Assessment of Interest and Aptitude: A Methodologically-Integrated Approach

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Abstract

In response to the controversies in the literature, in this chapter I examine two constructs central to career assessment: vocational interests and aptitudes. A culturally-defined guidance and counseling program developed for the Indian context is described to illustrate a methodologically-integrated approach to career assessment. Two Indian studies are presented. Interests over a two-year time span were found to be less stable than aptitudes among Indian adolescents in the first study. The notion of *potential*, a blend of interests and aptitudes, as a relatively more stable construct around which to construct career guidance services is introduced. The second study describes an assessment technique that integrates qualitative and quantitative approaches and examines the effectiveness of such an approach for career guidance and counseling. It is proposed that the influences of collectivist social organization and socioeconomic change comprise a matrix within which to understand, assess, and interpret vocational interests and aptitudes.

*Keywords:* career, dispositional, potential, qualitative assessment, quantitative assessment, self-awareness, situational, socioeconomic

Chapter Outline

- Introduction

- Theoretical Positions and Assessment Stances

- The Importance of an Undergirding Theoretical Framework

- Promoting Self-Understanding: The Central Objective of Assessment

  o   Interests

    ▪   Defining interests

    ▪   Determinants of interests

    ▪   Stability of interests

  o   Aptitudes

    ▪   Defining abilities and aptitudes

    ▪   Determinants of abilities and aptitudes

    ▪   Stability of abilities and aptitudes

  o   The Controversy

- A Methodologically-Integrated Approach to Career Guidance and Counseling

  o   Key Principles

  o   Multiple Potentials Framework

  o   Approach to Assessment

    ▪   Multiple Potentials Interest Inventory (MPII)

    ▪   Multiple Potentials Test-5 (MPT-5)

    ▪   The profile approach

  o   Occupational List

- Study 1: The Relationship between Interests, Aptitudes, and Potentials

  o   The Sample and Intervention

- Conclusion

**Introduction**

A significant proportion of the engagement between the client and the career counselor in many forms of counseling is devoted to gathering information about the individual that would promote self-awareness to aid the career decision-making process.  While the methods employed to collect this information would rely on the paradigmatic persuasions of the career counselor, assessment (i.e., the collecting, structuring, and interpreting of information about the client in some form or the other), lies at the heart of most systems of career guidance and counseling.  In this chapter, I examine the conceptual relationships between two key constructs related to assessment for career guidance: vocational interests and aptitudes.  I also discuss the polarized debate related to the measurement of these constructs.  A system of career guidance and counseling developed in India is presented to illustrate a *methodologically-integrated approach* to career assessment.  Two Indian studies are discussed, the first of which investigates the relative stability of interests and aptitudes and introduces for further consideration, the notion of *potential* as a blend of interests and aptitudes.  The second study describes an assessment technique that integrates a more qualitative approach along with a quantitative approach and examines the effectiveness of such an approach for career guidance and counseling.  The prevailing views about the stability of interests and the relative merits of interest-based or aptitude-based career guidance are questioned in the light of data emerging from the Indian context.  The impact of socioeconomic change and the involvement of sociocultural factors such as collectivist social organization are presented as a matrix within which to understand and interpret constructs such as vocational interests and aptitudes.

**Theoretical Positions and Assessment Stances**

The purpose and methods of assessment and measurement have been the subject of controversy.  The field has polarized into the psychometric (quantitative) and the non-

psychometric (qualitative) positions and the stance taken toward assessment is often a reflection of the career counselor's theoretical and philosophic position. The trait-factor theory was conceivably the earliest approach to career assessment and emerged in response to the need for accurately matching people to specific occupations. Resting on the assumption that individuals possess a unique combination of traits which can be accurately measured and quantified, assessment methods emerging from the trait-factor position are usually quantitative and psychometric in their stance and attempt to generate objective and reliable data, which a career counselor can use to find an effective "fit" between the Person (P) and his or her Environment (E). This theoretical position continues to have significant influence and an important aspect of career counseling will always rest on data that is gathered through psychological tests. Career development, however, is a dynamic process that changes and evolves and an individual's engagement with the world of work goes much beyond profiles emerging from psychometric testing. Hence, an exclusive reliance on the methods of the trait-factor approach has rightfully come into question. More recent theoretical positions have pointed in other directions. Three of these are of particular relevance to this chapter.

Sampson and colleagues have presented the cognitive information processing (CIP) approach to career development and services (e.g., Sampson, Reardon, Peterson, & Lenz, 2004). Of specific importance is the argument made by CIP that thoughts, emotions, and metacognitions influence the process of career decision making. Similar constructs have been presented by Arulmani and Nag-Arulmani (2004), when they describe social cognitive environments and career beliefs.

Patton and McMahon have extended systems theory to the discipline of career guidance (e.g., Patton & McMahon, 1999) and present their systems theory framework (STF) "as an overarching framework within which all concepts of career development described in the plethora of career theories can be usefully positioned and utilized in theory and practice"

(Patton & McMahon, 2006, p. 153). Of importance to contemporary conceptualizations of career is that STF locates the individual "within myriad social influences" and emphasizes "the centrality of the individual actively construing the meaning of his or her life within multiple content and process influences" (Patton, 2008, p. 144).

Viewing career from a contextualist perspective, career construction theory brings for discussion the possibility that development is "driven by adaptation to an environment rather than by the maturation of inner structures" and that "individuals construct their careers by imposing meaning on their vocational behavior and occupational experiences" (Savickas, 2005, p. 43). Of significance is the theory's focus neither on the P or the E of the person-environment formulation but on the dash (-) between the two (Savickas, 2005). By this, the theory implies that the subjective definition of career is the integration of experiences into a cohesive whole such that a meaningful story emerges, based on the individual's active engagement with meaning making rather than the unveiling of preexisting facts.

A common thread that seems to run through these more recent perspectives is a questioning of the relevance of the trait-factor approach to contemporary career guidance. These approaches view the role of the counselor not as an "expert" but rather as a co-constructor partnering with the client, through a process of dialogue. This has further led to a shift in the understandings of the role played by assessment in career counseling, so much so that formal assessment in career guidance is said to "reflect old science" (Bradley, 1994, p. 224). It must be noted, however, that some of these new theoretical positions have their roots in sociocultural processes that characterize the West. They seem to rest on the assumption that the individual has the cultural freedom and the economic resources to be able to volitionally engage in career construction (also see Sultana, Chapter 16, this *Handbook*). The possibility of such self-mediated actions occurring spontaneously in non-Western, collectivist contexts needs to be examined more closely. This will be discussed throughout this chapter.

Irrespective of the theoretical position taken, it may continue to be assumed that interactions between career counselor and client aim at generating material, information, and data that is then used to take the counseling further forward. Hence, understanding what is to be assessed or what kind of data need to be collected continues to be a question worthy of being addressed. And this too has been the subject of debate. Intelligence, interest, aptitude, social cognitions, career thoughts, personality are all constructs that have been variously considered to be relevant to promote effective career decision making. Clarity regarding which of these constructs best contribute to further career counseling objectives is also poor. Tests and methods have been developed to assess individuals/clients in one or many of these areas, and this has further spawned an industry to translate and adapt tests for new contexts. Against the background of globalization and the multicultural nature of contemporary career counseling contexts, questions have been raised with regard to test adaptation and test translation. The issue of bias has been highlighted with concern, particularly the possibility that when testing devices are transported to new contexts the underlying constructs they assess may not remain equivalent (Duarte & Rossier, 2008). If this is true for testing methods and devices, it could also be true for theoretical positions and paradigms. Most of the research pertaining to these questions has been conducted in the West and hence is influenced by the cultural and economic realities of these contexts. In this chapter, these critical questions are discussed drawing upon experience and research from non-Western contexts such as India and a few other Asian and African countries.

