CONCEPTUALIZATION AND MEASUREMENT OF VITALITY AT WORK AND ITS RELATIONSHIP WITH SUBJECTIVE CAREER PLATEAU

BY

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Abstract

Based on the emerging literature on *positivity* in behavioural and organizational sciences, this thesis conceptualizes the phenomenon of Vitality at Work (VAW). The concept is based on the interdependence of individual and organizational health which exist in a symbiotic relationship. VAW is an integrative, over-arching framework combining individual health and well-being with positive work attitudes and positive social interactions. These have not been brought together within a single construct in the literature. Vitality is defined in this thesis as a subjective state of energy and enthusiasm, where individuals perceive themselves as fully functioning, physically and psychologically, and are ready to direct their abilities towards work in a positive and enabling environment. Seven factors, i.e., Sense of Coherence; Physical Health and Energy; Energizing Connections; Job Involvement; Organizational Commitment; Goal Commitment; and Creative Work Involvement are identified from the literature and these are the underlying dimensions of Vitality. The thesis also explores the concept of Subjective Career Plateau (SCP), a subjective state where an individual believes that the probability of future career advancement, both in terms of hierarchical progression and lateral diversification are low. Data are presented which examine the effect of Subjective Career Plateau on Vitality at Work. The study presents data from the UK Higher Education Sector with responses collected from academics working in top-ranking UK universities. The study employs a survey methodology and quantitative methods for data analysis. Using 365 valid responses, the study validates the concept of Vitality through Exploratory Factor Analysis and Confirmatory Factor Analysis. Five out of the seven initial factors are confirmed as the underlying dimensions of Vitality, whilst Job Involvement and Creative Work Involvement are excluded on the basis of results obtained in the initial set of analysis. Confirmatory Factor Analysis confirms a clear structure of the suggested factors and validates the measurement model for Vitality. A measurement model is also confirmed for measuring Subjective Career Plateau through CFA. Regression analysis is employed to test the hypothesis between SCP and VAW and the results confirm that Subjective Career Plateau has a significant effect on Vitality. The thesis makes a contribution to theory and knowledge by developing an important organizational concept and exploring its relationship with Subjective Career Plateau. Based on the findings, recommendations are offered to managers, practitioners and policy-makers for an increased focus on individual health and well-being, development of a positive and energizing work environment and provision of opportunities for career development and diversification. Finally, the thesis discusses the possible future opportunities for research.

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List of Abbreviations

ANOVA	Analysis of Variance
AVE	Average Variance Extracted
CFA	Confirmatory Factor Analysis
CWI	Creative Work Involvement
EC	Energizing Connections
EFA	Exploratory Factor Analysis
EI	Energizing Interactions
GC	Goal Commitment
HESA	Higher Education Statistics Agency, UK
JI	Job Involvement
OC	Organizational Commitment
PHE	Physical Health and Energy
POB	Positive Organizational Behaviour
POS	Positive Organizational Scholarship
PsyCap	Psychological Capital
SCP	Subjective Career Plateau
SEM	Structural Equation Modeling
SOC	Sense of Coherence
TE	Task Enabling
VAW	Vitality at Work

Declaration of Author's Rights

Two conference papers, based on the theoretical framework and empirical results of this thesis have been presented prior to the thesis completion, including;

MALIK, S. Z. (2009). Conceptualization and measurement of Vitality at Work in higher educational institutions and its relationship with Subjective Career Plateau. **Scottish Doctoral Management Conference (SDMC)**, June 2009, Saint Andrews.

MALIK, S. Z. & MACINTOSH, R. (2011). What makes up a healthy, happy and enthusiastic academic? Conceptualization, operationalization and measurement of Vitality at Work (VAW). **British Academy of Management (BAM) Annual Conference,** September 2011, Birmingham.

The author intends to publish the remaining unpublished parts of the thesis in the next three years.

Dedication

Dedicated to Ammi, Abbu, Shan and Inni

Acknowledgement

Four years of working towards the PhD have taken me through an enlightening process in which I have not only learnt about research in my particular discipline but have acquired a greater understanding of life in general and the importance of knowledge creation and learning in defining our existence. I have also realized the importance of many relationships in my life for the love, support and care they give me, and also the fact that I rely on them so much in times of distress.

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Chapter 1: Introduction

Chapter Objectives

This chapter aims to;

1. Introduce the research study to the reader and provide a brief background of the motives that guided the development of the research topic.
2. Introduce the topic of the study and the major concepts included in the research.
3. Describe the primary research questions and objectives of the study.
4. Outline the hypotheses proposed to be tested through data analysis.
5. Highlight the contributions expected from the study.
6. Present the structure in which the thesis has been organized.

1.1 Introduction

This study is based on the ideology of *positivity* which was initiated as Positive Pyschology movement by Martin Seligman (2000) in the general behavioral sciences and Positive Organizational Behavior by Fred Luthans (2002c) and Positive Organizational Scholarship by Cameron, et al. (2003) with specific reference to organizational science. The search for *positive* in organizational studies has a history which dates back to the initiation of Organizational Behavior as a discipline from the Hawthorne Experiments at Western Electric, where it was found that positive approach towards work enhances performance and productivity (Luthans and Avolio, 2009). Such observations brought the paradigm shift from Personnel Management to Human Resource Management and scholars in organizational studies started placing greater attention on an enhanced quality of work-life and employee engagement (Guest, 1987) and attempts were made to bridge the gap between the individual and organization health (Quick et al., 2007). There has been a quest to determine such conditions whereby the individuals and organization can operate in the best interest of each other (Legge, 1999), where the benefit of one does not result from a detriment to the other, thus both exist in a symbiotic relationship (MacIntosh et al., 2007).

1.2 Emergence of the positivity movement

The concept of *Positivity* in *Organizations* was first initiated as an agenda of "Positive Psychology" which called for organizational research to be based on a positive and proactive approach towards work and work-life, where the search is not towards identifying deficiencies, but looking for and enhancing the strengths (Seligman and Csikszentmihalyi, 2000). Parallel to this movement is the work of researchers on "Positive Organizational Behavior" which is described as "the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace" (Luthans, 2002c, p. 59). A similar development but broader in scope comes from the work of Cameron et al. (2003), which is termed as Positive Organizational Scholarship (POS). POS takes into account not only the traits and states of positivity but also the processes through which positivity is created, maintained and flourished. It seeks to determine the conditions in which individuals thrive and flourish at the workplace and also contribute the best of their abilities to their organizations. Thus, it endeavours to find and create the 'best

of human condition'. POS is described as not a ... "single theory, but it focuses on dynamics that are typically described by words such as *excellence, thriving, flourishing, abundance, resilience* or *virtuousness*. POS represents an expanded perspective that includes instrumental concerns but puts an increased emphasis on ideas of "goodness" and positive human potential. It encompasses attention to *the enablers* (e.g., processes, capabilities, structures, methods), *the motivators* (e.g. unselfishness, altruism, contribution without regard to self), and *the outcomes or effects* (e.g., vitality, meaningfulness, exhilaration, high-quality relationships) associated with positive phenomenon" (Cameron et al., 2003, p. 4).

1.3 Introducing Vitality at Work (VAW)

Based on the POS perspective, this study proposes a concept of Vitality at Work (VAW) and targets the inquiry specifically to academia, where this concept has already been researched but has neither been clearly defined nor measured (Bland and Schmitz, 1988; Baldwin, 1990; Bland et al., 2002). These authors have studied this concept with specific reference to academics and emphasize the importance of academic faculty to be enthusiastic and vibrant. Vitality, otherwise, has also been studied with reference to individual health and well-being in organizations, but only as a uni-dimensional concept (Ryan and Frederick, 1997). However, this study proposes a unique and holistic concept of "Vitality at Work" which is geared towards describing enthusiasm, energy and well-being as specifically directed towards work.

1.3.1 Defining Vitality

The concept of vitality has been discussed in literature but there has not been a clear conceptualization of this phenomenon for any field of work. There have been instances where Vitality appears as a concept but such studies are related to general well-being e.g. Ryan and Fredrick (1997) give the concept of "Subjective Vitality", but that too is a very narrow concept as it is only an assessment of personal happiness, energy and well-being and does not specifically account for such energy or vitality to be directed towards work. For the academic profession also, there has been little work on this phenomenon and whatever appears does not provide a clear, crisp and objective description. Finally, there seems to be an absence of a holistic tool to measure Vitality as an over-arching construct that assumes a symbiotic relationship of personal and organizational health. Several definitions exist in the literature, for example, vitality has been described as "those essential

yet intangible positive qualities of individuals and institutions that enable purposeful production" (Clark and Lewis, 1985, p.86). It has been defined as a feeling of being enthusiastic and energetic towards anticipated life events both physiologically and mentally, rather than being aloof, indifferent and detached from them (Kark and Carmelli, 2009); of being fully functioning (Ryan and Bernstein, 2004); and is posited as a subjective affect of possessing energy and vigour (Ryan and Frederick, 1997). Vital individuals possess the qualities of enthusiasm, compassion, dedication, vigor, creativity, and regeneration (Baldwin, 1990, p.180). However, all these definitions are insufficient as they do not incorporate the interdependence of vitality being specifically drawn from work. This study aims to conceptualize vitality as a symbiotic relationship between individual and organizational health where vitality is a result of positive work attitudes rather than a resource which is being consumed in work activities. Therefore, it is proposed to define Vitality as "a positive affect of aliveness, health and well-being coupled with positive work attitudes in an enabling and energizing work environment"

Furthermore, it is proposed to measure Vitality using a comprehensive set of factors established to determine Vitality from previous academic scholarship. Seven factors have been identified as significant contributors to the sense of Vitality at work, which will be individually discussed in the following paragraphs.

Sense of Coherence

Parallel to Positive Organizational Scholarship in organizational sciences, the concept of health has also been undergoing a paradigmatic shift. It has been posited to define health from "absence of disease" to a holistic positive functioning of the body and mind (MacIntosh et al., 2007); an approach termed as salutogenesis (the origins of health), whereby the factors that bring "health-ease" are emphasized rather than those that bring "dis-ease" (Antonovsky, 1987; Antonovsky, 1979; Epperly, 1988). In order to stay well, one must possess the mental strength to overcome crisis, stress and disease. It has been found that people differ in their ability to cope with stressors that range from the smallest microbiological organisms to social oppressors, and such an ability to do so determines their state of health and well-being (Antonovsky, 1979). This has been termed as "Sense of Coherence" and has been defined as a "global orientation that expresses the extent to which one has a pervasive, enduring, though dynamic, feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as reasonably be expected" (Antonovsky, 1987, p. xiii). A

number of studies confirm that Antonovsky's measure of well-being relates strongly with physical, psychological and emotional well-being (Pallant and Lae, 2001; Antonovsky, 1993; Feldt and Rasku, 1998). It is also found that psychological well-being is significantly related to job performance (Wright and Cropanzano, 2004). Therefore, it is proposed to employ SOC as a determinant of health and well-being dimension of Vitality.

Perceived health and energy

Positive well-being, a fundamental dimension of vitality, is a function of both physical and subjective factors (MacIntosh et al., 2007; Ryan and Frederick, 1997), thus it is important to *be* healthy and *feel* healthy. People who possess a poor impression of their state of health are unlikely to possess high levels of vitality. Enthusiasm for any activity is felt only when there is sufficient confidence and ability to perform it. This confidence is drawn from a mental assessment of personal abilities, which also includes an assessment of possessing adequate state of health and energy. Therefore, an individual's perceived health and energy are expected to contribute towards Vitality.

Energizing Connections

The importance of social networks (Gersick et al., 2000), the effects of quality relationships and the downward spirals created by workplace incivility (Andersson and Pearson, 1999) and social undermining (Duffy et al., 2002) all indicate the significance of positive connections at the workplace. Positive interactions which are marked by "positive mutual regard, trust and active engagement on both sides" (Dutton, 2003b), "involves treating others with dignity, acting with regard to others' feelings, and preserving the social norms for mutual respect" (Pearson et al., 2000) have an energizing and uplifting effect on the participants of the interaction. Such energizing connections can boost up the morale at a workplace (Dutton and Heaphy, 2003), and facilitate organizational learning and growth (Dutton and Ragin, 2006). Positive connections carry a greater importance in the academic profession than in other professions because inclusion in esteemed circles or networks of scholars is not only taken as the desirable means to progression and development but as a desirable end in itself as well (Gersick et al., 2000). The concept of Energizing Connections is derived from the idea of High Quality Connections (Dutton, 2003b) and is defined as 'positive interactions which bring an energizing and vitalizing effect on participants to the interaction'. It is proposed that Energizing Connections are a significant determinant of Vitality and identified as an integral factor of the construct.

Job Involvement

It has been defined as the degree to which individuals psychologically identify themselves with their work (Lodahl and Kejner, 1965; Lawler and Hall, 1970; Kanungo, 1982b). It has been found that a "job involved person has an internal (vs. external) locus of control; has strong growth needs; has a stimulating job (high autonomy, variety, task identity, and feedback); participates in decisions affecting her or him; is satisfied with the job; has a history of success; and is less likely to leave the organization" (Rabinowitz and Hall, 1977 p.284). Therefore, job involvement is potentially a significant factor of Vitality.

Organizational Commitment

Organizational commitment has been found to relate significantly to a number of positive organizational behaviours, e.g. it significantly relates to performance (Larry and Thatcher, 2007); when taken together with job satisfaction, it effects all primary job behaviours, i.e. performance, absence, tardiness, and turnover (Harrison et al., 2006); and with specific reference to academics, it strongly relates to Organizational Citizenship Behaviours directed towards students, the workgroups and institution (Somech and Bogler, 2002). Commitment has been classified into three categories; affective, continuance and normative; out of which affective commitment, which has been defined as "the relative strength of an individual's identification with and involvement in a particular organization" (Mowday et al., 1982, p. 226), and has been found to relate more significantly with positive outcomes (Larry and Thatcher, 2007) and thus has been employed as a determinant of vitality.

Goal Commitment

The efficacy of Locke's (1968) Goal Setting theory has been widely established which posits that challenging and difficult goals rather than "do your best" significantly affect employee's motivation and drive towards work and result in higher performance (see also; Latham and Yukl, 1975). However, only the presence of challenging goals will not result in motivation unless there is an acceptance of such goals by those who have to work towards them (Locke et al., 1988). There are several sources of motivation, but whatever the source, motivation is bound to result in a high level of goal commitment. Essentially, readiness to exert effort will reveal itself in a commitment towards the goals. Therefore, it can be expected that goal commitment could form a significant factor of Vitality.

Creative Work Involvement

One of the primary functions of universities is to galvanize the creative potential of its members, students and academics alike. Creativity forms the fundamental pillars of learning and knowledge creation (Whitehead, 1928). Defined as the production of novel, useful ideas or problem solutions (Amabile et al., 1996), creativity carries two dimensions; creative performance and creative work involvement. Since Vitality at work is a self-assessed subjective phenomenon, therefore, it is more suitable to use creative work involvement in terms of consistency as a factor of VAW. It is defined as a subjective assessment of an individual regarding his or her engagement (in terms of time and effort) in creative work processes and has been found to relate significantly with vitality (Kark and Carmelli, 2009). Therefore, it has been selected as a determinant of VAW rather than creative performance which is an objective assessment of the amount of creative work carried out by an individual.

1.3.2 Vitality at Work in Higher Education

Maintaining faculty vitality and devising strategies for faculty development has been discussed in literature since many years (Bland and Schmitz, 1988; Baldwin, 1990; Pollicino, 1996). It has been a matter of concern for educational institutions that their teaching faculty should be enthusiastic and vibrant, and should maintain high levels of creativity (Bland et al., 2002). For such purposes, the concept of faculty vitality has been developed and definitions to elaborate this phenomenon have been proposed by different authors (Clark et al., 1986; Clark and Lewis, 1985; Baldwin, 1990). However, there has not yet been a comprehensive tool to measure vitality in faculty at higher education institutions. Therefore, there is a need to develop such an overall and holistic concept of faculty vitality that encompasses an individual's personal well-being as well its fitness and motivation towards their work. It is proposed to term this state of fitness and well-being as "Vitality at work".

1.4 Introducing Subjective Career Plateau

The issue of career plateau and its effect on employees has been a point of discussion for a long time, but this area has not gained sufficient attention and plateaued employees are given the least attention by their employer organizations (Veiga, 1981; Near, 1985; Orpen, 1986). Organizations are structured in a pyramidal hierarchy, which means that a large part of the workforce, at one point in time, will have to face the fact that they have to stay in the same position longer than expected (Nachbagauer and Riedl, 2002). Traditional organizations have pyramid structures which create a "funnel effect" as the number of positions at each level are reduced. Therefore, most employees will become plateaued (i.e. reach their promotional ceiling) before they retire. It has been exacerbated by the trend of flatter hierarchies and structural changes demanded by a highly competitive environment (Chay et al., 1995; Tremblay and Roger, 1998).

Most organizational structures are designed to create career stagnancy at some time in a person's lifetime career. Organizations must take the responsibility to reduce this phenomenon and to facilitate those who are experiencing it. Creating career opportunities and facilitating skill development and professional enhancement is a responsibility of organizations towards its employees. With reference to universities, an organizational culture that supports knowledge creation must be developed (Whitehead, 1928). Where an effective culture of learning and skill development is not developed and opportunities for such activities are not provided, it is likely that individuals may experience a state of stagnancy towards their career which leads to a state known as subjective career plateau (Armstrong-Stassen, 2008). Taking initiative to reduce this phenomenon is also beneficial for the organization itself because it has been found that career plateau significantly leads to negative behavioral outcomes, such as diminished performance, increased turnover intentions, decreased commitment, reduced organizational commitment and decreased job and career satisfaction (Allen et al., 1998; Lee, 2003; McCleese and Eby, 2006; Nachbagauer and Riedl, 2002).

Research suggests that the plateaued employee, and more significantly the subjectively plateaued employees, show lower levels of satisfaction from and motivation towards their work. The self-assessment of progression and career development, which is called the

Subjective Career Plateau, explained more variation in work related attitudes and behaviors than did the objective measurement of job tenure (Chay et al., 1995; Nachbagauer and Riedl, 2002). Subjective plateau is the perceptual phenomenon that results from the feeling of being stayed for a longer time than expected in a particular job position. It is the felt dimension and is separate from the objective dimension of plateau, which is based upon the actual length of tenure (Chao, 1990; Tremblay et al., 1995). Also, it has been suggested that reaching a career plateau is a significant work stressor for some time (Blau, 1978). Wilson (2004) also points out that "lack of career progression" leads to stress.

This study proposes a relationship between Subjective Career Plateau and Vitality at Work within the higher education sector. Since Subjective Career Plateau has been found to affect a number of organizational attitudes and also the fact that it explains a greater variation in work attitudes than objective career plateau, it is also expected that it would significantly affect the phenomenon of Vitality at Work. The concept of Subjective Career Plateau carries high relevance with the academic environment because the academic career model shows that hierarchies are considerably flatter in educational institutions and the responsibility of managing one's career movement rests on the academics themselves (Baruch and Hall, 2004). Therefore, in the specific work setting of academia, it is expected that career plateauing is a significant organizational phenomenon and could be an important antecedent to diminishing vitality. Moreover, the literature on faculty vitality also suggests a strong relationship between career plateauing and vitality of an individual. The high interrelatedness of the two concepts can be inferred from the fact that the vital professiorate has been pictured as the highly involved, "moving" academics who are professionally advancing in their careers (Kanter, 1979). In another study which aimed to address the problems of diminishing faculty vitality, the authors present the research problem by stating; "What distinguishes professors who remain vital from those who plateau or in some way reduce their professional momentum?"(Baldwin, 1990, p.161). Following this, the author theoretically relates the concept of career plateau with vitality and notes; "Vitality may also vary as a function of the career development process. Career development theory … suggests that workers in many fields eventually reach a less goal-oriented, less creative career plateau following an initial period of professional growth. This phenomenon certainly appears to be present within the academic profession. Some faculty members remain professionally active and vital to the end of their careers. Others seem to plateau long before retirement and become less innovative and less productive …

The common question is how to spend the next twenty or so years of one's professional life. For some professors this reassessment period leads to invigorating new career activities, but other opt to maintain the status quo (Baldwin, 1990, p. 161). However, although the relationship of career plateau with vitality has been theoretically discussed, even to the extent that both have conceptually been used as synonymous with each other, the relationship has never been empirically tested in the academic environment. Therefore, it has been proposed to test the relationship between SCP and VAW in this particular work-setting. A number of related variables are identified as control variables for the relationship. These are age, number of years in academic profession, number of years in current position (objective career plateau) and current position held by the individual.

1.5 Statement of Purpose

The study aims to examine the relationship of Subjective Career Plateau with Vitality of an individual in higher education sector given that Vitality can be conceptualized as a symbiotic relationship between personal and organizational health. This study undertakes to develop a comprehensive concept of "Vitality at work" and identify the factors associated with individual vitality at the workplace with specific reference to academia in higher education. It then aims to examine the association between Subjective Career Plateau and Vitality at Work. The study will be conducted within the top-ranking higher education institutions of United Kingdom by administering a survey research followed by quantitative data analysis.

1.5.1 Primary Research Question

Based on the discussion presented in the previous sections, the primary research question of this study is;

What is the association between Subjective Career Plateau and Vitality at Work where Vitality at Work is conceptualized as a symbiotic relationship between individual/personal and organizational health?

The research question can only be addressed if Vitality at Work is adequately conceptualized. Therefore, in order to answer this research question, the study needs to be designed around two main set of objectives. The first set of objectives requires the researcher to conduct a comprehensive literature and empirical research in order to develop, define and conceptualize the phenomenon of Vitality at Work. For this purpose, an integrative, over-arching concept of Vitality at Work which incorporates individual and organizational health in a single construct requires to be developed. Then a set of factors that would satisfy the conditions that Vitality assumes a symbiotic relationship between individual and organizational health has to be identified. Then, empirical evidence has to be collected in order to validate and confirm the concept of Vitality at Work and its underlying factors. If the present study is able to meet the objective of conceptualizing Vitality at Work, then the next set of objectives is to examine the relationship of Subjective Career Plateau with this newly defined and developed concept of Vitality at Work. However, this objective can only be met if the study is able to generate sufficient empirical

evidence to achieve the first set of objectives. It is expected that SCP will have a negative impact on Vitality at Work. Therefore, the following sub-questions have been outlined to clearly define each set of questions.

Specific Questions

1. **What are the essential dimensions of Vitality at Work?**
2. **What are the factors contributing to Vitality at Work?**
3. **Does the subjective state of Career Plateau impact on Vitality at Work?**

The primary objective of this study will be to conceptualize and define the concept of Vitality at Work and to identify a set of dimensions and factors that strongly associate with Vitality; factors that can be assessed through self-reporting responses and then to use these factors to measure Vitality as an aggregate of such related factors. Secondly, the study will undertake to examine the effect of Subjective Career Plateau on the Vitality at Work. In order to answer these research questions, the following research objectives have been outlined.

1.5.2 Research Objectives

1. Define Vitality at Work as an over-arching integrative concept that combines personal and organizational health in a single construct.
2. Identify the integral dimensions and factors of Vitality at Work through literature review.
3. Validate and confirm Vitality at Work factors through empirical study.
4. Develop and validate an instrument to measure Vitality at Work.
5. Develop and validate an instrument to measure Subjective Career Plateau.
6. Develop and/or validate instruments to measure factors of Vitality at Work.
7. Measure the extent of variation caused in Vitality at work by Subjective Career Plateau

1.5.3 Hypotheses

The primary hypothesis in this study is to measure the extent to which Subjective Career Plateau causes variation in Vitality at Work given that the factorial validity of the measurement model designed to confirm and measure the concept and factors of Vitality at Work can be established. Therefore, the study first needs to undertake to confirm and validate the measurement model proposed for the construct of Vitality at Work. For this,

the following hypothesis will be tested through Structural Equation Modeling using Confirmatory Factor Analysis. The hypothesis in this case can be stated as;

H1: Vitality at Work is a seven-factor, second-order theoretical construct

The second hypothesis will be tested through a similar methodology. It will test the factorial validity of a first-order single factor measurement model to measure the concept of Subjective Career Plateau. This hypothesis is primarily concerned with confirming the construct validity of questionnaire items to measure the concept of SCP. It will also be tested through Confirmatory Factor Analysis

H2: Subjective Career Plateau is a first-order, single-factor theoretical construct

Finally, the third hypothesis will examine the relationship between Vitality at Work and Subjective Career Plateau. It is expected that a person experiencing a high level of career plateau is likely to possess lower levels of vitality. This hypothesis will be tested through Regression Analysis and the relationship will be controlled for related situational variables.

H3: Subjective Career Plateau is negatively associated to Vitality at Work

1.5.4 Schematic Diagram

These above-mentioned hypotheses are illustrated in the following schematic diagram.

