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Do interest inventories accurately predict the kind of work in which individuals will be satisfied: definitions, trends and application within a South African context

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ABSTRACT

Vocational interests are an enduring and compelling aspect of individual differences and the most popular means for matching individuals to environments, to improve occupational success and job satisfaction. Interests have received its' strongest impetus from vocational and educational counselling, gaining considerable attention in areas of vocational choice, such as career development and choice, interest testing and career counselling. It has been to a lesser extent incited by personnel classification and selection. This article attempts to analyse whether interest inventories accurately predict the kind of work in which individuals will be satisfied in.

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Introduction

Low et al. (2005) found that literature reveals three broad qualities of vocational interests: interests possess dispositional qualities, they are fairly enduring over time; they influence behaviour through motivational processes; and, they reflect a person's identity or self-concept. These attributes are included in most current views of interests. In addition, an important aspect of assessing behaviour involves assessing interests and attitudes they have developed, through life experiences or a result of schooling (Horrocks, 1964).

Since the innovative work of Holland (1958, 1997), Kuder (1939, 1977), and Strong (1933, 1938) with interest testing, interest assessment now plays a major role in career assessment and psychological testing. Results from these assessments are used to inform many decisions, including but not limited to, the selection of educational majors and careers, midcareer changes, organisational selection, placement and training, retirement planning: "As a major determinant of career choice and entry, vocational interests play a pivotal role in the range and type of roles a person undertakes, as well as his or her social interactions" (Low et al., 2005: 713). Much of one's time is spent at work or preparing for work, and work settings make up an extensive portion of one's environment. Moreover, an individual's status in society is largely determined by his or her occupational choice.

Low et al. (2005) state that vocational interests need to remain stable in order to consider its' theoretical and empirical aspects, and in particular its function in matching individuals to further education and to careers. In general, as an individual grows older, his interests tend to stabilise and become more selective. Although interest tests should not be administered before the 11th grade, they may have value as early as ninth grade, in helping children choose subjects (Horrocks, 1964). Gregory (2007) asserts that interest testing promotes two interrelated goals: life satisfaction and vocational productivity.

A good fit between interests and career will help create personal life satisfaction: when work is interesting, one is more likely to have personal fulfilment. Also, people who are satisfied and have interest in their work will be more productive. Thus, employers and employees will gain from interest assessment: "In the selection of employees, the consideration of personal interests may be of great practical significance to employers, and, therefore, circumstantially relevant to job candidates as well" (Gregory, 2007: 520).

History of Interest Testing

Anastasi (1954: 565) states that while the "most expedient and direct way of determining an individual's interests in different types of work... would be to simply ask him", research carried out in the 1920's has shown that "answers to direct questions about interests are often unreliable, superficial, and unrealistic". She proposes two reasons for this. First, people often have inadequate information about jobs, study courses, and similar activities, and their (lack of) interest is a result of a restricted idea of what work in that field actually involves. Second, there is a glamourised stereotype of certain vocations such as lawyers and doctors that are popularised by movies, radios and magazines. Thus, it was concluded that individuals are rarely in a position to know their own interests in various fields prior to actual participation in those fields. And by the time they have had the benefit of such personal contact; it may be too late to profit from experience, since a change may be too wasteful. For this reason, it was soon realised that more indirect and subtle approaches to the determination of interests would have to be explored (Anastasi, 1954: 565).

Cattell (1940: 186) states: "Interest has long been measured by intellectual methods, requiring the honest and conscious cooperation of the subject, in which the subject checks upon a list of occupations and activities those which interest him the most".

One of the earlier tests was Freyd's 1922 Carnegie Interest Inventory, which aimed to distinguish between socially and mechanically inclined, by having examinees indicate various preferences on a five-point scale and Miner's 1926 Analysis of Work Interest Blank (Horrocks, 1964). One of the most rewarding methods was by Bruce Moore, a graduate student, whose study compared several occupational samples on a test designed to assess their interests (Campbell & Borgen, 1999).

This inspired Strong, who began experimenting with the measurement of interests. Strong published his first inventory in 1927, the Strong Vocational Interest Blank (SVIB), and in 1933, a form for women (SVIB-W). In his work, Strong repeated Binet's techniques of asking each respondent exactly the same questions about what activities he or she was interested in, and then establishing norms for various occupations by comparing members of an occupational sample with a diverse sample not in the occupation. Binet and Strong's work in assessment was important, because they linked their measures to behaviour. Strong's test was not the first interest test.

During the early years much research on interests was done and many books on the subject were written. Many of these early tests are still used today, some have had numerous revisions and have been adapted to suit many different contexts, and others have remained almost the same with some minor adjustments. Many earlier tests and findings have been used as the basis for further research and construction of newer interest tests. Some of these are Strong's, Kuder's, Holland's and Rothwell-Miller's.

Theories

Career and interest theories shape the development and conceptualisation of interest inventories. They provide us with invaluable tools for understanding, hypothesising and predicting career behaviour and choice, and assisting individuals in their career ambitions. Due to the proliferation of theories over the past century, it is vital to extract those of high quality from the mass that do not fare well against close scrutiny (Stead & Watson, 2006).

