



Identification of Vocational Talent among Students: Theoretical Perspectives

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ABSTRACT

Skilled human capital is essential in economic development of a country. Despite the importance of technical and vocational education and training (TVET) in providing skilled workforce, students with vocational talent are difficult to be identified in schools due to the lack of a precise instrument to measure specific vocational traits. This conceptual article aims to identify the vocational talented students by determining their attributes. There are numerous studies on vocational interests and personality but few studies on the identification of vocational talent. As such, this article deliberates on theoretical domains and related vocational literature to encapsulate the concept of vocational talent. Further, this study also attempts to decipher the factors influencing vocational choice of students. Based on the relevant theories and previous studies, several important attributes can be identified to determine the traits of vocational talented students. In the future, it is hoped that a rigorous instrument could be constructed to measure the vocational talent.

Keywords: Technical and vocational education and training, vocational interest, vocational personality, vocational talent, Malaysia

INTRODUCTION

Marketable human capital is critical in achieving a high income nation. Skilled workers are the key for country's economic growth and human capital development. Countries with more skilled and educated human capitals grow more rapidly (Becker, Murphy & Tamura, 1994). Technical and Vocational Education and Training (TVET) system was designed to produce skilled workers based on labor demands. To be competitive, a country should not overlook the TVET system based on market demand (Pillai & Ridzwan, 1994). As such, the development of quality skilled human capital in a country is critical and this can be achieved through technical and vocational education and training. TVET could bring great benefits to a country. In line with that, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and many countries in the world are focusing and promoting TVET. Apart from offering the opportunities to raise the educational attainment level, TVET also has the potential to bridge the gap between the poor and the rich (Lamb, 2011). In the world of rapid economy and technological changes today, TVET also becomes the drive for innovation (Attwell et al., 2008). Innovation is essential to fulfil the evolving needs of the labor market. Hence, the need to fortify TVET by recruiting a new generation of talented vocational students has never been more critical.

TVET prepares students for working life (Ecclestone, 1996; Ivan, Ab. Rahim, Ramlah & Rosini, 2008) as well as plays a major role in the economic development (Min, 1995; Ramlee, 1999; 2000; 2004; 2013; Ramlee & Abu, 2000). In TVET, students need to prepare themselves with adequate working skills that can be obtained from effective TVET programs (Rosnani, 2008). Exposing students to work-based education enables better preparation for the students' career as they are able to foster appropriate mindset, skills and competencies suitable for the world of work (Modrakee, 2005). This would increase the students' opportunity for employment. Higher opportunity for employment leads to low possibility of being jobless or being underemployed. Furthermore, skilled individuals are able to create their own job by becoming entrepreneurs. Unemployment is considered a serious malaise in a country because it could bring not only economic problems but also social problems. Thus, TVET may be one of the solutions in reducing the unemployment rate of a country.

Another aspect that should be focused in TVET is talent. Organizational success increasingly associated with talent management (Nilsson & Ellstrom, 2012). An organization would recruit and retain high performers or talented individuals that meet their organizational needs. Therefore, if the students who enrolled into TVET are vocationally talented and able to perform dexterously in vocational fields, TVET could contribute toward providing workforce that will be highly in demand. Further investment in TVET should be made to fulfil the gap between the labor needs and market demands (Cainarca & Sgobbi, 2012; Woods, 2012). Hence, continuous investment in TVET is needed to ensure TVET system will produce relevant skilled human resources who eventually will be the future workforce of a country. The main challenge is to identify the vocational talented students especially in primary and lower secondary schools.

