

**THE MEASUREMENT OUTCOME EQUIVALENCE OF THE CAREER PATH
APPRECIATION (CPA) FOR EMPLOYEES FROM DIVERSE CULTURAL
BACKGROUNDS**

by

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I, **Jolanda Kitching**, declare that “***The measurement outcome equivalence of the career path appreciation (CPA) for employees from diverse cultural backgrounds***” is my own work. All the resources I used for this study are cited and referred to in the reference list by means of a comprehensive referencing system.

I declare that the content of this thesis/article has never before been used for any qualification at any tertiary institute.

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Date

ABSTRACT

The aim of this study is to determine whether or not the Career Path Appreciation (CPA) is cultural unbiased. The use of assessment instruments in South Africa has been criticised, because it is said that they are largely based on the values and knowledge of overseas instruments, which are considered to be less valid for South Africa's various cultural groups. In this study, an Asian, black, coloured and white group were included to determine the cultural equivalence of the CPAs measurement outcomes. The results indicate that the CPA measurement outcomes are not biased and are, therefore, equivalent for groups of diverse cultural backgrounds.

OPSOMMING

Die doel van die studie was om te bepaal of the Career Path Appreciation (CPA) sydig is ten opsigte van versillende kulture. Die mees algemene kritiek teen die gebruik van psigometriese instrumente in Suid-Afrika is dat dit grootliks gebaseer is op en aangepas is uit Westerse instrumente wat tot gevolg het dat hierdie instrumente minder geldig meet vir ander kultuurgroepe in Suid Afrika. In hierdie studie is asiër, kleurling, afrika en blanke groepe gebruik in die bepaling van die kulturele gelykwaardigheid van die CPA uitkomst. Die resultate toon dat die CPA nie diskrimineer ten opsigte van Afrika kulture nie.

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CHAPTER 1

JUSTIFICATION OF THE STUDY

1.1 Introduction

Given the situation in South Africa, where many people have no or limited education, a lack of skills and insufficient working experience, it is important to determine an individual's performance capability. It is also important to evaluate an individual's potential. Setting career paths, and knowing an individual's current and future potential and capabilities is thus extremely important in today's challenging work environment.

People represent a significant short-term and long-term investment for organisations around the world. The accurate evaluation and selection of employees is thus imperative, because it leads to considerable financial savings on the part of the organisation, dignity for the individuals concerned and overall organisational effectiveness (Stamp, 1988). If an organisation is to meet these new challenges, it needs an accurate picture of the current state of its human resources and the rate at which these human resources are likely to grow.

In the mid-1970s, Gillian Stamp embarked on the development of an approach that could be used in the assessment of judgment in action. The outcome of this research was an assessment tool called Career Path Appreciation (hereinafter referred to as CPA) (Jaques, 1978). CPA offers the individual the opportunity to review his or her working life, and the organisation the opportunity to review the effectiveness of its human resources and appropriate time frames for the development of these human resources.

Organisations resort to assessment tools and techniques to assist them in matching people to existing jobs and to identify people with potential who can be

developed. Professor Robert Lindley said that as the human capital intensity of products and services increases, so the importance of human resource assessments should become a greater part of the evaluation of corporate strengths and weaknesses (in Critten, 1993). Organisations need to ensure that they have the right people in the right jobs, that is, employees who are able to perform in the dynamic and changing work environments that will inevitably form part of their future.

As a person grows within a level of capability, he or she sees the environment of the organisation in a particular way (Stamp, 1988). With career planning, it is important to measure an individual's level of capability and his or her potential in order to see if the individual could actually perform in a given work environment. Career planning is about choices and the power to shape work experiences and life. Career planning helps to clarify what employees and employers want from work, and helps to develop effective strategies to meet these goals (Career Path Counseling Service, 1999).

Career paths are also flexible lines of progression through which an individual typically moves. Such paths can serve as a guide when selecting from amongst alternative professions and alternative employment offers. Although the concepts of career development, career path and career planning have prevailed in human resources management literature for a long time (Kao, Lee & Kuo, 1997), they have not received the appropriate attention they deserve.

Managers use assessment devices to create career paths and to evaluate employees' capabilities and future potential. The Employment Equity Act (Act 55 of 1998) states that tests and assessment devices may be used solely if they can be shown to be scientifically reliable, valid, unbiased and fair.

The problem is, however, that some recruitment and selection devices are unfair and culturally biased. It is extremely important to use assessment devices that

are legally sound. There is increasing pressure on test developers and users to ensure bias-free practices (eg The Employment Equity Act [Act 55 of 1998], the draft policy of the Professional Board of Psychology on the Classification of Psychometric Measuring Devices, instruments, methods and techniques) (Bedell, Van Eeden & Van Staden, Not dated).

Cultural bias is a concept that implies that selection techniques are differentially valid for members of different ethnic groups (Gregory, 1996). Some selection and assessment techniques are regarded as having an unfavourable impact on people of different population groups (Anastasi & Urbina, 1997; Martocchio & Whitener, 1992; Robertson, Iles, Gratton & Sharpley, 1991). Utilising such techniques should be a serious concern for all employers (Bauer, Maertz, Dolen & Campion, 1998).

The need for change has gradually devolved throughout the history of assessments in South Africa. Tests were imported from overseas and applied without change on all sectors of South African society. This caused enormous problems for employers and employees as variables such as education, language, culture and socioeconomic background were not re-evaluated. These variables are important moderators of test performance and the outcomes may be seen as being culturally biased and unfair to certain population groups. Thus, the accuracy and outcomes of some psychological tests and assessments are not necessarily equal and successful for all sectors of South Africa's diverse population (Bedell *et al.*, Not dated).

Ensuring the use of bias-free assessment techniques should be the priority of any selection strategy, particularly in South Africa, where attempts are being made to rectify past practices that have had a discriminatory effect on certain sectors of the population (Snelgar & Potgieter, 2003). The Employment Equity Act (Act 55 of 1998) stipulates that assessment techniques should respect cultural diversity and make accurate predictions for members of different

population groups (De Jong & Visser, 2000). It is therefore necessary to test the CPA in order to prove that it is, in fact, free of cultural bias. The question that must be asked is, therefore, whether the CPA allows for equal treatment and measurement outcomes of all candidates from diverse backgrounds.

1.2 Problem statement

Career pathing is the design, development and implementation of processes and resources that assist employees to make significant and satisfying contributions to an organisation throughout their working careers (Davis, 2000). It aims to address the implications of current changes in the organisation of work and labour markets. Managers and counsellors need appropriate concepts, theories and methodologies (Collin, 1998) to evaluate and help their employees with future career development.

The CPA is an instrument that can be used to identify an individual's current capability as well as extrapolate future potential. Although previous research was based on the reliability, validity and bias of the CPA, no empirical evidence exists to establish the cultural bias of this measuring instrument. Cultural bias is one of the more problematic and thorny issues that must be attended to in terms of local labour legislation (Mauer, 2000). Culturally unbiased measuring instruments are essential in rapidly changing work environments where affirmative action and employment equity is at a premium.

In light of the challenges posed by multicultural assessment, it is important for the CPA not to be culturally biased.

1.3 Study objective

The Employment Equity Act (Act 55 of 1998) requires that tests and assessment devices may only be used if they can be shown to be scientifically reliable, valid,

unbiased and fair. The aim of this study is thus to prove that the measurement outcome of the CPA is equivalent and unbiased for employees from diverse cultural backgrounds.

A comprehensive theoretical background of the CPA is presented in chapter 2. Chapter 2 gives a thorough description of the CPA and the correct application of this assessment device. The theory utilised in developing the CPA is included to portray the rationale of the CPA. Insight into careers and career paths is added to highlight the importance of the CPA in our fast-changing work environment. Further literature pertaining to assessment standards and cultural bias is also presented in chapter 2.

The methodology used to conduct the research is described in chapter 3. The methodology includes insights into the sample and the measuring instrument. The research article is the end product of the study and can be viewed in the last chapter (chapter 4). In this section, a clear indication of the research procedures can be viewed. Various statistical analyses were conducted in order to support the formulated nil-hypotheses. The research findings, shortcomings and recommendations also form part of chapter 4.

CHAPTER 2

THEORETICAL BACKGROUND

2.1 Introduction

The concept “career” implies much more than a specific job or a type of work that a person performs. A career spans an individual’s entire working life and includes behaviours and attitudes toward work. A career develops in accordance with these attitudes and behaviours (Stair, 1980).

We work in unsettling times. At times, the labour market is strong, unemployment is low and organisations compete for talent. At other times, a soft economy, mergers, consolidations and cost containment efforts raise the possibility of lay offs in the workplace. In this kind of business environment, individuals should take charge of their working lives and one way to achieve this is for individuals to make themselves more valuable to their organisation. Individuals can improve their skills, knowledge and attitudes. In other words, employees can develop their competencies (Cripe & Mansfield, 2002).

Today’s successful employees must have many basic core skills and be adaptable to change. The job market requires that employees continually learn new skills, because technology is constantly changing and information is being made available at ever increasing rates (Pathways, Not dated). Constant change is also taking place in the work environment.