Trait-and-Factor / Content Theories

(a) *Holland's career choice theory* (Gevers, du Toit & Harillal, 1997; Stead & Watson, 2006). This theory illustrates the person-environment fit paradigm: "Within this paradigm, the theory is usually classified as a typological-interactive theory because it defines certain types of personality and environmental models, and explores the interaction and fit between people and environments" (Stead & Watson, 2006: 35). It is based on the assumption that career choice and related behaviours are the result of an interaction between individuals and environments. There are certain assumptions underlying Holland's theory.

First, a person's career choice is an expression of personality; interest is a dynamic factor of personality. Holland was convinced by findings that interest is an extension of personality and that occupational choice is reflective of a one's personality at work. Second, occupational stereotypes develop and have important meanings; people tend to experience and recognise related occupations and activities similarly. Holland stated that if occupational stereotypes are not valid, interest inventories are also not valid as most interest questionnaires accept the existence of such stereotypes. Third, personalities of individuals in the same occupation correspond and have comparable occupational histories; people with similar personalities will choose the same jobs. Finally, individuals working in the same environment, with the same personality traits, will react in a similar way to situations. This is because

personalities with much in common will create environments that are characteristic of them.

Holland asserts that personality traits group together into vocational types. Each type has a corresponding work environment. He believed that individuals will resemble one of these types more than any others, and a second and third type to lesser degrees. Holland identified six work environments that derive from six personality types (Gregory, 2007; Sharf, 2002).

Realistic (R): physical/mechanical/technical demands, value money & power over relationships eg. mechanic, farmer, electrician, surveyor, carpenter, wildlife specialist, driver

Investigative (I): mathematical/scientific, problem-solving, abstract thinking, challenges, independent eg. geologist, botanist, astronomer, meteorologist, chemist, research scientist, micro/biologist

Artistic (A): free/unsystematic, unstructured, creative, personal/emotional expression, originality eg. poet, musician, writer, playwright, singer, actor/actress, journalist, cartoonist

Social (S): idealistic, friendly, understanding, helping others with problems, teamwork/discussion eg. sociologist, counsellor, psychologist, teacher, nurse, speech therapist, social worker

Enterprising (E): verbal skills, acquiring wealth, persuasive, risk-taking, self-confident, assertive eg. speculator, advertising exec, hotel/restaurant manager, salesperson, buyer, promoter

Conventional (C): organisation, planning, office environment, dependable, rules/order, in control eg. bookkeeper, bank teller, typist, payroll clerk, accountant, tax expert, analyst

The mutual relationship between personality and environment types can be represented by a hexagonal model. Holland uses this model to define congruency, consistency, differentiation and identity. A high degree of consistency indicates that the individual's interest, skills and work values relate well to each other. Congruence is correspondence between personality type and occupational environment; differentiation is the degree to which scores differ from one another. Identity is whether a person has a clear picture of his or her goals, interests and talents. Although Holland's theory is one of the most influential, it is accused of being gender biased and not adequately explaining the development of its' personality types. However, it is applicable in the South African (SA) environment and is thus a popular theory here.

(b) *Roe's theory* (Schreuder & Coetzee, 2006; Sharf, 2002)

Anne Roe's theory predicts occupational selection or choice on the basis of individuals biological, sociological and psychological needs. She aimed to show that an individual's background and parent-child relations influence their occupation. To do this, Roe developed an occupational classification system consisting of eight groups: service, business contact, organisation, technology, outdoor, science, general culture, and arts and entertainment. These groups were extensively validated and based on Kuder's and Strong's interest inventories. Occupations are further divided along six levels based on responsibilities and abilities: professional and managerial I and II, semi-professional and small business, skilled, semi-skilled, and unskilled. Research has supported Roe's theory but has not found a relationship between background and occupation. Four inventories are based on Roe's theory, including the Career Occupational Preference System (COPS) and Vocational Interest Inventory (VII).

(c) *The Theory of Work Adjustment (TWA)*

The TWA makes certain assumptions about the nature of individual needs, environmental needs and the interaction between the two. TWA assumes that all individuals have biological and psychological needs and will behave in a way

that results in the satisfaction of these needs, ensuring survival and well-being (Brown, 2003). Individuals differ in their abilities to satisfy these needs relying on the environment in varying degrees to satisfy them. Things that are able to satisfy individual needs are referred to as reinforcers. Essentially “environmental factors which meet individual needs reinforce the need-seeking behaviour” (Stead & Watson, 2006: 20). Just as the individual relies on the environment to satisfy certain need, so the environment relies on the individual: “Person and environment interact in order to extract the required reinforcers from each other” (Dawis, 1996: 81). If the trading of needs is mutually satisfactory, the individual and environment are in congruence. A fundamental principle of TWA is that both individuals and environments strive to achieve and maintain congruence.

Dawis and Lofquist (1984) have defined their theory of work adjustment in terms of this continual strive for congruence. TWA attempts to predict this work adjustment by analysing the skills, abilities, personality structures and values of the individual as well as the ability requirements and reinforcer patterns of the working environment. TWA has been merited for its ability to define its concepts clearly as well as providing an explicit theoretical model. Additionally, it has been recognised for its efforts to operationalise its concepts through the development of instruments. However much of the research aimed at testing theory and instrumentation has been conducted by its developers and there are little recent findings on the topic (Brown, 2003). In the latest revision, Dawis (1996) posits that due to reality of changing environments, job satisfaction depends more on the individual’s ability to adjust to a variety of jobs than to a single work setting. This conceptualising is holistic and has been relabelled: person-environment-correspondence (PEC) theory (Brown, 2003; Stead & Watson, 2006).