## The Importance of an Undergirding Theoretical Framework

Effective career guidance and counseling require the coming together of multiple units of information. This includes information not only about the individual and the world of work but also about intra-individual factors and intra-world-of-work factors. It is essential that each of these information units contributes meaningfully and substantially to the process

of career guidance and counseling.  A career counseling system that is undergirded by a culturally and economically relevant theoretical reference point can facilitate this integration of information.  At the intra-personal level, such a framework could inform assessment techniques and methods and facilitate the development of a congruent and internally-consistent picture of the contours of the individual's personal profile.  A commonly encountered situation, particularly in contexts where the scientific practice of career counseling is in its infancy, is one where information about the individual is collected through tools and devices that are each based on different theoretical persuasions.  It is common in India, for example, to see on a career report, information from a battery of tests such as the Strong Interest Inventory for data pertaining to interests, the Differential Aptitude Test for information about aptitudes, and the Cattell's 16 Personality Factors Questionnaire for data about personality.  While they may be independently useful, it would be difficult to reconcile the information that is gathered into a coherent description of the individual's personal profile since each of these instruments originate from different theoretical frames of reference.

Theoretical consistency is also required in reference to the individual and the world of work.  The usefulness of a device that generates information about the individual but does not find a close corollary in an occupational classification system would be limited.  Effective career counseling requires the *concurrent* analysis of two sets of data: information about the person and information about the world of work.  If this is to be achieved, the career counseling system must rest on a theoretically-validated framework that uses comparable constructs, terminology, and methods for assessment and classification.  The absence of such a theoretical platform would affect the extent to which information about the person and information about the world of work could inform each other and thereby lead the individual toward effective career decision making.  Ideally, the primary motivation behind the

deployment of a method would be to address the client's felt need rather than being a medium that applies a certain theory's tenets.  As will be discussed later in the chapter, a blending of methods (e.g., crossectional with longitudinal, quantitative with qualitative, questionnaires with interviews) would perhaps yield the better result.

<div align="center">**Promoting Self-Understanding: The Central Objective of Assessment**</div>

It may be argued that assessment is meant to promote the individual's insights into self and thereby support career decision-making and facilitate the client's engagement with the world of work.  If this is a central objective, then the question that surfaces is: What should be assessed that will foster effective career decision-making?  Historically, a variety of factors have been the target of measurement to promote self-awareness.  In their overview of this history, Swanson and D'Achiardi (2005) have pointed to three main constructs that have been typically understood to be pivotal to career choice:  interests, needs/values, and abilities.  In the following sections, the constructs of interests, abilities and aptitudes are examined in greater detail.

**Interests**

**Defining interests.**  The construct of interest has been central to some of the most well-known contemporary approaches to career guidance and counseling.  Summarizing the history of interest assessment, Hansen (2005) has highlighted three major components of interests: personality, motivation, and self-concept.  She describes interests to be "a preference for activities expressed as likes or dislikes" (p. 281).  Our definition of interest is similar: Interests are activities that draw a person's attention, things that a person is curious about, matters a person wants to pursue further, activities that a person considers worthwhile, and activities a person enjoys.  Indeed, interests are like the steam in a locomotive: interests motivate and drive a person to preferentially seek out and engage with certain kinds of activities over others.

**Determinants of interests.** Having defined interests, a further question that arises pertains to the determinants of interests. Although theorists do not overtly deny the role that inheritance and genetics might play in determining an individual's interests, the overwhelming opinion is that interests are the result of socialization and learning and are, therefore, subject to the individual's experiences and exposure (see Hansen, 2005). It is highly unlikely, therefore, that someone who has never seen the sea would develop interests in activities related to fishing, deep sea diving, or surfing.

**Stability of interests.** A feature that is of crucial relevance to this discussion is the stability of interests. Hansen (2005) in her review underscored several notable points: "If interests are not stable (in other words, if interests are a state rather than a trait), interest inventories have no chance of predicting occupational or educational choices even over short time spans" (p. 284). Reviewing the work of E. K. Strong (the doyen of interest assessment) and decades of research since his early work, she makes the statement that, "we know that interests are very stable over time. In fact interests may be the most stable of all psychological constructs" (Hansen, 2005, p. 284). Based on the same review, Hansen also reports that it has been consistently found that the individual's age at the time of testing reflects the stability of his or her interests: The younger the individual, the less stable are interests. The duration between Time 1 and Time 2 assessments affects measures of the stability of interests: The longer the interval between the first and second measurements, the less stable the interest. Similar evidence from a wide range of research (e.g., Campbell & Holland, 1972; Lubinski, Benbow, & Ryan, 1995; Pendergrass, Hansen, Neuman, & Nutter, 2003; Swanson & Hansen, 1988) has led to the acceptance that "by age 20 interests are stable even over periods of 5 to 10 years, and by age 25 interests are very stable" (Hansen, 2005, p. 285). Low, Yoon, Roberts, and Rounds (2005) extended these findings in a meta-analytic review of 66 longitudinal studies of vocational interests from early adolescence (age 12) to

middle adulthood (age 40).  They found that interest scores attained stability during early

adolescence.  This stability increased during late adolescence-early adulthood and then

remained stable for the next two decades.  It must be noted that the studies in this meta-

analysis comprised samples only from the USA and Canada (J. Rounds, personal

communication, May 24, 2013).  In a follow-up to this meta-analysis, Low and Rounds

(2006) proposed five forms of stability: rank-order stability, profile stability, mean-level

stability, structural stability, and congruence (or interest-fit) stability.  They also highlight

that the "existence of one form of stability does not rule out the possibilities of other types of

change" (Low & Rounds, 2006, p. 29).

        It is important to note that the nature of interests has been studied mainly from two

perspectives: the *situational* and *dispositional*.  Situational interests are characterized by

emotional states evoked by experience and exposure and hence are transitory and influenced

by the attributes of an activity (Hidi, Renninger, & Krapp, 1992).  This has been contrasted

with dispositional interests, which are assumed to reflect the individual's "psychological

disposition associated with his or her preferences for activities and actions" (Low et al., 2005,

p. 2).  Dispositional interests are rooted in the features of the person's personality, and as

Strong (1943) put it, are groupings of likes and dislikes that lead to enduring and consistent

patterns of behavior.  Sufficient evidence has accrued leading to the conclusion in the

literature that (dispositional) interests have stability across age and time.  Indeed, it is based

upon the *consistency* of interests that entire schools of career guidance and counseling have

been founded and successfully practiced  (e.g., Holland, 1959).  I will, however, present later

in this chapter, findings from India that are somewhat at variance with the assertion that

interests are stable over time.