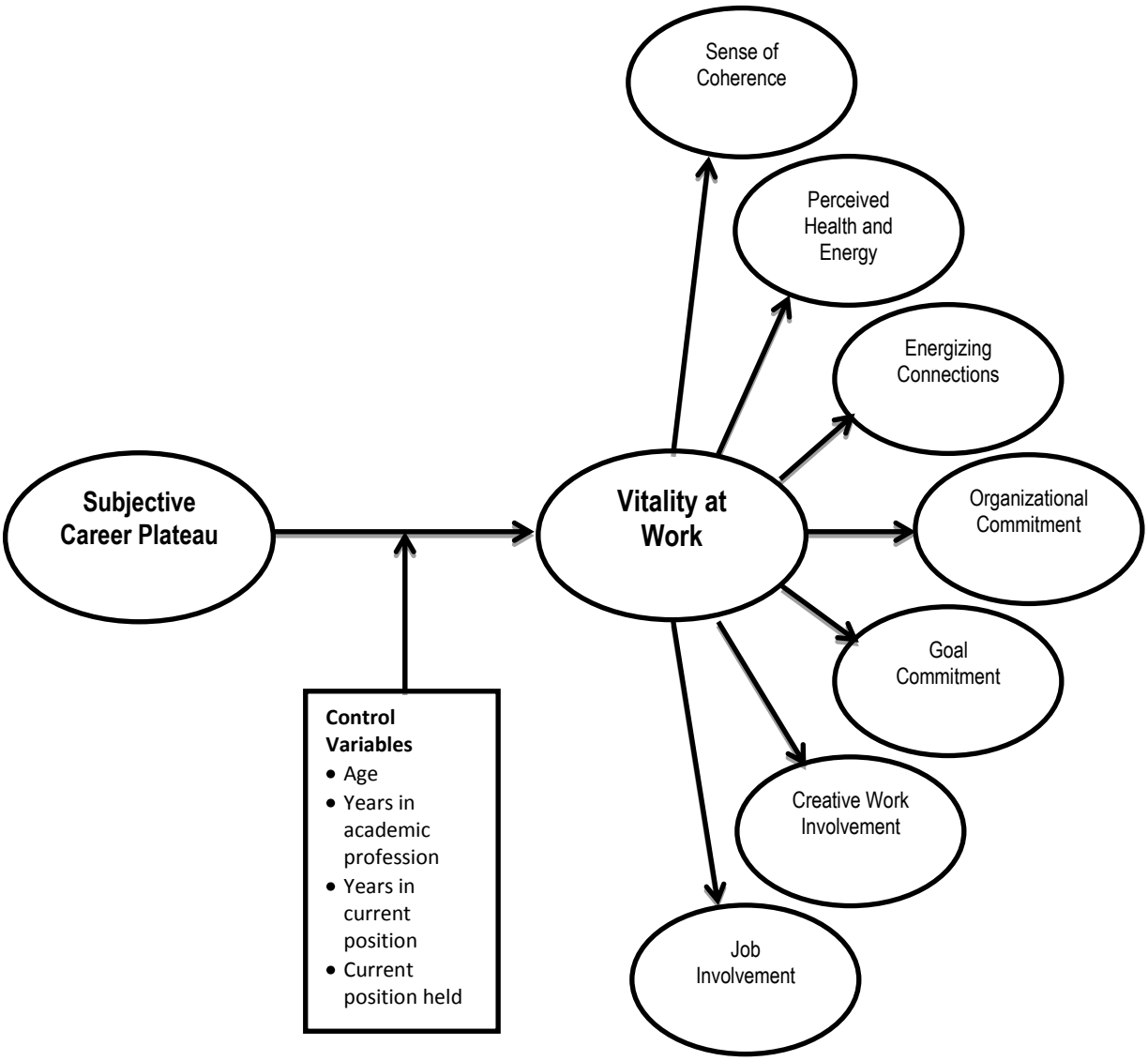

Figure 1: Schematic Diagram for the theoretical framework of the study

1.6 Expected Contributions

Based on the research questions, objectives and hypotheses laid down in previous sections, this research study expects to offer the following contributions to theory and knowledge.

1. This study builds upon the emerging positivity movement and will contribute to organizational science by consolidating and integrating positive organizational attitudes with positive individual attitudes and positive organizational environment in a single concept and therefore, will develop a unique and comprehensive concept of 'Vitality at Work'.

2. Cameron et al. (2003) highlight that there is much need for research in POS since most of literature is found to be of prescriptive nature. The self-help accounts do not develop upon scientific procedures and therefore, there is no reliability if they will work or not. This study will contribute to the strength of empirical evidence associated with POS which will be drawn through scientifically valid procedures and therefore the findings will be reliable, valid and generalizable.

3. There has been previous research on the phenomenon of Vitality. However, the literature lacks an objective definition and operationalization of this concept. This study will contribute to theory and knowledge by providing a comprehensive definition of Vitality and operationalization of the construct through powerful empirical support.

4. Previous organizational research has focused on either positive organizational attitudes that enhance organizational outcomes, e.g. organizational commitment, organizational citizenship behaviour, job involvement, employee engagement, etc, or positive individual attitudes that relate to personal well-being, e.g. job satisfaction, personal and psychological well-being, subjective vitality, happiness, etc. In many places, positive organizational attitudes are viewed as conflicting with positive individual attitudes in that an increase in one leads to a decrease in the other. Putting too much effort into work saps individual well-being, and leads to stress, fatigue, and burn-out. To find a balance to this conflict, Vitality suggests a positive equilibrium between positive organizational attitudes and positive individual attitudes and identifies factors that relate

to both the categories. The combination is unique in the literature, and considers individual well-being as an integral aspect of a fully-functioning individual at work. The study will empirically prove that Vitality is a valid construct and factors associated with it contribute significantly to the proposition.

5. In addition to defining and operationalizing the construct of Vitality, the study will also contribute to literature by developing and validating an instrument to measure Vitality at Work.

6. The study proposes a relationship between Subjective Career Plateau and Vitality of an individual. When people subjectively consider their careers to lack progression and variety, it is expected that their enthusiasm towards work will diminish. Specifically, in academic careers, where hierarchy is considerably flatter, this stage is expected to set in and affect work-related attitudes as well as individual well-being. The study will develop and validate an instrument to measure Subjective Career Plateau and will explore its effect on Vitality of an individual.

7. The study will validate and confirm the construct of Vitality at Work in a specific work setting, that is, academia of top-ranking higher education institutions in the UK. It will open an opportunity for furthering research to assess the validity of this construct in other types of educational institutions, institutions located in other geographical areas, and also in other professions as well. The instrument developed to measure Vitality at Work will carry generalizable characteristics and could be administered to an individual of any professional background.

1.7 Structure of the Thesis

The thesis is divided into ten chapters serving five broad objectives, i.e. Introduction, Literature Review, Methodology, Data Analysis and Conclusions. This chapter (Chapter 1) introduces the background, major concepts, the rationale and objectives of the present study. Chapters 2 – 5 present the relevant literature and identify the gap for positioning the research questions of this study. Chapters 6 and 7 discuss the research design from the ontological, epistemological and methodological perspectives and justify the choice of methodology, methods and tool/techniques adopted to explore the research questions. Chapters 8 and 9 present the results from data analysis and discuss the outcomes of the research study. Chapter 10 concludes the thesis by summarizing the major findings of the study and discusses future implications. The following paragraphs present the main contents of each chapter.

Chapter 2 describes the development of organizational science directed towards the positive approach for human resources. Historical developments initiating from the Hawthorne studies that steered management science towards the humanistic approach are discussed. Then the literature on positivity in organizations initiated through Positive Psychology movement which took the shape of Positive Organizational Behavior and Positive Organizational Scholarship in organizational science is presented. The need for researching the positive is discussed as emphasized by scholars and researchers working in the positivity domain.

Chapter 3 introduces the concept of Vitality at Work. The existing literature on health in organizations and the symbiotic relationship of individual and organizational health as the basis for the concept of VAW is presented. Alternative definitions of health and well-being are discussed and health is presented as a multi-dimensional concept which is determined not only through physical indicators but also through psychological and social factors. Based on this, the gap in literature for a comprehensive definition of Vitality at Work is identified and the proposed definition which integrates positive well-being and positive work attitudes in an enabling environment is presented. Three core dimensions of VAW classified as individual well-being, positive work attitudes and positive organizational

environment are identified. Previous literature on the relevance of this concept to the specific context of academia is also discussed.

Based on the definition of VAW presented in Chapter 3 and its three core dimensions, Chapter 4 presents the discussion on identification and selection of factors through existing literature which are expected to represent the construct of VAW. The seven factors, as already presented in the previous sections are Sense of Coherence, Perceived Health and Energy, Energizing Connections, Job Involvement, Organizational Commitment, Goal Commitment and Creative Work Involvement. The rationale for identifying and selecting each of the factors is presented, extant literature on each of the concept is discussed and evidence of inter-connectivity of these concepts is examined.

Chapter 5 defines and explains the concept of Subjective Career Plateau. Previous definitions and various dimensions of this concept are discussed. The causes of career plateau, its antecedents and outcomes, and its magnitude in organizational life is presented. The rationale of relating this concept with Vitality at Work is discussed. Previous evidence supporting the proposition is presented. It is argued that Subjective Career Plateau is related to a number of positive organizational attitudes and behaviors and therefore the proposal to test the hypothesis between SCP and VAW is strongly supported through previous literature.

After building the theoretical and conceptual background of the research questions through literature review in previous four chapters, Chapter 6 directs the discussion towards the philosophical considerations of the present study. Various philosophical paradigms operating within the social and organizational sciences are examined. Considerations relating to ontology, epistemology and methodology are discussed, and the appropriate approach which aligns with the nature of research questions is identified and justified. Introduction to the research design and methodology of the study is presented. Choices are examined and qualification criteria for selecting the methodological strategy for the study are discussed.

Chapter 7 presents a detailed discussion on the methods and tools adopted for data collection to answer the research questions. Operationalization of variables is presented and selection of appropriate measurement instruments for each of the concepts is

discussed. Measurement instruments are either adapted or adopted from previous measures or they have been developed within the present study. The choice of each measurement instrument is argued according to the requirement of the present study. Considerations regarding research ethics in business and management and the process of ethical approval from the university are explained. Then, sampling techniques and sampling process has been elaborated. Finally, each stage of data collection is described in detail and considerations, among others, relating to survey research such as use of Likert scales and response rate are discussed.

Chapter 8 moves forward to describe the process of data analysis. This chapter explains the steps undertaken to prepare the dataset for application of specific statistical techniques. Missing value analysis conducted in a step-wise process is described. Next, the appropriateness of sample size for each set of statistical technique including Exploratory Factor Analysis, Confirmatory Factor Analysis and Regression Analysis is examined. Finally, the important dimensions of content validity, construct validity and reliability which must be considered for scale development are discussed and techniques applied to ensure the fulfillment of these requirements are presented.

Chapter 9 presents the finding of data analysis conducted to answer the research questions. A step-wise process to conduct Exploratory Factor Analysis is presented and questionnaire items for each of the construct are screened and validated through EFA and other reliability statistics. Next, EFA to validate the concept of VAW is presented and modification of the proposed model is explained. Then, the steps to conduct Confirmatory Factor Analysis are described and the results of factorial models to confirm the concepts of VAW and SCP through CFA are presented. Finally, the results of regression analysis to examine the effect of SCP on VAW are reported.

Chapter 10 is the final chapter of this thesis. It summarizes the major findings of the present study and discusses them in the light of research objectives laid down in Chapter 1. Contributions of this study to theory and knowledge are highlighted. Next, the practical implications for managers and practitioners are discussed and recommendations for policy makers are offered. Finally, the limitations of this study are examined and possibilities and opportunities for future research are discussed.

Chapter 2: Development of the positivity movement

Chapter Objectives

This chapters aims to;

1. Describe the development of literature towards the new paradigm of positivity.
2. Discuss the need for researching the positive.
3. Identify the reasons for emphasis on exploring the negative in the past.
4. Introduce positive psychology, positive organizational behaviour and positive organizational scholarship as variants of positivity approach and examine their scope.
5. Discuss the above-mentioned variants and explain their differences.

2.1 Background

The discussion of positive affect and emotions in organizational psychology have always been a point of interest in organizational research. This was first recognized scientifically during the Hawthorne Studies at the Western Electric plant where researchers found a significant relationship between worker emotions and their performance (Luthans and Avolio, 2009; Luthans, 2002c; Quick et al., 2007). The study found that productivity improved as lighting levels were increased. Subsequently productivity increased again when lighting levels were reduced. These counter-intuitive finding suggested that performance of workers improved because they felt special and novel and that they were being paid exclusive attention for being part of an important experiment. Rather than lighting levels, the researchers concluded that the feeling of being important raised motivation and increased performance and this became known as the Hawthorne effect (Luthans, 2002b, p. 18). Results from these experiments brought attention to many organizational dynamics, e.g. group processes, group dynamics and the importance of "human relations" in productivity and performance. They rejected the simplistic traditional management approaches presented by Taylor (1911) where human beings were treated just like machines and their productivity was calculated mathematically disregarding the emotional aspect of human nature. These findings led to the development of work plans reducing fatigue and boredom, increased incentives, different disciplining tactics, and changed approaches to managerial control (Franke and Kaul, 1978). In short, Hawthorne Studies heralded the deluge of research on organizational behaviors directed towards the humanistic aspect of management.

Luthans and Avolio (2009) have emphasized that there is always a "point" in a particular discipline when a major paradigmatic shift of approach takes place. In the field of Management and Organizational Behavior, the shift certainly came from the Hawthorne Experiments and its results. Until then, traditional management approaches were bent towards scientific and mathematical approaches to managing human resources.

The primary focus of all the traditional theories of management had been maximizing efficiency, as reflected in systemic terms by the work of James D. Thompson (Thompson, 1967) work, decisional terms in Herbert Simon's work (Simon, 1976), organizational terms

in Chester Bernard's work, productivity terms in Fredrick Taylor's work (Taylor, 1947) and bureaucratic terms in Max Weber's work (Weber, 1968). Though diverse, there are similarities across this body of work. First, the focus is on efficiency and second, social and moral legitimacy is centered on the organization and not the individual. That is to say that the individuals in organizations are not recognized as separate entities and any conflict between the individual and the organization is caused by the former. The conclusion is that the individual must change to fit into the context of the organization. However, by 1960s, there was a significant dissatisfaction within the organizational literature regarding the efficacy of bureaucratic structures and the sub-ordination of individual over organizational interests rational. Moreover, some argued that bureaucratic structures centered on efficiency have inherent deficiencies which ultimately lead to inefficiency in the longer term (Harmon and Mayer, 1986);

> "By the mid-1960s a profound questioning of this rationalizing presumption surfaced all across the social sciences. In organization theory and in public administration, critics voiced increasing dissatisfaction with the way in which such democratic values as individual freedom and choice were handled both in the academic literature and in organizations themselves. There was a growing realization – inspired in part by the outcomes of the Hawthorne Experiments – of a potentially strong relationship between long-term organizational efficiency and the manner in which employees are treated. Finally, a growing suspicion was voiced that organizations built solely on efficiency lines, particularly in the public sector, were likely to deny the very political process values of representation and rights that were established to further in the first place". (Harmon and Mayer, 1986, p. 198)

The Hawthorne studies marked a shift toward theories addressing concepts such as motivation (Maslow's Hierarchy of Needs, McGregor's Theory X and Theory Y, Herzberg's Hygiene Theory), commitment (Steers, 1977), involvement (Rabinowitz and Hall, 1977) and leadership (Michigan Studies, Ohio Studies, Harvard Studies). On the organizational level, structures shifted from the traditional pyramidal hierarchies to matrix organizations with more functional flexibility and decentralization. Concepts such as

autonomy and participation were introduced in managerial decision making processes. Famous management gurus of the 80's such as Rosabeth Moss Kanter, preached the power of empowerment, communication, participation and innovation and revolutionalized management theory through writings such as "*The Change Masters", "Men and Women of the Corporation"* and "*When Giants Learn to Dance"* (Sheldrake, 1996/2003). Sheldrake quotes how Kennedy (1998, p. 98) explains the requirements of changing organizational climate suggested by Kanter in the 80s:

> "… that there was a crucial need for change in the average industrial corporation in order to improve the quality of working life to create equal opportunities for men, women and minority groups, and to make better use of their talents to the benefit of the corporation … Empowering strategies would be necessary, leading to a flatter hierarchy decentralized authority and autonomous work groups" (Sheldrake, 1996/2003, p. 232).

2.2 Need for researching the *Positive*

Although it is an established fact that organizational research shifted towards a more humanistic approach to management in early 50's and 60's, the literature remained focused on addressing discrepancies, weaknesses and malfunctions. The process of integrating employee well-being and organizational effectiveness and to bridge the gap between all the organizational stakeholders was initiated with the spread of Human Resource Management to organize the functions related with human resources of an organization. It was claimed that HRM was inherently different from Personnel Management which theoretically saw employees and workers at an opposing end to management and owners, and with inherently opposing objectives. Contrary to that, the goal of HRM was to integrate employee and management interests and to achieve organizational effectiveness through employee commitment and involvement and not through compliance (Guest, 1987). The "soft humanistic model" of HRM emphasizes that organizational goals must be achieved through integrating human resource strategies, and that employees should be treated as a valuable asset of the organization, whose input should be achieved through their commitment (Legge, 1999), and this commitment should be generated through communication, motivation and leadership (Storey, 1995). In a model of HRM developed by Beer et al. (1985) at Harvard, it was demonstrated that the long-term objectives of HRM

were to achieve "individual well-being, organizational effectiveness and societal well-being". However, there has been no overarching model of HRM that provided integration between employee well-being and effectiveness. The topics under consideration for management research still included issues like improving the motivation levels of marginal, low-performing employees; correcting performance deficiencies due to incongruent abilities, skills or management styles; breaking inertia caused due to resistance to change; and devising strategies to counter stress and burnout (Luthans, 2002c). The main emphasis of research remained on maximizing organizational efficiency and research on employees was only carried out to devise ways of improving their productivity for the benefit of the organization (Wright, 2003).

Whilst the academic community focused on researching pathologies, there has been a concurrent stream of literature visible in the prescriptive style management bestsellers which has claimed widespread recognition in serving the real-life needs of people by providing inspiration to lead healthier and more positive lives both professionally and personally. Examples are the well-known books of Norman Vincent's message on power of positive thinking, Steve Covey's book on *seven habits of highly effective people* and a very recent bestseller by Spencer Johnson called *who moved my cheese.* These books have gained attention of many people seeking to find meaning and inspiration in their lives. However, these prescriptive style accounts have not been backed by scientific theorizing and testing. Therefore, it was time for organizational scientists to pay attention to an area of organizational research which had been ignored for a very long time, and "*begin to build bridges between the academic OB field and popular management bestsellers"* (Luthans, 2002c, p. 58).

2.3 Positive Psychology: Introducing the positive perspective

The transformation point as noted by Luthans and Avolio (2009) to shift the organizational behavior debates toward "the positive" originated when Seligman & Csikszentmihalyi (2000) introduced the concept of "Positive Psychology". Although, the academic literature cites positive psychology as early as the 1950's when Maslow titled his last chapter in his book *Motivation and Personality* as "Towards a Positive Psychology" but unfortunately, his calling was not heeded by the academic community. In his book, he proposed a positive agenda for research into psychological concepts such as growth, self-sacrifice, love, optimism, spontaneity, courage, acceptance, contentment, humility, kindness, and actualization of potential (Wright, 2003). Even earlier, another development towards the positive aspects of organizational life was made by Hersey in the 1930's. Focusing his attention on well-being and happiness, he gathered a wide range of data about variables such as worker's blood pressure, fatigue, tardiness, weight, illness, well-being, co-operation, verbal outburst, and productivity and performance, and concluded that workers who possess positive emotions are more productive than workers who possess negative emotions, at least in the long run (Wright and Quick, 2009). However, these propositions were ignored during those times, and academic research did not build upon these works. Consequently, this debate of positivity dried up for several decades until it was rejuvenated by Seligman and Csikszentmihalyi in 2000. Special issues were dedicated to Positive Psychology in *American Psychologist* in 2000 and 2001 and in *Journal of Humanistic Psychology* in 2001. In the millennium issue of American Psychologist, the initial article introduced this new perspective towards health and happiness; an approach that can transform the sheer materialistic and rationalistic approach towards life into an approach that is satisfying, rewarding and makes life worth living. This is how they started their discussion;

> "Entering a new millennium, Americans face a historical choice. Left alone on the pinnacle of economic and political leadership, the United States can continue to increase its material wealth while ignoring the human needs of its people and those of the rest of the planet. Such a course is likely to lead to increasing

> selfishness, to alienation between the more and the less fortunate, and eventually to chaos and despair.
>
> At this juncture, the social and behavioural sciences can play an enormously important role. They can articulate a vision of the good life that is empirically sound while being understandable and attractive. They can show what actions lead to well-being, to positive individuals, and to thriving communities. Psychology should be able to help document what kinds of families result in children who flourish, what work settings support the greatest satisfaction among workers, what policies result in the strongest civic engagement, and how people's lives can be most worth living" (Seligman and Csikszentmihalyi, 2000, p. 5).

2.3.1 Disproportionate emphasis on the negative

Seligman and Csikszentmihalyi (2000) note that the field of psychology does not have enough empirical knowledge to answer these questions, since most of the inquiry has been directed towards alleviation of disease and not on individuals that are healthy, happy and fulfilled. Although psychology originated with three broad objectives; to correct damages, to prevent problems and to build psychological strengths. However, society in general and scientists and academics in particular have exerted more attention and efforts to treat problems of the ailing mind, and have significantly neglected researching the positive aspect (Luthans, 2002c). The magnitude of this negative tilt has been found in a literature search of contemporary psychology literature. It was found that there were about 200,000 articles published on treatment of the mental illness; 80,000 on depression; 65,000 on anxiety; 20,000 on fear; and 10,000 on anger; but only about 1000 on positive concepts and capabilities of people. Empirically, the proportion of published research on negative vs. positive concepts is around 375 to 1(Wright, 2003).

2.3.2 Why the negative?

Buss (2000) discusses some of the reasons why the research literature has focused on the negative. Firstly, in modern environment, people live considerably different from the ancestral environment, consuming processed foods and living in artificial life styles. There are several studies that show that the effect of such artificial life styles is detrimental to

individual and social health. Secondly, people have evolved mechanisms for adaptation to the current environment that causes "subjective distress". For example, anger, depression, jealousy, and psychological pain are all adaptive mechanisms that arise due to societal discrepancies such as class-systems, coercion, infidelity etc. Finally, the evolutionary process of selection has turned people too competitive towards each other. In a situation, where the gain of one has to be at the loss of the other, only negative emotions and mechanisms could have been fostered. However, Buss discusses that people have also evolved mechanisms of bonding, kinship and affection in order to gain social and emotional security. But such mechanisms have been seriously discounted in increasingly materialistic and capitalistic social systems. If the negative evolutionary mechanisms are allowed to grow with the same pace, human race will face serious detriment to individual and social well-being. Therefore, "understanding these psychological mechanisms--the selective processes that designed them, their evolved functions, and the contexts governing their activation--offers the best hope for holding some evolved mechanisms in check and selectively activating others to produce an overall increment in human happiness" (Buss, 2000, p. 15).

Specifically, in the field of organizational research, the emphasis has been on negativity in order to become cost-effective. The articulation of organizational research problems has been focused towards a more utilitarian approach, and therefore, needs of each potential stakeholder have been ignored. This perspective towards organizational research has been termed as committed-to-management perspective (CMP). By doing so, the field has rendered itself a limited applicability and has lost relevance (Wright and Wright, 2002). According to the CMP approach, the main emphasis of conducting research is to maximize the efficiency of the organization. As the name is self-explanatory, this type of approach to research serves the objectives of management only. Certainly, the primary objective of management is to maximize cost-effectiveness. In a strictly cost-benefit approach, an organization's human resource is a cost that must be minimized. Therefore, although it is the employees that ascertain the efficiency of an organization, they are given less importance compared to the organization. Employee research therefore tends to focus on issues which will improve organizational efficiency and productivity. This approach to management which is also consistent with the utilitarian perspective, according to which it is more important to focus on ends, regardless of the means that create those ends. So, merging the cost-benefit approach with the utilitarian concept, the objective in

organizational research becomes focused around organizational efficiency, and not individual efficiency, because it is the organizational profits (the ends) that are important. Therefore, ways (individual efficiency/the means) through which such profits are generated are ignored as such, except in order to calculate the ends (Wright, 2003).

2.3.3 Defining Positive Psychology

Realizing this negligence, positive psychology seeks to identify those conditions in which individuals and societies flourish, rather than knowing only about the disease-causing factors. Positive psychology proposes "a science of positive experiences, traits and institutions that promises to improve life and prevent pathologies that arise when life is barren and meaningless" (Seligman and Csikszentmihalyi, 2000). The authors explain positive psychology in the following manner;

> "The field of positive psychology at the subjective level is about valued subjective experiences: well-being, contentment, and satisfaction (in the past); hope and optimism (for the future); and flow and happiness (in the present). At the individual level, it is about positive individual traits: the capacity for love and vocation, courage, interpersonal skills, aesthetic sensibility, perseverance, forgiveness, originality, future mindedness, spirituality, high talent, and wisdom. At the group level, it is about the civic virtues and the institutions that move individuals toward better citizenship: responsibility, nurturance, altruism, civility, moderation, tolerance, and work ethic" (Seligman and Csikszentmihalyi, 2000, p. 5).

What makes positive psychology different from the previous humanistic endeavours in behavioural sciences is that it calls for a scientific procedure of inquiry that examines the human condition by taking into account the positive aspects of human nature, e.g. love, courage, hope, optimism, and wisdom; characteristics that strengthen and nurture human abilities and allows people to flourish (Fredrickson, 2001); but were always considered too subjective and subliminal to be researched through a scientific lens. *"Over the years, the tendency has been to view positivity with doubt and suspicion – a product of wishful thinking, denial, or even hucksterism"* (Sheldon and King, 2001, p. 216).

This approach to psychology comes into action in order to become more preventive, to save people from going into a weakened psychological and physical state and to take action before damage is caused (Myers, 2000), which is contrary to the previous perspective of psychology whereby human condition was only studied at its worse, failing and deteriorating, causing depression and crisis for the individual as well as the society (Seligman and Csikszentmihalyi, 2000; Luthans, 2002c).

2.3.4 The effectiveness of Positive Emotions

Building on this positive psychology movement, Fredrickson (2001) posits in her broaden-and-build theory that positive emotions and affect enhance an individual "thought-action repertoires" (Isen, 2000), e.g. it is found that people with positive emotions are more flexible, open, efficient, and have more tolerance towards variety and diverse information. In short, they have better cognitive processes and are able to organize their psychological activity in a better manner. These thought-action repertoires help to build significant personal resources, like physical, psychological, intellectual and social resources. These personal resources facilitate an individual in managing life and its events in a better fashion and also coping with situations that generate negative emotions.

Subjective well-being is not a function of what people possess externally, e.g. their age, gender or income, rather it is defined by an individual's internal peace, security and hopefulness. Levels of happiness vary with the quality of relationships individuals possess with people in their close social circle and the faith in their support networks, purpose and hope in life on the whole (Myers, 2000).

2.4 Positive Organizational Behavior

Originating from the Positive Psychology movement, the science of positivity gained recognition in the field of organizational behaviour. Luthans (2002c) applies this positive approach to organizational behaviour and calls it Positive Organizational Behaviour. The author suggests that it is important to research the positive aspects of organizational behaviour in a scientific manner. Just as in mainstream psychology, the major emphasis has been towards treating pathologies (Seligman, 2000), similarly, in organizational behaviour, there has been an inclination to treat problematic employees and dysfunctions. For example, managers and practitioners have tried to decrease absenteeism, overcome low levels of motivation, alter unsuitable or deviant behaviours, etc.

2.4.1 Defining POB and criteria for inclusion

Luthans (2002c) defines positive organizational behaviour as "the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace" (p.59). The author sets up the criteria for concepts to be included in POB by setting the conditions of uniqueness, measurability, development and leading to performance. To further elaborate, this means that firstly concepts must be new to the field of OB, and not a positive version of traditional OB concepts. Next, these should be objectively measurable in some quantitative or qualitative manner. Then, it can be demonstrated that they can be developed in organizational members through training and learning. Finally, these positive strengths must be translatable into performance. By relating these concepts with performance, Luthans requires such variables to be *state-like*, rather than *trait-like* variables of personality or attitudes that are generally associated with OB concepts. By requiring the concepts of OB to be capable of being developed, the author essentially turns POB into a Human Resource Development discipline, which can either be infused by formal training or through informal ways, e.g. mentoring or coaching.