Process theories

(a) *Ginzberg’s theory* (Schreuder & Coetzee, 2006; Sharf, 2002)

Ginzberg’s theory of career choice is a developmental process that takes place in three stages: Fantasy (age 6-11), Tentative choices (age 11-16), and Realistic choices (age 17-21). At each stage, a person’s interests, capacities and values are considered and one would eventually choose a career by seeking a balance or compromise between these three aspects. Ginzberg believed that children start to make choices based on interests at age 11, and that interest was a major factor in selection and rejection of career choices in childhood. During this time, students tend to focus more on what they are interested in rather than their abilities. However, once students have to make realistic choices, then career counsellors use both interest and ability testing to help them with their career choice, and to decide their career maturity. This theory has played a major role in career development theory, but little in actual practice.

(b) *Super’s career development theory* (Schreuder & Coetzee, 2006; Stead & Watson, 2006)

Super’s theory can be described in terms of its superstructure and foundations. His movement away from regarding career choice as a once-off event, towards viewing it as an on-going process is regarded as highly important. One of the principles underlying the superstructure is the central role of the self-concept in the career development process. The development of his theory shows the definition, redefinition and contextualisation of the self-concept over time.

Three of Super’s principles reflect the *differential* segment of his theory: there are differences in people, in terms of their abilities, values and personality factors; there are differences in

occupational requirements; and individual differences qualify people for the requirements of several occupations. Six propositions that centre on the *self-concept* and its application to career choice suggest that career interests and competencies shape the self-concept and that these will change and stabilise over time as individual interact with different situations.

There are five stages of life and each has its own developmental tasks. During the life span, a career pattern emerges for each individual influenced by personal and environmental aspects. There are two propositions – ‘career maturity’ evolves to ‘career adaptability’ – that focus on Super’s *developmental* concept of career maturity, how far individuals have progressed in terms of career developmental tasks at the life stage they are in. Super’s last propositions describe work and life satisfaction and the determinants of such satisfaction. Super’s theory implies that matching the self with an occupation becomes a continuous activity throughout an individual’s lifespan. This theory has been portrayed as a Life Career Rainbow. The two core dimensions are a life stage developmental sequence that is age-related and six internal arcs signifying possible life roles. Super’s also created an Archway Model, for the criticism that his situational and personal determinants in the Life Career Rainbow were too general.

SA researchers have implicitly accepted the validity of Super’s theory through the wide use of instruments based on his theory. There has seldom been an attempt to validate the use of his theory in the SAN context, although recently there has been discussion and research on the validity of using it in SA. The validation of Super’s theory for use in SA has mainly been a by-product of psychometric research. There have been concerns about the relevance of his developmental stages and constructs in the SAN context, mostly due to the history involving Apartheid. Positive evaluations of the theory however, outweigh the criticisms levelled at it.

Developmental Theory: Gottfredson’s Theory of Circumscription and Compromise

Gottfredson’s Theory focuses on how individual’s career aspirations develop over time. The theory holds four basic assumptions: the career development process begins in childhood; career aspirations are attempts to apply the self-concept; career satisfaction is dependent on the extent to which the career is congruent with self-perception, and people develop occupational stereotypes that guide them in the selection process (Brown, 2003). The theory departs from other theories of interest in numerous ways.

Career development is suggested to be an attempt to implement a socially defined self-concept, rather than a psychologically defined self-concept. Greater emphasis is placed on cognitive development during childhood and its impact on career development. Career choice is regarded as a process of eliminating and narrowing career options in response to perceived barriers. In doing so, individuals compromise their career goals in order to meet external realities: “What individuals settle for depends on the degree of difference between their occupational aspirations and external realities” (Stead & Watson, 2006:25).

Gottfredson posits that individuals develop cognitive maps of occupations that assist them in differentiating between occupations according to major criteria such as masculinity/femininity, occupational prestige level, and fields of work. When individuals have to compromise their career choice, sex-role and prestige are assigned greatest importance followed by protection of social status, representing one’s own interests and personality (Brown, 2003). Gottfredson’s theory has been

critiqued for having little empirical support and lacking specificity in its central concepts of circumscription and compromise (Stead & Watson, 2006). However, it has had a large influence on research and undoubtedly will continue to do so.

Recent Theoretical Perspectives

(a) *Social Cognitive Career Theory (SCCT)*

A central reason for the development of the SCCT was to address the existing debate on theoretical convergence in career psychology by attempting to construct conceptual links by identifying key variables and the fundamental processes that connect them (Lent, Brown & Hackett, 2002). SCCT is based largely in the sociocognitive theory of Albert Bandura (1986). It has six central propositions. First, the interaction between one's attributes and behaviour and their environments represents a dynamic relationship, with individuals simultaneously influencing and being influenced by their environments; this is otherwise referred to as triadic reciprocity. Second, career-related behaviour is influenced by four core aspects of an individual: behaviour, self-efficacy expectations, outcome expectations and goals. Self-efficacy is "the beliefs individuals have concerning their capabilities to act on certain tasks" (Stead & Watson, 2006: 23). The greater self-efficacy an individual has, the greater the likelihood that the task will be attempted and performed successfully. Third, the interaction between self-efficacy beliefs and outcome expectancies directly influences interests; people are generally interested in things they can do and do well. Lent, Paixão, Da Silver and Leitão (2009: 6) confirmed that self-efficacy and outcome expectancies are useful predictors of interest "providing support for the supposition that people's vocational interests tend to reflect the activity domains at which they both feel efficacious and expect to receive favourable outcomes". Fourth, variables such as gender, race, environment, and physical health impact self-efficacy development and outcome expectancies which in turn influence goals and performance. Fifth, interests are influenced by direct influences of discrimination, economic variables and culture and indirect influences such as chance occurrences. Finally, occupational performance results from the interaction between ability, self-efficacy beliefs, outcome expectancies, as well as established goals (Brown, 2003; Stead & Watson, 2006).