**Aptitudes**

**Defining abilities and aptitudes.** In common parlance, the terms *ability* and *aptitude* are often used synonymously. However, in the psychological literature a distinction is drawn between the two. Ability is described as the capacity to perform a particular act or task, either physical or mental (Snow, 1994) and is considered to be an attribute of the individual revealed by differences in the levels of task difficulty, on a defined class of tasks that the he/she performs successfully (Carroll, 1993). Gottfredson's (2003) description is incisive: "Abilities are what people can do, not their style of doing it. Abilities are not the bodies of knowledge that people amass but their aptness in amassing them" (p. 117). The modern understanding of the nature and constitution of abilities has been informed by the conceptualizations of J. P. Guildford and J. Carroll and are often cited in relation to ability testing for career guidance. Guildford's (1967) structure of intellect model outlined 120 distinctive cognitive abilities organized in three dimensions: type of content, type of operation performed, and the product resulting from the operation of each ability. Carroll (1993) presented a hierarchical model of ability. Based on comprehensive factor-analytic studies of 467 data sets spanning several decades, in this model abilities are organized in strata along a three-level hierarchical structure. The highest and broadest has been called stratum III which comprises general cognitive abilities referred to as the *g* factor of intelligence and reflected as the individual's Intelligence Quotient (IQ). Abilities seen at stratum II become more specific and much more narrowly and specifically defined in stratum I. Stratum II and I are seen to comprise 8 and 68 ability areas respectively (Carroll, 1993).

Aptitudes have been described to be potential abilities (Snow, 1992). They reflect how *likely* an individual is to be successful in the performance of a certain task. Our description of aptitude is similar: Aptitudes reflect what one would be naturally good at, the person's talents and capabilities, and the person's potential for achievement in a particular area. If

interests are the steam in a locomotive, aptitudes could represent the engine: the actual ability to move toward and be successful in the execution of a specific set of tasks.

**Determinants of abilities and aptitudes.**  Here again, theorists and researchers have not presented conclusive evidence to support either the nature or nurture position with regard to what determines abilities and aptitudes.  Snow (1994) has indicated that abilities could be learned, or if innate, they could have some kind of neurological/genetic basis.  This writing takes the position that abilities lie along a continuum with heritability and learning lying at either ends.  There are certain careers (e.g., professional sport) that are grounded upon a specific physiological substrate (e.g., a certain kind of muscle structure, certain levels of stamina, and capacity for endurance).  Such abilities could fall closer to the heritability end of the continuum and may perhaps be less influenced by socialization and learning.  At the same time if an individual with a high capacity for professional sport is part of a culture that does not value this ability it would be difficult for the capacity to find its fulfillment.  By contrast, other careers (e.g., office secretary) would require skills that could be sharpened through learning (e.g., telephone management, dealing with customer's queries).  The argument being developed in this chapter rests on the understanding that wherever it is along the continuum that an ability lies, learning and socialization are required to bring it to fruition.

**Stability of abilities and aptitudes.**  The consensus in the literature seems to be that abilities tend to reach a high level of stability by early adolescence (e.g., Carroll, 1993; Dixon, Kramer, & Baltes, 1985).  Keeping the hierarchical model of abilities in mind, Gottfredson (2003) argued that while change and development continue to be possible, this is more likely only at the narrow and specific ability levels than at the broader levels.  In other words, abilities that fall in stratum II and III are less changeable than the specific abilities represented at stratum I.  Gottfredson, therefore, recommended that effective career counseling would help clients choose careers based on the broader abilities, since these

abilities are less likely to change, and then fine-tune personal suitability by developing the more changeable stratum I abilities.

**The Controversy**

In the foregoing section, the two main pillars of assessment for career guidance and counseling: interests, on the one hand, and abilities and aptitudes, on the other, have been described.  Historically, the formalization of vocational guidance in the 1900s was largely in response to the pressing demand from the rapidly industrializing labor market to appropriately match workers with jobs.  The need at this time was to assess abilities and ascertain a person-job fit as accurately as possible.  In the beginning, perhaps the very purpose of career guidance was to obtain correct measurements of ability and aptitude. Methods of assessment grew increasingly sophisticated and gave rise to a wide range of assessment devices such as the General Aptitude Test Battery (GATB) (U.S. Department of Labor, 1970) and the Differential Aptitude Tests (DAT) (Bennett, Seashore, & Wesman, 1990).  The scope of assessment was broadened to include vocational interests as a part of assessment for career development (e.g., Strong, 1935; Holland, 1959).  This critical inclusion formed a comprehensive whole as it were, since it drew the wishes and desires of the career decision-maker more firmly into the career decision-making process.  Indeed, Strong (1943) himself said, "Counseling that considers both abilities and interests is distinctly superior to that based on either alone, for it is in a position to establish both what the person can do and what she or he wants to do" (p. 19).  Yet, by the 1960s the value placed on the assessment of abilities and aptitudes declined and faded from favor.  Remarking on this in her review of the literature, Gottfredson (2003) asked, "Why did the field no longer pay much attention to one of the twin pillars in person-job match?  Why did the career literature say so little about abilities and their role in counseling?" (p. 115).  She went on to answer her question by pointing to developments in political stances particularly since "civil rights and

women's movements had made counseling psychologists reluctant to tell counselees they

could not become whatever they wished to be" (p. 116). It is perhaps difficult in a culture

that celebrates the individual to tell someone that they have "lower abilities" for something.

Commenting on lower levels of interest for a certain set of activities is perhaps easier because

it does not place the individual at a lower status or capability level. In addition, philosophic

paradigm shifts that occurred in the world of education caused trait-factor theories to fall into

disfavor. A corollary was a decline in the importance placed upon psychometric testing,

based on the perception that it was reductionist in its approach, since the issues surrounding

standardization, development of meaningful norms that had equivalence across cultures

remained hard to resolve. Against such a background, opinions pertaining to the assessment

of abilities grew antagonistic and the use of ability testing seems to have become limited in

Western forms of career counseling. As argued above, career guidance based on interests

only completes half the picture. The rest of this chapter will present information to support

the argument that the assessment of abilities and aptitudes is at least as important as the

assessment of interests in the practice of effective career guidance and counseling. Indeed

"the relationship among abilities, interests and achievements maybe likened to a motorboat

with a motor and a rudder. The motor (abilities) determines how fast the boat can go, the

rudder (interests) determines which way the boat goes" (Strong, 1943, p. 10).

**A Methodologically-Integrated Approach to Career Guidance and Counseling**

A methodologically-integrated approach to career guidance and counseling has been

developed for the Indian/Asian cultural and economic context based on the cultural

preparation process model (Arulmani, 2010, 2011a; also see Arulmani, Chapter 6, this

*Handbook*). Accordingly, career guidance and counseling are embedded into the culture of

the audience, namely, Indian career choosers, their families, and communities. These career

development programs are implemented at various levels ranging from large-group

workshops to individualized one-on-one sessions.  Arulmani's (2010) report has provided a detailed description of this approach.  Described here are some of the elements of this method that have relevance to this chapter.

**Key Principles**

In Indian thought, work is pictured not as a job to earn a living but as an extension of one's life.  Keeping this deeply embedded cultural orientation in mind, this program has been named *Jiva* which means *life* in almost all Indian languages.  The approach rests on the central idea that work and occupation are interwoven into the individual's life as a whole. The method is based on five principles which are drawn from culturally-embedded symbols and beliefs in the Indian conceptualization of the individual's engagement with life. Workshops based on these principles take career choosers through four career development activities:  building self-awareness, understanding the world of work, developing career alternatives, and career path planning.  Assessment is a part of the self-awareness component of the program and will be described in detail in the following sections.