Despite the importance of TVET in providing skilled and quality workforce that is essential for economic growth of a country, very few students with strong vocational talent are identified in schools. They are hidden in the school system and may be due to the school environment that does not provide them with the opportunity to show their ability (Chiam & Abdullah, 1997; Clark & Shore, 2004). In schools, students' performances vary due to their abilities and talents in different domains. Students with high ability or talented in a domain may not perform the same in other domains. Some less-academically inclined students may have high inclination toward TVET but unable to demonstrate excellent results in academic; however they may demonstrate otherwise in non-academic areas. As a result, these vocationally talented students are kept hidden although they are the "treasure" of a country because they could be nurtured as skilled workers for the future. Furthermore, these less-academically inclined students may seek alternative activities or deviant behaviors to fulfil their needs. If these vocational talented students could be identified earlier on and channel them into TVET programs, they are given the opportunity to excel in the vocational fields that interest them and may contribute to the economic development of a country in the future. In spite of the students' low academic achievement, TVET programs may be able to recapture students' enthusiasm toward education as some of the vocational courses may be of their special interest (Bonica & Sappa, 2010; Lim, 2010).

Who are these potential TVET students or the vocational talented students? How do we identify these students? What are their attributes? This article reviews literature for theories and empirical studies related to talent, vocational success and factors influencing the vocational choice in order to determine the attributes of the vocational talented students. Since TVET is designed to prepare students for work (Ecclestone, 1996), theories on vocational talent and career development have been studied and compared. In addition, factors that influence vocational talent are also examined. Finally, the researchers attempt to discuss the attributes of vocational talented students and to recommend a framework for vocational talent.

VOCATIONAL TALENT

There are many definitions of talent based on current literature. Talent is associated with how well an individual performs in relation to a specific job (Nilsson & Ellstrom, 2012) or something exemplary possessed by individuals (Garavan, Carbery & Rock, 2012) or a natural ability that someone is born with (Eysenck & Keane, 2005). Talented individuals show evidence of better-than-average potential or show potential for development but need support or need to be nurtured to achieve that potential

(Clark, 2013). According to Renzulli and Renzulli (2010), individuals who show above average ability are considered as gifted. Renzulli and Renzulli (2010) also proposed the “three ring” conception model of giftedness as shown in Figure 1. The three components in the model are ability (above average ability), task commitment, and creativity. Gifted individual behaviors reflect interaction between the three components (Renzulli & Renzulli, 2010). Hence, talented individuals may also refer to as gifted individuals. Vocational talented students may also be referred to as vocationally gifted students and considered as the treasure of a country.



Figure 1: The three ring conception of giftedness

In the famous multiple intelligences (MI) theory, intelligence is viewed as the incorporation of a range of talents or the behavioral representations of talents (Gardner, 1983). According to Gardner (1983; 1999), there are at least nine intelligences; linguistic, musical, logical-mathematical, spatial, bodily-kinaesthetic, interpersonal, intrapersonal, naturalistic, and existential. Therefore, there are at least nine different representations of talents. Gardner (1983) asserts that a person may have high level of several types of intelligences but may be weak in some of them. Depending on the different intelligent profile and education of a person, that individual may suit to different positions in the various working fields and conditions. As no single job relies on a single intelligence, an individual may have a combination of several intelligences; high in one type of intelligence and low in others or multi-faceted levels in their intelligence profile. Table 1 shows the details description of each type of intelligence based on Gardner’s theory (Gardner, 1983; 1999).

Table 1: The multiple intelligence theory

Type of intelligence	Description
Linguistic intelligence	Talented in using words efficiently; in writing or verbal
Musical intelligence	Talented in recognizing and composing musical pitches, tones and rhythms
Logical-mathematical intelligence	Talented in reasoning deductively; think logically and problem solving
Spatial intelligence	Talented in identifying and visualizing shape, space, colour and lines including representing ideas visually and graphically, creative, highly imaginative
Bodily-kinaesthetic intelligence	Talented in carrying out physical activities, controlling own body movements and hands involving the fine and gross motor skills
Interpersonal intelligence	Talented in the communication with others in terms of understanding their intentions, motivations and desires
Intrapersonal intelligence	Talented to be self-aware, to understand and appreciate own feeling
Naturalistic intelligence	Talented in recognizing plants, animals and nature
Existential intelligence	Talented in understanding the existence of human and life