SCCT is said to be particularly relevant within a SAn context as it acknowledges the crucial role that contextual and environmental factors play in career choice. However despite its applicability to SA, it has had increased attention in a variety of international, multicultural contexts. Lent et al. (2002), in an overview of meta-analyses spanning the past decade concluded that research supports domain-specific self-efficacy as an accurate predictor of career-related interests and career exploratory behaviour as well as the causal relationships between measures of self-efficacy, performance and interest. Although little research has been conducted on the use of SCCT in SA, in recent years there has been an increased focus on it. SAn research has focused largely on career decision-making self-efficacy (CDMSE).

It was discovered that there were no gender differences in CDMSE in a group of white high school children (Eaton, Watson, Foxcroft & Patton, 2004) but substantial differences were reported in the perception of career barriers among blacks. Lack of parental support was reported to be less of a career barrier to white learners than coloureds or blacks whilst blacks perceived the school they attended to be significantly more of a career barrier than white or coloured learners (Stead & Watson, 2006). Williams (2001) ascertained that the CDMSE of black

SAn high school students was lower than their international counterparts. Additional research has been conducted on perceived career barriers in SA. Stead, Els and Fouad (2004) found that in a sample of both black and white high school learners that most learners did not perceive gender discrimination or personal characteristics to be career barriers; however white students' perceived racial discrimination as the most serious career barrier. Overall, since the publishing of the SCCT in 1994 it has displayed remarkable utility in the understanding, explanation and assessment of interest and career choice (Brown, 2003).

(b) *Post-modern (PM) approaches (Schreuder & Coetzee, 2006)*

PM approaches are some of the newest approaches to career choice and development. It focuses "on the individuals' subjective experience of their career development and individuals are the agents who construe their careers" (Schreuder & Coetzee, 2006:132). In *narrative therapy*, individuals create and tell a story of their lives, identifying the gap (and thus the problem) between their present situation and their future desire. The aim is to help the individual to make decisions based on their career concerns, goals and interests. In another approach, *contextualising career development*, a career is considered to give meaning to the person's life. Career development is a result of a person's intentional actions which stem from their context, behaviours, desires, values and interests.

Existential guidance (or *logotherapy*) is an emerging approach that deals with individuals finding meaning in life: "[It] is particularly useful in today's workplace characterised by economic uncertainty which results in people feeling despondent, anxious, or frustrated by their employment circumstances" (Schreuder & Coetzee, 2006:133). This approach is confrontational, helping individuals to challenge their current careers, and search for meaning in what they do. The individuals are guided to creating 'meaning contracts' whereby they find their significant experiences, characteristics, talents, and interests. This approach is believed to be particularly useful when working with diverse client groups with multiple worldviews, as it provides one with a common language for career development.

(c) *A Contextualist Theory: A postmodern theory*

The contextualist theory, unlike previous theories is rooted in constructivism rather than positivism. Young, Valach and Collin (1996) were adamant that dichotomous approaches utilised by trait and factor theories were unsuitable for understanding individuals. They believed that the only way to understand individual-career dynamics is by situating them contextually to determine how individuals experience and make meaning of environments. Also, contextualists believe career related behaviour is goal-directed, informed by individuals construction of the environment in which they function. Actions consist of three parts: unobservable behaviour, internal processes and meaning of action interpreted by the individual and others. "When people construct meaning among actions and projects, they can engage in endeavours such as careers" (Brown, 2003:54).

Individuals not only interpret meaning in terms of immediate context but also in terms of career-related goals and expected future; they construct narratives to understand career choices (Young et al., 1996). Counsellors encourage individuals to share narratives to identify themes that are useful in understanding career related problems, share themes with the client, relate them to the problem and develop skills vital to successfully implement future narratives (Savickas, 1995). Such

theories have generated much attention and research, but the best way to interpret their effectiveness is to determine the degree to which they have weakened the hold of positivist theories and thus their impact is modest at best (Brown, 2003).

Interest Tests

Strong Interest Inventory (SII)

Whilst Strong was at Stanford University in 1927, the first published version of his test (Strong Vocational Interest Black for men) materialised. In 1933 he developed a separate form for women. In the 1960's Campbell combined the men's and women's forms and in 1974 published it as the Strong-Campbell Interest Inventory (Friedenberg, 1995). This underwent numerous revisions resulting in the Strong Interest Inventory (SII). It comprises 291 items that measures preferences for various professions, school subjects, work-related activities, leisure activities, types of people and personal characteristics. Responses are scored and analysed according to five scales: administrative indexes, personal style scales (PSSs), general occupational theme scales (GOTs), basic interest scales (BISs) and occupational scales (OSs). The administrative indexes are designed to provide information regarding the type and pattern of choices made by the respondent and consists of several scales. PSSs determine the types of work, environments and daily tasks that individuals find satisfying.