2.4.2 Concepts included in POB

Initially, five concepts were identified as eligible to be included in the list of POB, namely, Confidence/self-efficacy, Hope, Optimism, Subjective Well-Being and Emotional Intelligence and the list is named as CHOSE (Luthans, 2002c). However, the list has gone under a few modifications and now, according to Luthans et al. (2008), the best representative constructs of POB are hope, resiliency, optimism and efficacy. This combination of positive psychological constructs has been termed as "Psychological Capital" (PsyCap) and is a refined form of the initial list of CHOSE. PsyCap is a latent higher-order POB construct underlying the four dimensions of hope, resiliency, optimism and efficacy.

Hope: Luthans adapted the construct of hope from the work of Snyder and his collegeaes. In their work, hope has been defined as "positive motivational state that is based on an interactively derived sense of successful (1) agency (goal directed energy) and (2) pathways (planning to meet goals)" (Snyder et al., 1996).

Therefore, it means that there are two essential components of hope. One is the will-power or motivational energy (agency) to achieve the objectives and secondly, a positive assessment of accessible and usable means (pathways) that can be utilized to do so. Both the components are essential for the presence of hope in an individual. Another notable point is that the individual must have some goals or objectives defined for which such hope is mobilized in the conscious mind. In the absence of any goals or purpose, it is not possible to experience hope.

Hope has been found to relate to several organizational outcomes. It has been found in Chinese factory workers that hope is related to supervisory rated performance (Luthans et al., 2005). It has also been found the hope is related to unit financial performance and satisfaction and retention of employees (Peterson and Luthans, 2003), and employee performance, satisfaction, happiness and commitment (Luthans and Youssef, 2007).

Resilience: The concept of resilience has been adapted from resilience theory which originated from the study of adolescents who were able to recuperate and bounce back successfully after considerably adverse circumstances (Masten, 2001). Applied to the workplace, resilience is defined as the "positive psychological capacity to rebound, to 'bounce back' from adversity, uncertainty, conflict, failure, or even positive change, progress and increased responsibility" (Luthans, 2002a). It has been found that this psychological strength can increase and develop after an individual comes back to normal state after successfully recovering from an adverse event (Richardson, 2002). This means that when a person successfully deals with the stressors and crisis of an adverse event, he rises to a higher level of tolerance and immunity towards stressors. Therefore, Luthans (2002a) propose resiliency to possess a synergic relationship with the other factors of PsyCap, and in support of it, cite the positive effects of efficacy by quoting that "Success usually comes through renewed effort after failed attempts. It is resiliency of personal efficacy that counts" (Bandura, 1998, p. 62).

Resilience has not gained extensive organizational research but there are a few publications that appear in academic literature. For example, in a study of a Chinese factory undergoing significant changes and restructuring, workers' resiliency was found to significantly relate to performance rated by their supervisors (Luthans et al., 2005). In another study, it was

found that resiliency is related to employees' happiness, satisfaction, commitment (Youssef and Luthans, 2007).

Optimism: Optimism has been proposed as another underlying dimension of Psychological Capital by Luthans and his colleagues. For the purpose of specific definition and theory building, optimism has been defined by Seligman by drawing upon the attribution theory. According to him, optimism is a style of attribution whereby an individual attributes positive outcomes with internal, permanent and global factors and negative outcomes or events with external, temporary and situation-specific factors. This means that in case of a positive outcome, an optimist will believe that it has been caused due to personal abilities, it will be a lasting achievement and it will enhance other aspects of life as well, and when faced by an adverse situation, that individual will be sure that this situation is not due to his own weaknesses, will not last for a long time and will not undermine other things going on in life (Seligman, 1998). However, for the purpose of optimism to be useful at workplace, it must be supported by a realistic assessment of the situation. Unrealistic confidence in a failing situation can lead to a worsened failure. Therefore, while defining optimism at the workplace, it has to be assessed as realistic optimism (Luthans, 2002c). Realistic optimism has been defined as a realistic assessment of what can and cannot be done in given situation and is a dynamic and changeable state-like characteristic of human behavior (Luthans et al., 2007a).

There is extensive research evidence that optimism is related to several positive states and behaviours. For example, optimism has a strong influence on physical and psychological well-being. Furthermore, it also enhances a person's determination, commitment and motivation towards his goals and therefore, increases athletic as well as academic performance. Realistic optimism is a highly desirable characteristic by leaders and managers. Some of the qualities of an optimistic individual are that they "are easily motivated to work harder; are more satisfied and have high morale; have high levels of aspiration and set stretch goals; persevere in the face of obstacles and difficulties; analyze personal failures and setbacks as temporary, not as personal inadequacies, and view them as one-time unique circumstances; and tend to make one feel upbeat and invigorated both physically and mentally" (Luthans, 2002c, p. 64). It has been found that there is a positive relationship between optimism and performance in industrial sales agents (Seligman, 1998) and also in a study of Chinese factory workers, optimism was found to have a significant

positive relationship with their rated performance (Luthans et al., 2005). In another study, optimism has been found to relate significantly with performance, happiness and job satisfaction (Youssef and Luthans, 2007).

Self-Efficacy: The fourth and last component of PsyCap is identified as Efficacy. For application in the workplace, self-efficacy has been defined as "the employee's conviction or confidence about his or her abilities to mobilize the motivation, cognitive resources or courses of action needed to successfully execute a specific task within a given context" (Stajkovic and Luthans, 1998b). Self-efficacy is different from hope or optimism as it is an assessment of an individual level of confidence in his or abilities to successfully execute a task or achieve an objective. Whereas, hope is the presence of motivational energy and an assessment of feasible pathways to utilize in order to achieve goals, and optimism is a realistic assessment of the resources (both personal and organizational) as well as a congenial climate to do so, self-efficacy is the self-confidence in abilities and capabilities that a particular objective can be achieved (Luthans et al., 2007a). Self-efficacy has been claimed to be the most relevant criteria for inclusion in the factors of PsyCap (Luthans et al., 2007b). There is extensive research evidence that self-efficacy is influential in performance. In a wide meta-analytical study, self-efficacy was found to have a strong positive relationship with performance (Stajkovic and Luthans, 1998a). Bandura and Locke (2003) cite nine meta-analytical studies that assess the causality of self-efficacy in influencing performance in various contexts, e.g work-related performance in laboratory and field studies, psychosocial functioning in children and adolescents, academic achievement and persistence, health functioning and athletic performance, etc, and it was found in all such contexts that self-efficacy significantly contributes to motivation and performance.

2.4.3 Research support for PsyCap

Using these four dimensions of hope, resilience, optimism and self-efficacy, Luthans and his colleagues have proposed the construct of PsyCap as an underlying, higher-order core factor of these four dimensions. This construct of POB has gained both conceptual and empirical recognition. Psychological capital has been found to relate to performance (Luthans et al., 2007a), satisfaction (Larson and Luthans, 2006) and commitment (Luthans et al., 2008). It has also been found that PsyCap as a composite construct relates more consistently with performance than its individual dimension separately. This means that

PsyCap when taken together has a synergic effect, where adding up all the dimensions does not only result in addition, but something more (Luthans et al., 2007a). In another study, across three heterogeneous samples, it was found that PsyCap related to performance, satisfaction and commitment. It was also found that a supportive organization climate related to satisfaction and commitment. Also, PsyCap plays a mediating role between supportive climate and employee performance (Luthans et al., 2008). This means that individuals possessing the qualities of hope, resiliency, optimism and efficacy are more likely to perform better, be satisfied and committed to their organizations.

2.4.4 Scope of POB

Limiting a broad perspective such as POB to a few variables considerably restricts the scope of this concept. Positivity in organizations comes from several sources, which can be found at multiple levels of the organization, i.e. the individual level, group level and organizational level. Restricting POB to five individual level variables limits enquiry into the other levels of organization. Also, assessing it only through a few state-like variables excludes enquiry into all the positive processes and dynamics that are underlying such states.

Realizing this limitation the author had applied to POB, Luthans, et.al (2008) note that many other emerging concepts of positivity are likely to be included in this discipline, e.g. work engagement (Schaufeli et al., 2006), psychological ownership (Dyne and Pierce, 2004), psychological well-being (Wright and Cropanzano, 2004) and wisdom, courage and forgiveness.

2.5 Positive Organizational Scholarship

Based on the movement of positive psychology, but broader in scope than Positive Organizational Behaviour, a similar stream of academic literature emerged almost a decade ago. Where POB is mostly focused on positive behaviours and their antecedent traits and capabilities, an almost similar development comes from the work of Cameron, Dutton and Quinn (2003), which is termed as Positive Organizational Scholarship, and is wider in scope to POB as it takes into account the study of processes and dynamics, rather than only

the traits and states of positivity, and thus seeking to create the *'best of human condition'* (Cameron et al., 2003, p. 4). POS is described as not a ...

> "single theory, but it focuses on dynamics that are typically described by words such as *excellence, thriving, flourishing, abundance, resilience* or *virtuousness*. POS represents an expanded perspective that includes instrumental concerns but puts an increased emphasis on ideas of "goodness" and positive human potential. It encompasses attention to *the enablers* (e.g., processes, capabilities, structures, methods), *the motivators* (e.g. unselfishness, altruism, contribution without regard to self), and *the outcomes or effects* (e.g., vitality, meaningfulness, exhilaration, high-quality relationships) associated with positive phenomenon" (Cameron et al., 2003, p. 4).

POS is also different from POB because for a concept to meet the inclusion criteria of POB, it is essential that there can be strong evidence that it relates to performance (Luthans, 2002c). Therefore, POB excludes all those aspects of organizational behaviour that do not contribute to performance. Although, one of the primary goals of an organization is essentially maximization of performance, but this is the point where organizational research has limited itself only to the CMP (commitment to management) approach (Section 2.3.2) (Wright, 2003). Therefore, the focus of positive research should not only be limited to concepts that can be directly linked to performance. The purpose of organizations is not only limited to maximizing their own profits, but also to contribute positively towards the well-being and growth of its employees and towards society on the whole. In this sense, POS does not exclude the traditional positives investigated under the banner of organizational studies, such as improving organizational efficiency, enhancing performance or increasing profits, but it is more inclined towards "conditions that are life-giving, generative and ennobling" (Cameron et al., 2003, p. 10).

2.5.1 POS as a fresh lens

Cameron et al. (2003) explain that POS is a new lens to look at the reality of organizations. Through this lens, phenomenon that remained hidden previously can be highlighted and revealed, and therefore, investigated. *It offers new ways of looking at old phenomenon.* POS is not about discovering some unique organizational reality, but a *unique* way of

looking at reality. So, when Lazarus (2003) blamed the initiators of positive psychology in one of his most vitriolic assessment of positive psychology movement by declaring that it makes ‘‘the spurious claim of being new, but, in reality, in one form or another, it is thousands of years old” (p.94), he probably did not realize that none of the scholars had ever made the claim that it is new or has never been discussed in literature before. Rather, Seligman and Csikszentmihalyi (2000, p. 64), when introducing the idea in one of their seminal articles, initiates the account by first mentioning that the concept of positive psychology was discussed decades ago by Maslow in 1950’s (section 2.3). Therefore, as Luthans and Avolio, (2009, p. 295) have made a very interesting claim about POB that it does not matter whether it is “*old wine in old bottles or old wine in newer bottles*” but that the *old wine is being examined today in a “new restaurant”*, the same will also hold true for POS. Or we can say that it is a “new laboratory” where new tools and machines are being used to assess the same objects but using different “criteria”. Cameron et al. (2003) give several examples such as, “POS can help traditional network and social capital research uncover energizing and generative relationships; typical work on adaptation can uncover new patterns of replenishment and resilience; typical work on informal exchange and learning can uncover new pathways for knowledge creation; typical work on motivation can uncover unexpected and transcendent motivational dynamics; and typical work on problem solving and deficit gaps can uncover abundance gaps” (p. 10).

2.5.2 Elements of POS

In their book, *Positive Organizational Scholarship: Foundations of a New Discipline*, Cameron et al. (2003), explain the three elements of POS, i.e., positive, organizational and scholarship.

Positive: POS seeks to investigate the positive, which include positive states, dynamics and processes, e.g. vitality, resilience and meaningfulness are positive states and positive interactions, altruism and upward spirals are processes that are associated with enabling such positive states. By putting forward the search for positive, POS does not claim that traditional organizational studies investigate only the negative aspects, but that POS is a commitment to seek the best through the positive lens. POS is specifically interested in discovering those positive processes, known as upward spirals that are non-linear, exponential effects of positive states and processes. Based on Fredrickson’s work of positive emotions’ broaden and build theory, the authors expect to investigate those

positive spirals that trigger exponential positive outcomes and spread in a non-linear multiplicative manner.

Organizational: POS seeks to examine positive states and processes in the context of organizational settings. Whereas, positive psychology is a movement directed towards the entire human situation, POS is specifically concerned with applying the positive lens to the processes and activities of organizational context. Some examples to differentiate between POS and traditional organizational studies are;

> i. "POS spotlights how the virtuousness of organizations is associated with financial performance in the context of downsizing, in contrast to a more typical focus on how organizations try to mitigate the harmful effects of downsizing, or;
> ii. how organizational practices enable individuals to craft meaningful work through fostering individual "callings" in contrast to a more typical focus on employee productivity or morale, or;
> iii. how the cascading dynamics of empowerment create broader inclusion of stakeholders in public organizations, in contrast to a focus on the political dynamics of stakeholder demands, or;
> iv. how building on strengths produces more positive outcomes in a diverse array of settings such as classroom learning, employee commitment, leadership development, and firm profitability, in contrast to a more typical focus on managing or overcoming weakness" (Cameron et al., 2003, p. 6).

Scholarship: As already discussed in Section 2.2, there has been a deluge of literature in the self-help accounts of various authors to provide advice on ways to achieve health, happiness and success in life. These books have found much acclaim in the general public and have become bestsellers. However, as noted by other researchers in the positive stream, e.g. Fred Luthans in POB, Martin Seligman and Barbara Fredrickson in Positive Psychology, the authors of POS also assert that there is a need for the academic field to systematically investigate the positive through rigorous scientific process. Self-help

accounts might serve particular needs for the general public but they cannot be used to develop and spread knowledge through formal teaching and practice. For this purpose, researchers must scientifically confirm the credibility and authenticity of these phenomena, and this requires academic scholarship. This calling for scholarship to researchers in the field of organizational studies by authors of POS is the third element of this discipline.

> "POS requires careful definition of terms, a rationale for prescriptions and recommendations, consistency with scientific procedures in drawing conclusions, and grounding in previous related work. An interest in POS implies a commitment to the full spectrum of activities involved in scholarship..... the success and sustainability of this field requires balanced attention to research, teaching, and practice as three important elements of scholarly endeavour. A bias of POS is to develop theory and research in service of teaching and practice" (Cameron et al., 2003, p. 6)

2.6 Summary

In this chapter, the discussion has been opened by presenting an introduction about the development of organizational behaviour research towards the positivity movement. The need for researching the positive has been identified and the disproportionate emphasis on exploring the negative has been discussed. Then, the three major research streams initiated in recent literature on positivity have been identified. These are the positive psychology movement, positive organizational behavior and positive organizational scholarship. Each stream of literature has been discussed in terms of its development and scope and their differences have been identified. The groundwork for introducing the concept of Vitality at Work has been carried out in this chapter and the following chapter will introduce VAW in the light of discussion carried out in this chapter.

Chapter 3: Conceptualizing Vitality at Work

Chapter Objectives

This chapter aims to;

1. Conceptualize Vitality at Work in the light of positivity literature and the symbiotic relationship between individual and organizational health.
2. Present previous literature on the concept of vitality in higher education.
3. Identify existing models of vitality and present the proposed definition and model of Vitality at Work.
4. Introduce the factors of Vitality at Work identified in the light of the proposed model and dimensions of VAW.
5. Discuss the conceptual relationship of VAW with performance.

3.1 Conceptualizing Vitality at work

Having reviewed the movement toward positive OB/OS, there is no integrative concept or overarching framework available in the literature that combines individual well-being and effectiveness. This thesis attempts to develop such a construct which has been termed here as Vitality at Work. This holistic concept of "Vitality" is geared towards describing enthusiasm, energy and well-being as specifically directed towards work. This concept is based on the theoretical arguments of Positive Psychology, is similar to Positive Organizational Behaviour in its methodology, and is contextually based on the elements of Positive Organizational Scholarship. It is based on the positive psychology movement because it aims to define and investigate the condition of individuals based on positive criteria of health and well-being (Seligman and Csikszentmihalyi, 2000). It conceptualizes a state of health and well-being that promises the sustainability and flourishing of human strengths that are directed towards work and organization. It is similar to methodology with Positive Organizational Behaviour because it identifies criteria for inclusion and conducts a scientific procedure of testing much similar to confirmation of the phenomenon of Psychological Capital in POB (Luthans et al., 2007a). Finally, it is contextually placed in the field of Positive Organizational Scholarship because it is specifically concerned with organizational studies, investigates the positive and is an endeavour to create academic scholarship by contributing to knowledge in this discipline (Cameron et al., 2003). The concept of Vitality has already been discussed in literature but has neither been clearly defined nor measured (Baldwin, 1990; Bland and Schmitz, 1988). It has also been investigated with reference to individual health and well-being in organizations, but only as a uni-dimensional concept (Ryan and Frederick, 1997). Therefore, there is an obvious gap in the literature to develop and define a comprehensive concept of Vitality which brings together positive organizational attitudes and positive individual attitudes under an umbrella term.

Apart from the specific organizational literature, the propositions of intrinsic motivation and worker involvement are found in much earlier work of Karl Marx in his book *Capital.* Marx may not have employed such contemporary terminology to describe these concepts, but his work clearly refers to them in a productive exercise of labour. Marx (1867) states

that when the capitalist purchases the work of an individual to utilize it for production, such work turns into labour. Therefore, the very nature of capitalism transforms work into labour; labour which does not take into account the human nature of work which must include the factor of interest and involvement of the worker. According to him, work is an instinctive interplay of the individuals' interests and the object of production. The worker gains an intrinsic satisfaction in creating the product. The author states,

> "Besides the exertion of the bodily organs, the process demands that, during the whole operation, the workman will be steadily in consonance with his purpose. This means close attention. The less he is attracted by the nature of the work, and the mode in which it is carried on, and the less, therefore, he enjoys it as something which gives play to his bodily and mental powers, the more close his attention is forced to be" (Marx, 1867, p. 124).

While working on an object, an individual exercises his imagination and creativeness to arrive at the finished product. This involvement of creative imagination differentiates human labour from animal labour. The author illuminates this fact by the example of a bee who constructs impeccable housing structures for its livings, but what differentiates the worst architect from the best of bees is the fact that the finished structure existed in the mind of the architect before the process of construction started. Thus, while criticizing the foundations of capitalist systems, Marx proposed fulfilment, meaningfulness and flourishing at work that are now gaining attention centuries later.

Of similar interest to the discussion is the work of Nussbaum and Sen (1993). The authors have presented an alternative approach to the utilitarian and capitalistic model of society by proposing the idea of human capabilities. In a strictly capitalistic society, the human and social aspect of human beings is not recognized and therefore work is merely considered a commodity which can be bought and sold. This ignores the aspect of human interest and attachment with work. Also, the concepts of human dignity and moral values are disregarded. Nussbaum and Sen emphasize the importance of capabilities as a unique resource that is more than the monetary value of labour produced by them. Capabilities are the resources that keep the fabric of human society intact and enhance the quality of life through social interaction and learning. Vitality at work is also a similar resource that is

generated and maintained through the interplay of human capabilities. Sen (1993) also relates the concept of capabilities to health and well-being of the individual. A critical aspect of the capabilities approach is the notion of 'human flourishing', which in essence entails the ability to live a fulfilling life (and the right to do so).

3.1.1 Health in Organizations

Parallel to the positive psychology and POS, there has been a body of literature introducing the concept of health in organizations (Quick et al., 2007; MacIntosh et al., 2007). In line with the medical phenomenon of preventive medicine, where the objective is to promote health and well-being, so that disease and suffering can be prevented, the idea of preventive management is proposed. It is essential to prevent stress, burn-out and fatigue in organizational members, because these ailments lead to an organizational cost in the form of deviant behaviours, violence, sexual harassment and ultimately reduced productivity (Quick and Quick, 2004). Based on positive psychology and positive organizational scholarship, it is claimed that healthy and happy employees and managers are the touchstone for organizational health (Quick et al., 2007).

The interdependence of individual and organizational health is not a very recent phenomenon in literature (MacIntosh et al., 2007). It was perhaps first proposed by Warren Bennis in his work where he proposed that the traditional yardsticks of measuring organizational performance are not adequate, and that organizational effectiveness should be measured in such a way that creates a balance between the core performance measures and individual well-being. He suggested a revised measure of organizational performance by applying mental health thinking to organizational context and proposed three dimensions of organizational health, i.e., adaptability, coherence of identity and the ability to perceive the world correctly (Bennis, 1962). A few years later, Fredrick Herzberg similarly pointed that the individual growth was the key to organizational performance and that the traditional work settings are not capable of creating a fulfilling meaning for employees (MacIntosh et al., 2007).

Traditionally, health is defined as an absence of disease. But this traditional definition of health has serious flaws as it restricts to examine an entity, individual or organization, from a disease-search perspective. For the purpose of prevention, it is essential to gather

knowledge about ways to promote health. This would first require designing a more dynamic, proactive and positive definition of health. Ryff and Singer (1998) provide a more positive definition for health by going beyond the traditional medical model of disease. They put forward three principles for defining health;

1. It is a philosophical position pertaining to the meaning of the good life rather than strictly a medical condition.
2. Health includes both the mind (mental) and the body (physical) and more importantly how they interact or influence each other.
3. Health is a multidimensional dynamic process rather than a discrete end state (Quick et al., 2007, p. 191).

Therefore, by this definition, health is not only a biological or physical state, and neither should the two aspects of mental and physical health be separately investigated, flourished and treated. "Health should overarch medicine and psychology, breaking down the dualism of mind-body distinction" (Quick et al., 2007). Furthermore, it should be taken as a philosophy towards good life; a subjectively high quality experience of life which includes the pursuit of a life-giving purpose, exercise of discipline, and practice of moral ethics.

Quick et al. (2007) propose an overarching, three-dimensional conceptual framework of assessing and promoting both individual and organizational health. They contest that regardless of culture or environment, there are three essential global super-ordinate categories of health, which encompass the physical, psychological and spiritual dimensions of well-being. These super-ordinate categories can also describe organizational health. The categories are;

a) Leading a life of purpose
b) Quality connections with others
c) Positive self-regard and mastery

Within these three super-ordinate categories, the detailed attributes of healthy entities are listed below in Table 1. According to Quick et al. (2007), these attributes encompass all the different aspects of health including physical, psychological and spiritual health. Furthermore, the authors include another dimension to the concept of health, which is the

ethical dimension. Therefore, according to them, health is a combination of all these dimensions, and not just the satisfactory functioning of biological organs. It is also argued that these attributes are directly related to the concepts included in Positive Organizational Behavior and Positive Organizational Scholarship. Specifically, in terms of POB, the attributes are linked to the initial list of POB concepts, i.e. CHOSE (confidence, hope, optimism, subjective well-being, and efficacy). This conceptualization also carries cognizance with the capabilities literature. According to Sen (1993), well-being is directly related to a person's capabilities, which are defined as the set of combination of alternative functionings available to a person to do things for his or her living. These functionings can be of the very basic nature, such as being able to nourish oneself, or complex social phenomenon such as being able to live a life of dignity and freedom. Sen describes well-being as a personal assessment of an individual's state of well-ness. Therefore, it is the subjective feeling of an individual's own sense-making of his conditions that constitute the overall impression of his state of well-being. It is the desire of all human beings to enhance their well-being, and in order to do so, they utilize their capabilities and functionings available to them. Sen (1993, pp. 36-37) notes that "the functionings relevant for well-being vary from such elementary ones as escaping morbidity and mortality, being adequately nourished, having mobility, etc., to complex ones such as being happy, achieving self-respect, taking part in the life of the community, appearing in public without shame … The claim is that the functionings make up a person's being, and the evaluation of a person's wellbeing has to take the form of an assessment of these constituent elements".

Attributes of a healthy individual	Attributes of a healthy organization
Leading a life of purpose • Clear mission and goals • Balanced – living within one's value system • Integrity • Productive • Purposeful work • Spiritual or higher purpose basis • Passion or motivation to achieve for the better good	*Leading a life of purpose* • Clear mission and goals • Give back to the community • Integrity • Quality focus • Principled • Provides opportunities for growth • Rewards or recognizes achievement
Quality connections to others • Interdependent: strong, positive social support system • Emotional competence • Mature, intimate connection to family and significant others • Communication competence	*Quality connections to others* • Open, honest communication norms • Fairness or justice in practices • Opportunity • Trust and safety norms • Mutual purpose and sense of belonging to the bigger whole • Embrace and encourage diversity of people, skills and ideas • Cohesiveness and positive affiliation • Pride in group accomplishments • Facilitates interdependent workers (high autonomy with strong social supports)
Positive self-regard and mastery • Humour • Hope and optimism • Self-efficacy or confidence • Self awareness – strength focus – a component of emotional competence • Subjective well being/happiness • Hardiness, self-reliance, and adaptability • Vigour, physical and mental energy • Personal challenge and growth goals	*Positive self-regard and mastery* • Encourage balance • Growth opportunities • Support systems for problems • Fitness support systems • Positive physical work environment • High safety focus

Table 1: Attributes of healthy individuals and organizations (Source: Quick et al., 2007)

From the table above, it is obvious that if this categorization is valid, individuals and organizations should exist in an interdependent relationship, in which they support the health and well-being of each other. It is not possible that they can operate with opposing objectives, and remain successful. Although, there has been much discussion of this symbiotic relationship in literature, but the existence of this positive relationship has not received widespread confirmation. There have attempts to related organizational effectiveness with individual well-being, but the results have been elusive. This is probably because the concept of organizational health is poorly defined and needs to be re-conceptualized by defining modified criteria for measurement (MacIntosh et al., 2007).

While one approach to confirm this symbiotic relationship could be to investigate the relationship between organizational health and individual well-being, another approach to address this question is to conceptualize a measure that can confirm that phenomenon

leading to performance and individual well-being can co-exist. For this purpose, one possibility is to be able to conceptualize a phenomenon that combines dimensions of organizational effectiveness and individual health and well-being as a single construct. If it can be shown that organizational effectiveness and individual well-being can co-exist, a major contribution can be made to the wealth of knowledge that promotes the symbiotic and interdependent relationship of individual and organizational health. Hence, this study is an effort to conceptualize such a phenomenon that combines and integrates positive organizational attitudes and positive individual attitudes in one construct, proposed as 'Vitality at Work'.