Peter Drucker (in Kao *et al.*, 1997) stated that the probability that the first job choice you make is the right one for you is roughly one in a million. A Chinese proverb reflects a similar vein: men fear selecting the wrong occupation and women fear marrying the wrong man. The implication of these statements is that a career path must be carefully selected. It must be psychologically and

financially satisfying for the person. Robbins (in Kao *et al.*, 1997) points out that appropriate job selection and career planning largely determine successful career development and job satisfaction.

Information regarding career options and opportunities must be available before individuals can begin setting realistic career goals. In carrying out CPAs, CPA practitioners, test users and organisations attempt to identify career paths for individuals intending to enter a certain profession and those who are already in a profession.

The CPA is a procedure that is used worldwide to evaluate individual decision-making capability. It is a procedure that is used to give each person a deeper understanding of his or her own capability and is deployed in organisations to enable organisations to make the most of uncertainty. In the CPA, they are able to form a view, with the participant, about his or her potential to handle complexity and to make judgments that add value to a particular level of complexity. Stamp (in Nobel, 2002) indicated that it is clear from the research that this capability can develop with age and can be forecasted with encouraging levels of accuracy.

Briefly, the CPA is a guided conversation in which the person is encouraged to talk about his or her approach to his or her current work, the history of his or her working life and his or her aspirations for the future. What a person says is interpreted by a highly experienced practitioner in the light of the model of different levels of work, the capabilities needed and the likely growth of those capabilities. Working through a CPA is a significant step in personal development. It creates a setting in which the person can put into words some of the implicit knowledge on which he or she has been drawing; he or she may thus become more aware of his or her inner resources and ways to access these inner resources (Stamp, 1989).

Individuals change constantly and, thus, view their careers differently at different stages of their lives. In general, there are four stages in career development (Kao *et al.*, 1997): exploration, establishment, mid career and late career. The exploration stage generally occurs during the transition period between school and first employment. The major task for this stage is self-exploration and to evaluate career alternatives. In the establishment stage, employees start learning how to do a better job and some can enjoy their work and get a sense of achievement. In the mid-career stage, employees are expected to take full responsibility for every act and their work performance continues to improve in most cases. Finally, in the late-career stage, most employees enjoy the glory of accomplishment and pass down their experiences and wisdom. Certainly, there is no general consensus as to when one stage ends and the next stage begins. Some individuals may experience a longer period in one stage and a shorter period in another, while the converse may be true of others.

A CPA comes to a view about how capacity is likely to grow in the future and about how the person prefers to reach out, gather and interpret information as a prelude to making a decision (Mauer, 2000).

In many fields and organisations, the career path is well defined. A person migrates from one position to the next, transferring knowledge and building experience. Personal value and compensation accumulate in the process. Some professions do not offer a clear picture of a career path. No clear guidelines can help one reach the desired level (Kao *et al.*, 1997).

During the 1990s, the literature on careers grew exponentially. And while some researchers believe the end is in sight as far as careers are concerned (due to higher levels of turnover in organisations), it is still a highly contentious issue (Cappelli, 1999). Much of this literature reflects the growing debate on the nature of work and the career in an unprecedented fast-changing environment, embracing new information, manufacturing and processing technologies in the

context of the increasing globalisation of product and service markets. A central theme in this field has focused on whether the concept of the career is really undergoing fundamental change as a result of this environmental turbulence, or indeed, if in practice very little is really changing. Some argue that changes have occurred and that the demise of the traditional career is inevitable; they see organisations and individuals abandoning the traditional organisational framework within which stable, long-term career planning was feasible (Cappelli, 2000).

Others, however, assert that the career is merely adapting to changing economic conditions and that no fundamental change is evident (Jacoby in Kelly, Brannick, Hulpke, Levine & To, 2003). Yet others argue that the changes taking place may be random, rather than indicative of a new patterned stability, or, indeed, that the orderly form of career that has existed for the past 50 years or so has itself been the aberration (Collin & Young, 1986).

Clearly, there is ample evidence to show that economic constraints, more intense competition, increasing globalisation and other factors have brought dramatic changes to organisational structures (Brousseau *et al.*, in Kelly *et al.*, 2003). Brousseau *et al.* argue that development, brought about by a rapidly changing business environment, highlight concerns of the nature of careers. Our traditional understanding of the career as being a series of upward moves, with increasing income, status, power and security within a single organisation, is being challenged.

Traditionally, individuals followed a career path that stayed within one function and the recognised route was primarily vertical. It was not common to deviate from this norm. Items relating to movement across functions, and from technical to specialist roles or positions, and also through or across hierarchical levels, may also be seen as indicators of the existence of alternative types of career paths or those that deviate from traditional norms.

Undoubtedly, changing economic and organisational structural circumstances have a strong impact on human resource management, particularly on career planning and management (CPM) systems (Baruch, 1999). Human resource managers face the challenge of managing people in an increasingly volatile business environment. CPM practices need to incorporate the changing reality of careers and reflect emerging organisational structures and changing environmental situations. This new environment will demand a re-thinking of training and development practices. There is a need for a new type of human resource (HR) function in this emerging economic era.

A more collaborative, symbiotic relationship between workers and organisations may be necessary (Von Hippel *et al.*, in Kelly *et al.*, 2003). The human resource function is simultaneously attempting to position organisations and employees to respond flexibly to market changes, while seeking stability by recruiting, developing and retaining people whose talents are critical to the organisation. Thus, we see an emerging paradox in career management structures, as Rousseau and Arthur put it (in Kelly *et al.*, 2003), to cope with the twin pressures for flexibility and stability. An example of the above may be observed when organisations dedicate their resources to the development of specific individuals rather than to their workforce as a whole. It has also been argued that these new career structures place more emphasis on individuals managing their own training and development. It also places a strong emphasis on personal development. Training in organisations may, therefore, be more informal than it would be in more traditional organisations.

The importance for every organisation of predicting individual potential and current capabilities in a rapidly changing world cannot be emphasised enough. People represent a major investment, and the accurate evaluation of the potential rate of appreciation of that investment ensures a sound and sensitive strategy for the management of human resources (Baker & Stamp, 1990). Although some of the literature regarding CPA and career paths is relatively old,

it is still relevant in today's fast changing work environment and diverse population.

The detailed description of the CPA emphasises the relevance of this instrument in South Africa's current work environment.

2.2 Description of the Career Path Appreciation (CPA)

Gillian Stamp developed the CPA from Elliotte Jaques' theoretical model. It consists of a one-on-one interview between a trained CPA practitioner and an individual, where the focus is on the relationship between the capabilities and challenges that exist both for the individual and the organisation. Its distinctive theoretical framework is based on a definition of work, a model of how work is structured and an explicit hypothesis about individual differences in adult development.

A CPA involves the following:

- The use of phrase cards designed to guide conversation in terms of the individual's approach to the work with which he or she is currently busy.
- The sorting of symbol cards of different shape, colour, size, and so on --- according to the predetermined rule unknown to the respondent --- which offers insight into an individual's capability to create order out of disorder.
- A discussion with the individual about his or her current work, the history of his or her current work, the history of his or her career and his or her aspirations for the future. In the course of this discussion, emphasis is placed on times when the individual has felt at ease, overstretched or underused with regard to his or her responsibilities (Ashton, 2000).

The CPA allows a trained practitioner to arrive, in two to three hours, at a view about a person's current and likely future capability to make effective decisions. This information is first shared with the respondent and then only with the organisation (Stamp & Stamp, 1993). The CPA is an individually administered, multifaceted procedure for understanding the frames of reference a person uses to construct her or his world. It is possible to view the CPA as a sample of work in the sense that it is possible to observe how discretion is exercised or, stated differently, how the person copes with complexity.

The rationale of the CPA portrays a thorough theoretical background to this assessment device.

2.3 The rationale of the Career Path Appreciation (CPA)

More than thirty years ago, Elliot Jaques investigated the issues of discretion, judgment and complexity, and alerted people to the changing roles of knowledge and judgment (Jaques, 1978).

In the mid 1970s, Jaques' colleague, Stamp, undertook to develop a way to measure discretion in action. The outcome was a procedure for locating an individual's current position in a scheme of levels of work with coordinates representing current age and current level of capability. The outcome of this procedure is then evaluated against a set of growth curves derived by Jaques from extensive study of earnings and management progression (Ashton, 2000).

Stamp's findings strongly confirm key elements of the key theory. In addition, they confirm the existence of a grow process – reliability predicted by Jaques' growth curves --- which is anchored by initially assessed capability and age. In the levels of work scheme, "each layer" is more complex than the one below it; it thus poses unique new conceptual requirements for decision makers and leaders. The capability to deal with these requirements is based on the

development of a frame of reference, which is capable of patterning the ambiguity, uncertainty and encountered complexity of an organisation's environment through the use of an appropriately complex frame of reference.

The rationale of the CPA is based on the Stratified Systems Theory (SST) and the Matrix of Working Relationships Model (MOW). This will now be explained in depth.

2.3.1 The Stratified Systems Theory (SST)

The Stratified Systems Theory (hereinafter referred to as SST), as expressed by Elliot Jaques (1970, 1976, 1978), forms the basis for the Matrix of Work (MOW) Theory upon which the CPA is based.