GOTs were developed in response to the increasing amount of occupational groups that were added to the inventory in order to provide a classification system. Holland's system was selected to provide an organisational schema. About 20 items were selected for the six proposed personality types. BISs were designed to offer specific information about the likes and dislikes of the examinee; each scale focuses on a specific interest. Finally, the OSs are the oldest scales, designed to provide information on the similarity between interests of the respondent and selected occupation types (Leierer et al., 2008; Murphy & Davidshofer, 2001).

Since its inception in 1927, the psychometric properties of various versions of the SII have been the focus of much attention and research. Numerous test-retest studies were conducted over the past few decades revealing impressive reliability coefficients. "Interests as measured by the various forms of the SII have remained exceptionally stable over considerable intervals of time" (Murphy & Davidshofer, 2001: 349). For example, Donnay, Thompson, Morris & Schaubhut (2004) report Cronbach alpha and test-retest reliabilities of between 0.84 and 0.95 for all six GOTs, 0.82 and 0.91 for the OSs, and 0.82 and 0.87 for the PSSs. As the interval between testing increases, the reliability of the instrument decreases. On the other hand, as age of initial testing increases, so the reliability of the test scores generally increases.

One of the central methods to assess the validity of the SII involves determining whether the interest scores are able to accurately predict career choice and job satisfaction (predictive validity). Strong insists that individuals who have been tested using the SII eventually entered the occupation that they had shown initial interest in. He also stated that two out of three individuals would end up in occupations they had previously received high OS score on. Dolliver, Irvin and Bigley (as cited in Murphy & Davidshofer, 2001) argue that a one-in-two estimate of predictive efficiency would be more accurate. Gregory (2007:523) states that despite "quibbles with the exact proportions... It is clear that the SII has impressive hit rates in predicting occupational entry. The instrument functions even better in predicting the occupations that an examinee will not enter". He discussed a study supporting the construct validity of

the SII that concluded that the scale is a valid, structural, and broad measure of differences in likes and dislikes across vocational interests and personal styles.

Jackson's Vocational Interest Inventory (JVIS)

The JVIS was developed to satisfy a need for an efficient hand scored instrument to measure the interests of males and females along a set of dimensions. It was first published in 1977; a second addition has since been published in 2000. The target population includes high school learners and adults (Brown, 2003). The JVIS comprises of 289 occupationally relevant items grouped into 34 BISs based on interrelationships. These scales are further divided into two different types, work role scales and work style scales. Work role scales measure specific interests; research has shown that they function similarly to OSs in which occupational groups score the highest on the work role scale associated with their profession.

Conversely, work style scales are broader in scope so that interests measured transcend occupational boundaries. Work style scales are designed to measure an examinee's preference for working in environments that require particular behaviours e.g. leadership. If the results of the JVIS are machine scored, additional scales are presented. First, 10 general occupational themes (expressive, logical, inquiring, practical, assertive, socialised, helping, conventional, enterprising and communicative) are provided which produce a list that bears a strong resemblance to Holland's six themes. The second group of scales provides data on the relationship between the examinee's scores and the scores of college students majoring in 17 diverse academic disciplines. The final group of scales indicates the similarities between the examinee's score and those of employees in 32 occupational clusters (Brown, 2003; Jackson, 2000; Murphy & Davidshofer, 2001). In each of the 289 items examinees are required to select either A or B depending on their vocational preference. The items are arranged in such a way that an item from one of each of the 17 basic scales in group A is paired with an item from each of the 17 basic scales in group B (Murphy & Davidshofer, 2001).

One of the fundamental strengths of the JVIS is its sound psychometric properties. Test-retest reliabilities were computed for a sample of 172 university students and revealed a median of .84. In a similar study Berk (as cited in Jackson, 2000) revealed a test-retest reliability median of .82. Internal consistency reliabilities for the 10 General Occupational Themes produced a median of .88 in the normative sample of 1750 females and 1750 males (Jackson, 2000). Another test of reliability is whether the entire configuration contained in the JVIS BISs profile is consistent when assessed over more than one occasion. In a sample of 54 university students taking the JVIS on two separate occasions, the individual profile stability coefficient revealed a median of .87.

Similar studies reported individual profile stability coefficients of .84 and .88. In a sample of 1250 males and 1250 females intercorrelations between the basic scales were computed revealing an average absolute correlation of .28 for males and .24 for females. Lower scale correlations result in better occupational discrimination and therefore a higher validity (Jackson, 2000). Surprisingly, the JVIS has not experienced much utility outside of the educational setting possibly because it is still a relatively new inventory or that it is perceived to be an inappropriate tool for personnel selection as its scales were derived using a sample of college students (Murphy & Davidshofer, 2001).