3.1.2 Previous definitions of Vitality

The *Oxford English Dictionary* (2009) defines vitality as "the power giving continuance of life, present in all living things." An individual possessing vitality feels a sense of liveliness and enthusiasm towards life. Vitality is considered to be the central source of life in a living organism, thus the four primary signs of life are termed as "vital signs". When this definition of power giving features of life is examined through the lens of positive organizational scholarship, that intends to investigate conditions of work and organizations that are life-giving, generative and ennobling (see Section 2.5), we arrive at a concept that describes the conditions of "Vitality in organizations", and when such conditions are particularly examined on the individual level, the concept can be called "Individual Vitality". Finally, in an attempt to integrate the philosophy of interdependence of individual and organizational health, personal vitality is combined with vitality applied to work. Hence, the concept of "Vitality at work" is crafted. In this study, it is intended to describe this phenomenon in terms of self-reported perceptions that essentially determine vitality arising from and directed towards work.

Kark and Carmelli (2009) note that although there has been a vast amount of recent literature about positive emotions (Fredrickson, 2001) and positive psychology (Seligman and Csikszentmihalyi, 2000), and its application to organizational behavior (Luthans, 2002c) and scholarship (Cameron et al., 2003), and that positive emotions and attitudes have an energizing and rejuvenating effect on organizational members (Dutton, 2003a), but the concept of vitality has not been well-defined and thoroughly researched. Several definitions exist in the literature, for example, vitality has been described as "those essential yet intangible positive qualities of individuals and institutions that enable

purposeful production" (Clark and Lewis, 1985, p.86). It has been defined as a feeling of being enthusiastic and energetic towards anticipated life events both physiologically and mentally, rather than being aloof, indifferent and detached from them (Kark and Carmelli, 2009). It is posited as a subjective affect of possessing energy and vigour (Ryan and Frederick, 1997). Individuals demonstrating vitality possess the qualities of enthusiasm, compassion, dedication, vigor, creativity, and regeneration (Baldwin, 1990, p.180). Perhaps the most comprehensive definition of vitality has been given by Ryan and Bernstein (2004) where they define vitality as a dynamic phenomenon, pertinent to both mental and physical aspects of functioning and thus refers to a person who is vital as energetic, feeling alive, and fully functioning.

Vitality is a subjective feeling of having energy, feeling alive and fully functioning, and a feeling of heightened arousal. It is characterized by leading a life of enthusiasm, adventure, zest and vigour, rather than doing things without any passion and involvement. Physically it means that an individual feels healthy, strong, alert and full of energy. On the other hand, psychological vitality refers to an individual's sense of confidence, control and purpose in life (Kark and Carmelli, 2009).

Vitality is defined as a state of heightened arousal, but it is not just limited to mere arousal. It is marked by a sense of energy which must be experienced positively and is available to self for positive productivity (Nix et al., 1999). Negative affects experienced through increased arousal resulting in anxiety, jittering, nervousness and anger is also energy but not necessarily vitality. Negative heightened arousal has been found to relate negatively with subjective vitality (Ryan and Frederick, 1997). Moreover, vitality is a positive emotional state. However, it is particularly characterized by a heightened level of activation and energy and is therefore different from the non-activated or inactivated positive emotions, such as happiness and pleasure (Peterson and Seligman, 2003). Therefore, "it is a positive affect emotion, which is characterized by a high level of arousal and is distinct from other emotions of positive affect with lower arousal levels (relaxed, pleased, serene, at ease, and satisfied) (Kark and Carmelli, 2009, p.789). However, all these definitions are insufficient as they do not ascertain the direction of vitality specifically targeted towards work. Therefore, it is proposed to define Vitality as *a positive affect of aliveness, health and well-being coupled with positive work attitudes in an enabling and energizing work environment.*

3.1.3 Vitality in Higher Education

The context of academic faculty is perhaps the only area where vitality has been frequently investigated in previous literature. (Clark and Lewis, 1985; Bland and Schmitz, 1988; Baldwin, 1990; Clark et al., 1986; Bland et al., 2002). It has been more than two decades since this concept first appeared in the work of Clark and Lewis. The authors note that the problem of a stagnating faculty is pervasive and that steps must be taken to lift up their diminishing performance and productivity. There are various factors identified as points of concern for the declining productivity including the changing demographics, an aging faculty, career stagnation, career plateau, and lack of institutional support (Clark and Lewis, 1985).

An institutional study of tenured faculty at associate professor and professor level was conducted by Clark et al. (1986) to identify the characteristics of highly active and "vital" academics. Vital academics were selected on exclusively performance based criteria; including extensive publications, teaching activity and administrative activities at highly productive levels. In-depth interviews were conducted with more than fifty open ended questions relating to the areas of; (1) the decision to pursue an academic career; (2) graduate school dimensions of career socialization; (3) career stages and socialization as a faculty member; (4) work interests and preference orientations; (5) dimensions of productivity and success; (6) morale, satisfaction, and perceptions of change; and (7) appraisals and future consideration. Results suggested that highly vital academics considered to possess a very dynamic career, had a high level of self-esteem, felt proud of their abilities and accomplishments and were highly involved in their professional activities (Clark et al., 1986). This qualitative study revealed a number of important observations for policy making in teaching profession. However, the authors have not given any clear definition of what means by a vital professor, and although they have noted that vitality is not only a measure of performance and productivity, they have ultimately used performance-related criteria to define a vital academic. But this study has definitely been able to establish a relationship between individual attitudes of self-efficacy, self-esteem, job involvement, confidence, and pride with performance related criteria of publication, teaching and administration.

In another study, Baldwin (1990) has investigated the characteristics of a vital professor, and distinguished between vital academics from their representative cohort. They found

that although there were several similarities between the two groups, vital professors were significantly different in their attitudes, behaviours and activities. They summarize that "Vital professors typically are individuals who challenge students academically and contribute to their overall development. Usually they participate in the governance and intellectual life of their institution and are involved in the debate of their discipline or professional field. Vital professors are curious and intellectually engaged. They enjoy the respect of their colleagues and are effective in multiple roles of members of academic profession. Perhaps, most significant, vital professors grow personally and professionally throughout the academic career, continually pursuing expanded interests and acquiring new skills and knowledge. Adjectives that would apply to vital professors include: enthusiastic, caring, dedicated, vigorous, creative, flexible, risk-taking, and regenerative."

The concept of faculty vitality, although extensively researched, has been vaguely defined. While investigating conditions under the term of faculty vitality, some researchers have measured performance and productivity (Clark et al., 1986), and others have measured a completely different attitude like faculty morale. Therefore, there was an obvious requirement in literature to comprehensively define this concept. This study has transformed the concept of Vitality from a narrow-focused productivity oriented term into a holistic and comprehensive phenomenon that encompasses well-being, positivity and effectiveness under one concept.

3.2 Existing models of Vitality

Section 3.1.2 describes in detail the process of ascertaining the definition of Vitality at work, and how it is related to previous definitions in literature, but aims to address it in a more comprehensive manner. The following table summarizes the previous literature and illustrates how the concept of Vitality at work fills a gap in literature.

Authors	Year	Subjects	Vitality defined as;	Gaps
Clark, Concoran and Lewis	1986	University faculty	An attempt to distinguish between highly successful and a representative category of professoriate. A qualitative study aiming to assess the differences between the two categories.	The concern of faculty vitality is raised, but vitality is not defined in any precise manner. Basically a qualitative study to describe the characteristics of highly successful professorate.
Baldwin	1990	University faculty	Another attempt to distinguish between vital and representative category of faculty. A qualitative study giving results of an exploratory investigation.	Vitality is only defined in productivity terms. Aims to describe the characteristics of a productive faculty member
Bland et al.	2002	University faculty	A multi-level measure of faculty and institutional characteristics in order of assess productivity	A purely productivity oriented model. Does not account any aspects of health and well-being
Ryan and Fredrick	2007	University students	A positive feeling of energy available to self	Uni-dimensional concept targeted only to describe the feeling of energy. Does not include sense of well-being. Does not relate to work
Ronit and Carmelli	2009	Part-time graduate students	A feeling of positive energy at work	Does not include a sense of overall well-being; does not include any work specific attitudes

Table 2: Previous literature on Vitality

3.3 Proposed Model of Vitality

It is obvious from the above table that there is a gap in literature in terms of providing a precise and comprehensive definition of vitality. In this thesis, vitality has been defined as

> a positive affect of aliveness, health and well- being coupled with positive work attitudes in an enabling and energizing work environment.

This definition, developed by drawing together a disparate set of existing studies, makes clear that there are some underlying conditions relating to vitality. These are;

1. It is an affect, therefore, it is a subjective feeling of well-being, energy and enthusiasm which is considered available to self for productivity.
2. This feeling of energy and well-being is enhanced by positive and high-quality connections at workplace which become a source of revitalization for the individual.
3. The positive feeling of energy and well-being is translated into an involvement and commitment to work. Such involvement complemented by energizing connections supports flourishing of the individual and brings meaning to overall human life, therefore generating positive feelings of energy and well-being. Henceforth, this makes it a self-renewing model of vitality.

This model of vitality is a self-renewing cycle, where the recipient of energy is a source of it as well. The following illustration explains how vitality transforms into various forms but does not get used in the process.

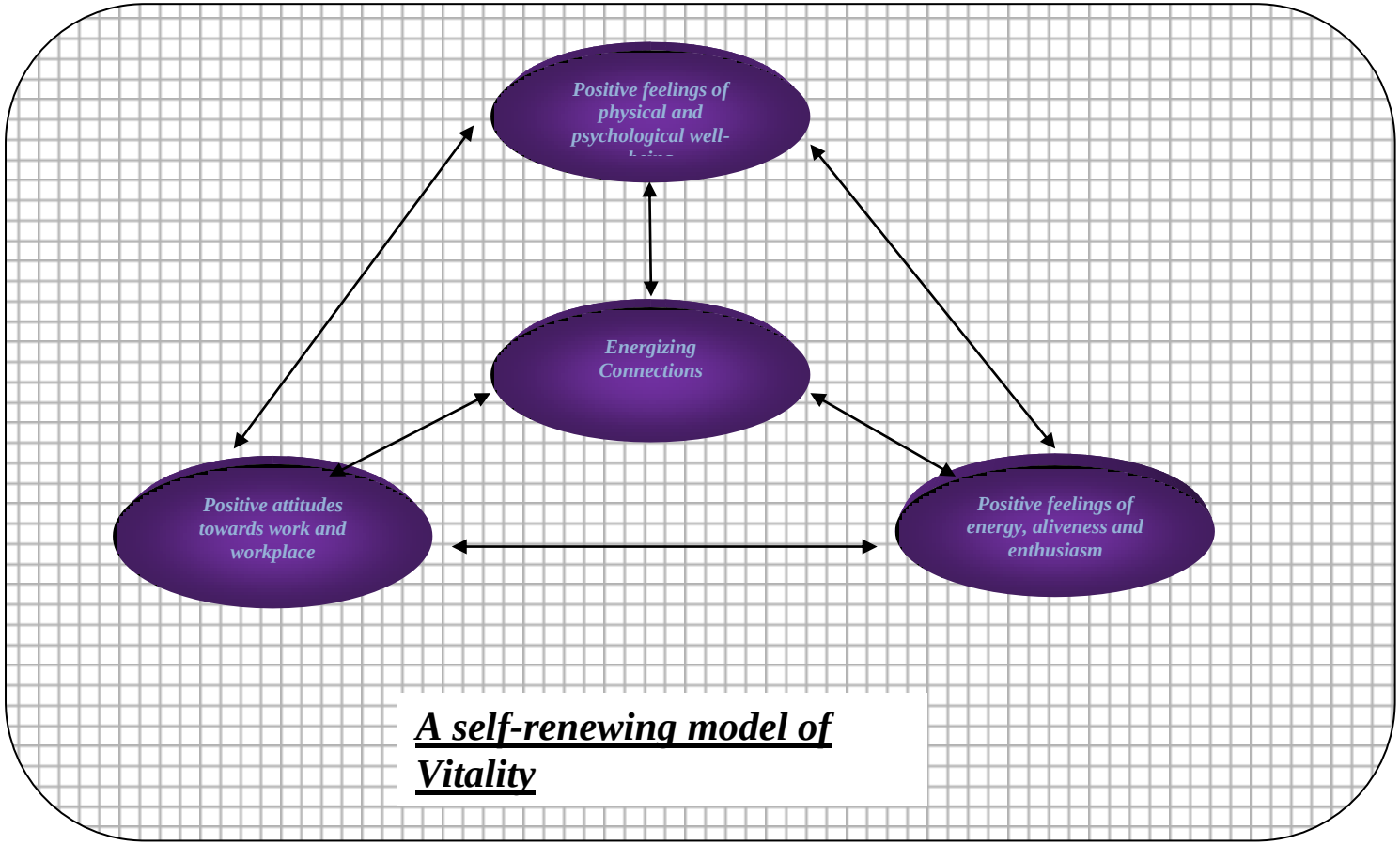

Figure 2: A self-renewing model of Vitality at Work

The figure shows that a positive feeling of physical and psychological health gives rise to a positive feeling of energy, aliveness and enthusiasm. This energy is available to be utilized at work, which results in a positive feeling of work attitudes. When a person is positively motivated towards the work and workplace, it gives rise to a high level of involvement with work and commitment to the workplace. This involvement and commitment leads to a meaningful experience of work. The element of energizing interactions at work reinforces energy and vitality in individuals and enhances their physical and psychological health and also facilitates commitment to and involvement in work activities. In this manner, vitality is generated at each point rather than getting consumed.

This model of vitality is also parallel to the symbiotic relationship of individual and organizational health (MacIntosh et al., 2007, p. 2; Quick et al., 2007). When healthy, happy and enthusiastic employees direct their efforts towards work and workplace, in an environment where energizing and high quality interactions are fostered, a meaningful work experience is generated. This meaningful experience becomes a source of positive energy and feeling of well-being (Antonovsky, 1979), and therefore, vitality is transferred from one side to the other, but does not get consumed.

3.4 Introducing the Factors of Vitality

It is already established that work-oriented vitality has never been defined, described or measured in literature before. This study presented a definition and essential elements of the proposed model of vitality. According to the self-renewing model of vitality, there are three essential components;

a) positive feelings of well-being and energy;
b) positive organizational interactions; and
c) positive work attitudes

Each of the three components will be represented by one or more concepts which are called here, factors of Vitality at Work. According to the criteria of the self-renewing, symbiotic model of vitality, the following concepts are identified as the underlying, integral dimensions of Vitality at Work. For each factor of VAW, appropriate instruments were identified for measurement. It was found that there was no adequate instrument for Energizing Connections, and therefore a new instrument was designed to measure this

construct. For other factors, instruments were either used without any alteration, or were modified according to requirement. For Perceived Health and Energy, new items were added to a previous instrument. The next chapter will describe each of the concepts individually. Each section will explain previous literature and empirical evidence that supports selection of each concept as a factor of vitality.

DIMENSIONS OF VITALITY	FACTORS OF VITALITY	INSTRUMENT
Positive feeling of health, energy and well-being	1. Sense of Coherence	1. Previous instrument adapted
	2. Perceived Health and Energy	2. Previous instrument modified
Positive Interactions	3. Energizing Connections	3. New instrument developed
Positive Work Attitudes	4. Job Involvement	4. Previous instrument used
	5. Organizational Commitment	5. Previous instrument used
	6. Goal Commitment	6. Previous instrument adapted
	7. Creative Work Involvement	7. Previous instrument used

Table 3: Dimensions and Factors of Vitality at Work

3.5 Conceptual relationship of Vitality at Work (VAW) with Performance

Although, this study does not empirically relate Vitality at work with some measure of performance, but this model of vitality also has a very strong connection with performance. Although the study does not undertake to investigate actual performance of the subjects, however, theoretically, it can be shown that the concept of vitality has strong links to the theoretical concept of performance. As it has been defined that Vitality at Work is a "state of readiness and enthusiasm to direct abilities and positive energy towards work", therefore, this is essentially a pre-requisite of performance. We know that performance is a

function of motivation, ability and opportunity (Robbins and Judge, 2007). The proposed construct of VAW is a subjective state, which means that it is an attitude that precedes performance. Therefore, each of the three dimensions of performance corresponds with one or more factors of VAW. As shown in Figure 3-2;

1. Motivation corresponds to Job Involvement, Organizational Commitment, Creative Work Involvement and Goal Commitment. It will be discussed in the individual sections of each factor how they relate to positive outcomes in behaviour directed towards performance.
2. Ability corresponds to Sense of Coherence and Perceived Health and Energy. VAW is a subjective phenomenon, therefore, the objective is not to measure the actual abilities of individuals, but to assess their own confidence in their abilities. Sense of Coherence is a global evaluation of a person's ability to have control of their situation, of the confidence to manage their circumstances, and to find meaning in activities they carry out in their life (Antonovsky, 1987). Therefore, regardless of what abilities a person possesses, Sense of Coherence is an appropriate measure to assess their own sense of confidence in their abilities. It is a comprehensive assessment of all types of abilities required to control and manage life activities, i.e. physical, psychological, social, emotional, as well as technical abilities required at work. The second factor associated with the dimension of Ability is Perceived Health and Energy, or it can also be termed as Subjective Vitality. This dimension is an important aspect of Vitality, since energy and well-being are integral to the construct. A person who believes to possess a good health and high levels of energy is capable to channeling it into an enthusiasm towards work.
3. Finally, corresponding with the aspect of Opportunity is Energizing Connections. The underlying dimensions of Energizing Connections are Task Enabling, Respectful Engagement, Trusting and Energizing Interaction, which altogether create an enabling environment for the individual at work.

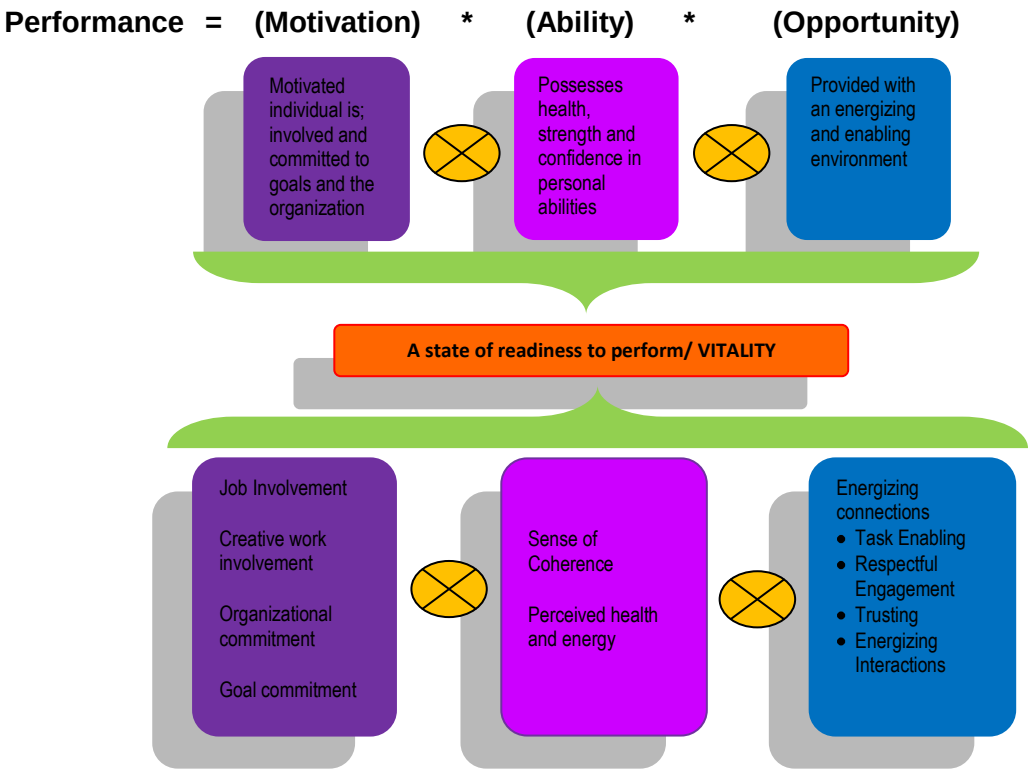

Figure 3: Conceptual relationship of Vitality at Work with Performance

3.6 Summary

This chapter has laid out the framework for conceptualizing Vitality at Work in the light of positivity literature presented in the previous chapter and the symbiotic relationship of individual and organizational health. Also, literature on the concept of vitality in higher education has been discussed and existing models of vitality have been identified. Based on the interconnectivity of these streams of literature, a gap has been identified and the definition and model of Vitality at Work has been proposed and argued by relating the concept to positivity and symbiotic individual/organizational health. Then, the dimensions and factors of VAW have been identified from its definition. Finally, a conceptual relationship of VAW with performance of an individual has been presented by associating the dimensions of VAW with elements of performance.

Chapter 4: Factors of Vitality at Work

Chapter Objectives

This chapter aims to;

1. Introduce each concept included as a factor in the model of Vitality at Work.
2. Present arguments for inclusion of each concept within the model.
3. Discuss the literature which supports the selection of each factor in the proposed model.
4. Summarize major research findings that support the interconnectivity between the integral dimensions of VAW.

In the previous chapter, the identification criteria for the factors of vitality were established. The core dimensions of Vitality were drawn from its definition and the rationale of these dimensions was discussed. Now, discussion will be directed towards explaining each factor and its process of selection for inclusion in the concept of Vitality at Work.

4.1 Sense of Coherence

In the previous chapter, the literature on "health in organizations" was introduced in Section 3.1.1, and it was established that individual well-being is essential to the concept of Vitality and is an integral component of this phenomenon. It was also established that health is not a single dimension of biological and physical aspects, but encompasses a wide variety of dimensions, including, psychological, social and emotional well-being. Therefore, by carrying out a medical evaluation of physical and somatic symptoms only, it is not possible to determine if a person *is* or *is not* in a satisfactory healthy state. Health is not just an absence of disease (Ryff and Singer, 1998). It is not a dichotomous variable by virtue of which we can declare an individual healthy or ill (Antonovsky, 1979). Therefore, a more comprehensive measure of health to establish a person's state of well-being is required.

4.1.1 The concept of salutogenesis

It has been found that the *search for positive* was introduced much earlier in health sciences as compared to organizational sciences, when Antonovsky and his colleagues introduced the concept of *salutogenesis*, whereby emphasis is placed on factors that bring "health-ease" rather than those that bring "dis-ease" (Antonovsky, 1979; Antonovsky, 1987; Epperly, 1988). This concept of health in medical sciences is identical to the positive psychology movement in psychology and positive organizational behavior and positive organizational scholarship in organizational studies. In contrast to *pathogenesis* that pervades medical sciences and occupies itself with searching the origin of disease causing "bugs" as termed by Antonovsky, salutogenesis is concerned with identifying those factors which promote health and well-being.

The literal meaning of salutogenesis comes from two Latin words; *genesis* meaning origin and *saluto* meaning health; therefore, *salutogenesis* means the origins of health.

Salutogenesis stands in contrast with pathogenesis which has been the main focus of medical and social sciences for centuries. This concept has been presented from the field of sociology, where Aaron Antonovsky investigated several aspects of illness, stress, crisis and disease. He started his research career by writing a PhD dissertation about cognitive coping responses to a socially structured psycho-social stressor (p.2)[1]. In later years, he was committed to hypothesize stressor as an objective phenomenon and to draw conclusions about stressors and disease (p.3).

The major turning point that changed Antonovsky's perspective about stressors and coping was editing of a book called Poverty and Health (Kosa, Antonovsky, and Zola, 1969) that sought to investigate why the poor are always in a difficult situation with respect to health, illness and recovery. He came to the conclusion that not only the poor were more exposed to the stressors; they suffered more because they also had less ability to deal with the stressors, which he called "wherewithal" (p.3). From this study, he proposed the concept of tension management. He proposed that stressors create strain, and stress is the portion of this strain that cannot be successfully overcome through coping strategies. Some people are more capable of overcoming the tension and are therefore, under less stress and vice versa.

His next project was conducted on the occurrence of heart disease in North Americans migrating to Israel. His model of stress and heart disease was based on the hypothesis that "what is important for [the] consequence [of a life crisis] is the subjective perception of the meaning of the event rather than its objective character", which later he realized that could be applied to any illness and not just to coronary heart disease. He concluded that what he was interested in could be called *breakdown* rather than any specific disease.

4.1.2 Generalized resistance resources

Embarking on this new perspective of investigating breakdown as a dependent variable, Antonovsky became disinterested in identifying any specific stressors or disease-causing factors. He realized that focusing attention on any single stressor ignored all other situational factors affecting breakdown. Rather than investigating a single stressor, Antonovsky decided to relate an individuals' overall resistance capability in coping with

[1] Unless otherwise stated, all references to page numbers in Section 4.1.2 and 4.1.3 originate from Antonovsky (1979).

breakdown. At that time, he termed the independent variable influencing breakdown as *generalized resistance resources.* He writes;

> "Because the demands which are made on people are so variegated and in good part so unpredictable, it seems imperative to focus on developing a fuller understanding of those generalized resistance resources which can be applied to meet all demands" (p.5).

Moreover, Antonovsky conceptualized breakdown as a continuum.

> "Not being a clinician, I was not caught in the bind of categorizing people as healthy or sick. It was clear to me that a lot of us, as long as we are alive, are in part healthy and in part sick, that is we are somewhere on the breakdown continuum."

4.1.3 The magnitude of illness

In fact, if we focus ourselves on identifying illnesses, there are so many types and kinds of ailments, physical, psychological, social and emotional, that there will hardly be any people which we can call *completely healthy.* Antonovsky makes it very clear in a detailed description of morbidity data that a great proportion of us are unhealthy to some extent by any given measure.

> "At any one time, at least one third and quite possibly a majority of the population of any modern industrial society is characterized by some morbid condition, by any reasonable definition of the term. Or to put it another way, deviance, clinically or epidemiologically defined, is "normal". That is, significant departures from the clinical pictures of health are, statistically, far from unusual" (p.15).

Antonovsky provides extensive evidence of this fact that a great majority of us are suffering from some kind of disease or ailment in the first chapter of his book *"Health, Stress and Coping"*. For example, he cites a study of White, Williams and Greenberg (1961) stating;

> "Data from medical care studies in the United States and Great Britain suggest that in a population of 1,000 adults (sixteen years of age and over) in an average month 750 will experience an episode of illness and 250 of these will consult a physician."

In addition to this, there are number of studies on various kinds of diseases including; chronic diseases like obesity, heart disease, arthritis, hypertension, hemorrhoids, diabetes, anemia, hay fever, diseases of the thyroid, asthma; notifiable diseases such as gonorrehea, chickenpox, syphilis, measles, hepatitis, tuberculosis etc; chronic diseases such as common cold, infective and parasitic diseases, respiratory disorders, digestive-system disorders, etc; and other impairments and disabilities leading to restricted or reduced activity. There is convincing evidence that disease is more common than we normally expect.