**Multiple Potentials Framework**

Within this system, assessment devices are based on the multiple potentials framework (Arulmani & Nag-Arulmani, 2004), which is an adaptation of Gardner's (1983) theory of multiple intelligences.  The multiple potentials framework comprises five factors: Linguistic (L), Analytical-Logical (AL), Spatial (S), Personal (P), and Physical-Mechanical (PM) (see Arulmani & Nag-Arulmani, 2004 and http://www.jivacareer.org/project/page/multiple-potentials-framework.html for a detailed description of the components of the multiple potentials framework).

**Approach to Assessment**

A multi-pronged approach is taken to assess interests and aptitudes, which blends quantitative along with more qualitative methods.  Qualitative sources of information include

interviews, the counselee's academic history, hobbies and accomplishments, and parent/teacher opinions.  Quantitative methods include psychometric devices such as the Multiple Potentials Interests Inventory (MPII) and the Multiple Potentials Test-5 (MPT-5).  These two quantitative measures are now briefly described and one of the qualitative methods, the Strengths and Accomplishments Questionnaire, will be introduced next.

**Multiple Potentials Interest Inventory (MPII).**  This is an interest inventory that taps the five factors of the multiple potentials framework described above.  It has been standardized for the Indian context on a randomly drawn, stratified sample of close to 9,000 Indian adolescents-young adults in the age range of 14-to-21 years (Arulmani, 2005a).  The MPII was constructed from an item pool of about 250 items per factor through a process of item and factor analyses.  Items reflect occupational tasks associated with a particular factor. For example, the item, "Present information to people in a written form" is linked to the linguistic factor.  Similarly,  the item, "Use data to make predictions" is linked to the analytical-logical factor, "Design things from ideas" to the spatial factor, "Understand people's feelings and behavior" to the personal factor, and "Be involved in physically demanding work" to the physical-mechanical factor.  With 12 such items for each factor, the scale comprises a total of 60 items.  Participants rate each activity for how much they would like to engage in it as a part of their work life.  Response choices are anchored to 5 scale points where 1 indicates the lowest and 5, the highest level of interest.  The maximum obtainable score per factor is 60 and respondents' scores are summed separately for each factor.  The score obtained on each factor yields an interest profile across the five factors.

The validity of each of the MPII factors was examined by testing the correlations between respondents' ratings and external criteria: ratings by parents/teachers of respondents (i.e., criterion-related concurrent validity).  That is, parents/teachers provided their estimate of respondents' interest levels across the MPII factors based on their everyday interactions

with the respondents.  Positive, statistically significant correlations ranging from .62 to .81

have been consistently obtained between external criterion estimates and respondents'

interests scores, across the five factors and across samples from different age bands,

socioeconomic status groups, and geographical locations, indicating that the MPII has an

acceptably high validity.  Tests of split-half reliability have shown high and significant

Pearson's $r$ ranging between .74 and .83 for all the factors.  This also indicates that the scale

has high internal consistency.  The test-retest reliability of the MPII has been examined for

different age groups, gender, and socioeconomic status (SES) level.  The 3-month reliability

coefficients ranged between .72 and .91.  However, reliability coefficients dropped to much

lower values when the interval between test and re-test was increased.  This decrease is

discussed in greater detail below.

**Multiple Potentials Test-5 (MPT-5).**  This is an aptitude test battery that taps the five

factors described by the multiple potentials framework described.  It has been standardized

for the Indian context on a randomly drawn sample of about 8,700 Indian adolescents-young

adults in the age range of 15-to-21 years (Arulmani, 2005b).  Based on the multiple potentials

framework, this is a timed test that comprises 30 items per factor.  These items were selected

from an item pool of about 90 items per factor through a process of factor and item analyses.

Items have been designed to tap subdomains of each factor and include paper pencil as well

as performance formats.  Each item carries a score of 1 and the maximum obtainable score

per factor is 30.  Norms for the MPT-5 have been developed by SES and gender and an

individual's score can be interpreted across the semantic labels of low, low-average, average,

high-average, and high-aptitude levels.

The validity of each of the MPT-5 factors was examined by testing the correlations

between respondents' ratings and external criteria such as academic performance and ratings

by parents/teachers of respondents (i.e., criterion-related concurrent validity).  For the latter,

parents/teachers provided estimates of aptitudes levels across the MPT-5 factors based on their knowledge of respondents' capabilities. Positive, statistically significant correlations ranging from .64 to .71 have been consistently obtained between the external criterion estimates and respondents' aptitude scores across the five factors and across different samples, indicating that the MPT-5 has an acceptably high validity. The 12-month test-retest reliability of the MPT-5 across different age groups, gender, and SES groups was moderate to high with reliability coefficients ranging from .62 to .81.

It must be noted that this assessment is embedded in a system of career counseling where students engage in a number of activities related to understanding what interests and aptitudes are, before they answer the MPII and the MPT-5. Hence, they take the tests only after they have comprehended the notion of interests and aptitudes.

**The profile approach.** An intra-individual approach is taken and emphasis is laid on the individual's *profile* across the five factors. This refers to the relative ranking of the scores obtained by the individual on the sub-tests for each of the five factors. Hence, (taking 1 as the highest and 5 as the lowest rank), the interest scores obtained on the MPII may yield a ranking of the five factors in one client as L = 3, AL = 4, S = 5, P = 1, and PM = 2, while in another client the rankings may emerge as follows: L = 1, AL = 5, S = 3, P = 4, and PM = 2. In the first client, P (personal) would be identified as the factor for which the individual has the highest interest. The same, intra-individual, profile approach is used with the MPT-5, aptitude test battery.

**Occupational List**

In keeping with the earlier assertion that an effective career guidance program must be undergirded by the same theoretical framework both for self-awareness activities as well as for occupational classification, this system uses the multiple potentials framework to classify occupations (Nagesh, Kumar, & Arulmani, 2010). This is an occupational list drawn from

the International Standard Classification of Occupations (International Labour Organization, 2008). It comprises a total of 164 careers with viable educational and career pathways in India, classified into one of the five factors of the multiple potentials framework.

Data from the MPII and MPT-5 will now be used to discuss the question: What should we assess to best promote the individual's awareness of self?

## Study 1: The Relationship between Interests, Aptitudes, and Potentials

**The Sample and Intervention**

The career counseling program in this study was designed for students in Grades 10 and 12 (approximately 15 and 17 years of age respectively). It was an 8-hour, one-to-one interaction delivered over one day, which comprised a wide range of career development activities addressing self-understanding, understanding the world of work, generating career alternatives, planning career paths and career preparation. A comprehensive assessment of interests and aptitudes using the MPII and the MPT-5 was a part of this program.

Students who attended this career counseling program in Grade 10 had the option of voluntarily returning for further counseling when in Grade 12. During the period of this study, a total of 201 students were seen at Grade 10. Of these, 130 students voluntarily returned to our center for follow-up counseling at Grade 12. The sample for this study comprises this opportunistic sample and the data are their responses in Grades 10 (T1) and 12 (T2) on the MPII and MPT-5. All students were from upper-middle-class backgrounds and their average age at T1 and T2 was 15.24 (SD = 0.61) and 17.29 (SD = 0.62) years respectively. Fifty-two percent of the group was female. This sample represented individuals from eight states of India and five religious groups. All students were fluent in English, the language in which the workshop and assessment were conducted. The duration of time that elapsed between T1 and T2 ranged between 24 to 26 months.