John Isaac and Roland Gibson (Jaques, 1978) had already begun to identify inconsistencies in levels of abstraction. They had identified six discrete levels ranging from primitive behaviour to the development of highly abstract geometries. Jaques was interested in their research, because of their idea of levels of managerial organisation. All organisations have some form of a managerial hierarchy and it is essential that the relationships between this hierarchy and complexity of work be understood to ensure effective use of talent and energy (Jaques, 1990). Not only does work become more complex, but it also separates into distinct categories or types of complexity; the individual's capability on a job also separates into distinct categories or types of complexity as the work grows in complexity (Jaques, 1978).

Jaques' (1992) view of work revolved around the relationship between discretion, judgment and experience. He defined work as the exercise of discretion and judgment in decision making in carrying out tasks; it is driven by values and brings skilled knowledge into play (Jaques & Cason, 1994). According to Jaques and Cason (1994), knowledge and experience play an essential role in the decision-

making process when the individual operates in a stable environment. Should uncertainty and ambiguity be introduced, however, an individual's ability to exercise discretion and rely on his or her judgment to make decisions becomes vital. The amount of discretion required is an indication of the level of complexity of that particular job, that is, the more discretion required, the higher the level of complexity. They also looked at the differences in capability of the various individuals, specifically how this capability may be developed over time.

Jaques (1986, 1990, 1992) believed that an individual's contribution to work could be measured in terms of the completion time of the longest task assigned to that role. He was confident that this maximum time was a direct indication of the level of work; he referred to this as the time span of discretion (Jaques, 1996).

The model identifies seven levels of work, differentiated on the basis of complexity and time span of decision making. The longer the time span, the higher the level of work and the greater the responsibility associated with that role (Jaques, 1986). No level is more important than another and no reference is made to command structures. Each level has a specific value-adding theme, which provides a unique contribution to the flow of work within organisations (Oliver, 1999). As the time needed for making an effective decision increases, so the responsibility of the job increases as well. The level of complexity of the work thus increases, resulting in a higher level of capability required for effective decision making (Jaques, 1970). Richardson asserts that time of discretion also measures levels of work (EDAC, 2000). In order to support the relationship between time span and level of work, good correlations were obtained between time spans and perceived fair pay (Jaques, 1986).

2.3.2 The Matrix of Working Relationships Model (MOW)

The Matrix of Working Relationships Model (hereinafter referred to as MOW) explores the relationship between an individual at work, the organisation and the environment within which the organisation needs to function. It is based on the SST (Jaques 1970, 1978, 1986, 1990, 1992). This model developed by Gillian Stamp, defines the levels of work as referred to in the CPA, together with the required levels of capability required to cope with work at the various levels (Jaques, 1978; Stamp, 1978).

Stamp worked under the assumption that as an individual's responsibilities increase, so too does the complexity of the job. Stamp identified various themes of work, where each theme requires a higher level of complexity than the one below; it therefore requires a higher level of individual capability to be able to manage uncertainty and ambiguity, (Stamp, 1978, 1981, 1986, 1988, 1989).

Each level makes a unique contribution to the organisation; missing levels of work will have a negative impact on the organisation (Oliver, 1999). While the lower levels contribute to the more concrete outputs concerned with the operational functioning of the organisation, the higher levels contribute to the strategic future positioning of the organisation and ensure its future viability (Stamp, 1978, 1981, 1986, 1988). An area highlighted by her, was the absence of any link between the various levels of work and job grades or pay scales, thereby emphasising the importance of each theme and eliminating the misconception that one theme is superior to another (Stamp, 1981, 1988).

There are three basic categories of human working capability: current potential capability, which gives an indication of the maximum level of work that an individual can do at any given point in time, if the individual is doing something that he or she values; current applied capability refers to the level of capability that the individual is currently applying in his or her work; and future potential capability, which refers to

the predicted level of potential capability that an individual will be able to handle at a specific point in the future (Jaques & Cason, 1994). Jaques (1986) highlighted that time span was an indication of capability - the longer the time span a person could achieve, the higher that person's capability.

A person's capability refers to the level of work that an individual is capable of. The word "capability" is used to describe the way in which people pattern and order their experiences through time as a basis for making sense of their world and acting on it (Stamp, 1981). Capability defines the scope and complexity of the world which people construct and in which they operate. Capability is the combination of competencies that enable an individual to work and achieve goals (Stamp, 1988). In the context of the CPA, it essentially explores the decision making complexity with which an individual is comfortable.

The following table gives a brief summary of the various levels of work, together with the level of capability required to effectively manage tasks at a particular level.

TABLE 2.1: LEVELS OF WORK

Level	Theme	Summary	Capability	Typical roles
Level 1	Quality	Outputs and standards are concrete and specified beforehand, a predetermined goal	Touch-and-feel	First line workers responsible for operating tasks (semi-skilled)
Level 2	Service	Provide a service to both internal and external customers by analysing problems and providing a framework for explaining how and why work had to be done, and developing customised solutions that meet the needs of each specific situation	Accumulation of information	Supervisor

Level 3	Practice	Individuals are able to juggle a variety of resources, including budgets, people, plants and equipment, culture and technologies	Connecting	Personnel manager
Level 4	Strategic development	Translate long-term strategic objectives into short-term operational goals that can be implemented	Modelling	General manager
Level 5	Strategic intent	Ensure the financial, social direction and viability of an organisation over a 5 to 10-year period	Weaving (creating links between issues and events)	Managing directors
Level 6	Corporate citizenship	Understand, local, national, regional and worldwide context in which their organisation exists	Revealing (extending curiosity)	Executive Vice President

2.4 The uses of the Career Path Appreciation (CPA)

The CPA may be used by an organisation in the form of an initial assessment of capability, for individual and organisational development, or by an individual at a point of uncertainty about his or her working life.

In this role, the CPA provides a valuable adjunct to individual and/or managerial judgment about performance and potential for carrying greater responsibilities. Used in this way, the CPA contributes progressively to articulation within the organisation of issues surrounding the optimal structuring of work, such as the delegation of tasks, patterns of accountability, training, succession planning and statements of corporate philosophy. Over a period of time, a new, shared language emerges within the organisation, allowing reflection about the way in which the purpose of work is stated, the way in which the work itself is organised and how people's skills are positioned (Ashton, 2000).

The following is a broad overview of the various uses of the CPA:

- The CPA is a powerful technology for executive recruitment, mentoring and development.
- To select an organisation's future executives at an early stage.
- Minimise the risk of high calibre people turnover by pacing them at a tempo equal to their capability to ensure current as well as future challenges.
- Educate employees and managers into a framework that empowers with accountability resulting in improved productivity and organisational effectiveness due to maximisation of capabilities and creativities.

Appropriately used, the CPA is a unique and powerful technology for individual and organisational wellbeing. It is an internationally accepted process used by blue chip companies in South Africa, Namibia, Botswana, Zimbabwe, Swaziland, Australia, the United Kingdom, India, the United States, Canada, Brazil, Poland, Sweden and other European countries (Ashton, 2000).

The CPA provides an indication of an individual's capability to generate, understand and act in contexts where prior knowledge and experience may no longer be applicable. This provides an understanding of the nature of freedom the person requires to act appropriately, as well as value and the type of work contribution one is likely to predict. Individuals are allowed the freedom to take charge and become part of the process of optimally sharing and creating the future success of the organisation. The process thus initiates the best fit between capability and the demands of the organisation.

The opportunity to personally explore career choices made in the past and those that may have to be made in the future is also provided. Feedback to the individual is an integral part of the process as he or she explores and understands the past and designs the future. In this way, individuals are

empowered to take charge of their own work and personal life. Mutual benefit is thus created for the individual and the organisation as it touches on the core of work, that is, the capability to generate contextually-appropriate solutions and decisions even in the absence of previously acquired knowledge, skills and experience. This provides a powerful framework for the development of organisations, as well as individuals and their career paths within or outside the organisations (Ashton, 2000).

The CPA can also assist in

- executive identification and development
- recruitment, selection and placement at senior levels in the organisation
- affirming action strategies
- developing platforms for mentoring
- developing platforms for current and future career path management
- developing platforms for current and future competency development/training and development
- broader-based succession planning
- organisational interventions

Because of the increasing pressure that is being placed on assessment developers and users in that all devices must be aligned with legislation and that it can only be used if the device is shown to be scientifically reliable, valid, unbiased and fair, a lot of research has been conducted on the CPA.

2.5 Research conducted on the Career Path Appreciation (CPA)

2.5.1 Reliability

Given the nature of the CPA, the most appropriate approach is that of inter-rater reliability. Several studies conducted in the US Army Research Institute for the Behavioural and Social Sciences (ARI) yielded coefficients ranging between 0.79

and 0.81, which are excellent in view of the complexity of the scoring procedure that is used (Lewis, 1993). In other studies, the percentage of agreement between judges was used as an indication of reliability. The mean absolute agreements for current levels of work were 95 percent, 90 percent for current level of capability and 94 percent for likely growth capability (Rossan & Topham, 1996). In an investigation of 74 CPA protocols for workers in Botswana, a 100 percent agreement in mode placement was found between two raters. Taking the intermode placements into account, the percentage agreement was 91 percent (Mushayandebvu, 1991).