Holland's Vocational Preference Inventory (VPI)

The VPI is an objective, paper-and-pencil instrument used in vocational and career assessment. It is similar to the SDS but is more suited to one-to-one counselling. The VPI requires clients to indicate their interest or lack of interest in a list of occupational titles. It measures eleven dimensions, including the six personality-environment themes of RIASEC, and five extra dimensions of self-control, masculinity/femininity, status, infrequency and acquiescence. The test items consist of 160 occupational titles toward which, the examinee expresses a feeling of by marking y (yes) or n (no). The VPI is a 15-30 minutes test, intended for people 14yrs and older with normal intelligence (Stead & Watson, 2006; Gregory, 2007).

Over the years, Holland has undertaken a substantial amount of research on the validity and reliability of the VPI. Test-Retest reliability coefficients for the six major scales range from 0.89 to 0.97. Its' validity – like the SDS – is linked to the validity of the model of vocational interests. Hundreds of researchers have examined it from different perspectives, and provided supportive validity for the instrument (Gregory, 2007). Still, not all studies confirm the relationship between person-environment (P-E) fit and job satisfaction. Holland's belief is that the greater the fit between an individual's personality/interests and their environment, the greater their job satisfaction. However, in certain studies, according to Gregory (2007: 526), "the relationships were weak or non-existent" and it is believed that the "VPI does not 'travel well' in cultures outside the United States". Thus, there is room for improvement with the VPI.

Some weaknesses include: vocational environments are only partially tested; hypotheses about the P-E interactions require additional research; formulations of personal development need more inclusive tests; classification of occupations may differ depending on device used to assess personality; and there are personal and environmental factors that are currently outside the scope of the theory (Gregory, 2007). The VPI approach does not concede a role for education, intelligence and aptitudes except for when these impact on personality and interests. But, common sense and research has proven – for example – that intelligence plays an important role in deciding whether a person will choose and be satisfied in their job.

Holland's Self-Directed Search (SDS)

Gregory (2007: 527) describes the SDS as a "highly practical, brief test that is appealing in its simplicity". It can be self-administered, self-scored and self-interpreted. It measures six RIASEC types: Realistic, Investigative, Artistic, Social, Enterprising and Conventional. According to Stead & Watson (2006) it helps clients, students, or employees to find the occupations that best suit their interests. The SDS yields scores for all six types and consists of items to which the examinee marks 'like' or 'dislike' (or yes or no) in four parts: (1) activities, (2) competencies, (3) occupations and (4) self-estimates. The SDS takes 30-50 minutes to complete and is intended for people 15yrs or older (Brown, 2003; Gregory, 2007).

The SDS is available in four forms: form R (fourth edition), form E, form CP and the career explorer. Form R is available in different language, in a computerised format, and there is also a Braille edition. The SDS is widely used throughout the USA and is also popular in South Africa. The SDS is a well-researched instrument with extensive research of its' validity and reliability (Stead & Watson, 2006). The RIASEC themes on the SDS have test-retest reliabilities of between 0.56 to 0.95 and internal

consistencies between 0.70 and 0.93. The validity of the SDS is related to the validity of the hexagonal model of personality. Also, results from over 400 studies support its' construct validity. Holland reported reliabilities of between 0.90-0.94 and internal consistencies between 0.72 and 0.92 for the 1994 version. The 1994 manual also provides extensive review of research supporting the validity of previous versions. Other studies findings indicate that the SDS has moderate to high predictive efficiency, depending on various factors (Gregory, 2007; Savickas, Taber & Spokane, 2002).

Many studies have been carried out on the applicability of the SDS to the SAn context, including the applicability of American occupational codes and of the SDS to a group of black SAn teenagers. Studies concluded that the SDS developed in the US is effective in assessing interests in SAn culture. In SA, Holland's theory and the SDS has been a major force in career practice and research (Stead & Watson, 2006). Stead and Watson (2006) assert that the main reasons for the popularity of the SDS is because of the absence of competing local models of career interests; the practical usefulness of the model's simple concepts; and the dearth of appropriate cross-cultural validated and standardized SAn psychometric instruments. This needs to be considered in development of instruments and future research.

Career Development Questionnaire (CDQ)

Career development, according to Langley, du Toit and Herbst (1992:2), is an on-going "lifelong process on which the individual finds himself facing work-related tasks in a particular sequence", a process "by which individuals progress through a series of stages, each of which is characterised by a relatively unique set of issues, themes or tasks" (Schreuder & Coetzee, 2006:59). It includes preparing for an occupation, entry to it, progressing within it, change of occupation and retirement from it. Career maturity is the ability of a person to master career developmental tasks and make career decisions that show decisiveness, self-reliance and the readiness to balance personal and occupational needs. Five dimensions are important in career development and later career maturity: self-information, decision-making skills, career information, integration of information, and career planning.

The CDQ is a questionnaire designed to establish whether adolescents and young adults are prepared to make decisions regarding their careers. The scale can be administered to high school students, school leavers, and first-year university students. It considers five career development dimensions of 100 items, 20 on each scale. The scales are as follows:

Self-information (SI): knowledge of importance of life roles, work values, and interests. Eg. *I know my strengths and weaknesses; My interests change all the time.*

Decision-making (DM): the ability to make effective decisions. Eg. *I do not really know how to make a planned decision; When I start something, I can usually see it through.*

Career information (CI): knowledge of world of work. Eg. *I know what a typical workday will be like in the occupation I am considering; I really cannot think of any occupation that suits me.*

Integration of self-information and career information (I): ability to integrate information. Eg. *I know how my interests and abilities might relate to different kinds of jobs.*

Career planning (CP): ability to make career decisions and implement career plans. Eg. *I have already made plans to reach my career goals; I have a need to learn more about career planning.*

The CDQ is standardised for high school and college students whose first language is English, Afrikaans or an African language. But, research on the validity of the CDQ for the different cultural and ethnic groups in SA is scarce. The CDQ manual gives reliability coefficients of 0.66-0.83 but has little information on its validity. However, intercorrelations of the five scales are high, which indicates that they are measuring a general factor. A SAn study by de Bruin and Phera (2002) found support for construct validity of the CDQ in the ability of the five scales to measure CDMSE and career maturity.