However, although the statistical data shows such staggering statistical numbers of malfunctioning human body, another study on the subjective assessment of health in National Health Interview Survey in 1973 reported that 48.7 percent of the population considered themselves to be in excellent health, 38.4 percent in good health, 9.4 percent in fair health, and 2.8 percent in poor health. This study stands in stark contrast to the data on occurrence of disease statistically. Antonosky notes that such a high level of variation in results on health and disease by using a different methodology cannot be explained or reconciled without looking at the phenomena of health from a different perspective, which is termed by him as "salutogenesis".

The objective of salutogenesis is to investigates the mystery that despite of so much of disease and malfunctioning, what makes people survive, what makes them stay healthy and *"why some people's health is such that they go through life for some of the time with relatively little pain and suffering"* and to apply such knowledge to devise strategies and policies that can reduce the pain and suffering of the entire population (p.36). Salutogenesis calls for "health-promotion" rather than "disease-eradication".

Antonovsky (1996) notes that conceptually, health promotion underlies the grand WHO vision which describes health as "a state of optimal physical, mental and social well-being, and not merely the absence of disease and infirmity." However, although revolutionary in its definition, the concept has undergone the danger of stagnation, and efforts have not been made to develop it theoretically through research and testing. Salutogenesis and health promotion appear to be very attractive, but there has been a lack of any theoretical framework for it. Antonovsky writes that an important literature on health promotion processes of Public Health Promotion in the series Oxford Textbook of Public Health does not contain any theoretical analysis of the concept and goes on describing measures of

disease prevention, whereas, disease-prevention is also a theoretical outcome of the pathogenic model of health.

4.1.4 From GRRs to Sense of Coherence

As already stated that in the search for such a theoretical framework for salutogenesis, Antonovsky arrived at the concept of Generalized Resistance Resources, which are defined as *"a property of a person, a collective or a situation which, as evidence or logic has indicated, facilitated successful coping with the inherent stressors of human existence"* (Antonovsky, 1996, p. 15). The next step in the theoretical development of salutogenesis was a study on women coping with the stressors of menopause, in which the women were also asked if they had been in a concentration camp in World War II. Antonovsky notes that results showed significant difference in coping of women who had been in a concentration camp from the control group. However, what struck him from these results was the fact that although statistically there were lesser women coping with stressors of menopause that had been to a concentration camp than the control group, but still the number was more than just a few. *"Despite having lived through the most inconceivably inhuman experience, followed by Displaced Persons camps, illegal immigration to Palestine, internment in Cyprus by the British, the Israeli War of Independence, a lengthy period of economic austerity, the Sinai war of 1956, and the Six Day War of 1967 (to mention only the highlights), some women were reasonably healthy and happy, had raised families, worked, had friends, and were involved in community activities"* (Antonovsky, 1979, p. 7).

This realization urged Antonovsky to conceptualize the underlying, common factor behind all the Generalized Resistance Resources. He realized that what combined them, and unified them were that *"they all fostered repeated life experiences which, to put it at its simplest, helped one to see the world as 'making sense', cognitively, instrumentally and emotionally"* (Antonovsky, 1996). From his years' long investigation and research in the salutogenic model of health, he proposed the construct of "Sense of Coherence" and defined it as;

> "a global orientation that expresses the extent to which one has a pervasive, enduring, though dynamic, feeling of confidence that one's internal and external environments are predictable and that there is a

high probability that things will work out as well as reasonably be expected" (Antonovsky, 1987, p. xiii).

Sense of Coherence is a measure of an individual's ability to cope with stressors regardless of their size and magnitude. Antonovsky proposes that in the event of an encounter with a stressor, an individual with a high level of SOC will;

a. wish to be motivated to cope (meaningfulness)
b. believe that the challenge is understood (comprehensibility)
c. believe that resources to cope are available (manageability)

(Antonovsky, 1996, p. 15)

What makes SOC global is that unlike other concepts related with coping literature such as optimism, self-efficacy, hardiness, internal locus of control, empowerment, and learned resourcefulness etc., SOC is not constrained by cultural dimensions. It is a concept that does not make a substantive assessment about the actual things that construct meaningfulness, the origin of resources, the type or kind of resource that are considered useful, or the extent of information required to mobilize the resources, but the fact that they are considered to be available to the individual (Antonovsky, 1996). The substantive assessment of these dimensions will make it a culture-bound construct because such an assessment will vary significantly across cultures. To what extent does a society as a whole considers the power of praying? This question relates to the manageability dimension of SOC, and therefore, when faced by a crisis, an individual from such society with high SOC may resort to praying as a resource for coping. However, SOC is not concerned with whether it is God or government that creates such a sense of manageability, but the fact that it is present regardless of its origins.

4.1.5 The SOC Scale

In addition to theoretically proposing a concept of health based on the salutogenic model, Antonovsky has also developed a very reliable and valid measure of SOC (Antonovsky, 1987; Feldt and Rasku, 1998; Pallant and Lae, 2001). The scale has been developed through rigorous conceptual and statistical process, and a complete book "*Unraveling the mystery of health"* was published by Antonovsky detailing the process of scale development of SOC. It is a 29-item semantic differential scale developed by employing

Guttman's facet theory (Antonovsky, 1987). A shorter version including 13 items has also been equally effective in assessing SOC. A number of studies confirm that both the 29-item and 13-items scales carry significant reliability and validity for measurement of SOC. In 26 studies using SOC-29 the Cronbach alpha measure of internal consistency has ranged from 0.82 to 0.95. The alphas of 16 studies using SOC-13 range from 0.74 to 0.91. The relatively few test-retest correlations show considerable stability, e.g. 0.54 over a 2-year period among retirees (Antonovsky, 1993). The reliability, feasibility and validity of SOC scale are consistent across cultures, social classes and ethnic groups, and for men and women of all ages (Antonovsky, 1996). The SOC construct has been tested in many studies for its relationship with other measures of physical, psychological and emotional well-being and it has been found that it significantly relates with all dimensions of human health (Antonovsky, 1996).

The above discussion on salutogenesis and concept of SOC clearly demonstrates that employing 'Sense of Coherence' to assess an individual's state of health and well-being is most justifiable. Theoretically, it also aligns with positive psychology and positive organizational scholarship literature. The conceptual basis of salutogenesis is identical to that of positive psychology, where disease and pathologies is not the centre of attention, but the ways through which positive health and well-being can be fostered and improved.

4.2 Perceived Health and Energy

Where SOC has been employed to measure the actual state of well-being of an individual upon the Health and Well-being dimension of Vitality, Perceived Health and Energy is the factor that covers the subjective assessment of individuals about their state of health. Positive well being is a function of both somatic and subjective factors (MacIntosh et al., 2007; Ryan and Frederick, 1997), thus it is important to *be* healthy and *feel* healthy. The usefulness of Perceived health as an indicator of health status has been recognized by a number of studies (Epperly, 1988; Hunt et al., 1980; Engel, 1977).

Hunt et al. (1980) have emphasized the importance of perceived health status as an important indicator of individual health. The authors note that the relationship between objectively measured health through physical symptoms and a person's self-assessment of health status are inconsistent. There are some studies in which a high positive correlation has been found, where in some the hypothesis could not be confirmed for such a

correlation. This observation is similar to the one made by Antonovsky (1979, p. 34), in the second chapter of his book, where at first he provides a large number of data from various statistical sources that a great majority of our population is suffering from some kind of disease at a given time, but on the other hand, when asked for making a self-assessment of health status, approximately 87 percent of the population reported themselves in at least good health. One of the possible reasons for this discrepancy between objective and subjective health status is the methodology which is employed to measure health *objectively* (Hunt et al., 1980). We have already discussed in Section (3.1.1) that health has a number of dimensions that vary on physical, psychological, social, economic and ethical aspects. An objective measure of health that is based on physical symptoms assessed by a physician excludes all the other dimensions of health. Therefore, it is quite tricky and difficult to design a tool that measures health objectively and also encompasses all the dimensions of health.

4.2.1 The limitations of biomedical school of medicine

The biomedical school of medicine ignores many facets of health and well-being that are essential to proper human functioning. Engel (1977) has made an important critique on this issue and states;

> "the biomedical model embraces both reductionism, the philosophic view that complex phenomena are ultimately derived from a single primary principle, and mind-body dualism, the doctrine that separates the mental from the somatic " (p.129).

The divide between mind and body emerges from the Cartesian philosophy of reality according to which there is a divide between tangible and intangible objects. The mind and spirit have an intangible existence and therefore are essentially different from the body which is a tangible, objective entity consisting of pure *insentiment matter*. Therefore, the mind and soul are an object of enquiry in disciplines of philosophy and religion. On the contrary, the body which consists of pure matter can only be observed under the umbrella of science. The exclusion of mind as a core of spiritual and emotional existence was further escalated through the reductionist materialism of 19th century, in which the mind was considered only as a reflection of the body. Any problems of the mind were now considered to be mobilized through the body, and emotions and feelings were reduced to variations of body chemicals. Therefore, any emotional or spiritual troubles were actually

concluded to be physiological troubles which could be treated through chemical therapy or behaviour modification. *The scope of psychiatry and medicine is, accordingly, narrowed to the physico-chemical side of human existence* (Epperly, 1988).

4.2.2 Advocates of positivity and spirituality in health and healing

Contrary to the reductionist materialism are the philosophies that advocate power of the mind and spirit. According to these philosophies, whether they are proclaimed by shamanism, mysticism, sufism, faith healing or Christian science, the spirit is a powerful entity than chemical interventions in health and healing. These philosophies assert that the mind and spirit are the only true realities and the body is just an illusion. Accordingly, a person's state of health is determined by the strength of his spirit and his ability to engage the power of his thoughts to overcome stress and sickness. This has even been recognized through the "placebo effect" in medical studies. "*Good health, accordingly, is not the result of technologically sophisticated medical care, vitamins, immunizations, or even biofeedback, but depends wholly on a person's state of mind or awareness of his or her true nature*. (Epperly, 1988, p. 248).

In the absence of a comprehensive objective definition of health status, and also the contradiction between biomedical philosophy and spiritual philosophies, it becomes difficult to employ an objective measure of health in the concept of Vitality at Work. In such circumstances, it appears more valid and justifiable to use the concept of "Perceived health" as an indicator of health status, which is also complemented by Sense of Coherence.

4.2.3 Perceived Energy

Another important aspect of vitality and a very close correlate to Perceived Health (Ryan and Frederick , 1997) is the dimension of Perceived Energy. It is different from Perceived health because Perceived health measures an individual's subjective assessment of having a fully-functioning and healthy mind and body, whereas Perceived Energy assesses the extent of energy and strength available to self for productive activity. This feeling of being alive, charged and energetic is an essential and integral dimension of vitality (Nix et al., 1999). The following excerpt emphasizes the importance of this concept as an important dimension of Vitality at work;

> "People regularly speak of being particularly alive or invigorated in certain circumstances or following certain events, whereas in other

> contexts they can feel "dead" or drained. This positive sense of aliveness and energy refers to more than merely being active, aroused, or even having stored caloric reserves. Rather, we believe it concerns a specific psychological experience of possessing enthusiasm and spirit that we refer to as vitality. Individuals vary in their experience of vitality as a function not only of physical influences (e.g., states of illness and fatigue), but also psychological factors (e.g., being in love, having a mission, being effective). Because of its phenomenological centrality and its seeming covariance with both physical and psychological circumstances, the subjective feeling of aliveness and vitality potentially represents a significant indicator of personal well-being" (Ryan and Frederick, 1997, p. 530).

Perceived energy has a positive relationship with feelings of well-being including physical and somatic health (Ryan and Frederick, 1997), therefore, the two dimensions, that is Perceived health and Perceived Energy are combined together into one factor and the factor is termed as Perceived Health and Energy.

Ryan and Fredrick (1997) have conducted a series of studies investigating the relationship between "subjective vitality" and several facets of individual well-being including psychological well-being and physical/somatic factors. They have defined subjective vitality as "*a positive feeling of aliveness and energy*" (p.529), which makes it identical to the concept of Perceived Energy in this study. They have found that subjective vitality was significantly correlated with positive indices of well-being regarding physical health. They also found that it was negatively related with indices of ill-being. For example, subjective vitality was negatively related with anxiety, depression, internal locus of control and internalization. Furthermore, it was found that subjective vitality positively correlated with self-esteem, self-actualization and self efficacy. The results were also validated for their stability by taking observations at two different points in time, and results confirmed that subjective vitality was positively correlated with a stronger mental health and lesser indicators of physical dysfunctions. Also, subjective vitality correlated positively with positive affect and negatively with negative affect (Ryan and Frederick, 1997). By positive and negative affect, it is meant to define a propensity of a person in approaching life and its events in either a positive or negative manner. Those who have a propensity for negative

affect cannot experience enthusiasm or happiness, and tend to look at the world through a pessimistic lens, whereas those who have tendency to experience positive affect can approach life with enthusiasm, energy and optimism (Watson and Clark, 1993).

4.2.4 Perceived Health and Energy Measure

Ryan and Fredrick (1997) had also developed a seven-item Likert scale for measurement of subjective vitality. The scale included items that addressed feelings of aliveness, zest, energy and alertness. This scale was appropriate to use for assessment of Perceived Energy. For the assessment of Perceived health dimension, literature was reviewed to identify a feasible measure of Perceived health. A few results emerged and even those that were found did not serve the purpose appropriately. One study investigating the relationship between psychological distress and perceived health status employed a single item to measure perceived health of the respondents (Tessler and Mechanic, 1978). The most reliable and validated measure available for perceived health status is the Nottingham Health Profile (Hunt et al., 1980; Hunt and McEwen, 1980) which consisted of 38 items on six dimensions of perceived health. There were items on emotional life, pain, energy levels, social integration, physical mobility and sleep patterns. The dimensions are quite diverse and encompass several aspects of well-being. There would have been an evident overlap if Nottingham health profile was employed to assess Perceived Health. For example, emotional life and social integration are indirectly covered in Sense of Coherence and energy level is covered by Perceived Energy. Therefore, in the absence of any usable tool for measuring perceived health, it was decided to develop uni-dimensional items asking directly how the respondents felt about their state of health. Three items were developed to assess Perceived Health. With seven items from the already established scale of Perceived Energy, a total of ten items were finalized for assessing the factor Perceived Health and Energy.

4.3 Energizing connections

4.3.1 Importance of social interactions

It was found approximately three decades ago that social interaction is one of the most important activities in organizations. Kotter (1982) found that top-level managers spent a significant amount of time interacting and socializing with others, a considerable number of them being outside their immediate work unit. Then, Luthans et al. (1985) found in an observation study of managerial activities that successful managers spent a greater amount

of time socializing and politicking with other people than their less successful counterparts. Connecting, interacting and networking are therefore an important and useful work activity. Now, the focus has shifted towards investigating the quality of interactions people encounter during their work time. Efficacy of social networks (Gersick et al., 2000), the rewards of quality relationships and the effects of workplace incivility (Andersson and Pearson, 1999) and social undermining (Duffy et al., 2002) have widely been established in literature. Of particular interest to this study is the concept of "High Quality Connections", which are defined as relationships of "positive mutual regard, trust and active engagement on both sides" (Dutton, 2003b) "involves treating others with dignity, acting with regard to others' feelings, and preserving the social norms for mutual respect" (Pearson et al., 2000) and includes such behaviours that are undertaken with the intent to develop positive interpersonal connections (Duffy et al., 2002). It has been found that positive relationships can have an energizing effect on individuals (Dutton, 2003b), boost up morale at workplace (Dutton and Heaphy, 2003), and facilitate organizational learning and growth (Dutton and Ragin, 2006) . "*In a high quality connection, people feel more engaged, more open, more competent. They feel more alive"* (Dutton and Heaphy, 2003).With specific reference to academia, Gersick et al. (2000) have found that professional relationships carry more importance in the life of academics than in other careers, as being included in networks of acclaimed scholars and academic associations is considered not only a means to success but as an end in itself. Hence, Energizing Connections are expected to be significant determinants of creating Vitality at workplace.

4.3.2 What are Energizing Connections?

The concept of Energizing Connections has been derived from the idea of High Quality Connections proposed by Dutton (2003b). The author discusses at length in her book *Energize your workplace*, the contributors and consequences of high-quality connections. She proclaims that high-quality connections create energy and vitality in individuals and organizations. "*Energy is defined as the sense of being eager to act and capable of action. Positive energy is experienced as a form of positive affect, making it a reinforcing experience that people enjoy and seek*" (p. 6)[2]. It is this energizing effect of such high quality connections that is an integral dimension of the concept of Vitality. She explains that a high quality connection does not have to be a very intimate relationship. A high

[2] Unless otherwise stated, references to page numbers in Section 4.3 originate from Dutton (2003b)

quality connection is marked by everyday interactions of positivity and the energizing effect can even be triggered through a cheerful greeting or a supportive email.

> "One conversation, one e-mail exchange, one moment of connecting in a meeting can infuse both participants with a greater sense of vitality, giving them a bounce in their steps and a greater capacity to act" (Dutton, 2003b, p. 2).

The concept of energizing connections is also related to the capabilities literature (Sen, 1984) and the importance of dignity (Cumbers and McMaster, 2010). The capabilities approach is presented as an alternative against the highly capitalistic approach to society. According to Sen (1993), capabilities are defined as alternative possible vectors of functioning open to an individual (p.38). The capabilities approach is opposite to the utilitarian view of the society in which human capacity or capability is only seen as a commodity. It does not take into account the moral or humanistic energy which is essential for learning and creativity (Gasper, 1997). Just as human capabilities are important determinants of the functioning of the larger society, similar capabilities form the culture and environment of an organization. This moral and humanistic capability is transferred from one individual to the other during a positive interaction. Positive spirals are built up when energy is generated and transferred on a regular and frequent basis. As already noted, these positive interactions are marked by feelings of mutual regards; thereby they enhance human dignity (Davis, 2006), an important capability essential for creation of meaningful work

4.3.3 Behavioral outcomes of energizing connections

A substantial amount of evidence about the energizing effects of high-quality connections is presented in the book. For example, she discusses the work of (Fredrickson, 2002) about the effect of positive emotions and how positive interactions can create "positive spirals". The energy that is infused is infectious and spreads among organizational members. The creation of positive spirals is described in the following passage;

> "People who have high-quality connections experience more energy and more positive emotions such as joy, interest, and love. This state of being increases their capacity to think and act in the moment. In turn, this change

builds more capacity and desire to effectively interact with others, generating more opportunities for energy to spread" (p.7).

A similar build-up of energy is described in the work of Rob Cross, Wayne Baker, and their colleagues where they find that energy can be created and spread when people interact in a positive way. It can lead to a heightened sense of engagement, and people are able to think faster and create better quality ideas (p.7).

The benefits of high-quality connections are diverse and widespread, both for the individuals and the organizations. For individuals, high-quality connections have bi-directional benefits. On one hand, they enhance an individual's physical and psychological health and on the other, they infuse workplace attitudes that improve performance. Reiss et al. (2000) have found that people who experience a greater number of positive interactions in a day report a higher sense of well-being manifested through increased positive emotions and experienced vitality.

Dutton (2003b, pp. 11-12) discusses a number of studies that show that high-quality connections facilitate people to engage at work and deploy more of their time and energy to work activities. They are also better able to learn and create because in high-quality connections they have access to more information and learning activities. She cites the work of Williams and Dutton (1999) which shows that people in high-quality connections are more capable of engaging themselves in their job-related activities. From Kahn (1998), she cites that individuals engaged in high-quality connections are more capable of investing their time at work because such connections give them a *safe psychological haven* in which they feel free and secure to open up. From another study, she presents the argument that in high quality connections, "*one person provides safe emotional space for another, allowing for the expression of natural feelings of confusion, uncertainty, anxiety, and frustration. Expressing such feelings is often essential to letting oneself get fully connected to mastering a task or activity"* (Lewin and Regine, 2000). From the research on networks, she finds that high-quality connections provide an individual with two kinds of resources, i.e. emotional resources such as excitement or support and instrumental resources such as information, and both these resources facilitate their engagement at work (Baker, 2000). Finally, she refers to the work of Fredrickson (1998) who finds that being in high-quality connections allows people to learn more easily. Her build-and-broaden theory

explains that such connections generate emotional resources of joy, excitement and interest. These resources become the basis of creation of other psychological and cognitive resources and enhance abilities to think, focus, create and learn.

4.3.4 Corrosive connections

On the opposite end, the negative effects of corrosive connections are discussed. Corrosive connections, like high-quality connections can also be common, everyday interactions. When people encounter low-quality interactions, they are forced to spend a lot of emotional energy trying to figure out why they were treated in an unfair manner. This in turn leads to a depletion of their overall energy available to act. Low quality connections can be enervating for the organizational members. They can deplete energy in a single moment, reduce self-esteem, activate distrust, and create disrespect among parties to a low quality connection.

> "When low quality connections are pervasive in an organization, they eat away at people's ability to learn, to show initiative, and to take risks. They corrode motivation, loyalty and commitment" (Dutton, 2003b, p. 2).

The effects of corrosive connections are found in the work carried out on incivility at workplace. Uncivil behaviors are acts of being rude and discourteous, and displaying a lack of regard for other. These behaviors are exactly opposite to high-quality interactions. Pearson et al. (2000) have found that people who encounter acts of uncivil behavior spend a great deal of time thinking about the negative interaction. They also exert an extra effort in trying to avoid the person who instigated the uncivil behavior in future. Such victims subsequently refuse to contribute anything more to the organization other than what is described strictly in their job descriptions.

Another study by Rook (1984) found that negative interactions at workplace can induce stress and decreased psychological well-being. When people encounter negative behaviors, it reduces their sense of self-worth. This decline in self-esteem creates a strain on their emotional and psychological capabilities and reduces their ability to direct positive energy into action. When people are treated with disrespect, it creates confusion about their own sense of worth and they are unable to gain confidence in their abilities. This reduces their

ability to take initiative and they shirk away from challenging and creative activities. This results in a downward spiral of reduced performance and effectiveness.

In the above discussion, it has been established that energizing connections are important contributors to multi-faceted dimensions of individual functioning. They infuse energy and vigor in a person and create important psychological resources. It has been shown from literature that positive interactions contribute to an individual's physical and psychological well-being. They also create a psychological climate that facilitates concentration, creativity and initiative. They support communication and transfer of information. In such an environment, learning flourishes easily, on one hand because individuals have more freedom and security to engage in learning activities and on the other because information and knowledge are mobilized more efficiently. For these reasons, the construct of energizing connections is one of the most important candidates for inclusion in the concept of Vitality at Work.

Having established the literature support for inclusion of health and well-being factors, i.e Sense of Coherence and Perceived Health and Energy and positive organizational environment factor i.e. Energizing Connections, we now move on to discuss the literature on positive work attitudes. The work attitudes identified for inclusion are; Job Involvement; Organizational Commitment; Goal Commitment; and Creative Work Involvement. The following passages will outline the rationale for their inclusion individually.

4.4 Job Involvement

The concept of Job Involvement has a long standing existence in academic literature of more than about four decades. The first visible discussion on it was found in the work of Lodahl and Kejner (1965), although others had also written about it with other names but similar meanings. For example, Allport (1947) has talked about ego-involvement and French and Kahn (1962) state that the degree to which an ability is central to affecting the self-esteem is called ego-involved performance. However, Lodahl and Kejner (1965) addressed this concept with the particular name of job involvement and defined it in clear terms.

4.4.1 Definition of Job Involvement

Job Involvement emerges from the concept of ego involvement in the work activities and work-place. It is argued that an individual's level of involvement with his work is determined by the internalization of his job with his social existence. The concept of Job Involvement has been extensively discussed for the last four decades. Organizational scholars have made minor modifications to what Job Involvement means over the course of research, but all the definitions have one common implication, i.e. the extent to which an individual is able to match his abilities with the requirements of a job and psychological identifies with carrying out his work activities. It was defined as "the degree to which a person's work performance affects his self-esteem" (Lodahl and Kejner, 1965; Weissenberg and Gruenfeld, 1968; Gechman and Wiener, 1975), and "the extent to which work is able to satisfy an individual's ego" (Bass, 1965). However, Lodahl and Kejner (1965) initially define job involvement as "the degree to which a person psychologically identifies with work" but use the first definition to design their questionnaire and therefore, there is ambiguity in what attitude does it address and how should it be operationalized. Lawler and Hall (1970) disentangle the confusion and suggest to define job involvement as the level of psychological identification with one's work and categorize the influence of work on self-esteem, self-worth and ego satisfaction as *Intrinsic Motivation*. Later, Kanungo (1982a) has divided the concept of Job Involvement into two sub-categories; (1) the identification of an individual with his present job termed as "job involvement; and (2) the extent to which an individual attributes work to be an important part of his life, termed as "work involvement".

4.4.2 Relationship of Job Involvement with positive work attitude

Job involvement has been associated with many organizational attitudes and behaviours. A frequently tested hypotheses has been a positive relationship of JI with performance, which surprisingly has not been resulted in consistent finding, some studies show no significant relationship, (Rabinowitz and Hall, 1977; Schwartz, 1982) however, some also find a positive relationship (Hall and Forster, 1977; Hall et al., 1978; Kanungo and Wright, 1983). This is perhaps because of the different methods used to measure performance and what performance means to a particular study. Moreover, there are an innumerable number of factors affecting performance including individual, group and structural variables and also from the environmental context. In such situation, there is a possibility of unexplainable "noise" in any type of analysis. However, Job involvement has been found

to relate to other important dynamics of human behaviours, e.g. meaningful work is significantly related to job involvement, which means that the more individuals believe that their work contributes to their overall sense making and meaningfulness in life, the more involved and engaged they are in their jobs (May et al., 2004); job involvement is significantly related to motivation factors of job-satisfaction, which means that the more individuals receive recognition, have high level of achievement, are engaged in meaningful work, are given sufficient opportunities for advancement and are delegated with responsibility, the more they are involved in their work (Weissenberg and Gruenfeld, 1968); high involvement is related to more time spent on work activities (Gechman and Wiener, 1975); high job involvement is an outcome where the work provides autonomy, requires creativity, and results in higher self-perceived effort (Lawler and Hall, 1970); individuals with more experience are likely to be more involved, individuals who are more involved in their job attach lesser importance to Maslow's physiological and social needs and view the self-actualization and safety needs as more important than individuals who have lower levels of involvement (Kanungo et al., 1975); those who attribute the state of their life to personal factors (internals) were more involved than those who attribute life events to external factors (externals) (Runyon, 1973).