The MI theory has been widely applied not only in education (Sulaiman, Sulaiman & Wei, 2011) but also in other organizations (Green, Hill, Friday & Friday, 2005; Weller, 1999) for various purposes in many countries. MI theory is also being related to different learning styles of students (Vincent & Ross, 2001). The application of the multiple intelligence theory in TVET offers the opportunity for an individual to see himself or herself as a talented and successful in multiple ways. Individuals who received TVET are mainly those non-academic oriented person. As TVET involves many practical and hands-on activities, TVET is closely related to the bodily-kinaesthetic type of intelligence. A person with bodily-kinaesthetic intelligence has the ability to express himself by manipulating his body and hands purposely, and handle objects skilfully (Gardner, 1983). These characteristics involve the fine motor movements of one's finger and hands, and exploit gross motor movements of the body. Rabiah (2008) found that students who enrolled for the TVET in the public schools in Malaysia have skills in using tools and machines though moderate level of knowledge in TVET subjects. The TVET students also possess high bodily-kinaesthetic intelligence. In addition, spatial intelligence was found to be important for TVET students (Maizam, Black & Gray, 2002). Individuals with spatial intelligence have the ability to identify and visualize shape, space, color and lines including representing ideas visually and graphically, creative and highly imaginative. These are the essential characteristics for TVET students. Hence, individuals with high bodily-kinaesthetic and spatial intelligence are assumed to possess vocational talent.

VOCATIONAL PERSONALITY

TVET is a specialized training in any vocational field (Evans & Herr, 1971) and is also part of the general education. TVET enables individuals to enter the working life as soon as they have completed their training. In other words, TVET prepares individuals for their choice of vocations (Ecclestone, 1996). From the workforce perspective, TVET provides skilled workers ranging from technicians to supervisors (Ivan et al., 2008). However, TVET is also viewed as a medium for up-skilling the workforce regardless of the employment level (Attwell et al., 2008). According to Law (2007), one of the success indicators for TVET is the employability of the graduates, i.e., relevancy of the TVET graduates to fulfil the market needs. Hence, it is important for TVET students to be identified and trained. According to Parsons (1909) in his trait and factor career development theory or also known as the trait and factor theory of occupational choice, ideal career choices are based on matching personal traits (aptitude, abilities, resources and personality) with the job factors (wages and environment) to produce the best conditions for vocational success. Talent matching is the key concept of this theory where a strong relationship between traits (refers to the characteristics of an individual that can be assessed through testing) and factors (refers to the characteristics required for successful job performance) should be established before choosing a vocation. In other words, an individual is expected to perform at his best when his personal traits matched with the job requirements and environment. Parsons theory is also supported by Slupe (2007).

Furthermore, it is important to choose a career based on one's own interest and talent in order to sustain a career (Covey & Colosimo, 2009). This condition is also supported by Holland (1997) in his theory of careers and vocational choice. From the basic principles of Holland's theory, some influential variables related to choice of vocation of an individual are identified, such as personality, interest, and environment. The theory also indicates six personality types – realistic, investigative, artistic, social, enterprising, and conventional (RIASEC). Each of these personality types is distinct and stable over time and across gender and race.

A realistic person preferred activities that are explicit. For example, he could systematically manipulate objects, tools or machines and have the tendency toward acquisition of manual, mechanical, agricultural, electrical and technical competencies. They prefer to work with their hands and use physical skills, such as to repair and make things with their hands, tools or machines. They also prefer outdoor activities and are considered as practical person. However, a realistic person tends to be lacking in the social and educational competencies. As TVET students involve in many hands-on activities involving various tools and machines regardless of the vocational field, realistic individuals are appropriate for TVET. Besides realistic, artistic persons also tend to join TVET

programs. Artistic persons are intuitive, creative, expressive and unconventional especially when solving a problem. They express themselves in various forms such as images, materials, music, words, movements and systems or programs. TVET subjects related to designs and drawings such as fashion design, food craft, mechanical drawing, wood craft and many more would require the individuals to be artistic. As such, artistic individuals are also appropriate for TVET. Therefore, realistic and artistic students could be categorized as TVET inclined students. Table 2 shows the details description for each type of personality by Holland (1997).