Rothwell-Miller Interest Blank (RMIB)

The RMIB is based on the Kuder Preference Record, and was developed in the 1950s to help counsellors in career guidance. It is a comparative measure that assesses individuals' interests across twelve categories of jobs: outdoor, literary, mechanical, musical, computational, social service, scientific, clerical, persuasive, practical, aesthetic, and medical. Each category has nine job titles requiring different levels of skill. Respondents are told to rank the nine sets of 12 jobs according to their preference, to ignore questions of salary or success and focus on their interest in that type of work, and to work quickly so as to account for first impressions. It is a simple, quick instrument that can be administered to individuals or groups, and is relatively easy to score. There are separate versions of the RMIB for males and females. A recent study found that the RMIB may be prone to hand-scoring errors. There is hardly any research carried out on the validity and reliability of the RMIB in general – except a 1968 study that found predictive validity adequate enough to justify its' use – and in particular, its' use in SA (Nelson, 1968; Goddard, Simons, Patton & Sullivan, 2004).

The 19 Field Interest Inventory (19FII) (de Bruin, 2002; Foxcroft&Roodt, 2001)

The 19FII is a SAn inventory (Fouche&Alberts, 1971) and provides scores for 19 fields of interest. It is intended for Grade 10-12 pupils, but is also used in higher education. Although the fields are thought to be more specific than the SDS, thereby giving a more detailed picture, they are found to correspond to Holland's six types as follows:

Realistic (R): Practical-male, nature, sport

Investigative (I): Science, creative thinking, numerical

Artistic (A): Fine/performing arts, language, practical-female

Social (S): Sociability, welfare, travel

Enterprising (E): Law, public service, business

Conventional (C): Clerical, service

The manual reports split-half reliability coefficients of between 0.88 and 0.98 for high school boys and girls. While, the 19FII effectively distinguishes between university students in different study fields, one of its downfalls is that it was only standardised for white students. Also, norms are dated to 1970, and items may have gender-bias, as is evident in the correspondence above. The 19FII asks one to indicate his/her like or dislike for an activity on a four-point scale, and scores are then compared to norm group scores.

South African Vocational Interest Inventory (SAVII) (potential-unlimited.co.za)

The purpose of the SAVII is to measure occupational interests of all SAn learners in Grades 8-12. It measures six fields of interest: Practical Realistic (P), Scientific Investigative (W), Artistic (A), Social Service (S), Business and Management (B) and Clerical Administrative (K). These fields correspond, respectively, to Holland's six interest types. The items describe job-related activities, and the testee can respond with "interested" or "not interested". That the SAVII's theoretical structure enables individual information to be linked directly to

information about the world-of-work makes it particularly well suited for career guidance and career decision-making applications. Its integration with certain occupational dictionaries and computerised career guidance systems broadens the SAVII's sphere of useful applications.

Interest And Personality

One of the fundamental theoretical assumptions of both Holland's and Super's theory is that personality is an important factor in career choice and development and that interest inventories are actually personality inventories (Brown, 2003). Kapes, Mastie and Whitfield (1994) assert that this is a general unaccepted belief outside the field and that Holland's instruments are classified as interest inventories as they measure preferences rather than traits. Historically, the role of personality in vocational choice was secondary to that of interest and still to a large extent is today despite the increased attention given to personality due to the development of the Myers-Briggs Type Indicator (Brown, 2003).

Ackerman and Heggstad (1997) suggest that interests provide motivation to perform particular behaviours whilst personality and ability determine whether the behaviours will be successful. Despite the contention that exists over the mutual exclusivity of interest and personality as constructs, many studies have proven large correlations between the two. A study by Lindley and Borgen (2000) investigated the relationship between the personal style scales on the SII and the Big Five factors of personality (Openness, Conscientiousness, Extroversion, Agreeableness, and Neuroticism). The results revealed there is a strong relationship between the personal style scales and Big Five factors. In a meta-analysis using studies that had reported correlations between general and specific measures of vocational interests and personality, Staggs, Larson and Borgen (2007) reported substantive personality-interest correlations from .20 to .40, reflecting between 4% and 24% shared variance. Despite such findings, it is unlikely that the debate will be resolved in the near future unless significantly conclusive evidence is found.

Prediction of Occupational Criteria

Tracey (2003:2) states: "Maximising the congruence of interests and occupations has been a cornerstone of the profession... Researchers and counsellors use congruence between an individual's RIASEC interests and occupational types to predict the appropriateness of occupation or occupational areas for that individual." Although interests are predictive of occupational choice and this is in turn related to satisfaction, this congruence is weakened due to numerous factors such as imprecise definitions and poor designs. Researchers say that a paradigmatic shift and improved methodology needs to be adopted in order to strengthen the congruence. Tracey (2003) however argues that instead of focusing on the size of the congruence, focus should be given to the moderators of this congruence between interests and career outcomes, that is, on factors that influence the magnitude of the congruence. The author proposes traitedness – the variability of a trait score – as a possible moderator.

