			
Ability	✓						✓
Talent	✓			✓			✓
Zhang K, Shi J, Glynn S.M, Brickman P, Armstrong N, Taasobshirazi G, 2011(51)							
Wang F, Ferrari M, 2022 (50)							
Al-Shabatat AM, 2013 (50)							
Gagné F, 2011 (7)							
Gagné F, 2007 (49)							
Parliament, 2012 (48)							
Meyer k, 2021 (47)							
Gones W, 2016 (46)							

Table 1. Concepts related to talent in the articles (continue)

✓	Genius						
✓	Creativity						
	Innovation						
	Expertise						
	Persistence	✓					
	Grit						
	Commitment						
	Performance						
✓	Achievement						
	Achievement motivation						
	Extrinsic motivation						
	Intrinsic motivation						
	Motivation						
✓	Effort						
	competency	✓					
✓	Skill						
	Attitude						
	Analytical Aptitude						
	Artistic Aptitude						
	Physical Aptitude						
	Numerical Aptitude						
	Inductive reasoning Aptitude						
	Auditory Aptitude						
	Linguistic Aptitude						
	Aptitude						
	Wisdom						
	Smart						
	Intellect						
	Emotional Intelligence(EI)						
	Fixed Mindset						
	Growth mindset						
	Giftedness						
	Intelligent Quotient(IQ)						
✓	Crystallize Intelligence	✓					
	Fluid Intelligence	✓					
	Intelligence						
	Non intellectual ability						
	Natural ability						
	Ability						
	Talent						
Koukab S.R, Zubia S.A, 2015 (57)							
Lynch M, 2022 (56)							
Hochanadel A, Finamore D, 2015 (55)							
Cochrane A, Simmering V, Green CS, 2019 (54)							
Horn J. L, Cattell R. B, 1966 (53)							
Boyatzis RE, 2008 (52)							

Table 1. Concepts related to talent in the articles (continue)

✓			Genius
			Creativity
	✓		Innovation
			Expertise
			Persistence
			Grit
			Commitment
			Performance
			Achievement
			Achievement motivation
			Extrinsic motivation
			Intrinsic motivation
			Motivation
			Effort
			competency
			Skill
			Attitude
			Analytical Aptitude
			Artistic Aptitude
			Physical Aptitude
			Numerical Aptitude
			Inductive reasoning Aptitude
			Auditory Aptitude
			Linguistic Aptitude
			Aptitude
			Wisdom
			Smart
			Intellect
			Emotional Intelligence(EI)
			Fixed Mindset
			Growth mindset
			Giftedness
			Intelligent Quotient(IQ)
			Crystallize Intelligence
			Fluid Intelligence
			Intelligence
			Non intellectual ability
			Natural ability
			Ability
			Talent
NESTA, 2012 (67)	Confederation of British Industry (CBI), 2008 (66)	National Audit Office (NAO), 2009 (65)	