Table 2: The occupational choice theory

Type of personality	Description
Realistic (R)	Prefer to work with their hands and use physical skills; like to repair and make things with their hands and using tools and machines; prefer outdoor activities; a practical person
Investigative (I)	Prefer to collect and analyze data and information; task oriented person; high curiosity and independent; like to focus on ideas; prefer to think than act out
Artistic (A)	Prefer to express emotions and thoughts in various ways; dislike structured situation; highly creative and expressive
Social (S)	Prefer to work with people; tend to focus on people and their welfare; high achievers and good leaders
Enterprising (E)	Prefer situations related to business or with financial benefits; highly persuasive and confident; like to be in power or high status,
Conventional (C)	Prefer to work orderly and follow rules; like details, precise and clearly defined tasks; efficient with high sense of responsibility

FACTORS INFLUENCING VOCATIONAL CHOICE

As TVET prepares individuals for their choice of vocation (Ecclestone, 1996), factors that influence the vocational choice of a student should be determined. The factors could be categorized in several domains: demographical background, interest, personality, aptitude and ability, skill, and others. Interest has always been the main reason for the decision on career and education because it was found to be a strong predictor. However, other factors should also be considered in this study.

Demographical Background

Several studies have shown that the assistance from family and friends affecting employment (Evans & Herr, 1971). Evans and Herr (1971) added that the types of employment received depend heavily on one's geographical settings, race, gender, and socioeconomic status. It was found that family encouragement contributed to the involvement of women in the technical fields (Ramlee, Norhazizi & Fouziah, 2010). A study by Clutter (2010) on the effects of parental influence on children's career choice found that family and parental influences on children's career choice are multifaceted as parents do not always contributing a positive influence on their children. Clutter (2010) suggested some issues such as attachments between parents and their children as the reason behind this influence. Agarwala (2008) found that skills, competencies, and abilities are the important factors influencing the career choice but students are most influenced by their father. Nazli (2007) also found that parents and other key figures in the children life influence them in their career decision. Baker Jr. (2004)'s study indicated that family is the major influence in developing youth vocational interests while community directing the youth to support services and create an environment for them to go through vocational development stages even with limited exposures. Halijah (2004) found in her

research that teachers and the community influenced the students' career choice more than the school administration and parents. Tsakanika (1994) and Asnul Dahar and Zulkifli (2010) supported the findings that parents influence their children's vocational choice. Feldman and Whitcomb (2004) found that socio-economic status is a critical factor in the career decision making.

Interest

Students have different interests and cognitive styles. Covey and Colosimo (2009) define interest as something that gives satisfactions to a person and the feeling comes from inside the person without external interference. Covey and Colosimo (2009) stated that individual's talent, interest and inner voice shaped that individual. Evans and Herr (1971) states that students will learn faster to things that are more interesting to them and will only learn if they found the subject appears to be relevant. Therefore, it is important for the students to understand their own interests and aptitudes and the connections with the educational program they chose as these would lead to their career path (Schmidt, 2001). Hein (1997) found that cognitive style is the dominant effect in vocational interest compared to attitudes and beliefs. Other studies that supported the influence of individual's interests on vocational choice included Asnul Dahar and Zulkifli (2010), Salami (2008), Feldman and Whitcomb (2004), Lubinski (2004), Ackerman and Beier (2003), and Ackerman and Heggstad (1997).