Similarly, Reeve and Haggstad (2004) use general cognitive ability as a moderator, and found that the direction of the congruence between interest-occupation changed as a result of cognitive complexity of an occupation. Holland's RIASEC typology for example, defines work environments in terms of the nature of its' activities. Each interest is reflective of certain lifestyles, methods and characteristics. Although Holland does not distinguish between interests on the basis of cognitive ability of occupations, research has "provided convincing evidence that

the six RIASEC occupational types do in fact differ in terms of their average or typical cognitive complexity” (Reeve & Haggstad, 2004: 386). Such research found that Investigative, Artistic and Social occupations have jobs that require high cognitive complexity, Realistic and Conventional occupations have jobs with low cognitive complexity, and Enterprising occupations include a wide range of cognitive complexity. Thus, the authors state that individuals “require information about both their abilities and their preferences (as well as the ability demands and the rewards of the environment) to make educational and vocational decisions that optimise their own satisfaction” (Reeve & Haggstad, 2004: 385). Thus, abilities/intelligence and interest both influence career choice and success. Studies on the gravitational hypothesis, which states that individuals tend to gravitate to occupations that match their intellectual capabilities to the job’s cognitive complexity, further serves to confirm the above belief that abilities moderate the person-occupation fit. Finally, personality also influences interests as is self-evident in many of the theories discussed above, especially Holland’s theory. This relationship is thus a further influence or moderator of the congruence.

Hence, to be in certain careers requires a prerequisite level of education. Thus, occupational aspirations are closely interlinked with educational attainment. There have been many studies examining the link between personality and occupation choice, confidence, orientation and aspirations. Interests are believed to be empirically linked to personality, regarded to be an expression of personality, and to this effect Rottinghaus, Lindley, Green and Borgen (2002:2), state that illustrating the unique and joint contribution of each to educational aspirations, and thus “to various career goals and behaviours strengthens the scientific understanding of career development”. However, the authors found in their study, that interests and personality contribute separately to educational and thus career aspirations.

Considering Holland’s six types, it was found that “Investigative occupations tend to require the most education and are... associated with the highest educational aspirations” (Rottinghaus et al., 2002:15). The Investigative theme/type thus had the strongest correlation, with educational aspiration and as an interest correlate. Other predictors include personality Openness, Investigative confidence, Social confidence and Investigative interests. Such results indicate the strong predictive utility of a joint consideration of personality and interests as is posited in Super’s, Savickas’, and SCC theories. The authors believe that educational decisions are – at the least – indirectly relevant to various occupational concerns. To pursue education beyond certain levels is believed to be a reflection of an individual’s interests and personality. However, one’s personality and interests must correspond to educational aspirations or it would result in an inaccurate selection of career goals, and would lessen self-efficacy and career ambition.

According to Rottinghaus, Hees and Conrath (2009:139) an appropriate fit between one’s interests and the various factors of the work environment, “yields beneficial outcomes such as job satisfaction, stability, and achievement. In particular, job satisfaction yields outcomes important to individuals and organisations, including tenure, organisational citizenship, retention, psychological health and overall life satisfaction”. Research has supported Holland’s hypothesis that congruence or similarity at the level of Holland’s six interest types will yield job satisfaction. This relationship, however, is limited in terms of generalisability and the inconsistent classification systems associated with Holland’s types. Holland’s belief has also been

criticised for not incorporating situational and dispositional influences on job satisfaction.

Rottinghaus et al. (2009) therefore decided to follow a recent trend created by a few research studies, and use the BISs of the SII together with Holland’s GOTs in predicting how interests relate to various career outcomes. They believe that using BISs would result in an advanced understanding of job satisfaction, at the same time including the P-E fit. Such research would use larger samples, multivariate methods and include dissatisfied workers.

Accounting for these factors, the authors found that BISs provide much further insight and useful information in predicting satisfaction; this perspective is enhanced when basic interests are joint with general interests to predict differences between satisfied and dissatisfied workers. With certain occupations, BISs double the variance shared with satisfaction when compared with the general I and C types. Separately though, the six GOTs had considerable effects in accounting for satisfaction. Thus, the study confirmed and added to 50 years of research supporting validity, utility and importance of Holland’s themes to predict outcomes such as job satisfaction. The authors concluded that their study “provided further support for the power of matching individuals’ interests and occupational characteristics in determining satisfaction”, and that using both GOTs and BISs has numerous possibilities and will “help practitioners consider how to translate interest science to work with individuals” (Rottinghaus et al. (2009:150).

Conclusion

Rottinghaus et al. (2009) make important assertions regarding interest assessment. They state that with numerous changes occurring in the world of work, interest inventories need to be continually updated to account for changes and to incorporate occupational trends, so that such assessment will ensure a more accurate representation of the relevant constructs, such as personality, intelligence, and abilities. Also, besides focusing on general interests in Holland’s scales, practitioners need to focus on basic interests related to career outcomes, as this will enhance interest inventory interpretations thereby providing them with an improved understanding of individuals’ career needs, leading individuals to a more satisfying career.

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