**Findings and Interpretations**

**The relationship between interests and aptitudes.** While the associations between aptitude-career and interest-career have been studied, not much research attention has been directed toward understanding the association between aptitudes and interests. The first set of findings I report is with regard to this association.

No statistically significant correlations were found between interest and aptitude scores at T1 on any of the five factors. Thus, at Grade 10 we did not find that having a high interest score on one of the factors meant that the person would also have a corresponding high aptitude score on the same factor. These findings seem to point to the possibility that in the sociocultural and socioeconomic context from which this sample was drawn, interests and aptitudes may not be as strongly associated as expected. A critical question that emerges, therefore, is which of these two important constructs, interest and aptitude, should one consider in order to best promote the individual's self-understanding for career decision making? Counseling based on any one alone could move the counselee in different directions. For example, the interest profile on the MPII that one of the students in this sample obtained was: L = 1, AL = 3, S = 5, P = 2 and PM = 4. The same student's aptitude profile on the MPT-5 painted quite a different picture: L = 3, AL = 2, S = 1, P = 5, and PM = 4. The reader is reminded here that 1 is taken as the highest and 5 as the lowest rank. If counseling were to be based on *interests* and followed the MPII, examples of the kind of careers this student would have been encouraged to explore are journalism (linguistic), social work and psychology (personal). If counseling were, however, to be based on *aptitudes* and followed the MPT-5, examples of careers for exploration could have been architecture and commercial art (spatial) and software development (analytical logical). Each set of career options are worlds apart from each other! How then does one make the decision as to whether counseling should be based on interests or aptitudes? Our findings about the apparent lack of association between interests and aptitudes could imply that they each

contribute *independently* to understanding the individual's suitability for the world of work. It could also mean that relying on the assessment of interests *or* aptitudes to the exclusion of the other would yield only a part of the information required. It could well be that a *combination* of information about interests and aptitudes would contribute to a deeper and more stable understanding of the individual's profile.

Reviewing the literature, Ackerman and Haggestad (1997) showed the overlapping between interests and aptitudes. They cite, for example, studies that showed that literacy interests are associated with verbal ability and other studies that found that a positive correlation exists between verbal ability and Holland's artistic and investigative interests and so on. However, there do not seem to be many studies that have investigated interest-aptitude relationships within the *same* construct, based on the same theoretical reference point. Take the spatial construct (one of the five in the multiple potentials framework) as an example. It would be useful for a career counselor to know what an individual's abilities as well as what his or her interests are for spatial activities. For example, if an aptitude test shows that a person's ability to transform observations into two/three dimensional images/figures is high and an interest inventory shows that his or her interest to work with colors and designs is high, this would point to the possibility that both ability and interest are high for spatial activities. The finding may also be that while ability is high, interests for activities in the area are low or vice versa. Such information about the same construct would allow career guidance to be much more effective. I move now to the second set of findings to further explore the relationship between interest and aptitude.

**Stability of interests and aptitudes.** This set of findings is with reference to an issue that has been extensively researched and apparently put to rest in the Western literature, namely, the stability of interests (also see Bakshi, Chapter 4, this *Handbook*). Firstly, an examination of the T1 and T2 scores (Table 1) indicates that the range of scores is

remarkably higher for interests than for aptitudes. Secondly, the findings indicate that when compared with aptitude rankings, a greater percentage of individuals' interest rankings changed from T1 to T2 for all the five factors. Finally, the percentage of individuals whose scores decreased from T1 to T2 is greater for all five factors for interests than aptitudes. Excerpts from interviews with members of the sample whose interests showed a marked decline at T2 in Box 1, throw further light on these findings.

Insert Table 1 around here

The (predominantly Western) reports in the literature presented in earlier sections in this chapter have led to the seemingly firm conclusion that interests are stable over time. The findings from this study seem to be contrary: Over time, and for the middle-to-late adolescent age-band, interests are more liable to change than aptitudes and hence may not be as stable as reported in the literature. It further seems from this data that aptitudes are more stable than interests. We postulate that three main reasons could underlie the apparent changeability of interests in the Indian context as represented by this sample. The first is already explained in the literature and relates to the age of the participants. The second is a cultural explanation. In collectivist cultures, the mediation of others (parents, family, community) in the decision-making process is much stronger than the wishes of the individual and this could influence the manifestation of the individual's interests. As indicated by some of the quotations in Box 1, it seems the ease to act on one's interests emerges only later in the individual's life. The third reason is related to the profound economic changes that have swept across collectivist cultures over the last two decades. Taken together, this raises questions not only about the validity and reliability but also the adequacy of using interest as the primary construct to inform career guidance and counseling. This is especially with reference to societies that are collectivist in structure and economies that are experiencing rapid growth and change. These points will be addressed in greater detail in the final section of this chapter.

Insert Box 1 around here

Proponents of aptitude-based counseling have pointed out that costly failures could result when a student is not informed that he or she may have a low ability to do well in a course in which he or she is interested (Gregoire & Nils, 2008).  Gottfredson (2003) states:

Effective career exploration has to address the obstacles as well as possibilities that counselees face in career development.  No option is a good one unless it is truly feasible—or can be made so.  Noncompetitive ability levels for a preferred occupation are clearly an obstacle. (p. 15)

Her *reality-based career exploration* is designed such that the career choosers identify a list of "best bet" careers to explore in detail based on a consideration of their strata II and III abilities (Gottfredson, 1985).  This offers an effective method for career guidance from the abilities angle.  However, this does not answer the objections raised by the proponents of interest-based career guidance, particularly the view that data for ability-based counseling must perforce rely on psychometric devices.  As stated earlier, counseling could be more effective if it is based on information *both* about interests and aptitudes.  But at a practical level, how does this work?  Does this mean that two sets (interests and aptitudes) of scores are to be generated?  How would one then deal with contradictions between the scores?

**Interests and Aptitudes are Both Important**

Two observations from Study 1 stand out: Interests change over time and high interest may not signify high ability.  This corroborates our observations across more than 150,000 adolescents and young adults in India and a few other Asian and African countries over nearly two decades which have shown us that as the person's career development progresses, personal experiences and external influences could reinforce current interests or could cause a swing of interests to some other point of focus (Arulmani & Nag-Arulmani, 2005).  Sensitive and person-centered career counseling ought not to chain the young person to a group of

interests for which he or she declared an attraction at a certain stage in life. Also, career success is often mediated by intense competition. Merely being interested and motivated, however strong this motivation, is not assurance enough that the individual will develop an adequately high level of ability to succeed in the face of competition.

It is here that a vital point emerges. An interest inventory can help to delineate a person's interests, while an aptitude test would help identify capabilities and talents. Closer examination might reveal that some of the interests identified do not complement the individual's aptitude profile. Similarly, it is also possible that the individual may not have a high interest for careers connected to some of his or her aptitudes. The all-important task before the career counselor, therefore, is to help the career chooser uncover the point of overlap between a person's interests and aptitudes.