Personality

Personality refers to the external and visible characteristics of a person that other people can see. Personality also can be referred to as the unique, relatively enduring internal and external aspects of a person's character that influence behavior in different situations (Schultz & Schultz, 2009). Self-concept is the basis of individual's personality and has a strong relationship toward career success (Ainon & Abdullah, 2011). Nazli (2007) defines self-concept as how a person considers himself or herself and found that children are able to associate their self-concept with ideal future profession. Ackerman and Heggstad (1997) and Ackerman and Beier (2003) found an overlapping traits among personality, intelligence, and interests. According to Ackerman and Heggstad (1997), abilities, interests, and personality could develop in tandem. They also added that ability and personality determine the probability of success in a particular task domain while interests determine the motivation in carrying out the task. Salami (2008) also supported that the influence of personality and vocational interests on the education of adolescents. In addition, Kent (2008) studied the Holland's RIASEC model of vocational interest and found relationship between personality and vocational interest. There are also other studies (Creed et al., 2009; Fabio & Palazzeschi, 2009; Gunkel et al., 2010; Ng & Feldman, 2009) that support the effects of personality on career decision. Green (2010) also matched the realistic personality from the Holland codes with the bodily-kinesthetic intelligence from the multiple intelligence theory. Ackerman and Heggstad (1997), Momberg (2004) and Clutter (2010) also support the existence of relationship among personality, vocational interest and intelligence. In addition, Brahm, Euler and Steingruber (2014) supported the importance of personality in choosing vocational pathways.

Ability and Aptitude

Ability refers to what a person is able to do (Carter, 2007). Ability is defined as inherited, enduring and stable trait of individual that support various kinds of motor and cognitive activities or skills (Schmidt, 1991). Ability reflects a different mixture of at least these four aspects specific knowledge, physical prowess, thought prowess, and emotional skills (Cooper, 1999). Ability always interchangeably used with capability. Aptitude refers to construct that supports performance in a number of tasks or activities (Schmidt & Lee, 2011). Aptitude is defined as the ability to do and learn a new task (Carter, 2007; Linn & Miller, 2005) or inborn potential (Cohen & Swerdlik, 2009).

The influence of ability and aptitude on vocational choice is supported by studies by Agarwala (2008), Allison and Cossette (2007), Lubinski (2004), Feldman and Whitcomb (2004), and Achter et al. (1999). The selection of educational path and career is not a random act of a person, instead it is affected by that person personality including his or her specific abilities (Lubinski, 2004). Achter et al. (1999) concluded in his study among adolescents that the choice of educational path and eventually work environments depends on ability profile and personal preferences (interest and

values). However, Allison and Cossette (2007) in their literature review on career development theories concluded that people have different abilities, personalities, needs, values, interests, and self-concept. Allison and Cossette (2007) added that an individual's career pattern or occupational attainment depends on parental socioeconomic level, mental ability, education, skills, personality characteristics (needs, values, interests, and self-concept) and opportunity. Finally, they concluded that work satisfaction and life satisfaction depends on the adequacy in the outlets of abilities, needs, values, interests, personality traits, and self-concepts.

Skill

Skill is an important factor that influences the individual's vocational choice apart from demographical factors, interests, abilities and aptitudes, and personality. Continued skill training is one of the important factors in maintaining career among working adults (Ross, 2008). Agarwala (2008) found that skills, competencies and abilities as the important factors that are influencing the career choice of management students in India. Allison et al. (2007) also found skill as one of the factors influencing individual's career pattern.

Others

Study by Jung (2008) on the predictors of employment such as job search, job placement, and on the job support found to be significant predictors of successful employment outcomes (Jung, 2008). The career opportunity was also found as one of the influential factors for students selecting vocational education (Asnul Dahar & Zulkifli, 2010). It is different in the findings by Mndebele and Xaba (2006) where they found that the most influential factors in the selection of vocational subjects include: (a) want to be a job creator instead of job seeker, (b) desire to learn vocational skills, and (c) seek higher chances of employment after completing the course. Table 3 shows the summary of the literature review concerning all the influencing factors of students' vocational choice as discussed.