Rabinowitz and Hall (1977, p. 284) present the profile of a job-involved individual by the following characteristics;

> "A job involved person is a believer in the Protestant Ethic; is older; has internal (vs. external) locus of control; has strong growth needs; has a stimulating job (high autonomy, variety, task identity, and feedback); participates in decisions affecting her or him; is satisfied with the job; has a history of success; is less likely to leave the organization".

Blau and Boal (1987) find that job involvement is more related to the occurrence of absence rather than the duration and that it is a significant predictor of voluntary absence but not for involuntary absences.

Riipinen (1997) states that the relationship of job involvement with well-being has been elusive. There are some studies that show that job involvement is positively related to well-being, whereas there are also some that confirm a negative relationship. The authors have

been able to present some explanation to these contradictory findings by introducing the concept of need-congruent job involvement, and they have found that where job involvement is based on need-congruence, there is a high level of well-being. However, when job-involvement is not based on need-congruence, it is either unrelated or negatively related to levels of well-being.

From the above discussion, it has been clearly shown that the job involvement is an important work-attitude and is related to important dimensions of organizational behavior, e.g. performance in some situation, internal locus of control, success, job satisfaction, turnover, and absenteeism. It has also been found to relate to well-being in certain situations. Therefore, it has been considered for inclusion as a factor of Vitality at Work.

4.5 Organizational Commitment

The next factor that has been proposed as a factor of Vitality at Work is Organizational Commitment. Organizational Commitment has also been investigated for many years, gaining attention in the 60's and 70's by organizational behavior researchers. Sheldon (1971) conducted a study to investigate the commitment of Ph.D. scientists with their organizations and related it with their length of service. Kantor (1968) explored the origins of commitment in utopian settings and Buchanan II (1974) observed the dynamics of commitment among managers for the first time and associated it with the socialization process of an organization.

Organizational commitment has been defined as "the relative strength of an individual's identification with and involvement in a particular organization" (Steers, 1977, p.46). Buchanan II (1974, p.533) defines it as "a partisan, affective attachment to the goals and values of an organization, to one's role in relation to goals and values, and to the organization for its own sake, apart from its purely instrumental worth." Porter et al. (1974) identify that there are three underlying factors in the construct of organizational commitment: "(1) a strong belief in and acceptance of the organization's goals and values; (2) a willingness to exert considerable effort on behalf of the organization; and (3) a strong desire to maintain membership in the organization (Steer, 1977, p.46)."

4.5.1 Relationship of Org. Commitment with positive work attitude

There has been a vast amount of academic research conducted on organizational commitment. This can be pictured from the fact that one of the seminal articles on commitment by Mowday et al. (1979) on validating the Organizational Commitment Questionnaire has been cited 3219 times as reported by Google Scholar website. Organizational commitment is related to a number of work attitudes. For example, Harrison et al. (2006) found that when taken together with job satisfaction, it affects all primary job behaviours, i.e. performance, absence, tardiness, and turnover. With specific reference to academics, organizational commitment strongly relates to Organizational Citizenship Behaviours directed towards students, the workgroups and institution, thereby implicating that committed teachers are more likely to do more than required for everyone in the organization (Somech and Bogler, 2002). Another important finding about organizational commitment is its strong association with social involvements in the workplace. Sheldon (1971) has found that in the absence of social involvements, there is a subsequent withdrawal of commitment from the organization. This implies that commitment is strongly related to the quality of social interactions that a person encounters over his workplace.

4.5.2 Affective Organizational Commitment

Theoretically, it appears that high level of commitment will be related to performance. However, the empirical findings have been contrasting (Mowday et al., 1982). The reason given by commitment researchers is that organizational commitment consists of a number of facets, and it is essential to differentiate between these dimensions (Keller, 1997). The organizational commitment construct encompasses mainly two different dimensions, i.e attitudinal and calculative (Siders et al., 2001). Attitudinal commitment has later been termed as affective organizational commitment whereas the calculative dimension has been termed as continuance commitment.

> “Within this stream of research, the attitudinal dimension has been found to subsume affective commitment, value commitment, identification with an employing organization, and value congruence, and the calculative dimension to subsume "continuance" commitment, "side bets," and "sunk costs." (Siders et al., 2001, p. 571)

Out of these two primary dimensions of commitment, affective organizational commitment which has been defined as "the relative strength of an individual's identification with and involvement in a particular organization" (Mowday et al., 1982) has been found to relate more strongly with performance than any other dimension of organizational commitment (Meyer et al., 1993). Affective commitment has also been found to relate more significantly with organizationally rewarded job performance (Siders et al., 2001). Mayer and Schoorman (1993) have found that affective commitment is related to performance whereas calculative commitment is a strongly related to turnover. Organizational Commitment has also been classified into three categories; 1) affective commitment which is defined as an individual's level of identification with the organization; 2) normative commitment which is general feeling of obligation to stay with the organization; and 3) continuance commitment which refers to the costs attached with leaving the organization (Allen and Meyer, 1990). However, regardless of classifying organizational commitment into two constructs or three, the affective/attitudinal dimension of commitment has been found to relate more significantly with performance (Keller, 1997).

From the above discussion, it has been made evident that Organizational commitment is an important work behavior and qualifies for inclusion as a factor of Vitality. Out of the different dimensions of organizational commitment, the affective dimension of commitment qualifies strongly for inclusion because of its strong association with performance. Specifically to the profession of teaching, organizational commitment strongly relates to organizational citizenship behaviors. Such behaviors imply that an individual is willing to provide extra effort towards the organization, exhibiting behaviors that are not strictly required by the job description. Certainly such behaviors are not possible without an individual's strong willingness and motivation to exert effort, which is an essential element of Vitality at Work.

4.6 Creative Work Involvement

The changing organizational climates and the challenges of a competitive global environment require organizations to foster and enhance creativity (Andriopoulos, 2001). Creativity and innovation are being recognized as the key functions of an organization in today's organizational settings (Amabile et al., 2005).

The concern for creativity is even more prominent in institutions of higher education, because one of the primary functions of universities is to galvanize the creative potential of its members, students and academics alike. Creativity forms the fundamental pillars of learning and knowledge creation (Whitehead, 1962).

> "The justification for a university is that it preserves the connection between knowledge and the zest of life, by uniting the young and the old in the imaginative consideration of learning. The university imparts information, but it imparts it imaginatively. At least this is the function which it should perform for society. A university which fails in this respect has no reason for existence. This atmosphere of excitement, arising from imaginative consideration, transforms knowledge. Youth is imaginative, and if the imagination be strengthened by discipline this energy of imagination can in great measure be preserved through life. The tragedy of the world is that those who are imaginative have but slight experience, and those who are experienced have feeble imaginations. Fools act on imagination without knowledge; pedants act on knowledge without imagination. The task of a university is to weld together imagination and experience" (Whitehead, 1928, p. 148).

Whitehead (1928) points out that the mobilization of such creative potential is not possible without an exciting and vibrant environment, an environment where people feel charged and full of life, and their minds feel secure and free to create new ideas. This obviously implies that those who are able to think and create experience a higher level of zest and enthusiasm towards life and its experiences.

Creativity is defined as "the production of novel, useful ideas or problem solutions" (Amabile, 1983). It is therefore concerned with both the process of idea generation as well as the actual solution arrived at by employing a creative and novel idea (Amabile et al., 2005). It has been found that the positive affect is positively related to creativity. Isen et al. (1987) carried out four experiments to test the causality of positive affect on creativity. They induced positive affect on the subjects by showing a comedy movie or through presenting them with high-sugar content items such as candies and then asked them to work on tasks that generally require creative cognitive processes, and compared results

with subjects induced with negative affect and affectless arousal (physical activity) and concluded that positive affect significantly leads to higher creative performance. These tests were carried out on a random sample of the general public. Amabile et al (2005) applied this hypothesis specifically to organizational settings and conducted qualitative as well as quantitative analysis of daily diaries of individuals employed in seven different companies and concluded that positive affect is directly related with creativity thought process.

Creativity is further classified into dimensions, one being the actual creative performance, which is the objective measure of an individual's creative ideas being applied to problem solving and the other as creative work involvement, which is the subjective assessment of an individual being involved in creative tasks at work.

> "Creative work involvement refers to an employee's engagement (in terms of time and effort) in creative processes associated with work. As such, involvement manifests a person's subjective assessment of the degree to which he or she is engaged in creative tasks. In contrast, creative performance refers to the outcome of this involvement."(Kark and Carmelli, 2009, p. 787)

4.6.1 Creative work involvement and Vitality

In a study about creative work involvement, psychological safety and vitality, Kark and Carmelli (2009) find that psychological safety which is defined as "a belief that an individual feels safe to show and employ his or herself without fear of negative consequences to self-image, status, or career" and has very close implications with Dutton's (2003) work on high quality connections, is positively related to creative work involvement. This implies that an individual who interacts in an open and trust-worthy environment experiences the freedom and security to engage in creative process. They have also found that creative work involvement is positively related to vitality which they define as positive feelings of arousal and energy resulting from interaction with others at work.

It has been shown that creativity is an important work behavior and it is specifically important in the field of academics. Particularly, the primary purpose of existence for universities is to mobilize the creative potential of students and academics. Creativity also relates to other factors of Vitality identified in our literature search. Because Vitality at work is a subjective phenomenon and it is a self-reported assessment of respondents, therefore, we have employed creative work involvement as a contributing factor to vitality. (Kark and Carmelli, 2009) note that although it is not essential that creative work involvement will essentially lead to creative performance, but it is highly likely that the two positively relate with each other.

4.7 Goal Commitment

Finally, the fourth work attitude identified through literature review is Goal Commitment. The efficacy of Locke's Goal Setting theory has been widely established which posits that challenging and difficult goals rather than "do your best" significantly affect employee's motivation and drive towards work and result in higher performance (Locke, 1968; Latham and Yukl, 1975). A review of a number of laboratory and field studies show that in 90% of the studies difficult goals led to superior performance than in the absence of any goals (Locke et al., 1981). In fact, the goal setting theory is considered to be one of the most useful and authentic theories of organizational science. However, just the presence of challenging goals will not result in motivation unless there is an acceptance of such goals by those who have to work towards them (Locke et al., 1988). There are several sources of motivation, but whatever the source, motivation is bound to result in a high level of goal commitment.

4.7.1 Goal Commitment and its relationship with other attitudes

Hollenbeck et al. (1989) note that goal commitment is not just an end in itself; it is a means to an end, i.e. performance. They propose that in the presence of difficult goals, goal commitment is the factor that significantly influences performance. It is noted that in presence of easy goals, goal commitment may not be a significant contributor to performance, but the influence of goal commitment increases with the increase in difficulty of goals. They also found a significant relationship of goal commitment with performance in three separate studies. They also found that goal commitment is related to work involvement, implicating that individuals with higher level of commitment with their goals are also expected to identify strongly with the work that they are performing.

In another study, it has been found that goal commitment increases the level of subjective well-being. The study examined three dimensions of goals i.e. commitment, attainability and progress as predictors of changes in subjective well-being in a longitudinal study of student over one semester. It was found that goal commitment was a strong predictor of progress; student with high level of commitment with their goals showed a better level of performance. It was also found that goal commitment predicted an increase in subjective well-being given favorable situations. However, the subjective well-being of students with high level of goal commitment diminished in case of unfavorable circumstances (Brunstein, 1993). This finding has a strong implication for our study. It means that goal commitment can lead to higher levels of well-being in the presence of positive environment. The work on high quality connections implies that positive interactions and connection at workplace trigger a positive and supportive environment and improve learning and knowledge sharing. These aspects are very important in progress over difficult goals. Therefore, goal commitment combined with a supportive and energizing environment will lead to subjective well-being as well as high level of performance. Therefore, goal commitment is an important dimension of the concept of Vitality at work.

4.8 Summary

In the previous sections, evidence from previous literature has been provided which gives ample justification for each of the factors to qualify for inclusion. In the following table, the most important literature connecting each dimension of Vitality i.e. positive health and well-being; positive interactions; and positive work attitudes; with the other has been summarized. The table shows that there is sufficient literature in academic research that relates and connects each of the dimensions of Vitality with the other. Therefore, it can be expected that in the presence of such relationships and connections, an integrated framework combining all the three dimensions in one concept of Vitality at Work carries sufficient theoretical and conceptual support.

	Positive Health and Well-Being	Positive Interactions	Positive Work Attitudes
Positive Health And Well-Being	SOC ⇔ Physical and Psychological health (Antonovsky, 1996) Subjective Vitality ⇔ Physical and Psychological Health (Ryan and Fredrick, 1997)	Negative Interactions ⇔ Reduced well-being (Rook, 1984) Negative Interactions ⇔ Increased emotional effort (Pearson et al., 2000) Positive interactions ⇔ Energy (Dutton, 2003)	Job Involvement ⇔ Subjective Well-being (Riipinen, 1997) (Given that the job carries need-congruence) Goal commitment ⇔ Subjective Well-being (Brunstein, 1993) (Given favorable conditions)
Positive Interactions	Positive interactions ⇔ Enhanced Psychological safety (Kahn, 1998) Positive Interactions ⇔ Increased Daily Well-being (Reiss et al., 2000)	Positive Connections ⇔ Emotional Resources and Instrumental Resources (Baker, 2000) Positive interactions ⇔ Broaden-and-build theory (Fredrickson, 2000)	Social Interactions ⇔ Organizational Commitment (Sheldon, 1971) Psychological Safety ⇔ Creative Work Involvement (Ronit and Carmelli, 2009)
Positive Work Attitudes	Subjective Vitality ⇔ Creative Work Involvement (Ronit and Carmelli, 2009) Positive emotions ⇔ Creativity (Isen et al., 1987) Positive affect ⇔Creative thought process (Amabile et al., 2005)	Positive Interactions ⇔ Work engagement (Williams and Dutton, 1999) Positive Interactions ⇔ Enhanced learning (Fredrickson, 1998)	Org. Commitment ⇔ Job Involvement (Brown, 1996) Goal Commitment ⇔ Job Involvement (Hollenback et al., 1989) Org. Commitment ⇔Performance (Meyer et al., 1993) Org. Commitment ⇔ Org. Citizenship Behavior (Somech and Bogler, 2002)

Table 4: Integrative literature connecting dimensions of Vitality at Work

Chapter 5: The Subjective Career Plateau

Chapter Objectives

This chapter aims to;

1. Introduce the concept of career plateau and discuss its various causes.
2. Present existing definitions of this concept and elaborate different types of career plateaux.
3. Discuss research findings that relate the concept of career plateau with other organizational attitudes.
4. Present arguments to demonstrate that subjective career plateau is a superior determinant of organizational attitudes than the objective dimension.

5.1 Introduction

One of the aims of this study has been to determine the relationship between Vitality at work and an important work attitude termed as Subjective Career Plateau. The following sections will discuss the concept of Career Plateau by presenting its definition and types, its origin in literature, its magnitude in organizational settings, its causes and finally its relationship with other important work behaviors. It will be demonstrated from previous academic literature that it is highly justifiable to propose the relationship between VAW and Subjective Career Plateau.

The issue of career plateau and its effect on employees has been a point of discussion for a long time. More than three decades ago, Ference et al. (1977) raised the issue of career plateau by defining and conceptualizing this concept and conducted a qualitative study on managers' career dynamics. Since then, there has been a considerable amount of research on this phenomenon, and researchers have investigated its various aspects and relationship with other work attitudes (Nachbagauer and Riedl, 2002; Veiga, 1981; Bardwick, 1986 ; Near, 1984; Near, 1985; Tremblay and Roger, 2004; Salami, 2010; Yamamoto, 2006). The results however, have shown a lack of consensus (Tremblay and Roger, 2004). The reason for such mixed findings can be attributed to the fact that the concept of career plateau has been addressed from a number of different dimensions, with varying definitions and ways of operationalizing career plateau. In the following sections we will discuss each of the different types of career plateaux, how they have been operationalized and measured and how the subjective assessment of career plateau is a superior indicator of work attitudes than the objective assessment of this phenomenon.

5.2 Causes of Career Plateaus/ing

Most organizations are structured in a pyramidal hierarchy which means that a large part of the workforce, at one point in time, will have to face the fact that they have to stay in the same position longer than expected (Nachbagauer and Riedl, 2002). Traditional organizations have pyramid structures which create a "funnel effect" as the number of positions at each level are reduced (Choy and Savery, 1998). Therefore, most employees will become plateaued (i.e. reach their promotional ceiling) before they retire.

In addition to the traditional hierarchical structure of organizations, there are a number of environmental factors typical to a rapidly changing and highly competitive organizational context that have created an inflated situation of career plateauing (Salami, 2010). Due to these organizational changes, the issue of career plateauing is becoming a widespread phenomenon in organizations. A large number of organizations, due to national and international competition and economic pressures had to consider major reorganization and structural changes in order to increase productivity and efficiency. Many firms employed the tactics of downsizing, work-force reductions and organizational restructuring (Chay et al., 1995). Others flattened their structures, thus, reducing the number of layers in their organizations. Flatter organizational structures are a cost effective way of human resource management, because delayering of an organization widens the span of control and there are less number of managers required in a flatter firm (Tremblay and Roger, 1998). Also, it is believed that flatter organizations make an organization more efficient and responsive towards the need of the customer. A flatter organization is perceived to make better decisions toward market demands as the decision making process is closer to the customer. But flatter organizations mean that there would be fewer managers in the same size of organization (Choy and Savery, 1998). Therefore, there would be fewer opportunities for promotion to higher levels. Due to these structural changes in organizational settings, a major implication for employees is the problem of career stagnation and immobility. In current economic climate, the situation has been exacerbated by business re-engineering, downsizing and spin-off activities, due to which the chances of advancement are reduced to a greater extent (Andreas and Riedl, 2000; Yamamoto, 2006)

This situation is depicted in a succinct statement by Hymowitz (1986) cited in Chay et al. (1995, p. 62);

> "The corporate ladder - the symbol of an [employee's] path to the top has assumed a new shape. Once predictable rungs have been replaced by a much narrower staircase, difficult to manoeuvre, with several steps missing and prone to collapse."

When organizations face the problems of cost cutting, slow economic growth or organizational restructuring, it is the plateaued employees that have to face the most serious repercussions. The management decidedly becomes cool towards the middle aged

and older employees and they are *"referred to as low productivity employees who do not deserve their high salary, computer illiterate, the bulge generation, and career-plateaued staff"* (Suzuki, 1996, p. 10). Plateaued employees are given least attention by their employer organizations. Studies reveal that plateaued employees are assigned jobs that have lesser potential for enrichment and employees that have not attained plateau report to have more autonomy, feedback and variety (Veiga, 1981; Near, 1985; Orpen, 1986).

Several studies indicate that career plateau is a significant phenomenon in the workforce and many others have found that it affects the attitude and behavior of employees. In fact Bardwick (1986), estimated that only 1 per cent of employees make it to the top of the organizational hierarchy which means 99 per cent would become plateaued. Similarly, Lemire, et al. (1999) reported that almost 70-90% of the employees had plateaued according to recent estimates at that time. Near (1984) found that more than half of the American managers considered themselves to be plateaued. A study of British managers identified that more than 50 per cent of the participants revealed that they felt stuck in their career (Nicholson and West, 1988). In another study, 42% of the Canadian managers believed that they had reached a plateau in their career (Tremblay and Roger, 1993). Suzuki (1996) reports that in Japan, in1990, from the population of employees holding a graduate degree and aged between 50 and 54, only 33% had reached the position of department head or higher and 20% had reached the position of section head. This means that a great majority of employees in management positions had not even reached the rank of section leader, and had become redundant in their jobs.

5.3 Defining the career plateau

According to the Oxford English Dictionary, the word *plateau* has been defined as *"a state of little or no change following a period of activity or progress"*. When this phenomenon is described with reference to a person's career, it means the cessation of activity and progress in the hierarchical progression and/or content diversification of the career. Career plateau was first defined as "the point in a career where the likelihood of additional hierarchical promotion is low" (Ference et al., 1977). The commonly accepted definition of a career plateau refers to a point where future promotion or the likelihood of a hierarchical career advancement is low (Veiga, 1981; Appelbaum and Finestone, 1994; Bardwick, 1986 ; Ference et al., 1977; Feldman and Weitz, 1988; Kaye, 1989; Near, 1985). However, there is no agreement between researchers on how long a person should be in the same position

before that person can considered as plateaued. Choy and Savery (1998) considered a period of seven years in the same position as the state of being plateaued, whereas Tremblay et al. (1995) employed a tenure of five years in current position.

Another definition of a plateau was the "point at which future career mobility, including both upward and lateral moves, is in reasonable doubt because of the prolonged length of time in the present position" (Veiga, 1981, p. 566).

Appelbaum and Finestone, (1994) classified plateaus in two categories: organizational plateau and personal plateau. People who are organizationally plateaued may have the ability to perform well in higher level jobs but are unable to because there are not sufficient job openings or managers do not perceive them to have the ability to perform better at higher levels. Another reason pointed out was the management's strategic tactic to keep a person at a specific position because no one else is perceived to fill that place equally good. It is because of some special expertise or experience of such employees, that the management, out of their own vested interests, do not allow them to be promoted (Choy and Savery, 1998). On the other hand, personally plateaued people are those who either do not have higher career aspirations or they do not have the ability to perform in higher levels due to lack of technical and professional skills.

More dimensions of career plateaus were uncovered when *career* itself was approached from differentiating standpoints. The definition of career plateau as the point in an individual's career where chances of future hierarchical movement are low emanates from the definition of career in which career is only considered as an upward movement in a position-oriented career. Nachbagauer and Riedl (2002, p. 718) define such conceptualization of career as "given standardized sequences of positions that are specified by organizations in a formalized way for particular groups of employees and which are related to persons, but independent of the individual … Such normative frameworks for sequences of positions are preferably found in large organizations and bureaucracies." However, the concept of career is not only limited to such hierarchical upward step-wise movements in a given framework of organizations. For an individual, career is not only related to movement in hierarchical positions, rather it encompasses all the work positions that are held by the person spread across the span of their overall work-life. The aspects of responsibility and task variety have also become important dimensions of individual

careers. These are considered critical developmental opportunities regardless of rank and title. Therefore, movements that increase task variety and responsibility are also considered to define career (Nachbagauer and Riedl, 2002). According to this definition of career, which comprises both of hierarchical and task-oriented movement, two types of career plateaus are conceptualized. Where the plateau stems from the traditional hierarchical structure of the organization, resulting in a low probability of upward vertical movement in the organization, it is termed as structural career plateau. On the other hand, work-content plateau occurs when there is an "absence of new, challenging and varied tasks without possibilities of improvement or learning" (Nachbagauer and Riedl, 2002, p. 719).

Another classification of plateau has been made from the perspective of actual or perceived plateau. Career plateau has been divided into two types; objective plateau and subjective plateau. Objective plateau is the observable dimension associated with prolonged tenure in one job position (Veiga, 1981) whereas subjective plateau is the perceived dimension associated with a persons' feeling of having low possibilities for career advancement and being "stuck for too long" (Chao, 1990; Tremblay et al., 1995).

Career plateau has also been associated with career path theory. A person could be at any of the career stages with reference to two dimensions; possibility of advancement and performance levels. It categorizes employees into four types, i.e. comers, stars, solid citizens and deadwood. Comers are the new entrants in an organization with low performance and high potential for advancement. Stars are the peak performers with high potential for advancement. Solid citizens and deadwood both are plateaued employees with low potential for advancement but solid citizens have high performance levels whereas deadwoods have low performance levels (Ference et al., 1977).

5.4 Career Plateauing and other work attitudes

The evidence about career plateauing and its relationship with other work attitudes has been mixed. This is because this phenomenon can be investigated from a number of dimensions. As already discussed, career plateau can be approached from an organizational or a personal standpoint (Appelbaum and Finestone, 1994), it can be measured in objective terms or in subjective terms (Nachbagauer and Riedl, 2002), or it can be conceptualized using a career path theory (Ference et al., 1977). The results have been considerably insignificant when assessment of work attitudes has been made by supervisors and

relationship has been made with the length of tenure in a specific position (Slocum et al., 1985; Orpen, 1986). It has been found that subjective measurement is a better predictor of the variance in workplace behaviors and attitudes than objective measurement of job tenure (Tremblay et al., 1995; Chay et al., 1995; Nachbagauer and Riedl, 2002; Chao, 1990).

Salami (2010) has investigated the relationship of career plateau with various organizational attitudes in government employees. They have found that career plateauing was positively related to intentions to quit and negatively related to job satisfaction and organizational commitment. They also found that effective mentoring strategies significantly moderated the effect of plateauing on job satisfaction and intention to quit.

In another study by Burke and Mikkelsen (2006) on the work attitudes and career plateauing of police officers, it was found that career plateauing was significantly related to increased work stress, greater work alienation, reduced job satisfaction and increased intention to quit. The authors considered the objective dimension of career plateau to assess the effects on work attitudes, and compared the data between two groups of police officers; those who had been in their current position for 15 years were considered as non-plateaued and those who had stayed more than 15 years were considered plateaued. They also found that there was no significant difference between the psychological health of employees from both categories. However, they may have arrived at this result because they have used a cut-off value of 15 years for considering employees to be plateaued, whereas the commonly employed length of tenure is 5-7 years in the current position (Tremblay et al., 1995; Choy and Savery, 1998). Therefore, it is possible that the effects of career plateauing that start appearing in individuals after staying for five or more years in their current position were overlooked because they were included in the non-plateaued category.

Nachbagauer and Riedl (2002) have conducted a study on career plateau in teachers and university academics. They have found that the objective measurement of tenure had no relationship with the subjective assessment of advancement and mobility. They have also found that objective assessment did not have any significant relationship with outcome measures of performance, satisfaction and commitment, whereas, the subjective dimension of career plateau explained more variation in the outcome measures. The study measured the subjective structural plateau and work-content plateau separately and concluded that

advancement on content can even moderate the relationship of dissatisfaction from low expectations of future hierarchical promotions. They also found that when the two subjective dimensions of career plateau came together, the negative effects were most pronounced.

Chay et al. (1995) investigated career plateauing among managers and professionals. They found that subjective career plateau explained more variation in work attitudes than job tenure or objective career plateau. This means that career immobility measured in objective terms is a different construct than the subjective assessment of advancement. They have found that subjective career plateau related significantly with organizational commitment, job satisfaction, career satisfaction, and extra-role behaviors, whereas the only behaviors explained by job tenure were in-role behaviors. The probable explanation for a greater performance on in-role behaviors by individuals who had spent more time in the job position is the gain of expertise over an extended period of time.

It has also been found that plateaued employees spend lesser number of hours on their work activities than non-plateaued employees. Moreover, such individuals start to invest their time in activities other than their work (Gerpott and Domsch, 1987). Because they believe that their efforts in their work roles is not going to lead to positive outcomes, they do not attribute much value to an investment of time and energy to their work other than what is strictly required. The satisfaction that they are unable to derive from a flourishing career is compensated from other sources like sports, or social work or even more time spent with family and children.