2.5.2 Construct validity

This approach to validity is used to assess the theoretical underpinnings of a test or assessment technique. In 1993, the following relationships were shown to exist between the CPA and various instruments; creativity, 0.69; intelligence, 0.35; problem-solving ability, 0.26; neuroticism, -0.35; openness, 0.22; MBTI intuiting, 0.27; MBTI perceiving, 0.29. Other researchers have found validity coefficients of 0.57 and 0.51 between CPA ratings and two different thinking skill measures, and a coefficient of 0.58 between CPA assessment and a measure of breadth of perspective (McIntyre, Yanusefski & Hamil, 1994).

2.5.3 Concurrent validity

This form of validity is used to assess the extent to which a device reflects the current level of work performance. In two in-company studies, validity coefficients of 0.71 and 0.79 were found. In a British Army Staff College study, coefficients of 0.71 to 0.77 were reported (Stamp in Mauer, 2000).

2.5.4 Predictive validity

A study of two British companies and one in South Africa, in which results were followed up 4 to 15 years later, yielded a coefficient of 0.89 between predicted level and level of attainment (Stamp, 1989). Subsequent studies have shown correlations of between 0.79 and 0.92. The CPA, combined with a personality assessment technique, yielded a validity coefficient of 0.93 after five years in a Southern African context (Bluen, 1995). In a South African study, the validity coefficients for the three CPA variables ranged between 0.23 and 0.57 when using salary and job grade as criteria (Mauer, 1997). While this information is useful, it would be preferable if the studies could be replicated in other types of industries so that the utility of the approach can be defended from a broader base.

2.5.5 Lack of bias

Studies conducted abroad show that there are no differences between genders, races and people with different levels of educational attainment. A South Africa study of 8054 workers showed no differences between gender or race groups on the CPA modes. Another South African study of 486 managers indicated no differences between race groups and gender on CPA scores (Mauer, 1997).

Although a lot of comprehensive research has been conducted on the CPA, there is, nevertheless, room for performing research on the cultural component of this assessment device. The concept of culture looms large in the world these days. Although the term is difficult to define, the essence of culture is a reminder to institutions and individuals that there are other ethnic groups in the world (Austin, 1999). Culturally unbiased measuring instruments are essential in a diverse country such as South Africa where affirmative action and employment equity is at a peak. It is therefore important to prove scientifically that the CPA is, in fact,

an objective measuring instrument that can be used on people from diverse backgrounds.

In order to prove that the CPA is, in fact, an objective measurement, it is necessary to look at the term “cultural bias” and the specifications for bias-free measuring instruments within the South African context.

2.6 Bias-free instruments within the South African context

2.6.1 Bias

Bias exists in many instruments. When reviewing existing instruments, it is important to look for any forms of bias that might exist. Three types that are common are cultural bias, linguistic bias and socioeconomic bias (FairTest, in Wilde & West, 1996). The first is based on the fact that results reflect white, South African, middle class experiences and culture. Tests measuring language proficiency tend to emphasise discrete components of language rather than assessing how well someone actually communicates in English. Another component of linguistic bias is the need for many language minority participants to translate items before they can answer them; it is a very time-consuming process, which also disadvantages them under test conditions. Finally, socioeconomic bias is the assumption by many test developers that all test-takers will be familiar with middle class experiences, activities and language.

National Evaluation Systems (in Wild & West, 1996) highlighted the following types of bias in test items that may cause concern: stereotyping, representational fairness and content inclusiveness. Stereotyping is based on a custom or practice that it isolates and exaggerates. Bias also may occur through the under-representation or over-representation of particular groups such as women, older people, people with disabilities, and so on. National Evaluation Systems suggest specific methods for identifying bias due to representational fairness. Content

inclusiveness refers not only to the common concern that the test matches the curriculum, but also to a concern that the test materials include the contributions, issues and concerns of a variety of groups from our society, not just the dominant one or two (Wilde & West, 1996).

Cultural bias is determined by means of objective, statistical indices that indicate if the test scores have the same or different meanings and implications for different subgroups. Fairness, in contrast, reflects social values and philosophies of test use. Regardless of the statistical properties of the test, test results will be used differently depending on the ethical position taken by the selector; various factors, including the social consequences, will determine if the decision can be regarded as fair or not.

The issue of cultural bias in testing can be related to the need to secure equal opportunities for all. Thus, cultural bias can be viewed as the acceptance of the candidate identified as most unlikely to succeed in a given position. It can also refer to the extent to which selection procedures succeed in meeting certain socio-political goals, especially those related to decreasing inequality and increasing the representation of disadvantaged demographic groups (Reynolds, in Huysamen, 1996). Taylor and Radford (1986) argue that any interpretation of psychometric data in South Africa that does not take into account possible differences between ethnic groups is likely to ignore a significant moderator variable, given the history of ethnically-based discriminatory practices in this country.

Simply stated, cross-cultural research identifies the similarities and differences between different cultures. This understanding allows companies to capitalise on commonalities or respond to differences appropriately (Rutter & Donelson, 2000). A measurement process is biased if it systematically overstates or understates the true value of the measurement (Annenberg, 2003).

2.6.2 Specifications for bias-free measuring instruments

Ensuring that all selection strategies are culturally unbiased should be a priority, particularly in South Africa, where attempts are being made to rectify past practices that have had a discriminatory effect on certain sections of the population (Snelgar & Potgieter, 2003). The South African Employment Equity Act (Act 55 of 1998) awards priority to the issue of group representivity in employment outcomes and ensures equal representation in all occupational categories and levels in the workplace (Mdladlana, 2001). Because of the vital importance of culturally unbiased assessment techniques, the issue of bias-free devices should be based on the end-to-end process of the entire recruitment and selection strategy, and not be isolated to one aspect of measurement. Any recruitment and selection decision is based on one or another selection model of decision making. The question that must, therefore, be asked is: Is the model “fair” and do the instruments of evaluation and assessment allow for equal treatment of all candidates? Ensuring culturally unbiased outcomes is, therefore, very important.

Psychological tests are not necessarily equally accurate or successful for all subgroups in a heterogeneous population. However, testing provides a means of gaining information about people in a fairly quick, economic and objective way. There is an increasing pressure on test developers and test users to ensure fair testing practices (eg the Employment Equity Act [Act 55 of 1998], the draft policy of the professional Board of Psychology on the classification of psychometric measuring devices, instruments, methods and techniques). In terms of South African legislation, only psychometric tests and similar instruments, of which the validity and reliability has been scientifically proved and which are not biased against any employee or group, may be used (Employment Equity Act [Act 55 of 1998]).

The main issue in the analysis of test score comparability is whether the same construct or dimension is measured across different groups (Van der Flier & Drenth, in Taylor & Radford, 1986). This means that the researcher or test user must establish whether intergroup differences on a test reflect real differences in the object of the testing situation or other factors pertaining to the test. In other words, the researcher must establish whether the test is biased. The following have been identified as important questions in this regard:

- What traits or abilities are valid across cultures?
- Does a certain construct play an equally important role in the organisation of individuals from different cultures?
- Does a test for assessing a particular construct reflect that ability on a scale with the same origin and with equal units of measurement in the different groups (Poortinga & Van der Flier, 1988)?

Score compatibility relates to items bias. If items are biased against members of a group, it means that they have the ability to respond to the item correctly, but for reasons such as item format or phrasing of the item, they do not have the same opportunity as others to do so.

Bias concerns systematic errors associated with group membership. The sources of bias may lie within test items, within the test as a whole, within subjects, with the tester and in the testing context (Taylor & Radford, 1986). Taylor and Radford (1986) argue that bias can never be eliminated entirely, but steps can be taken to minimise the effects of bias associated with known or potential sources. Variables commonly identified as moderating test performance include language proficiency; cultural, socioeconomic and educational background; and test-wiseness (Nell, 1997).

To date in South Africa, research on multicultural testing in personology and abnormal or clinical psychology has received relatively little attention compared

to cognitive testing. Most cognitive tests used in South Africa assess verbal ability, numerical ability, deductive reasoning, and the like. These can, to a large extent, be viewed as indicators of crystallised intelligence and often require specialised skills or knowledge promoted by a given culture (Taylor, 1994). This structural approach attempts to measure performance along dimensions assumed to constitute the fundamental structure of domains such as cognition.

Fair practices in South Africa might require a greater emphasis on work-related variables. Given the difficulties experienced in cross-cultural testing, it is recommended that only information which is systematically related to work success should be considered for decision making (Abrahams, 1994).

The Employment Equity Act (Act 55 of 1998) states that all employers should take steps to promote equal opportunities in the workplace and to eliminate unfair discrimination. Selection represents a fundamental activity and business consideration within an organisation, because correct placement can add a dynamic, productive member to the existing work team, who can then contribute to the growth and prosperity of the organisation (Booyesen & Theron, 1996; Rynes & Connerley, 1993; Sunter, 1997). Furthermore, selection can function as a powerful mechanism to ensure that positive steps are taken to promote equal representation of previously disadvantaged groups at all occupational categories and levels (Employment Equity Act [Act 55 of 1998]). Disadvantaged groups in this context are blacks (including coloureds and Asians), women and people with disabilities.