Table 3: Factors influencing students' vocational choice

Study	Demography	Interest	Personality	Ability/ Aptitude	Skill	Others
Allison and Cossette (2007)						
Agarwala (2008)						
Halijah (2004)						
Asnul Dahar and Zulkifli (2010)						
Ramlee et al. (2010)						
Clutter (2010)						
Nazli (2007)						
Baker Jr. (2004)						
Tsakanika (1994)						
Feldman and Whitcomb (2004)						
Slupe (2007)						
Lubinski (2004)						
Ackerman and Heggestad (1997)						
Ackerman and Beier (2003)						
Salami (2008)						
Brahm et al. (2014)						
Achter et al. (1999)						
Ross (2008)						
Jung (2008)						
Mndebele and Xaba (2006)						

VOCATIONAL TALENT

The vocational talented students are those who have the talent and should be selected as TVET students. As such, applying vocational and talent theories and studies are necessary. Since the literature on this was scarcely found, the concept of vocational talented students was derived from the integration of the literature on talent, vocational, and factors influencing vocational choice. This concept is represented in the framework as in Figure 2. The integration of the three theories – Trait and Factor Theory (Parsons, 1909), Multiple Intelligences Theory (Gardner, 1983), and Holland Occupational Choice or Holland Codes (Holland, 1997), and supported by the analysis of previous research used for identifying the attributes of vocational talented students. Although there are many theories on career choice, the trait and factor theory, Parsons (1909) theory was chosen as the pillar of this research as it can easily fit with other theories of career choice. Hence, broader areas and factors may be covered in the study. Previous studies also found relationship between personality, interest, and intelligence (Ackerman & Beier, 2003; Ackerman & Heggestad, 1997; Salami, 2008). Intelligence is viewed incorporation of range of abilities or talents (Gardner, 1983). The multiple intelligences theory (Gardner, 1983) viewed intelligence as a profile of strengths, interests, and weaknesses (Chen & Gardner, 1994). As such, the multiple intelligences theory was also chosen in this study.

The literature revealed overlapping attributes. There were several attributes identified in the trait and factor theories – physical characteristics, general intelligence, specialized aptitudes, interests, dispositions and circumstances were also the factors influencing the vocational choice as discussed in the previous sections. In the occupational choice theory (Holland, 1997), different types of personality can be found in different vocations. Some influential variables related to choice of a vocation of an individual identified from the occupational choice theory were personality, interest, and environment. Thus, six overlapping attributes were found and used for identifying students with vocational talent. The attributes are personality, interest, ability, aptitude, skill and demographical factors. These attributes are presented in the conceptual framework as shown in Figure 2. This conceptual framework is proposed for identifying the vocational talented students.