Chao (1990) has found in a study of career plateaus among managers that subjective assessment of career plateaus was able to explain greater variation in organizational measures than job tenure. The organizational measures evaluated in their study were company identification, intrinsic job satisfaction, extrinsic job satisfaction and career planning. They also concluded that subjective career plateau has been able to explain more variation in those attitudes that were specifically attributable to the organization, i.e. extrinsic job satisfaction and company identification than those measures that carried a more general attribution, i.e. intrinsic job satisfaction and career planning.

With specific reference to academia, Hunt and Blair (1987) discuss the Matthew Effect in scientists and academics. According to the Matthew Effect theory, there are two categories of academics. One category are those academics that are accomplished and acclaimed, have a large number of publications to their name and are also active in participating in academic associations. Such academics get the opportunity for more research and collaborative activities (advantage leads to advantage). Whereas, on the other hand, are those who do not have an established identity in research circles, and therefore, such individuals remain at a disadvantage of getting lesser opportunities for furthering their work. For them, it is a very difficult climb uphill in gaining attention of the academic community. The authors proposed the archetype of "local or marginal cosmopolitan" academic, who regardless of a high level of involvement in teaching, administrative and committee activities does not get to engage in mainstream research activities. Such local or marginal cosmopolitan academics are an exact example of plateaued employees and are likely to reach a career plateau very soon and perceive their selves to be stuck in their careers, with very low chances of future advancement.

5.5 Summary

It has been established that human resource of an organization plays an important role in developing the competitive edge for organizations in today's environment (Brewster and Harris, 1999). People at a career plateau are a very important resource for the organization because they have been found to possess a "*wide range of knowledge, experience and reliable judgment, as well as personal contacts that could be tapped to expand business opportunities"* (Suzuki, 1998). It has also been shown that career plateau significantly affects a number of work attitudes. It has also been discussed in Chapter 1 in Section 1.4 that the concept of career plateau has been theoretically related with faculty vitality in the academic career literature, but this relationship has never been tested empirically. Therefore, it can be an important contribution to theory and practice to examine its association with Vitality at Work, specifically in the higher education sector.

Chapter 6: Research design and methodology

Chapter Objectives

This chapter aims to;

1. Give an introduction about philosophy of social science and describe the underlying assumptions at each level in the process of knowledge generation.
2. Provide an outline of the major philosophical paradigms operating in the social sciences.
3. Outline the philosophical stance of the present study.
4. Present arguments to justify the design of methodology adopted to pursue the research questions.

6.1 Introduction

Social research is a complex arena. The interplay of the mind with objects and external stimuli creates more than one philosophical position in relation to the nature of research, knowledge and theory. What appears to the natural science as an obvious fact can be a question of complex theorizing and philosophical understanding for some research traditions in the social sciences. The purpose of this statement is not to downplay the importance of the natural sciences, but only to identify that there is a fundamental difference between the approaches to grasp the realities of natural world from those of the social world (Lieberson, 1985, p. 6). Even matters of daily routine and our understanding of common activities are the result of complex sensing, perception and response. These sensory perceptions are developed over time and through experience to attribute an object to a particular construct of reality, in which not only the tangible sensations, e.g, touch, smell and sight contribute, but there is also a unique contribution of imagination to these thought processes (Schuetz, 1953). For example, it is a different type investigation to ascertain the temperature and pressure at which gold becomes malleable and can be shaped into a piece of ornamentation or jewellery. Such questions for a natural scientist do not 'mean' anything to the 'gold' which is the object of inquiry of the natural scientist. The understanding about the nature of gold is a first-order construct in this situation. However, a social science researcher may be interested in the same gold ornaments, for example in relation to how social class is attributed to such possessions in various cultures, or perhaps, what kind of affiliations develop with such objects and whether memory plays a role in such attachments. The answers to these questions will be based on constructs developed from the experiences of individuals with these gold ornaments; experiences which created an understanding about the gold ornaments within the minds of these individuals. Therefore, the constructs that a social researcher is interested in are based on constructs developed within the minds of these individuals, and thus are second-order constructs of inquiry (Schuetz, 1953). This difference is clearly explained by (Schuetz, 1954, pp. 266-267);

> "This state of affairs is founded on the fact that there is an essential difference in the structure of the thought objects or mental constructs formed by the social sciences and those formed by the natural sciences. It is up to

> the natural scientist and to him alone to define, in accordance with the procedural rules of his science, his observational field, and to determine the facts, data, and events within it which are relevant for his problem or scientific purpose at hand. Neither are those facts and events pre-selected, nor is the observational field pre-interpreted. The world of nature, as explored by the natural scientist, does not "mean" anything to the molecules, atoms, and electrons therein. The observational field of the social scientist, however, namely the social reality, has a specific meaning and relevance structure for the human beings living, acting, and thinking therein."

Having briefly caricatured differences between the natural and social sciences, we shall move forward to make an effort to identify the points where the questions of social research can create dissonance in the structure of a research endeavour.

6.2 Importance of philosophy in research

Although there are substantial differences between the social and natural sciences, both these disciplines are guided by the notions of a single discipline, which is philosophy. In all sciences, the process of evolution of knowledge draws upon the principles of the prevalent standpoints of philosophy at the time of scientific inquiry. These philosophical perspectives are called paradigms (Pfeffer, 1993). For example, even in a pure science such as physics, light for a modern researcher consists of photons, entities which exhibit both the characteristics of particles as well as waves. Thus, contemporary research in this area will be based on this assumption and the tools and methods employed to carry out further investigation will be consistent with this principle. However, this characteristic of light has been accepted only recently. Einstein characterized light as transverse wave motions, whereas even earlier, Newton considered it as material corpuscles and the researchers at the time aimed to determine the pressure exerted by these material corpuscles on solid objects. Thus each era was guided by a philosophy of physics that directed scientific inquiry and the methods employed until it was modified by an advanced philosophical paradigm (Kuhn, 1996).

There is a continuous interplay between science and philosophy and the two disciplines cannot be dissociated from each other. Philosophy provides us with the general perspectives of analyzing reality, whereas science develops upon these general

perspectives to specify the tools and techniques for such analysis. The overlap between philosophy and science increases and decreases over three phases. In the first phase, when there is discontent about a prevalent paradigm, there will be a high level of philosophical debate and science will extensively draw upon philosophy to arrive at a new and advanced paradigm. In the second phase, when a paradigm gains sufficient consensus, there will be dissociation between philosophy and science and researchers at this stage will be focused upon refining and improving the methods and tools to enhance knowledge within the prevalent paradigm. However, when novel and unique situations arise in specific areas and a prevalent paradigm is challenged, philosophical debate is once again initiated, and a new philosophical perspective is drawn (Stenner 2009). As Thomas Kuhn has stated, "It is, I think, particularly in periods of acknowledged crisis that scientists have turned to philosophical analysis as a device for unlocking the riddles of their field. Scientists have not generally needed or wanted to be philosophers" (Kuhn, 1996, p. 88). Thus, the emphasis on philosophical debate alternates between periods of paradigmatic shifts and consensus. Pfeffer (1993) emphasizes that it is essential for the progress and development of knowledge in a particular discipline that the researchers agree over a philosophical paradigm. The period of consensus supports the rapid development of understanding within a specific discipline. As Stephen Cole (1993, pp. 134-135) argues;

> "Accumulation of knowledge can occur only during periods of normal science which are characterized by the adherence of the scientific community to a paradigm. It is only when scientists are committed to a paradigm and take it as the starting point for additional research that progress can be made. Without agreement on fundamentals, scientists will not be able to build on the work of others and will spend all their time debating assumptions and first principles. ... Most new and contradictory ideas prove to be of little value. If scientists were too willing to accept every unorthodox theory, method, or technique, the established consensus would be destroyed, and the intellectual structure of science would become chaotic. Scientists would be faced with a multitude of conflicting and unorganized theories and would lack research guidelines and standards."

Therefore, it is essential that knowledge within all disciplines stands upon a philosophical perspective or paradigm which informs how the understanding is legitimatized and held true.

6.2.1 Importance of Philosophy in Social Science

Having said that philosophy plays an important role in furthering knowledge development in all kinds of scientific endeavours, it is now essential to direct the discussion towards the importance of philosophy in social research and particularly organizational science. Pfeffer (1993) has argued that organizational science is particularly problematic because it is considerably under-developed paradigmatically. There are a number of paradigms which drive academic debate in this discipline and all appear to have potential advantages. Perhaps the reason for this diversity and fragmentation is that the discipline derives from a number of other fields such as psychology, sociology and political science, to name a few (Robbins and Judge, 2007). It is possible that within these separate disciplines, different paradigms are more acceptable at one point in time. In such circumstances, it becomes increasingly important for a researcher in organizational behaviour and organizational science to be informed about the various paradigms operating in the field and the underlying assumptions behind each of them.

The assumptions underlying social research generally relate to three major areas of philosophy. These are ontology, epistemology and methodology. Where the investigation involves human choices and free-will, the assumptions about human nature should also be considered. Moreover, where the inquiry is related to the organization of societies and social structures, the assumptions about the nature of society must also be addressed (Burrell and Morgan, 1979). These terms, taken as a set produce many, often overlapping, descriptions of research traditions and practices. Subsequently, with the evolution of our own understanding as researchers and a painstaking attempt to sort and classify different philosophical paradigms, slowly clarifies the whole picture. The first and foremost fact which is established is that social science employs *"diverse methodologies, with diverse theoretical backgrounds and diverse methods and techniques, all of which appear to be equally acceptable, equally valid and equally legitimate"* (Sarantakos, 1998, p. 5)

For the social scientist, it is important to clarify which assumptions are being made about how the social world is organized and how such organization can be explained. (Benson,

1983; Orlikowski and Baroudi, 1991; Astley and Ven, 1983; Burrell and Morgan, 1979; Crotty, 1998). In an attempt to answer our research questions, we make certain choices at various levels of the research design. Having said that all the diverse perspectives of looking at social phenomenon are legitimate, we need to justify our choices by establishing our understanding of all these perspectives, their limitations and the fact that we have made an 'informed choice' and that we understand the implications of the findings which we can draw from employing a certain method of enquiry. Different authors suggest different frameworks for determining the philosophical stance of a research inquiry. Burrell and Morgan (1979) distinguish the considerations of social science on the objective-subjective dimension. They propose an objective-subjective continuum on four aspects of social science relating to ontology, epistemology, human nature and methodology as illustrated in Figure 4. On the subjective-objective dimension, the authors place considerations of ontology on nominalism-realism distinction, considerations of epistemology on anti-positivism-positivism distinction, considerations of human nature on voluntarism-determinism distinction and finally, considerations of methodology on ideographic-nomothetic distinction. They suggest that in a research inquiry, the researchers first identify their ontological perspective, which informs their epistemology and finally their choice of research methodology. Crotty (1998) on the other hand, distinguishes the objective-subjective distinction within the considerations of epistemology and places positivism-interpretivism within the considerations of theoretical perspective and suggests that epistemology informs the theoretical perspective from which the methodological choices emerge. In another text, Saunders et al. (2007) cite the work of Morgan and Smircich (1980) in which the authors have distinguished the typology of assumptions on three major areas of ontology, epistemology and methodology upon the positivism-interpretivism continuum. In table 5, it is shown that the author has identified six categories spreading over the positivism-interpretivism continuum which emerge from the ontological, epistemological and methodological stance of the research process. The author classifies the research process as a positivist inquiry where the ontological view of reality is strictly that of a concrete structure, the epistemology is that of creating a positivist science and hence strictly objective methods such as surveys or experiments are employed. On the other end of the continuum, the authors place the paradigm of interpretivism, in which the extreme case considers reality to be completely based on human imagination, and therefore purely subjective methods are employed to gain a phenomenological insight into the subjective worlds of research subjects.

From the above discussion, it can be concluded that it is difficult to specify the direction in which philosophical perspectives are revealed across various aspects of research process and that although it may not be clear whether epistemology informs a certain theoretical perspective or ontological stance describes the framework of a research endeavour, it is essential that the three, i.e. ontology, epistemology and methodology, or as presented by some, four dimensions of the philosophy of social science should inform each other through a uniform and consistent philosophical paradigm.

Burrell and Morgan's Subjective-Objective Dimension

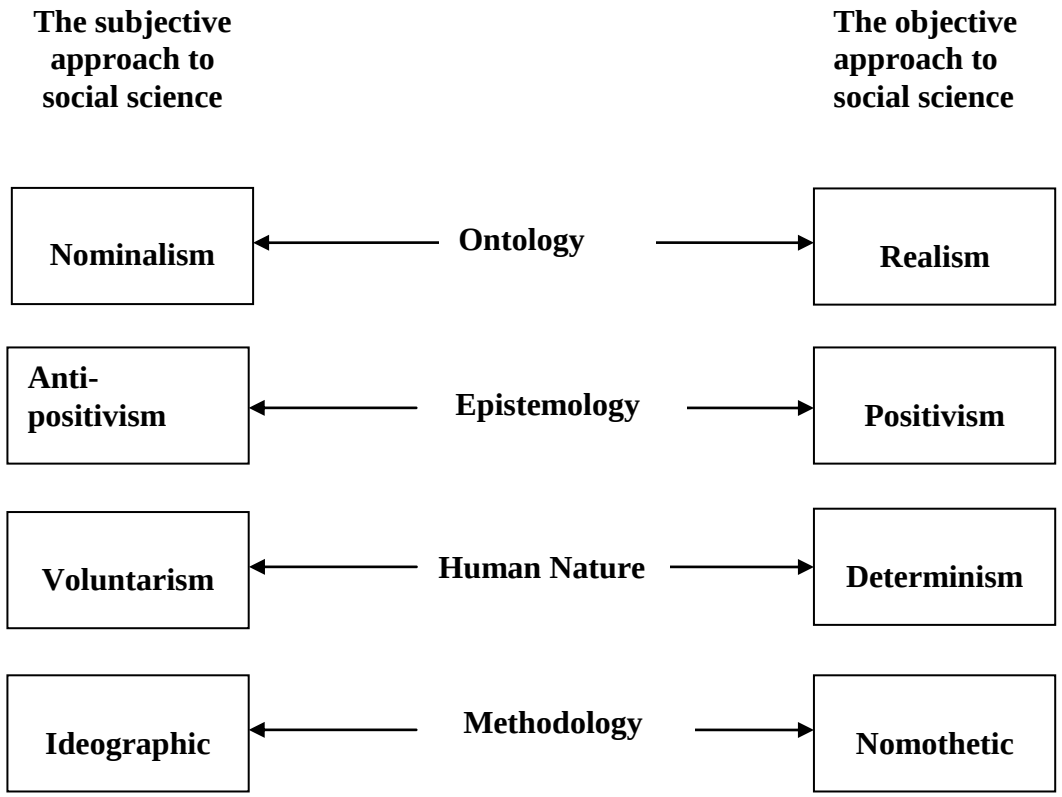

Figure 4: A scheme for analyzing assumptions about the nature of social science (Burrell and Morgan, 1979, p. 3)

Typology of assumptions on a continuum of paradigms						
Positivism ◄——————————————————————► Interpretivism						
Ontological assumption	Reality as a concrete structure	Reality as a concrete process	Reality as a contextual field of information	Reality as a realm of symbolic discourse	Reality as a social construction	Reality as a projection of human imagination
Epistemological stance	To construct a positivist science	To construct systems, process, change	To map contexts	To understand patterns of symbolic discourse	To understand how social reality is created	To obtain phenomeno-logical insight, revelation
Research methods	Experiments, surveys	Historical analysis	Interpretive contextual analysis	Symbolic analysis	Hermeneutics	Exploration of pure subjectivity

Table 5: Typology of philosophical assumptions on continuum of paradigms, Source: Morgan and Smircich (1980, p. 492)

Having illustrated the various standpoints of different authors on approaching the considerations of philosophy of social science, the discussion is now directed towards describing the major areas which must be considered while designing a research inquiry. The three main areas of ontology, epistemology and methodology are discussed in detail in the following sections. These areas carry important significance in research design of the present study, and therefore, it is considered essential to develop a satisfactory level of understanding about each of them.

6.2.2 Considerations Relating to Ontology

The foremost question which has to be answered is related to the assumption about reality. How does the researcher perceive reality in their research questions? This is the "ontological debate". Is reality something objective in nature, external to the person being questioned? The assumptions about ontology lie on an objective-subjective continuum, whereby, the assumption that reality is "out there", external, and can be objectively defined and analyzed is the objective stance, namely realism (Lewis, 2000). It assumes that the social structures are present irrespective of the fact how human beings see and perceive them (Harré, 1997). They exist as concrete, tangible and objective facts and are not affected or influenced by human cognition (Morgan and Smircich, 1980). On the other hand is the doctrine of nominalism. The proponents of nominalism postulate that there are no structures or entities, or that there is no "real" world out there. All phenomena are perceived cognitions of the mind. The objects or entities around us are the conceptualizations of our own thoughts and do not hold any existence beyond this understanding (Burrell and Morgan, 1979, p. 4) Thus, the most common example given by a social sciences professor in making the distinction about the objective-subjective dimension of reality; whether the table that you see in front of yourself, is it really a table or is it a table because you have given it the name of a table, and someone else may see it as a "piece of wood" or a composition of certain combination of protons, electrons and neutrons. A new student of this discipline would invariably think, 'Oh! How could it be anything other than a table?' Thus, it is of prime importance to specify how reality is perceived by the researcher. This understanding will guide how the research is classified within the subsequent levels of philosophical stances.

6.2.3 Considerations Relating to Epistemology

The second consideration in social science relates to the aspect of epistemology, which is "an area of philosophy concerned with the justification and nature of knowledge" (Hofer and Pintrich, 1997). Epistemology addresses the question; how do we know what we know? "Epistemology is concerned with providing a philosophical grounding for deciding what kinds of knowledge are possible and how we can ensure that they are both adequate and legitimate (Maynard, 1994, p. 10). Before embarking on the road to quest for knowledge, one must decide which paths of knowledge-seeking will lead to the revelation of truth. According to Burrell and Morgan (1979, p. 5), there are two extremes on this epistemological debate. On one end is positivism and on the other end falls relativism or anti-positivism. Crotty (1998, pp. 8-9), however, has made a similar classification by using the terminology of objectivism, constructionism and subjectivism. From the discussion about the three epistemologies, it appears that Crotty has collapsed the two concepts of epistemology and ontology into a single category of epistemology. The author commences with the definitions of epistemology as a philosophical stance that deals with the nature of knowledge. However, when he discusses the three classifications of objective epistemology, constructivist epistemology and subjective epistemology, it appears that the discussion is being made about the assumptions regarding nature of reality and not about the nature of knowledge. So, when he quotes the example of a tree being "there" in a forest, regardless of whether human beings are aware of its existence as an objectivist stance of epistemology, it appears to be an assumption about the realness (tree-ness) of the tree, and not about "*how*" we have come to know whether it is actually a tree out there.

The explanation provided by Burrell and Morgan (1979, p. 5) regarding the epistemological debate sounds more clarifying. On the objective end lies positivism and towards the subjective side, anti-positivism is placed. Positivism is explained as a means to organize the social world by looking at "regularities and causal relationships between its constituent elements." Among the positivistic domain, there may be the difference of approach between the 'verificationists', who postulate that hypotheses can only be verified through some experimental programme, and 'falsificationists' who propound that regularities can only be proven false through nullifying the hypotheses, but they operate on the same assumption that generalizable regularities exist and that knowledge is accumulated either by confirming the already existing principles or by eliminating them. On the other hand, a philosophy inclined towards the anti-positivist domain holds that

knowledge generation is only relative to the situation and to the observer. The observer cannot be detached from the situation, and all knowledge is a construction of the mind. Social reality can only be observed through the "participant-in-action". It is impossible to generate an outsider's perspective; true knowledge is only the one that is developed from within. Therefore, if the researcher believes that it is only possible to build a relativist image of the world, the research process cannot be legitimized without the involvement of researchers into the subjective worlds of their research subjects.

6.2.4 Considerations Relating to Methodology

The third consideration in social science is about methodology. The first two levels of ontology and epistemology set the background for choosing an appropriate methodology. For example, if one says that there is nothing real in this world and all the words, entities and structures are constructs of the mind, it cannot be justified then by employing a survey research, which assumes that there are objective regularities in this world that can be objectively tested without the interaction of the observer with its participants (Collins and Hussey, 2009). Therefore, it is essential that the methodology must align with the other aspects of nature of social science.

Towards the objective end lies the nomothetic perspective of observation. It implies that only the scientifically designed processes of testing hypothesis and observing pure scientific principles can lead to legitimate knowledge generation. On the contrary, the ideographic methodologies emphasize the importance of getting close to the participants. It values the importance of getting detailed personal data and accounts of daily routines. Users of such methodologies believe that knowledge can be generated by getting the view from inside. Therefore, where it is required to observe the uniqueness of a situation, idiographic methodology is employed, and where it is desired to measure regularities and generalizable principles, nomothetic methodology is appropriate (Chatman, 1989).

Another important aspect related to the methodology of an investigation is the role of values or researcher bias in the research process. Some authors treat it as a separate area termed as axiology (Saunders et al., 2007; Collis and Hussey, 2009). However, whether it is treated as a methodological issue or separately as axiological issue, it is important to consider the influence of researcher on the research process and the effect of his biases and subjective judgment on the results of social research. On one end of the continuum are the

researchers who believe that the process of research is value-free, thereby the objects of research are not affected by the researchers. The researchers are independent and detached from the research objects and it is believed that their activities will not affect the research objects during the research process. On the other hand is the stance that the process of research is value-laden and biased by the researchers. They cannot stay detached from the objects of research and continuously affect them during the research process. Moreover, the objects of research also influence the researchers during the research process and can change or modify their beliefs including the understanding about their research questions (Collis and Hussey, 2009). A research methodology where the researchers is highly detached from the participants, such as surveys or experiments, it can be claimed that the research process is free from biases or personal influences of the researchers. However, methodologies such as ethnography which involve the researchers into the research context cannot be claimed as value-free (Strauss and Corbin, 1998).

6.2.5 Burrell and Morgan's four primary paradigms

The model developed by Burrell and Morgan (1979) provides a clear understanding of the various aspects of social research and develops a comprehensive framework for positioning different paradigms within four broad categories . This model has gained a substantial attention in the study of organizations (White, 1983; Hassard, 1991).

In addition to the considerations relating to the nature of social science, Burrell and Morgan (1979, pp. 10 - 19) describe that there has been a continuous debate in sociology about the nature of society, and theorists have presented opposing views. Some theorists have explained society as structures of order, equilibrium and consensus, where the participants to the society work in harmony to maintain this state of harmony. The other view defines society in terms of conflict, coercion and undergoing continuous change. Members of the society consider themselves to be perpetually pressurized by the social structures and make efforts to break through these structures. However, they are coerced to stay within them.

Based on the subjective-objective continuum of the nature of social science, and the regulation-radical change on continuum of nature of society, Burrell and Morgan (1979) define four major paradigms which drive the philosophical stance of academic debate in social sciences. Figure 4-1 illustrates their classification;

According to the figure above, there are four primary paradigms;

1) The functionalist paradigm
2) The Interpretive paradigm
3) The Radical Humanism paradigm
4) The Radical Structuralism paradigm

The functionalist paradigm combines the objective stance of social science with a regulatory view of society. Operating in this paradigm, the researchers apply the positivist rules of natural sciences to inquiry into the social world and claim that social phenomenon can be proven through hypothesis testing and that reality is generalizable. The research process is value-free. Moreover, this paradigm claims that the social world is stable and seeks to generate order and equilibrium in society. It approaches problems from a rational and pragmatic standpoint and tries to identify practical solutions for practical problems. Sociological positivism is one of the most dominant sub-paradigm of this category. The interpretive paradigm is consistent with the functionalist paradigm in its view of society through 'sociology of regulation' but differs in the philosophical stance by adopting a subjective approach to knowledge seeking. The researchers in this paradigm believe that the social world is created through a process of understanding by the individuals that participate in a particular social phenomenon. Therefore, it should be approached from the view of the participants and not the observer of the phenomenon. In other words, the understanding of social world should be created from *within* rather than from a distant and detached observation. As the social world is relative to the individuals concerned, it cannot be understood without going deep into their conscious minds and gaining subjective information about their social world. This paradigm seeks to investigate the on-going processes that take place in creating the subjective world of individuals *as it is.* The radical-humanist paradigm views the society from a discontent perspective of manipulative organizations that limit the utilization of human potential and therefore, must be overthrown and disbanded to achieve social equality and justice. It is therefore, anti-organizational as its primary standpoint. It is however similar to the interpretive paradigm in its philosophical stance of approaching social phenomenon through a subjective perspective. Finally, the radical-structuralist paradigm views reality through the objective lens as in the functionalist paradigm. However, according to this paradigm, society is subject to a constant change because of malfunctioning economic and political systems. There are inherent structural flaws in the organization of economic and political

infrastructure, which leads to deprivation and marginalization of the common person, and therefore, must be replaced by a more egalitarian system (Burrell and Morgan, 1979).

Having discussed the various philosophical positions to answer different research questions, the following section will analyze the philosophical stance of the present study in the light of literature.

6.3 Philosophical stance of the present study

In the light of foregoing discussion, the research questions undertaken by this study are interpreted in their ontological, epistemological and methodological standpoint. As described in Chapter 1, this study aims to develop an integrative construct called 'Vitality at Work' that combines positive individual attitudes with positive organizational attitudes and seeks to confirm the existence of this construct by using empirical evidence. The second research question is to identify the factors of Vitality from previous organizational literature and then to confirm the factors through empirical support. Finally, the last research question under investigation is to measure the predictive capability of Subjective Career Plateau in explaining the variation in Vitality at work. Therefore, the first assumption in these research questions is that the constructs of Vitality, its individual factors and that of SCP exist independent of the researcher. The study assumes that reality is a concrete structure (Morgan and Smircich, 1980) and that the social phenomenon exist irrespective of how human beings understand or perceive them (Harré, 1997). It is the job of the researcher to develop a correct understanding of the already existing reality. Thus ontological stance of this study draws upon the assumptions of 'realism' as prescribed by Burrell and Morgan (1979) in Figure 4 or that of 'positivism' as described by Morgan and Smircich (1980) in Table 5. Consequently, the study assumes that the constructs under investigation are variables that can be measured in an objective manner and that causal links can be developed to construct an integrated theory. The constructs exist in the form of generalizable regularities and therefore can be confirmed or rejected through hypothesis testing. Therefore, the epistemological stance of this study undertakes the assumptions of 'positivism' (Burrell and Morgan, 1979). Subsequently, these ontological and epistemological assumptions inform the choice of methodology to be adopted in order to answer the research questions. With a realist ontology and positivist epistemology, the research questions must be answered through an objective methodology (Morgan and Smircich, 1980). The process of identifying generalizable regularities and employing an

objective stance towards methodology is supported by a nomothetic methodology in which the observation is made from outside and scientific hypothesis testing can reveal the underlying relationships. The nomothetic methodology replicates the rules of research in natural sciences and require adherence to a specific and strict protocol for testing the research hypotheses. "It is preoccupied with the construction of scientific tests and the use of quantitative techniques for the analysis of data" (Burrell and Morgan, 1979, p. 6).