Certain selection techniques are, however, often regarded as having an adverse impact on candidates of different population groups (Anastasi & Urbina, 1997; Martocchio & Whitener, 1992; Robertson *et al.*, 1991). The South African law leaves the evaluation of assessment practices, such as selection techniques, primarily in the hands of industrial psychologists who develop and use the assessment instruments (Jacobson, 1996). However, clear guidelines are

provided. These guidelines mean that an employer should be able to prove scientifically that

- the information gathered during the selection process is valid and job related
- the utility of the selection techniques makes it a business necessity
- the information is combined in a fair manner
- the selection efficiency justifies the use of the technique (Booyesen & Theron, 1996)

In the Employment Equity Act (Act 55 of 1998), the advice is given to rather avoid techniques that cannot legally be proved to be valid and fair. The requirement is that all techniques used during a selection process should respect cultural diversity and make accurate predictions for members of different population groups.

A valid selection technique is defined as a measure that accurately discriminates between individuals with high and low probability of job success. Unfair discrimination occurs when individuals from one specific population group perform less well than a comparison group on a specific selection technique, but perform as well as the comparison group on the job for which the selection technique is a predictor (Cascio, 1997). An individual from that specific population group does not have an equal opportunity to be selected for the vacant post, although the person has an equal probability of job success. Such a technique is biased.

Test bias is a concept that implies that selection techniques are differentially valid for members of different population groups (Gregory, 1996). It involves systematic or constant errors (Graham & Lilly, 1984), because of faulty test construction and/or incomplete test analysis. The question of test bias can be corrected through empirical techniques and test bias need not exist on any

terrain of intelligence or competency testing. By taking the correct precautions, selection techniques should predict future performance equally well for candidates from different population groups (Gregory, 1996).

Section 8 of the Employment Equity Act (Act 55 of 1998) prohibits "psychological testing and other similar assessments of an employee" unless "the test or assessment being used has been scientifically shown to be valid and reliable; can be applied fairly to all employees; and is not biased against any employee or group" (Government Gazette, 1998).

Psychometric concepts such as validity, reliability, bias and fairness are not cast in stone; rather, they evolve as test theory and testing practices develop. Assessments are viewed as "a comprehensive evaluation of an individual through a process that integrates test information with information from other sources (eg from the individual's social, educational, employment or psychological history)" (American Educational Research Association, 1999:3). It is clear that South African assessment practitioners, especially those in employment testing, may benefit immensely by familiarising themselves with the developments and standards of such devices.

2.7 Conclusion

It is important both nationally and internationally to emphasise the need for setting career paths and planning for them accordingly. Organisations and people are changing rapidly. Success and front line leadership skills in the industry are fast becoming the norm in South Africa. If employers do not track and improve their human capital's potential and capabilities, they will be left behind.

Organisations are using various assessment techniques to follow employee potential and capabilities. These techniques are frequently used inappropriately

and reflect biased outcomes against certain population groups. Language, culture, socioeconomic background and education are all important moderators of test performance. Test users and developers should focus on these variables or run the risk of the assessment device being seen as biased.

The CPA is being used worldwide to assess individual capability and to extrapolate future potential. Taking the above-mentioned problems with regard to assessment devices into account, research should be conducted in order to scientifically prove that the CPA is culturally unbiased.

CHAPTER 3

METHOD OF INVESTIGATION

3.1 Sample

Bioss Southern Africa, the test distributors of the CPA, maintained a database of all assessments that have been conducted over the years. From this database non-probability convenience sampling was used in selecting individuals who had been assessed by means of the CPA in the past 5 years. The sample consists of 4 606 respondents. The sample included employees of various banking, insurance and motor industries. Although the population groups were unequally distributed in the data, the possibility to perform meaningful analysis still exists.

3.2 Measuring instrument

Career Path Appreciation (CPA) is a one-on-one interview that allows a trained practitioner to arrive, in two to three hours, at a view about a person's current and likely future capability to make effective decisions.

An appreciation consists of three parts, namely

- nine sets of phrase cards
- a symbol card task
- a career history interview

While there is no prescribed order in which these tasks are presented, it is customary to begin with the phrase cards, follow with the symbol cards and end with the career history interview.

Phrase cards

There are nine sets of six phrase cards that are used as triggers to elicit the way the respondents approach their work. The respondents is then asked to choose the cards he or she feels reflects most the way he or she would approach work, discuss his or her choices and provide examples to illustrate his or her choices. This section enables the practitioner to gain information about the current level of capability in relation to the current level of work expected of that person, as well as the likely rate of growth of their capability (Stamp, 1981).

Symbol cards

The symbol card task requires that an individual be given the task to work out a predetermined rule for sorting a pack of cards of different colours, shapes, numbers and sizes with minimal instruction. The purpose of this exercise is to observe the process of defining the task, the generation of alternative courses of action, the handling of uncertainty and the reaching of a solution, thereby gaining more insight into the candidate's current level of capability and preferred approach to work. The focus here is on the process of organising and acting rather than on the actual solution itself (Stamp, 1988).

Interview

The final component is a detailed conversation pertaining to the individual's working life. The candidate is encouraged to reflect upon his or her entire career, emphasising the times when he or she felt his or her capability was well matched to the challenges being provided to him or her, and the times when he or she felt they were being given challenges that he or she was not ready to handle (Stamp, 1988).

Throughout the interview, the interviewer is required to continuously gather evidence during the various phases of the process. The practitioner then analyses and interprets the responses using the Matrix of Work Model, and in a single overall score, ranging from level I to level VII, makes a judgement about

the individual's current level of capability (Stamp, 1986, 1989). Using the current level of capability, together with the individual's current age and Jaques growth curves (1971, 1976, 1986, 1992), the practitioner is able to predict any likely additions of these capabilities (Lewis, 1993).

3.3 Procedures

A database of approximately 29 000 respondents were provided by Bioss Southern Africa. Only data with CPA scores were used in this study. All duplicate entries and missing values were removed by means of excel formulas. The excel spreadsheet was imported into SPSS (Statistical Programme for Social Science) and analyses were performed to identify outliers. The necessary outliers were removed. A total of 4 606 entries were used for further analysis. All scales used in variance analysis were standardised to a six-point scale by means of SAS software (SAS Institute, 1996) in order to perform meaningful comparisons.

3.4 Statistical analysis

The data was analysed in collaboration with the Statistical Consultation Services of the University of Pretoria, STATOMET, using the SAS-package (SAS Institute, 1996) and SPSS.

Analysis of variance (ANOVA) was used to compare CPA outcomes (mode, current level of capability and style) between race, gender and population groups. All variables used during ANOVA analyses were transformed to a six-point scale for making comparisons and to comply with homogeneity of variance and normality of ANOVAs. To indicate which variables differ significantly, the post hoc test of Scheffé was applied. Pearson correlations were used to specify the relationship between variables. SPSS software package were used for calculating the correlations. Due to the type of data used, limited forms of statistical analysis were performed. The findings are indicated in the last chapter.

CHAPTER 4

THE MEASUREMENT OUTCOME EQUIVALENCE OF THE CAREER PATH APPRECIATION (CPA) FOR EMPLOYEES FROM DIVERSE CULTURAL BACKGROUNDS

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ABSTRACT

The aim of this study is to determine whether or not the Career Path Appreciation (CPA) is cultural unbiased. The use of assessment instruments in South Africa has been criticised, because it is said that they are largely based on the values and knowledge of overseas instruments, which are considered to be less valid for South Africa's various cultural groups. In this study, an Asian, black, coloured and white group were included to determine the cultural equivalence of the CPAs measurement outcomes. The results indicate that the CPA measurement outcomes are not biased and are, therefore, equivalent for groups of diverse cultural backgrounds.

OPSOMMING

Die doel van die studie was om te bepaal of the Career Path Appreciation (CPA) sydig is ten opsigte van versillende kulture. Die mees algemene kritiek teen die gebruik van psigometriese instrumente in Suid-Afrika is dat dit grootliks gebaseer is op en aangepas is uit Westerse instrumente wat tot gevolg het dat hierdie instrumente minder geldig meet vir ander kultuurgroepe in Suid Afrika. In hierdie studie is asiër, kleurling, afrika en blanke groepe gebruik in die bepaling van die kulturele gelykwaardigheid van die CPA uitkomst. Die resultate toon dat die CPA nie diskrimineer ten opsigte van Afrika kulture nie.

Introduction

The Career Path Appreciation (hereinafter referred to as the CPA) can identify an individual's current capability and extrapolate future potential. The CPA is also a unique and powerful technology for individual and organisational wellbeing. It is an internationally accepted process used by various blue chip companies in South Africa (Ashton, 2000).

Although previous research was based on the reliability, validity and bias of the CPA, no empirical evidence exists to establish the cultural bias of this assessment device. In light of the challenges posed by multicultural assessment, it is important for the CPA to be culturally unbiased.

Culturally unbiased measuring instruments are essential in rapidly changing environments where affirmative action and employment equity is at a premium, particularly in South Africa. The Employment Equity Act (Act 55 of 1998) requires that tests and assessment devices be used solely if they can be shown to be scientifically reliable, valid, unbiased and fair. This study will thus broaden our knowledge of the CPA, the relevance of using the CPA to assess individual capability, and whether the outcomes of this assessment are consistent and equivalent for candidates from diverse backgrounds.