**Defining Potential**

Discovering the connection between interests and aptitudes can help delineate career areas in which the individual is not only be interested but for which he or she possesses talents. We refer to this point of overlap between interest and aptitude as *potential*: a blend or a combination of specific interests and specific aptitudes. The integrated approach to career counseling described in the earlier sections generates data both for interests and aptitudes using several devices and methods linked to the multiple potentials framework. Based on a system of weightages, interest and aptitude data is then blended to construct the individual's potential profile. This is discussed in greater detail in sections ahead.

**The stability of potential.** At this point, I would like to go back to the findings of the study described above and draw the reader's attention to the last column in Table 1. This column presents the correlation coefficients between the scores on what I have termed as "potential" (i.e., the average of interest and aptitude percentage scores) at T1 and T2. The correlations between scores on potential at T1 and T2 range between modest to moderately

high and are all statistically significant.  In other words, the scores recorded by this sample

on potential, showed (greater) stability over time.

Data such as this, along with anecdotal evidence and field experience, have consistently

pointed us to the strong possibility that the *potential* profile is a relatively more stable

reference point within which the individual's career exploration may be framed.  Indeed,

between interest and aptitudes, it is the combination, namely, the potential as we have called

it, that seems to matter.  We offer this construct as worthy of further investigation.

### Alternative Methods and Techniques for Assessment

**Criteria for the Usefulness of Psychometric Devices**

One way of identifying the individual's potential profile is to use standardized

psychometric devices such as interest inventories and aptitude tests and then use a

statistically-validated system of weightages to combine this data.  Tests provide useful cross-

sectional information.  However, the accuracy of data obtained from psychometric

instruments rests on a number of assumptions.  Writing from the Indian context, Arulmani

and Nag-Arulmani (2004) have highlighted that psychometric devices are useful only when

the items are culture, age, and gender appropriate; administered by a qualified person; scored

accurately; and interpreted on the basis of contextually-validated norms.  It is vital that the

test-taker is able to give the test his or her "best shot."  Anxiety, fatigue, skepticism,

playfulness, succumbing to socially acceptable responses, can all affect test performance.

**Relevance.**  The cultural and statistical suitability of a test is central to the debate about

the relevance of psychological tests.  If, for example, a test developed in the United States is

used on an Indian clientele, without being culturally-contextualized and statistically re-

standardized for use with Indians, the test-taker's performance on that test is not likely to be

an accurate reflection of his or her profile.  As famous as it is in the Western context, a trial

of Holland's Vocational Preference Inventory indicated that its relevance to the Indian

situation was limited (Leong, Austin, Sekaran, & Komarraju, 1998). When examined in the

Chinese context it was found that Holland's six interest types tended to group together in

configurations that reflected the cultural orientations and occupational or educational

sensitivities characteristic of a particular cultural context (Law, Wong, & Leong, 2001).

Examples such as this are plentiful (see Leung, 2008). Despite this, the wholesale import of

tests is an uncomfortably recurring occurrence in not just India, but many other countries as

well (e.g., Hong Kong: Leung, 2002).

      **Translation and adaptation.** Commenting on the adaptation and translation of tests

developed in one culture for use in another culture, Hambleton (2005) highlighted that test

adaptation goes far beyond merely creating literal translations of test content and requires

translators to find concepts, words, and expressions in the recipient language that are

psychologically and linguistically equivalent to the language in which the test was originally

developed. Here, culture is a powerful mediating variable. It is quite possible that a certain

concept or construct is unfamiliar, considered strange, or perhaps even unacceptable in the

culture for which a translation is being undertaken. Hence, Duarte and Rossier (2008), in

their excellent review of testing and assessment in an international context, express

uncertainty about the very nature of test adaptation when they state, "Test adaptation does not

run in straight lines. Evaluative information on culture and context is much more complex

than creating guidelines for cross-cultural normative assessment" (p. 489). A further concern

is that although many psychological tests are constructed using samples composed primarily

of Anglo-Americans, normative data for the use of these devices with other racial, ethnic

groups is rarely developed (Hansen, 2005). For a country like India this would be gigantic

task. If a given test were to be adapted for India, translations and norms would be required

for at least 22 linguistic groups! Further, psychological testing today has become

corporatized and is big business. A trend that can be noticed over the recent past is the

loosening of the rigor with which training and licensing are provided, particularly when large psychological testing businesses move into countries where career counseling is in its infancy.  Hence, while we endorse the use of psychometric devices, we view the transport of psychological tools across cultural boundaries and the licensing of testers without adequate training in psychology, statistics, and the device itself, with deep concern.

Two points emerge from the foregoing discussion on psychometric tests.  Firstly, they are useful and can offer vital information if they are culturally and statistically relevant to the context in which they are used, and administered and interpreted by adequately trained personnel.  Secondly, the construction and development of sound psychometric devices is a complex and expensive exercise that may not be easy to accomplish in situations where career counseling services are in their infancy.  Yet, the need for rigorous assessment methods that could inform career guidance and counseling is an urgent and pressing one.  It is against this background that we have experimented with alternative methods and techniques of assessment which are now described.

**The Strengths and Accomplishments Questionnaire (SAQ)**

**Description.**  As stated, there are new paradigms that highlight the importance of career guidance being a co-constructive activity between counselor and client.  The SAQ is an attempt to create a method that can allow this kind of a partnership between client and counselor.  This is a method that uses the multiple potentials framework to dip into the participant's everyday life focusing on his or her *accomplishments*.  It requires the participant to look back over a period of 3-to-4 years to identify accomplishments.  It is qualitative to the extent that it allows the assessor to construct a questionnaire as per the accomplishments for which the student is most likely to have had opportunities given his or her culture, socioeconomic status, schooling, and cultural background.  It attempts to be contextualized to the extent that it draws upon the person's lived experience rather than expecting the

individual to respond to items that may or may not be relevant to his or her situation.  It is co-

constructive to the extent that it requires the counselor to engage in a dialogue with the client

and capture aspects of his or her life that are relevant to career development.  At the same

time, it includes quantification through the use of a rating scale.  As an illustration, Box 2

provides an extract from the linguistic section of the SAQ.  In this approach, the career

counselor is free to identify "areas of accomplishment" (column 2 in Box 2) that have the

highest likelihood of occurrence given the student's (or test-taker's) sphere of experience and

opportunities within the multiple potentials framework.

**Administration.**  The SAQ is typically introduced after students have engaged in a

number of activities related to what aptitudes are and the difference between interests and

aptitudes.  The counselor explains the meaning of the word *accomplishment* as any activity in

which the person has had some level of success that has been noticed by others (e.g., being a

class leader, organizing an outing, repairing something).  Participants are to read each item

and fill in the table by indicating their level of achievement.

**Scoring.**  The first row in Box 2 shows the scoring scheme which in fact follows the

principle of a rating scale.  The rating scale runs from 1 to 5 with a rating of 1 for the first

level of involvement (I am involved in this activity at the personal level) and the rating of 5

for the highest level of accomplishment (I have won prizes outside school…).  Respondents

are required to study the items, think back over the last 3-to-4 years and place a tick mark to

indicate their level of accomplishment for each of the activities.  A participant could fill in

one or more cells.  Here again, the assessor is free to work out a rating scale as per the

realities of the context.  For example, terminology used for rating labels would change if the

client is a school dropout, a college student, or someone older who is considering a career

shift.  Scoring is cumulative and the maximum obtainable score is 15 per item (1+2+3+4+5),

because the device allows entries under more than one level of involvement.  In the example

given, the respondent obtains a score 22 out of a possible maximum of 60 for the linguistic factor.