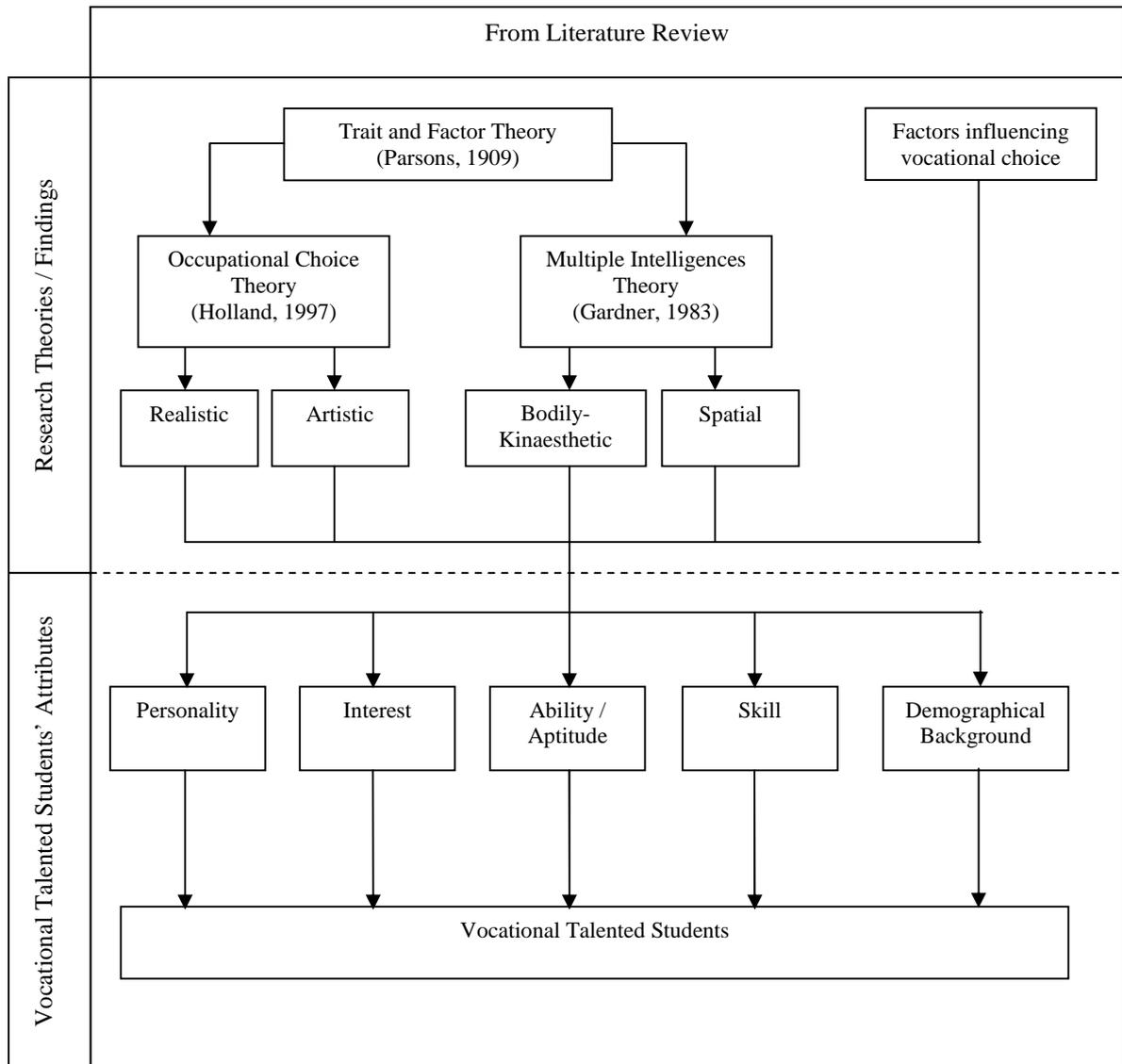


Figure 2: The Conceptual Framework

CONCLUSION

The article is theoretical in nature. It raised several important questions that should be considered by vocational educational institutions in selecting the vocational students. TVET administrators and teachers should also consider the vocational attributes highlighted in this article when selecting the students for vocational stream. The attributes can be used to determine students who are likely to be enrolled in TVET. Indirectly, we can assume that students who possessed vocational attributes are also those with vocational talent. Proper selection of vocationally talented students could reduce dropout rates in technical and vocational training institutions due to the filtering and screening of the students' entry by using reliable instrument. However, a valid instrument to identify vocational attributes and talent is still scarce. Future research should focus on developing a reliable instrument to measure vocational attributes and talent. As a conclusion, the hidden treasure, i.e., the vocationally talented students with appropriate attributes should be identified and nurtured in TVET to produce better quality of future skilled workforce. When these better qualities of skilled workforce contribute to the economic growth of the country, the negative perception of TVET may also be eliminated.

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