Background

A career spans an individual's entire working life and includes behaviour and attitudes toward work. A career develops in accordance with these attitudes and behaviours (Stair, 1980). The work environment changes continuously and employees thus need to have the ability to adapt to these changes.

Peter Drucker (in Kao, Lee & Kuo, 1997) once stated that the probability of making the right job choice in the beginning is roughly one in a million. The implication of this statement is that a career path must be carefully selected. It must be psychologically and financially satisfying for the person in order to

provide work satisfaction. Appropriate job selection and career planning thus largely determine successful career development. Robbins (in Kao *et al.*, 1996) asserts that information regarding career options and opportunities must be available before individuals can begin setting realistic career goals. In carrying out a CPA, CPA practitioners, test users and organisations attempt to identify the career path for individuals intending to enter a certain profession and those who are already in a profession. Individuals also change constantly and, thus, view their careers differently at different stages of their lives.

Undoubtedly, changing economic and organisational structural conditions have a strong impact on human resource management, particularly on career planning and management (CPM) systems (Baruch, 1999). Human resource managers face the challenge of managing people in an increasingly volatile business environment. CPM practices need to incorporate the changing reality of careers and reflect emerging organisational structures and changing environmental conditions. This new environment will demand a re-thinking of training and development practices. There is a need for a new type of human resource function in this emerging economic era. A more collaborative, symbiotic relationship between workers and organisations may be necessary (Von Hippel *et al.*, in Kelly, Brannick, Hulpke, Levine & To, 2003). Human resources is simultaneously attempting to position organisations and employees so that they are able to respond flexibly to market changes, while seeking stability by recruiting, developing and retaining people whose talents are critical to the firm (Rousseau & Arthur, in Kelly *et al.*, 2003).

It is clear from the literature that organisations place high value on measurement outcomes, which are based on selection, recruitment, promotions, career paths, employee development, and so on. It is therefore imperative for assessment devices to be fair and culturally unbiased, as these factors impact on a candidate's predicted potential and capabilities.

This study focuses on the CPA, which measures current capability, decision-making style and the potential capability of a candidate. It also comes to a view about how capacity is likely to grow in the future, and about how the person prefers to reach out, gather and interpret information as a prelude to making a decision (Mauer, 2000).

The Stratified Systems Theory (SST), as expressed by Elliot Jaques (1970, 1976, 1978), forms the basis for the Matrix of Work Theory (MOW), upon which the CPA is based. Jaques' (1992) work looked at the relationship between discretion, judgment and experience. He defined work as the exercise of discretion and judgment in decision making in carrying out tasks; it is driven by values and brings skilled knowledge into play (Jaques & Cason, 1994). They also looked at the differences in capability of the various individuals, specifically how this capability may be developed over time.

Jaques (1986, 1990, 1992) believed that an individual's contribution to work could be measured in terms of the completion time of the longest task assigned to that role. He was confident that this maximum time was a direct indication of the level of work; he referred to this as the time span of discretion (Jaques, 1996). The model identifies seven levels of work, differentiated on the basis of complexity and time span of decision making. The longer the time span, the higher the level of work and the greater the responsibility associated with that role (Jaques, 1986). Each level has a specific value-adding theme, which provides a unique contribution to the flow of work within organisations (Oliver, 1999).

The Matrix of Working Relationships Model (hereinafter referred to as MOW) explores the relationship between an individual at work, the organisation and the environment within which the organisation needs to function; it is based on the SST (Jaques 1970, 1978, 1986, 1990, 1992). This model, developed by Gillian Stamp, defines the levels of work as referred to in the CPA, together with the

required levels of capability required to cope with work at the various levels (Jaques, 1978; Stamp, 1978).

Stamp worked under the assumption that as an individual's responsibilities increase, so too does the complexity of the job (Jaques, 1978). In the context of the CPA, it essentially explores the decision-making complexity with which an individual is comfortable.

The CPA is used by companies worldwide, including blue chip companies in South Africa (Ashton, 2000). According to the Employment Equity Act (Act 55 of 1998), assessment devices may only be used if they can be shown to be scientifically reliable, valid, unbiased and fair. Previous research on the CPA was based on the reliability, validity and bias, but no empirical evidence exists to establish whether or not it is a cultural unbiased measuring instrument. Culturally unbiased measuring instruments are essential in a diverse country such as South Africa. The concept of culture looms large in the world these days. Although the term is difficult to define, the essence of culture is a reminder to institutions and individuals that there are other ethnic groups in the world (Austin, 1999).

Cultural bias is one of the more problematic and thorny issues that must be attended to in terms of local labour legislation (Mauer, 2000). Bias exists in many instruments and it is therefore important to look for any forms of bias that might exist. Three types that are common are cultural bias, linguistic bias and socioeconomic bias (Fair Test, in Wilde & West, 1996). This study focuses on cultural bias, as corporate South Africa is becoming more diverse and inclusive of all race groups, which challenges the dominant management paradigm (Booyesen, 2001).

Ensuring unbiased outcomes should be a priority of any selection strategy where attempts are being made to rectify past practices that have had a discriminatory effect on certain sectors of the population. The South African Employment Equity

Act (Act 55 of 1998) awards priority to the issue of group representivity in employment outcomes and ensures equal representation in all occupational categories and levels in the workplace (Mdladlana, 2001).

There is an increasing pressure on test developers and test users to ensure fair and unbiased testing practices. In terms of South African legislation, only psychometric tests and similar instruments, of which the validity and reliability have been proved scientifically and which are not biased against any employee or group, may be used (Employment Equity Act [Act 55 of 1998]).

The Employment Equity Act (Act 55 of 1998) states that all employers should take steps to promote equal opportunities in the workplace and to eliminate unfair discrimination. Selection represents a fundamental activity and business consideration within an organisation, because correct placement can add a dynamic, productive member to the existing work team, who can then contribute to the growth and prosperity of the organisation (Booyesen & Theron, 1996; Rynes & Connerley, 1993; Sunter, 1997). The requirement is that all the techniques used during a selection and assessment process should respect cultural diversity and make accurate predictions for members of different population groups.

In light of the challenges posed by multicultural assessment, it is important for the CPA not to be culturally biased. It is also important to remember that psychometric concepts such as validity, reliability, bias and fairness are not cast in stone; rather, they evolve as test theory and testing practices develop (Huysamen, 2002).

It is necessary for the CPA to be an objective measuring instrument that can be applied on all people from different races and genders. The aim of this study is to scientifically prove that the measurement outcome of the CPA is equivalent and unbiased for employees from diverse cultural backgrounds.

The following nil-hypotheses were formulated:

Nil-hypothesis 1:

There are no significant differences between gender, population group and occupation level on current level of capability measurements (assessments) using the Career Path Appreciation.

Nil-hypothesis 2:

There are no significant differences between gender, population group and occupation level on mode measurements (assessments) using the Career Path Appreciation.

Nil-hypothesis 3:

There are no significant differences between gender, population group and occupation level on decision-making style measurements (assessments) using the Career Path Appreciation.

METHOD

Sample

Bioss Southern Africa, the test distributors of the CPA, maintain a database of all assessments that have been conducted over the years. From this database non-probability convenience sampling was used to select individuals who had been assessed by means of the CPA in the previous five years. The sample consisted of 4 606 respondents. The sample included employees from the banking, insurance and motor industries. The sample's biographical information is given in table 1.

TABLE 1
BIOGRAPHICAL INFORMATION OF RESPONDENTS

	Frequency	Percent	Valid Percent	Cumulative Percent
POPULATION GROUPS				
Asian	295	6.4	6.4	6.4
African / Black	1284	27.9	27.9	34.3
Coloured	159	3.5	3.5	37.7
White	2868	62.3	62.3	100.0
Total	4606	100.0	100.0	
GENDER				
Male	3615	78.5	78.5	78.5
Female	991	21.5	21.5	100.0
Total	4606	100.0	100.0	
AGE GROUPS				
20-25	290	6.3	6.3	6.3
26-34	2013	43.7	43.7	50.0
35-45	1672	36.3	36.3	86.3
46+	631	13.7	13.7	100.0
Total	4606	100.0	100.0	
EDUCATION				
Primary	8	0.2	0.2	0.2
Secondary	1326	28.8	28.8	29.0
Tertiary	1830	39.7	39.7	68.7
Postgraduate	1442	31.3	31.3	100.0
Total	4606	100.0	100.0	
OCCUPATION				
Unskilled	10	0.2	0.2	0.2
Semi skilled	23	0.5	0.5	0.7
Skilled	1675	36.4	36.4	37.1
Jnr management	446	9.7	9.7	46.8
Middle management	1304	28.3	28.3	75.1
Snr management	1148	24.9	24.9	100.0
Total	4606	100.0	100.0	

The sample comprised the following respondents: 1% unskilled, 1% semi-skilled, 36% skilled, 10% junior management, 28% middle management and 25% senior management. The sample included 78% males and 22% females. Most participants (44%) were between the ages of 26 and 34 and had tertiary qualifications. Although the population groups were unequally distributed in the data, the possibility of carrying out a meaningful analysis still exists.

Measuring instrument

Career Path Appreciation (CPA) is a one-on-one interview that allows a trained practitioner to arrive, in two to three hours, at a view about a person's current and likely future capability to make effective decisions.