<center>Insert Box 2 around here</center>

## Study 2: Comparing the Outcomes of the SAQ and the MPT-5

The obvious question that emerges at this point is, does the SAQ work?  Study 2 compared the outcomes of the SAQ with the MPT-5 which is a psychometric device designed to assess aptitudes (described earlier).  The comparison was against the external criterion of independent ratings by trained teachers who were also the career counselors of the participants.

### The Sample and the Intervention

The data presented in this section is drawn from the responses of 42 Grade 10 and 11 students from a school that offered the integrated career counseling program described above. The program comprised eight modules of 2 hours each and was delivered in a group workshop format, covering a wide range of career development activities including comprehensive assessment of interests and aptitudes.  The sample comprised students from middle-to-upper-middle class backgrounds falling in the age range of 14-to-16 years with a mean age of 14.98 ($SD = 0.6$) years.  Females composed 57% of the group and 76% were in Grade 10 with the rest in grade 11.  All students were fluent in English, the language in which the workshop and assessment were conducted.

### Collection of Data

All students were administered the MPT-5 and the SAQ.  Teacher ratings of students were taken as the external criterion against which the MPT-5 and the SAQ were compared. Two of these teachers knew the students for a minimum of four years and one knew them for 10 years (from preschool onwards).  They were currently teaching the participating students and were trained in and had four years of experience in the career counseling approach

described in this chapter. It was assumed that the ratings of these teachers would be an accurate indication of students' aptitude profiles. The teachers were required to rate each student using the multiple potentials framework where a rating of 1 indicated a *low* aptitude for that factor and a rating of 5 indicated a *high* aptitude for that factor. The teachers were blind to each other's ratings and the average of their ratings was taken as the external criterion against which the MPT-5 and SAQ were compared.

**Findings and Interpretations**

The objective was to check how close the ranking from both the aptitude test (MPT-5) and the accomplishments questionnaire (SAQ) was to the ranking based on teacher ratings. If the relative rankings for each pair (MPT-5 and teacher rating; SAQ and teacher rating) were the same then the difference score would be 0 but if the rankings were different then the difference score could lie between 1 and 4 (here we ignore the direction of difference). Recall that the rankings were for the five factors (L, AL, S, P, PM). Next, we ran a series of repeated measures *t* tests to examine whether the difference scores for each pair of sources were similar or not. As shown in Table 2, the difference scores were not statistically significant for all five factors, confirming that the ranking emerging from MPT-5 scores and ranking emerging from the SAQ scores were both as close (or distant) to teacher ratings. This may be taken as one line of evidence to argue that *either* forms of testing can yield valuable overlapping information. This finding also suggests that the guidance that stems out of the MPT-5, a standardized, quantitatively-oriented aptitude test, would perhaps be similar to the guidance that would stem out of the more qualitatively-oriented SAQ. The study provides preliminary evidence of the scope, validity, and reliability of the SAQ. The field is in need of similar research to better understand the role of assessment devices like the SAQ which are closely attuned to an individual's everyday life.

Insert Table 2 around here

**Relevance for Multiple Cultures: Sensitivity to the Universal and Particular**

This chapter has been written primarily from the Indian context. However, the questions raised have relevance across multiple cultures. A significant point made in this chapter is that interests are likely to be unstable for longer durations of time in the story of the individual's career development. The possible reasons and their relevance across cultures are discussed below.

**Stability of Interests across Age**

The existing literature clearly asserts that interests are likely to be unstable at younger ages. This could be one of the explanations for the findings obtained in the studies reported in this chapter, since the samples were composed of adolescents in the age range of 15-to-17 years. However, as discussed above, the Western literature does assert that interests stabilize by early adulthood (e.g., Hanson, 2005). Research pertaining to interest stability for this age group is based on studies conducted in Western schools. Reflecting on the environment in American classrooms, Low and Rounds (2006) pointed out that "classroom instruction is typically divorced from social contexts" and "there is little internal or external press towards crystallization of adolescents' interests" (p. 27). It is possible that the stability and predictability of the educational and social environments of these samples allow for the early stabilization of interest orientations.

**Culture as a Mediating Variable**

Commenting on the evolution of work, Arulmani and Nag-Arulmani (2004) have observed that the protestant work ethic brought the individual and his or her productivity onto center stage in the West. The accent in these cultures is on the individual's desires and interests. Conversely, work behaviors in collectivist cultures are relatively more strongly influenced by cultural expectations that require the role of the individual be subsumed under the collective. The individual's expression of interests during adolescence (or indeed through

early and middle adulthood), therefore, may not be related "purely" just to him or her.  They could reflect a blend of the expectations of the collective.  This way of life has been practiced with success, for thousands of years in collectivist cultures where the wisdom of the elders guided the young.  Over the last few decades however, the influence of the collective has become increasing blurred.  The forces of social change, particularly Westernization and globalization, have been such that individuals in collectivist cultures are beginning to assert personal desires at later stages in their lives, after they have gained greater independence from the collective.  This has not been systematically documented, but sometimes individuals who have made career decisions based on family/community expectations seem to reach a career development crisis in their late 30s-40s expressing dissatisfaction with their existing careers and wishing for career shifts (Arulmani, 2006).  This could be (and warrants further research) because individuals in this age bracket can allow their "personal" interests to be manifested only in adulthood, after they have complied with the wishes of their parents and the collective.  Having said this, it is also highlighted that this argument does not answer questions pertaining to whether interests are in fact stable across the entire life span.  Ideas from the life span literature, particularly evidence related to the construct of plasticity indicate that interests are likely to vary and change with the individual's own development (see Bakshi, Chapter 4, this Handbook).  This requires further investigation.

## New Concepts and Viewpoints: Charting New Directions

### The Development of Vocational Interests

Mention was made earlier of differentiations between situational and dispositional/individual interests.  Models of interest development have been presented in the literature, for example, the four-phase model of interest development (Hidi & Renninger, 2006), the model of domain learning (Alexander, 2004), and the person-object theory of interest (e.g., Krapp, 2002).  These formulations draw upon the broader constructs of affect,

cognition, and learning.  Career guidance could further investigate these ideas to gain a better understanding of the development, nature, and stability of vocational interests.

**Economic Change and Social Organization**

Over the last two decades, economic change, historically unparalleled in its nature and scale, has swept across the world.  The impact this has had on employment and career development, has been markedly different across developed and developing economies (e.g., Arulmani, 2011b).  The practice of outsourcing work to cheaper locations and the recent economic down turn have together contributed to a massive loss of jobs in developed economies.  Driven by the allure of lower costs of production the destinations of outsourcing have been developing economies.  This has resulted in an unprecedented increase in occupational opportunities in developing economies.  It has been observed that in contexts that were deficient of occupational opportunities and where rates of unemployment were high, getting a job that pays well gains higher priority than personal interests, talents and satisfaction (Arulmani, 2011a; Upadhya & Vasavi, 2006).  Amongst the group that this writing has commented on (Indian adolescents-early adults), interests have shown the tendency to shift from long term, educational pathways such as bachelor's or master's degrees, to short-term job oriented courses.  For example it has become common in Bangalore, India, which is a large hub for business process outsourced jobs (e.g., call centers), for students to drop out of a college-based degree course, undergo a short training and take up a job in the call center industry (Arulmani, 2006; Upadhya & Vasavi, 2006).  Here, it seems that opportunity can mold or perhaps even override interest.  It is possible that interests change when economic and financial prosperity allow greater freedom for self-expression.  This has also been indicated in the literature (e.g., Lent, Brown, & Hackett, 2002).  The point that emerges therefore is that interests can remain prone to variation much later into the individual's life in such economies.