An appreciation consists of three parts, namely

- nine sets of phrase cards
- a symbol card task
- a career history interview

While there is no prescribed order in which these tasks are presented, it is customary to begin with the phrase cards, followed by the symbol cards and the career history interview.

Phrase cards

There are nine sets of six phrase cards that are used as triggers to elicit the way the respondents approach their work. The respondent is then asked to choose the cards he or she feels best reflects the way he or she would approach his or her work. He or she then discusses his or her choices and gives examples to illustrate his or her choices. This enables the practitioner to gain information about the individual's current level of capability in relation to the current level of work expected of that person, as well as the likely rate of growth of the individual's capability (Stamp, 1981).

Symbol cards

The symbol card task requires that an individual be given the task to work out a predetermined rule for sorting a pack of cards of different colours, shapes, numbers and sizes with minimal instructions. The purpose of this exercise is to observe the individual's process of defining the task, generating alternative courses of action, handling uncertainty and reaching a solution. This task will enable the CPA practitioner to gain more insight into the candidate's current level

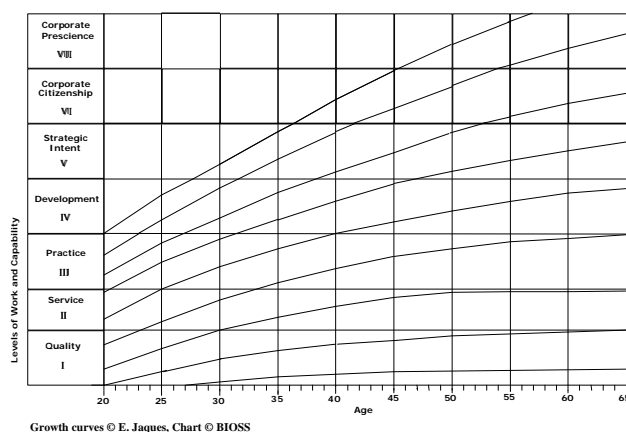
of capability and preferred approach to work. The focus here is on the process of organising and acting, rather than on the actual solution itself (Stamp, 1988).

Interview

The final component is a detailed conversation pertaining to the individual's working life. The candidate is encouraged to reflect on his or her entire career, emphasising the times when he or she felt his or her capability was well matched to the challenges being provided to him or her, and the times when he or she felt that he or she was given challenges that he or she was not ready to handle (Stamp, 1988).

The interviewer is required to continuously gather evidence during the various phases of the process. The practitioner then analyses and interprets the responses using the Matrix of Work Model and in a single overall score, ranging from level I to level VII, makes a judgement about the individual current level of capability (Stamp, 1986, 1989). Using the current level of capability, together with the individual's current age and Jaques growth curves (1971, 1976, 1986, 1992), the practitioner is able to predict any likely additions of these capabilities (Lewis, 1993).

FIGURE 1: THE GROWTH CURVES



The growth curves as illustrated in figure 1 are used to calculate the predicted growth of individuals. Band termed modes represent these growth trends. The mode gives an indication of the maximum point of development in that current work level, that is, where the individual will offer his or her best contribution. By using mode, organisations are able to track the movement of individuals as they develop and grow through the various levels of complexity.

The style gives an indication of the individual's preferred approach to gathering and arranging information in preparation for making a decision. Five different styles, as demonstrated in table 2, have been identified.

**TABLE 2
DECISION-MAKING STYLES**

TYPE	DEFINITION
A	Constantly in touch with the work, paying close attention to the details and being thoroughly engrossed in finishing one thing at a time. Here people prefer to use knowledge in action that does not need to be put into words.
B	Like to move towards completing a task by getting a "view" for what is happening and not being tied down until they have a chance to analyse the data they have collected.
C	Very good at harnessing the ideas and strengths of those reporting to them, as well as creating a context for their work.
D	Use ideas and concepts to filter experiences. They are likely to emphasise detail, abstract analysis in coming to a decision and may be viewed as someone who takes a conceptual approach to work.
E	Tend to rely on as little immediate experience as possible, to look for what is unusual in any situation and to create knowledge in reflection that touches lightly on direct experience. Some of their reasoning may be difficult for them to verbalise.

The CPA, in a study conducted in the US Army, yielded an acceptable inter-rater reliability coefficient ranging between 0.79 and 0.81 (Lewis, 1993). Other researchers have found construct validity coefficients of 0.57 and 0.51 between CPA ratings and two different thinking skill measures (Mauer, 2000). In two in-company studies, concurrent validity coefficients of 0.71 and 0.79 were found (Stamp, in Mauer, 2000). A coefficient of 0.89 was found between predicted level

and level of attainment (Stamp, 1989). No differences were found between race and gender on CPA scores in a South African study of 486 managers (Mauer, 1997). Cultural bias is one of the more problematic issues that needs attention.

Procedures

A database of approximately 29 000 respondents was provided by Bioss Southern Africa. Only data with CPA scores was used in this study. All duplicate entries and missing values were removed by means of excel formulas. The excel spreadsheet was imported onto the SPSS (Statistical Programme for Social Science) and analyses were performed to identify outliers. The necessary outliers were removed. A total of 4 606 entries were used for further analysis. All scales used in variance analysis were standardised to a six-point scale by means of SAS software (SAS Institute, 1996) in order to perform meaningful comparisons.

Statistical analysis

The data was analysed in collaboration with the Statistical Consultation Services of the University of Pretoria, STATOMET, using the SAS-package (SAS Institute, 1996) and SPSS.

Analysis of variance (ANOVA) was used to compare CPA outcomes (mode, current level of capability and style) between race, gender and population groups. All scales used during ANOVA analyses were transformed to a six-point scale for making comparisons and to comply with homogeneity of variance and normality of ANOVAs. To indicate which variables differ significantly, the post hoc test of Scheffé was applied. Pearson correlations were used to specify the relationship between variables. The SPSS software package was used for calculating the correlations. Due to the type of data used, limited forms of statistical analysis were used.

RESULTS

ANOVAs were performed on the standardised six-point scales using age, occupation level, gender and population group as the dependent variables.

TABLE 3A
ANOVA RESULTS OF ASSESSMENT SCORES COMPARED BETWEEN AGE CATEGORIES

	N	DIMENSIONS					
		Capability		Mode		Style	
P-Value		<.0001**		<.0001**		0.2425	
AGE (Years)		Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
20-25	290	1.07 a	0.44	2.88 a	0.66	1.19 a	1.18
26-35	2013	1.58 b	0.52	2.82 ab	0.77	1.21 a	1.14
36-45	1672	1.93 c	0.6	2.56 b	0.88	1.17 a	1.04
46+	631	2.07 c	0.68	2.34 b	0.89	1.23 a	1.17

** = Significant at the 1% level

* = Significant at the 5% level

a,b,c = Multiple comparisons: Means with common characteristics do not differ significantly
Interpret column wise

Significant differences were found between the various age categories for current level of capability ($p < 0.0001$) and mode (predicted level of capability) ($p < 0.0001$). From the research, it is evident that capability can grow with age. This finding thus confirms the existence of a grow process. No significant differences were found for decision making style ($p = 0.2425$). Table 3A reflects the noted differences. Table 3B reflects the significant differences of all the assessment scores between the various population groups.

TABLE 3B
ANOVA RESULTS OF ASSESSMENT SCORES COMPARED BETWEEN POPULATION GROUPS

	N	DIMENSIONS					
		Capability		Mode		Style	
P-Value		<.0001**		0.0006**		0.0106*	
ETHNICITY		Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Asian	295	1.70 ab	0.58	2.75 a	0.90	1.16 ab	1.10
Black	1284	1.58 a	0.59	2.66 b	0.79	1.11 a	1.07
Coloured	158	1.57 b	0.68	2.54 a	0.92	1.19 b	1.16
White	2862	1.83 b	0.62	2.71 a	0.85	1.24 b	1.12

** = Significant at the 1% level

* = Significant at the 5% level

a,b = Multiple comparisons: Means with common characteristics do not differ significantly
Interpret column wise

Significant differences were found between population groups for capability ($p < 0.0001$), mode ($p = 0.0006$) and style ($p = 0.0106$) scores. It must be noted that the differences between mean scores are very small and should be taken into consideration.

TABLE 3C
ANOVA RESULTS OF ASSESSMENT SCORES COMPARED BETWEEN GENDER CATEGORIES

		DIMENSIONS					
		Capability		Mode		Style	
P-Value		0.265		0.1162		0.798	
GENDER	N	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Male	3615	1.79	0.62	2.68	0.85	1.21	1.11
Female	991	1.58	0.61	2.62	0.80	1.16	1.11

** = Significant at the 1% level
* = Significant at the 5% level
Interpret column wise

It is evident from table 3C that no significant differences were found between gender categories for capability ($p = 0.265$), mode ($p = 0.1162$) and style ($p = 0.798$).

TABLE 3D
ANOVA RESULTS OF ASSESSMENT SCORES COMPARED BETWEEN OCCUPATION LEVELS

		DIMENSIONS					
		Capability		Mode		Style	
P-Value		<0.0001**		<0.0001**		0.0102*	
OCCUPATION	N	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Skilled	1675	1.55 a	0.58	2.54 a	0.79	1.19 a	1.12
Junior Management	446	1.54 a	0.56	2.49 a	0.85	1.11 a	1.15
Middle Management	1306	1.88 b	0.62	2.73 b	0.85	1.23 b	1.14
Senior Management	1148	1.96 b	0.61	2.85 b	0.85	1.22 b	1.04

** = Significant at the 1% level
* = Significant at the 5% level
a,b = Multiple comparisons: Means with common characteristics do not differ significantly
Interpret column wise

According to table 3D, significant differences between the various occupation levels exist for capability ($p < 0.0001$), mode ($p < 0.0001$) and style ($p = 0.0102$).

TABLE 3E
ANOVA RESULTS OF ASSESSMENT SCORES COMPARED BETWEEN
EDUCATION LEVELS

		DIMENSIONS					
		Capability		Mode		Style	
P-Value		<0.0001**		<0.0001**		<0.0001**	
EDUCATION	N	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Secondary	1318	1.55 a	0.57	2.36 a	0.82	1.12 a	1.09
Tertiary	1815	1.72 b	0.61	2.63 b	0.81	1.16 a	1.08
Postgraduate	1434	1.97 c	0.62	2.99 c	0.78	1.33 b	1.16

** = Significant at the 1% level

* = Significant at the 5% level

a,b,c = Multiple comparisons: Means with common characteristics do not differ significantly
Interpret column wise

It is all so evident in table 3E that significant differences exist for CPA scores compared between education levels.

TABLE 3F
ANOVA RESULTS OF ASSESSMENT SCORES COMPARED BETWEEN
POPULATION GROUPS AND GENDER

		DIMENSIONS						
		Capability		Mode		Style		
P-Value		0.0048*		0.007**		0.4888		
ETHNICITY	GENDER	N	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Asian	Male	233	1.71 ab	0.58	2.73 ab	0.92	1.12 a	1.07
	Female	62	1.66 ab	0.58	2.83 b	0.79	1.28 a	1.19
Black	Male	996	1.60 a	0.59	2.57 a	0.80	1.11 a	1.06
	Female	288	1.49 a	0.59	2.54 a	0.76	1.11 a	1.10
Coloured	Male	119	1.57 ab	0.62	2.47 ab	0.87	1.20 a	1.17
	Female	40	1.59 b	0.85	2.75 b	1.05	1.15 a	1.14
White	Male	2267	1.89 b	0.61	2.73 b	0.86	1.27 a	1.12
	Female	601	1.61 ab	0.60	2.63 a	0.79	1.17 a	1.11

** = Significant at the 1% level

* = Significant at the 5% level

a,b = Multiple comparisons: Means with common characteristics do not differ significantly
Interpret column wise

When looking at the CPA scores compared between population groups and gender (table 3F), significant differences are once again evident for capability ($p=0.0048$) and mode ($p=0.007$). The small differences between mean scores and sample size must once again be taken into consideration when interpreting these results. The difference is so small that it has little practical significance.

Further analysis of variance (ANOVA) was conducted on the CPA dataset to address the formulated nil-hypotheses. Data with less than 50 entries was discarded during this analysis. Current level of capability, mode (predicted level of capability) and decision making style were standardised to a six-point scale and used as the dependent variables. Occupation level, population group and gender were used as the independent variables.

From table 4, it is evident that there are significant differences between population groups for capability, mode and style; the same counts for differences between occupation levels. Gender reflects only significant differences for capability.

TABLE 4
RESULTS OF ANOVA COMPARING OCCUPATION LEVEL, GENDER,
POPULATION GROUPS AND INTERACTIONS THEREOF BY USING
CURRENT LEVEL OF CAPABILITY, MODE AND STYLE

FACTOR	DIMENSIONS (P-values)		
	Capability	Mode	Style
Population group	<0.0001**	0.0023*	0.0001**
Gender	<0.0001**	0.1405	0.1900
Occupation level	<0.0001**	<0.0001**	0.0055*
Population group x Gender	0.0091	0.3695	0.2881
Population group x Occupation level	0.5507	0.4130	0.5415
Gender x Occupation level	0.8454	0.4476	0.2153
Population group x Gender x Occupation level	0.7827	0.4828	0.5639

* = Significant on the 5% level

** = Significant on the 1% level

When looking at the interactions of population group, gender and occupation levels, no significant differences are found. Thus, all three formulated nil-hypotheses are supported. There are no significant differences between gender, population group and occupation level on current level of capability, mode and decision making style measurements using the CPA (table 4).

Pearson correlations were used to specify the relationship between the various variables. Tables 5A and 5B reflect these relationships.

TABLE 5A
CORRELATION MATRIX OF VARIABLES

VARIABLES	Capability	Mode	Style	Age
Capability	1	0.604**	0.228**	0.364**
Mode	0.604**	1	0.240**	-0.211**
Style	0.228**	0.240**	1	0.004
Age	0.364**	-0.211**	0.004	1
Gender	-0.127**	-0.014	-0.021	-0.166**
Population group	0.151**	0.037*	0.050**	0.175**
Education level	0.231**	0.281**	0.073**	-0.043**
Occupation level	0.269**	0.138**	0.018	0.188**

* Correlation is significant at the 5% level (2-tailed)

** Correlation is significant at the 1% level (2-tailed)

TABLE 5B
CORRELATION MATRIX OF VARIABLES

VARIABLES	Population group	Education level	Occupation level	Gender
Capability	0.151**	0.231**	0.269**	-0.127**
Mode	0.037*	0.281**	0.138**	-0.014
Style	0.050**	0.073**	0.018	-0.021
Age	.0175**	-0.043**	0.188**	-0.166**
Gender	-0.012	0.122**	-0.011	1
Population group	1	-0.081**	0.071**	-0.012
Education level	-0.081**	1	0.151**	0.122**
Occupation level	0.071**	0.151**	1	-0.011

* Correlation is significant at the 5% level (2-tailed)

** Correlation is significant at the 1% level (2-tailed)

Correlations from 0 – 0.25 indicate little or no relationship, those from 0.25 to 0.50 (or –0.25 to –0.50) indicate a fair degree of relationship, those from 0.50 to 0.75 (or –0.50 to –0.75) a moderate to good relationship, and those greater than 0.75 (or –0.75) a very good to excellent relationship (Dawson & Trapo, 2001). It is evident that there is a good relationship between current level of capability (capability) and predicted level of capability (mode) ($r=0.604$). There is a fair degree of relationship between capability and style ($r=0.228$), as well as mode and style ($r=0.240$). Gender and population groups seem to reflect no/low relationships between the CPA measurement scores. Occupation level also imitates a low to fair relationship between capability ($r=0.269$) and a little to no relationship between mode ($r=0.138$). There is no relationship between style and occupation level ($r=0.018$).

DISCUSSION

The aim of this study was to confirm whether the CPA respects cultural diversity and to make accurate predictions for members of different population groups and genders. From the research it is evident that the CPA is used for assessing capabilities of individuals in organisations and it is, therefore, important for the instrument to be culturally unbiased.

Capability and mode are related and these variables correlate significantly with each other. Thus, there is a relationship between the complexities of a person's current level of work and the future potential in terms of levels into which one may grow and make the most contribution to work. Although some significant correlations were found for gender, population group and occupation level between all the measurement scores, none of the correlations are strong enough to state with any certainty that these variables will have an effect on the outcome of the CPA scores.

There were no statistically significant differences between males and females in respect of the CPA measurement scores. However, statistically significant differences were evident in respect of occupational levels, educational levels and population groups. This evidence may be ambiguous if sample sizes and means are not considered when interpreting the results. Statistically significant differences and moderate correlations were evident between age and the CPA outcomes. These results support previous research findings with regard to the growth curves. It also implies that as age increases, so too will current and potential levels of capability.

With such an immense database one is likely to find statistically significant differences between variables. The differences regarding occupational levels, educational levels and population groups is of such a limited extent that they cannot be regarded by any reasonable person as representing a threat to the integrity of this instrument. The differences are so small that they have no

practical significance. It is also advised that CPA practitioners study the interaction effects and not the main effects between variables (Mauer, 2000).

The core subject of this investigation is to ascertain the extent to which the CPA can be said to be inherently culturally unbiased. The interactions of population group, gender and occupation level on the CPA measurement scores reflected no significant differences. There was thus evidence to support all three the formulated nil-hypotheses. The CPA can be applied to any gender, population group and occupation level without any effect on the outcome. There is no reason to believe that this instrument disrespects cultural diversity and that it is in conflict with assessment standards.

A number of limitations of this study have been identified. First, there was a disproportionate number of gender, population group, education level and occupation level respondents in the sample, primarily because non-probability convenience sampling was used to select individuals who had been assessed by means of the CPA in the previous five years by Bioss Southern Africa. Future research should be performed on pre-determined sample groups. Second, the use of only four organisations as the research sample is a potential limitation on the generalisability of these results. Attempts should be made to replicate these analyses in a number of different industries. Third, the results were attained from a five-year old database and no knowledge of these organisations' situations and reasons for administering the CPA on candidates was obtained. Future studies may confirm the current findings by replicating the research with a sample known to the researcher.

In summary, this study makes a contribution to our knowledge of the CPA and assessment standards used in South Africa. The study evaluates the credibility of this instrument in terms of legislation and it proves to be a culturally bias-free instrument.

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