Taken together, social organization and economic change seem to raise important questions with regard to the development and stability of interests. The received wisdom is that interests stabilize with age. As discussed, where social organization is characterized by collectivist systems, interests may be "imposed" on the individual by the collective. More often than not, the individual's interests, particularly during adolescence and early adulthood, through the process of enculturation are molded by social expectations (see Arulmani, Chapter 6, this *Handbook*). At the same time, against the background of the profound economic changes that have swept across collectivist cultures over the last two decades, the primary experience of workers in emerging economies is the burgeoning of occupational opportunities on a scale that has never before been seen. This sudden and unprecedented increase in the availability of lucrative job opportunities could trigger the wish for career shifts reflecting a change of interests. Socially molded interests could therefore be overridden through the processes of acculturation (see Arulmani, Chapter 6, this *Handbook*). Hence, measurements of interests in such contexts, using Western paradigms may not yield accurate results. Indeed the points made in this chapter question the presumption that interests can be dispositional. This is an area that requires reinvestigation keeping economic, social and cultural factors in mind.

**Blending Interest and Aptitude to Understand Potential**

Adolescence is a time of intense change in the individual and given the nature of this developmental stage, it is likely that interests at this time are volatile and reactive to external experiences. Adolescence is also a time when the most critical educational (and thereby career) decisions are made. Therefore, the question that emerges here is that if interests are indeed unstable at this stage of life, can they be used as the basis upon which to provide advice at this critical juncture in the individual's career development? The primary proposition upon which this writing rests is that interests and aptitudes are *both* essential

aspects of self-discovery. As we have seen above, some career guidance systems are oriented toward interests, while others are driven by tests of abilities and aptitudes. The position we have taken is that the analysis of interests and aptitudes for self-understanding is not an either-or question. The task before the counselor is to help the young person discover interests as well as aptitudes. Comprehensive career counseling would offer methods whereby interests and aptitudes, both, could be assessed and compared with each other. Independent of whether vocational interests are dispositional and hence stable, in a competitive, performance-oriented work context, the requirement remains of the individual having to perform at levels that would contribute to career progress. Hence, the matter of aptitude remains an issue that the career counselor must reckon with. The notion of potential, a blend of interest and aptitude, has been proposed in this writing as a construct that could be explored further.

## Conclusion

This chapter draws to a close with a final point. The outcomes of assessment are sometimes accorded (both by the counselor and the client) a status of infallibility. This is a danger that must be guarded against. An assessment device, whatever its form, is merely a tool used to gather information. It is vital that career counseling is not reduced to a variety of test taking and assessment exercises and that the career aspirant is not limited by the results of these exercises. Career counseling ought to go beyond—placing the individual and not the test at the center of the process of career development.

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Table 1

*Change in Scores on MPII (Interest) and MPT-5 (Aptitude) across T1 and T2 for each of the 5 Factors (N = 130)*

| Factor | Range of change in scores from T1 to T2[1] | | % of individuals whose ranking changed from T1 to T2, irrespective of direction of change | | % of individuals for whom scores decreased at T2 | | Pearson's *r* for Scores on Potential at T1 and T2[2] |
|---|---|---|---|---|---|---|---|
| | I | A | I | A | I | A | |
| L | - 57 to 60 | - 20 to 10 | 57 | 25 | 47 | 5 | .448** |
| AL | - 57 to 47 | - 40 to 3 | 62 | 29 | 45 | 2 | .721** |
| S | - 60 to 60 | - 16 to 30 | 59 | 33 | 31 | 3 | .676** |
| P | - 58 to 65 | - 23 to 3 | 53 | 25 | 33 | 2 | .514** |
| PM | - 53 to 53 | - 20 to 6 | 46 | 33 | 66 | 1 | .596** |

*Note:* L = Linguistic, AL = Analytical-Logical, S = Spatial, P = Personal, PM = Physical-Mechanical, I = Interest, A = Aptitude. [1] A minus score means T1 score was higher than T2 score and a plus score means T2 score was more than T1 score. [2] Average of MPII and MPT-5 scores at each time point is the potential score for that time point. ** p < .001 level.

Box 1

*Excerpts from Interviews with 12th grade Students whose Interests Scores Reduced over Time*

> Question asked: *Your Interest Profile has changed significantly from the first time you answered the questionnaire and the second time. How do you explain this change?*
>
> I was a kid then. Now I am older. Lots of experiences and chances to check out. That made me change. Now I am more sure. But still what I like can change all through my life right?! *Female, 17 years old.*
>
> I had met an airforce pilot when I answered those questions on the paper. Was so totally impressed and wanted to be like that. Then I realised airforce is killing people. I don't want make my life out of shooting others from the air. No way. Civil aviation is just flying from one place to another. Lost interest when I found out this. *Male, 17 years old.*
>
> Hey! Gimme a chance to grow up! I was just in Class 10 then. *Female, 17 years old.*
>
> At that time you are not really thinking. Just doing what others think is cool. It's been two years right? And what I liked also changed. That's why I'm back here today. But still, I don't want to fix my options for my whole life. *Male, 17 years old.*

*Note*: The interval between T1 and T2 in all the cases reported is 24-to-26 months.

Box 2.

*Extract from the Linguistic Section of the SAQ*

| Question Number | Areas of Accomplishment | I am involved in this activity at the personal level | I have participated in events and competitions in school | I have won prizes at school OR my work was selected for school publications | I have participated in events and competitions outside school | I have won prizes outside school (in a public forum) OR my work was selected for publication outside school |
|---|---|---|---|---|---|---|
| 1 | Writing (essays, articles) | * | * | | | |
| 2 | Writing (poetry, short stories) | * | * | * | | |
| 3 | Public Speaking (debating, elocution, giving speeches) | * | * | * | * | |
| 4 | Drama and acting | * | * | | | |

Table 2

*Comparison of the Difference in Mean of Ranking of Teacher ratings against MPT-5 (Aptitude Test) and SAQ (Accomplishments Questionnaire)*

*(N = 42)*

| Factor | Difference in Means (SD) Ranking of Teacher Ratings with | | t-Test (df 41) |
|---|---|---|---|
| | SAQ Ranks | MPT- 5 Ranks | |
| Linguistic | .595 (1.75) | -.381 (1.52) | -0.531 (ns) |
| Analytical Logical | .595 (1.75) | .310 (1.66) | -0.176 (ns) |
| Spatial | -.381 (1.62) | .238 (1.55) | -0.552 (ns) |
| Personal | .119 (1.87) | .095 (1.66) | -1.855 (ns) |
| Physical Mechanical | -.929 (1.86) | -.262 (1.76) | -0.919 (ns) |

*Note*: *ns* = not significant, p > .05.