From the foregoing discussion, this research study falls into the functionalist paradigm of Burrell and Morgan (1979) model. The proposed study is realist in ontology, positivist in epistemology, and therefore, employs a nomothetic methodology. Within the functionalist paradigm, the study can be classified under the sociological positivism paradigm. According to Burrell and Morgan (1979), sociological paradigm "reflects the attempt to apply models and methods derived from the natural sciences to the study of human affairs. It treats the social world as if it were the natural world, adopting a 'realist' approach to ontology. This is backed up by a 'positivist' epistemology, relatively determinist views of human nature and the use of 'nomothetic' methodologies (p.7). According to the classification developed by Morgan and Smircich (1980), this study follows a 'positivist' approach. The ontological stance considers reality as a concrete structure existing independently and employs positivist methodology to create understanding about relevant concepts.

After concluding that the research study is based on realist ontology and a positivist epistemology, we will now discuss the methodology and methods designed to answer our research questions.

6.4 Research Approach: Deduction

In order to design a research methodology, it is first essential to determine the approach underlying the research questions. Where a clear theoretical framework is constructed prior to the process of data collection, and consequently data is employed to confirm or reject the hypothesis, it is called the deductive approach. Therefore, the purpose of research is theory-testing (Sarantakos, 1998). On the other hand, where information is gathered without specifying an a priori hypothesis and new theories are developed from exploration of collected data, it is called an inductive approach (Strauss and Corbin, 1998). Thus, deduction involves theory-testing and induction involves theory-building. The process of

deduction moves from specific to general whereas induction moves from general to specific. Here, it would be helpful to define what theory means and what it intends to do. Gill and Johnson (2010, p. 43) describe the characteristics of a theory;

1. "a theory is an abstract conceptual framework which allows us to explain why specific observed regularities happen;
2. in doing, a theory defines or categorizes aspects of the world and relates these phenomenon together in terms of cause and effect relationships which explain why that we have observed has actually happened;
3. usually a theory will also specify situation where it does, or does not apply, thereby setting boundaries to where it is applicable as an explanation;
4. in contrast a hypothesis is more specific yet also speculative: a hypothesis makes a precise prediction about what should happen, in particular conditions, if the underlying theory is an accurate representation and explanation of the phenomena in question – predictions that are testable through observation (i.e. the collection of specific data)."

Therefore, where the research first defines a theory in the form of specific links and relationships between precise variables and then uses empirical data to confirm its accuracy, it is employing a deductive approach and vice versa. Deductive research has been defined as "a study in which a conceptual and theoretical structure is developed and then tested by empirical observations; thus, particular instances are deduced from general inferences", whereas, inductive research has been defined as "a study in which theory is developed from observations of empirical reality; thus general inferences are induced from particular instances, which is the reverse of the deductive method" (Collins and Hussey, 2009, p. 8).

Figure 5and 6 illustrate the process of deduction and induction respectively.

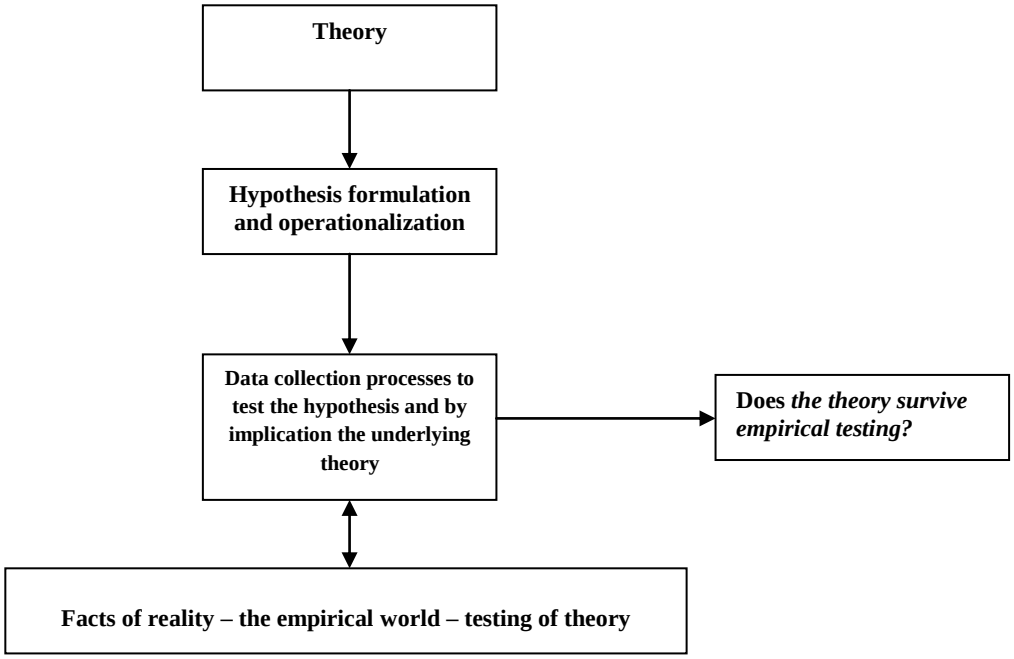

Figure 5: Processes of deductive logic adapted from (Gill and Johnson, 2010, p. 47)

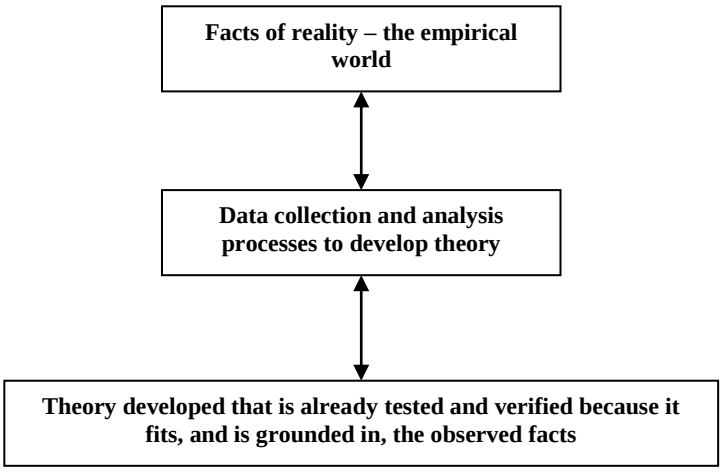

Figure 6: The inductive development of theory adapted from (Gill and Johnson, 2010, p. 56)

Given that this study is based on a predefined theoretical framework and *a priori* hypothesis, it undertakes a deductive approach to research. First, a framework is designed based on previous literature as discussed in Chapter 1, then data is collected according to the predefined theory and finally, statistical analysis is conducted to verify the soundness of the proposed theory.

6.5 Methodology: Quantitative Research

In order to follow a nomothetic methodology, it is most appropriate to design a quantitative research. According to Sarantakos (1998), quantitative data is collected in research studies where it is required to obtain findings that are representative of the total population and are generalizable over a given set of conditions. Because research questions of the present study have been designed under the positivist assumptions, where it is held that constructs exhibit regularities and variables can be used to determine causal links and relationships, it is most appropriate to design a quantitative methodology. Positivist studies require that the data which is collected to reject or confirm the hypotheses must be precise and highly specific (Saunders et al., 2007). Therefore, for the purpose of this study, it would not be appropriate employ a qualitative methodology. Miles and Huberman (1994) state that qualitative research undertakes a flexible and loosely structured inductive approach in which concepts are evolved and respondents and measures emerge during the process of research. Even if a qualitative research is designed under strict, prescription style measures, the investigator essentially does not know enough about the research questions so as to develop an a priori hypothesis or theory. However, in this present study, all the research questions propose a predetermined hypothesis, whether they are related to validation of factors of Vitality at Work or with the relationship of VAW with SCP. As explained in Chapter 2 and Chapter 3, the aim of this study is to develop an integrative framework of Vitality at Work which brings together already existing concepts; concepts that have been thoroughly discussed and investigated in previous literature; and this study synthesizes the existing constructs to develop a new construct. The factors identified through literature review; Sense of Coherence; Energizing Connections; Perceived health and energy; Job Involvement; Organizational Commitment; Goal Commitment; and Creative Work Involvement are all well-developed constructs and therefore, do not require to be understood through an in-depth analysis. For most of the constructs, except Energizing Connections, valid and reliable instruments are also available in previous

literature. Another aim of this research is to find the predictive capability of Subjective Career Plateau in explaining the variation in Vitality at Work. The concept of SCP has also been extensively discussed in previous literature and is therefore, a well-defined construct. It has also been quantitatively measured through various instruments. In such circumstances, it would be redundant to gather in-depth, qualitative information about already established constructs. Therefore, it is considered most appropriate to design a quantitative methodology to answer the research questions. Moreover, the study proposes to validate and confirm a new construct which requires data from a large number of respondents. With the time and resources available to execute the research study, a qualitative research design will not be suitable because it will restrict the access to a large number of respondents (Sarantakos, 1998). Therefore, although it is possible to employ qualitative data to test a predefined theoretical framework, it was more suitable to design a quantitative methodology because it is a more prevalent tradition in the field and also produces efficient results.

6.6 Research Design: Survey Method

For a quantitative research design, a survey methodology is most appropriate to answer the research questions because it gives an objective, detached and outsider view of the constructs without the observer getting involved with or influencing the research process. It is also appropriate because it can generate a large amount of data which is essential for satisfying the scientific requirements of hypothesis testing (Saunders et al., 2007). For a positivist research study, surveys are designed with structured questionnaires so that all the respondents are asked the same questions and can uniformly answer on an identical format. This will support uniformity of data which will be required to conduct statistical testing. However, surveys can also be used in an interpretivist research approach, but in this case it is not required to select a considerably large and unbiased sample to test hypotheses and generalize results to a population. Therefore, such surveys can be used to generate qualitative data (Collins and Hussey, 2009). According to Groves et al., (2009, p. 2);

> "A 'survey' is a systematic method for gathering information from (a sample of) entities for the purposes of constructing quantitative descriptors of the attributes of the larger population of which the entities are members. The word "systematic" is deliberate and meaningfully distinguishes surveys from other ways of gathering information. The phrase "(a sample of)"

appears in the definition because sometimes surveys attempt to measure everyone in a population and sometimes just a sample."

Surveys are designed to collect primary or secondary data with the purpose to use these data for statistical testing and analysis and generalizing the findings to a population. Primary data are data which are collected first-hand from an original source by the researcher through interviews, questionnaires or own experiments. On the other hand, secondary data are data that are used from an existing source such as financial reports, databases or institutional archives, etc (Collins and Hussey, 2009). There are two types of surveys based on the objectives of research. Descriptive surveys are developed to obtain a precise representation of phenomenon at a specific point in time or at a number of different times. The purpose is to *describe* the characteristics of a given population. On the other hand, analytical surveys are designed to measure how two or more variables can be related to each other. For a survey like this, there must be a theoretical framework defining the predetermined hypotheses that sets out the proposed links and relationships (Groves et al., 2009).

For the purpose of this research, an analytical survey is designed to generate primary data that collects information from respondents in order to validate the proposed constructs and test hypotheses.

Surveys can be conducted through an interview or a questionnaire. Interviews can be carried out in a face-to-face meeting, telephone or video conferencing methods. There are a number of methods to distribute questionnaires and collect responses on them. This includes distribution through post, telephone, on-line, face-to-face, group distribution or individual distribution (Collins and Hussey, 2009). Since most of the variables in the framework had already established survey instruments in the form of questionnaires, and where a survey instrument was not established, previous qualitative literature was sufficient to provide insight into the various aspects of the construct, an interview was excluded as an appropriate data collection method. The questionnaire was based on simple, easy-to-follow items, which was also confirmed through the pilot study; therefore, an interview would only have incurred undue costs and time without adding any value or depth to the responses. Sarantakos (1998, p. 224) list the following advantages of a questionnaire;

1. “Questionnaires are less expensive than other methods ...
2. They produce quick results.
3. Questionnaires can be completed at the respondent’s convenience.
4. They offer greater assurance of anonymity.
5. They offer less opportunity for bias or errors caused by the presence or attitudes of the interviewer.
6. Questionnaires are a stable, consistent and uniform measure, without variation.
7. They offer a considered and objective view on the issue, since respondents can consult their files and since many subjects prefer to write than talk about certain issues.
8. The use of questionnaires promises a wider coverage, since researchers can approach respondents more easily than other methods.
9. They are not affected by problems of ‘no-contacts’.”

Out of the methods available for questionnaire distribution, face-to-face, group distribution and individual distribution was excluded because responses had to be collected from universities spread all over UK. When comparing the advantages and disadvantages of the remaining methods, i.e. through post, telephone or on-line distribution, a telephonic response was excluded because the items were fairly simple and did not require an explanation or assistance at the time of response. Moreover, the respondents are academia of top UK universities with a highly dynamic work schedule. The questionnaire was considerably long, i.e. twelve sections with 93 items. It would have been much time-consuming to collect a response over a telephone which could have reduced the number of possible responses due to lack of willingness from the participants to spare this amount of time (Collins and Hussey, 2009). Finally, out of the web-based and postal surveys, a web-based survey was selected. Web-based surveys are becoming increasingly common with the ease of design and user-friendly response format. A large number of participants can be accessed, with greater ease and lesser costs. In comparison, a web-based survey provided similar advantages as in a postal survey, with a slightly higher response rate than a postal survey. It has been found that the comparison between web-based and postal surveys yielded mixed results in the past, but more recent investigations show a higher response rate in web-based surveys (Greenlaw and Brown-Welty, 2009). It has also been found that when respondents were given a choice between responding to a web-survey survey or a postal survey, more respondents chose the web-based survey (Kiernan et al., 2005). The

costs of administering a postal survey are considerably higher than a web-survey. Financial costs include paper, stationary and postage costs. In addition to these, the process is excessively time-consuming, particularly if a large number of subjects are to be approached, in tasks such as affixing addresses and sealing envelopes. Finally, when the surveys are returned, a considerable amount of time has to be spent on feeding the data into a spreadsheet and if computer softwares are to be used for statistical analysis, the data has to be entered into an electronic file. This is a lengthy, cumbersome and laborious process, and manual data entry can also lead to errors (Cobanoglu et al., 2001). These costs can be easily avoided by using a web-based online survey without losing the effectiveness of methodology. Online internet-based tools, for example, SurveyMonkey provide user-friendly online accounts to create and distribute surveys to unlimited number of potential respondents for a nominal fee of £20 per month. A username is assigned to each account which can only be accessed through a password. The member can view results as they come back in real-time. After collection is completed, the results can be downloaded in a .csv and .xcl format, which can be exported into SPSS, AMOS and many other types of statistical software for data analysis (Collins and Hussey, 2009). In this way, the process of entering and transferring data becomes error-free.

Given the several advantages of administering a web-based online survey, a Survey Monkey account was used to design, distribute and collect responses on a structured questionnaire from potential respondents.

6.7 Summary

In this chapter, the significance of philosophy in social science has been discussed and it has been elaborated that it is an integral element of social inquiry to follow a consistent philosophical standpoint in all the stages of research. Considerations relating to the three key aspects of philosophy, i.e. ontology, epistemology and methodology are presented and the major prevalent philosophical paradigms operating in social sciences are discussed. Then, the philosophical stance of the present study has been argued in the light of discussion carried out regarding the major philosophical paradigms and considerations of epistemology, ontology and methodology. The selection of a deductive research approach, quantitative methodology and survey method has been justified by drawing arguments from literature to support the selection criteria.

Chapter 7: Operationalization of variables and data collection

Chapter Objectives

This chapter aims to;

1. Describe the operationalization of variables involved in the present research.
2. Elaborate the process of selection/development of measurement instruments for each variable.
3. Present the questionnaire items selected/modified/developed for each variable.
4. Discuss the use of Likert scales in survey research.
5. Elaborate the prevalent ethics in business research and the process of ethical approval secured for the present research.
6. Present the process of designing the online survey, piloting and modification of questionnaire items.
7. Describe the selection of sampling method and consequent sample generation.
8. Elaborate the process of data collection and discuss the appropriateness of response rate achieved in the present research.

7.1 Operationalization of Variables and Questionnaire Items

The following sections will discuss how the independent, dependent, latent and manifest variables are operationalized in this study. The sections will also describe how scales were developed to evaluate each construct, either by constructing items or by adapting them partially or entirely from previous scales. The following table summarizes how scales have been employed for each construct in this study.

Construct	Variable Type	Scale employed to measure the construct
Vitality at Work	Latent Variable	N.A.
Vitality at Work	Dependent Variable	Summated scale calculated by the mean aggregate score on each factor of Vitality
Subjective Career Plateau	Independent Variable	8-item scale developed by employing 2 items from Tremblay and Roger (1998) and 4 items constructed during the research.
Energizing Connections	Factor of VAW/Manifest Variable	17-item scale developed during the research
Sense of Coherence	Factor of VAW/Manifest Variable	13-item scale adapted from Antonovsky (1987)
Perceived Health and Energy	Factor of VAW/Manifest Variable	7-item scale developed by employing 4 items from Ryan and Frederick (1997) and 3 items constructed by the researcher
Job Involvement	Factor of VAW/Manifest Variable	9-item scale employed from Lodahl and Kejner, (1965)
Organizational Commitment	Factor of VAW/Manifest Variable	8-item scale employed from Allen and Meyer (1990)
Goal Commitment	Factor of VAW/Manifest Variable	7-item scale developed by employing 4-items from Hollenbeck et al. (1989) and constructing 3 items during the research
Creative Work Involvement	Factor of VAW/Manifest Variable	9-item scale adapted from Tierney et al. (1999)

Table 6: Summary of constructs, types of variables and scales employed in the research study

7.1.1 Dependent Variable/Latent Variable: Vitality at Work

According to the theoretical framework given in Chapter 1, Vitality at Work takes two forms in this research. One is that of a latent variable in the first research question which pertains to conceptualization of VAW. The research study has proposed that VAW is a latent construct underlying the manifest variables called the factors of VAW. The second research question is concerned with investigating the influence of subjective career plateau on variation in VAW. In this situation, VAW takes the form of a dependent variable. This dependent variable is a mean aggregate score on each of the factors, i.e. Energizing Connections, Sense of Coherence, Perceived Health and Energy, Job Involvement, Organizational Commitment, Goal Commitment and Creative Work Involvement. The following sections will discuss the operationalization and questionnaire items for each of the factor of VAW.

7.1.2 Factors of Vitality at Work

Energizing Connections

This construct is operationalized by employing the literature on High Quality Connections by Jane Dutton and her colleagues. Energizing connections are defined as the extent to which participants to a relationship are energized through a sense of mutual positive regard, trust and engagement on both sides (Dutton, 2003b). Energizing Connections result from three organizational behaviours, i.e., respectful engagement, task enabling and trusting which are the underlying dimensions of high quality connections. Also, energizing connections result in a feeling of enhanced energy and motivation. Therefore, energizing connections are high quality connections that create an energizing and boosting effect on the participants to the interaction. Since the concept of Energizing Connections has never been measured using a quantitative measure, a scale was developed to measure this construct. Four sub-constructs were identified from the previous literature. According to Dutton (2003b), high quality connections develop from three sources; Respectful engagement, Task enabling, and Trusting. Furthermore, high quality connections result in a feeling of enhanced energy and motivation, which is why they are termed as energizing relationships. Therefore, a final sub-construct of Energizing Interactions was identified. Six items were developed for Respectful Engagement; five for Task Enabling; three for Trusting; and finally three items were developed for measuring Energizing Interactions.

Table 7 enlists the 17 item designed after several iterations. The responses were anchored by seven option; Never; Very rarely; Rarely; Sometimes; Often; Very Often; and Always.

Initially, 45 items were drafted to measure this concept. Subsequently, after discussion and continuous reiteration, the number was reduced to 24. In the final draft, there were 17 questions used to assess Energizing Connections.

Item No.	***Item Statement***	***Sub-Category***
EC1	If I feel stuck about a work-related issue, I am likely to get some guidance from my boss.	Task Enabling
EC2	When a colleague is facing a work-related problem, I will try to sort it out for him/her.	Task Enabling
EC3	My boss has advocated my competence and abilities in crucial situations, e.g. for promotion/sanctions/project approvals etc.	Task Enabling
EC4	Whenever I have experienced political pressure, someone from my workplace has been there to guide me and protect my interests.	Task Enabling
EC5	My boss acknowledges my domestic responsibilities and tries to accommodate them where possible.	Task Enabling
EC6	People at my workplace trust each other.	Trusting
EC7	I am always closely watched in performing my work duties.	Trusting
EC8	My colleagues use their computers/mobile phones/work equipment while I am talking to them.	Respectful Engagement
EC9	In staff meetings, I feel I might as well not be there.	Respectful Engagement
EC10	When I tell my boss about an issue which is affecting my performance, he/she genuinely acknowledges my problem.	Task Enabling
EC11	People at my workplace are genuinely interested in how I am doing in other areas of my life e.g. family, etc.	Respectful Engagement
EC12	When a co-worker is talking to me, my mind wanders away to other thoughts.	Respectful Engagement
EC13	When my boss needs to get something done, I am ordered rather than requested.	Respectful Engagement
EC14	People at my workplace are pretentious and fake rather than true and genuine.	Trusting
EC15	While interacting with certain people at my workplace, I feel charged and energized	Energizing Interactions
EC16	Interaction with certain people at my workplace enhances my motivation.	Energizing Interactions
EC17	Talking to certain people at my workplace can make my problems look smaller.	Energizing Interactions

Table 7: Questionnaire items for measuring Energizing Connections

Sense of Coherence

Sense of Coherence is defined as, "a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable, and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges, worthy of investment and engagement" (Antonovsky, 1987, p. 19). These three components have been termed as comprehensibility, manageability and meaningfulness. Antonovsky developed a 29-item scale to measure an individual's level of Sense of Coherence. A rigorous research process was adopted to design and validate the new scale. At first, a pilot study was conducted in which responses were collected from 51 individuals on an unstructured interview. Then, by using insights from the interviews, items were drafted using Guttman's approach. "It is based on the notion of a Cartesian space. The researcher specifies facets of what is to be measured and the important elements in each facet. The profile, or structuple, consists of a particular combination of one element in each facet and provides the basis for the formulation of a given item. A mapping sentence, presenting the facets and elements, formally subsumes in succinct fashion the entire potential for questionnaire items" (Antonovsky, 1987, p. 76). Employing facet profiling, 36 items were drafted for statistical analysis. The questionnaire was administered several times to various samples, and results were observed using correlation matrices, distribution of responses on each items, discriminant analysis, etc., which led to discarding some items, rewording others and adding some new items. At the end of the process, Antonovsky arrived at a 29-item scale to measure Sense of Coherence with eleven items on comprehensibility, ten on manageability, and eight items on meaningfulness dimension of SOC. The SOC scale developed by Antonovsky has been widely tested and used in a number of studies. It shows an internal consistency measure of Cronbach Alpha ranging from 0.82 to 0.95 in 26 studies using the 29 item scale (Antonovsky, 1993). However, a shorter, 13-item scale has also been found internally consistent with a Cronbach Alpha of 0.84 (Pallant and Lae, 2001). Therefore, the final questionnaire assesses SOC using the 13-item scale in order to achieve parsimony and preserve participant's interest. The original items in the 13-item scale were in an interrogative format. Moreover, the response format varied from item to item. Rest of the scales adapted from previous literature were in a statement format and had a consistent response format using a Likert scale anchored by 'strongly agree' to strongly 'disagree options'. In order to ensure consistency and uniformity throughout the questionnaire and

also to reduce confusion expected from a varying item and response format, the 13-items were converted into a statement format with response format anchored by 'never' to often' options, except one item, which required a response from 'strongly disagree' to strongly agree' options. The distinction was made because a number of respondents in the pilot study commented on the inappropriateness of a strongly disagree/agree format for the item. Table 8 enlists the 13-items from the original Antonovsky's scale and also the transformed items used in the present research study.

Item No.	**Original Item** *(Each item contains a question with a varying response over a 7-point Likert scale, shown with a hyphen)*	**Transformed Items** *(anchored by 'never' to 'always' over a 7-point Likert scale except SOC13 with 'strongly disagree/strongly agree'*)
SOC1	Do you have the feeling that you don't really care about what goes on around you? Very seldom or never --- very often	I have the feeling that I don't really care about what goes on around me.
SOC2	Has it happened in the past that you were surprised by the behaviour of people whom you thought you knew well? Never happened --- always happened	In the past, I have been surprised by the behaviour of people whom I thought I knew well.
SOC3	Has it happened that people whom you counted on disappointed you? Never happened --- always happened	I have been disappointed by people I counted on.
SOC4	Do you have the feeling that you're being treated unfairly? Very often --- Very seldom or never	I have the feeling that I am being treated unfairly.
SOC5	Do you have the feeling that you are in an unfamiliar situation and don't know what to do? Very often --- Very seldom or never	I have the feeling that I am in an unfamiliar situation and don't know what to do.
SOC6	Doing the things you do every day is: A source of deep pleasure and satisfaction --- A source of pain and boredom	Doing the things I do every day is a source of deep pleasure and satisfaction.
SOC7	Do you have very mixed up feelings and ideas? Very often --- very seldom or never	I have very mixed up feelings and ideas.
SOC8	Does it happen that you have feelings inside you would rather not feel? Very often --- very seldom or never	I have feelings inside I would rather not feel.
SOC9	Many people – even those with a strong character – sometimes feel like losers in certain situations. How often have you felt this way in the past? Never --- Very often	Many people – even those with a strong character – sometimes feel like losers in certain situations. In the past, I have felt this way as well.
SOC10	When something happened, have you generally found that you: Overestimated or under-estimated its importance --- Saw things in the right proportion	When something happened, I generally found that I overestimated or underestimated its importance.
SOC11	How often do you have the feeling that there's little meaning in the things you do in your daily life? Very often --- Very seldom or never	I have the feeling that there's little meaning in the things I do in my daily life.
SOC12	How often do you have the feeling that you're not sure you can keep under control? Very often --- Very seldom or never	I have the feelings that I am not sure I can keep under control.
SOC13	Until now, your life has had: No clear goals or purpose at all --- very clear goals and purpose	Until now, my life has had no clear goals or purpose.

Table 8: Questionnaire items for measuring Sense of Coherence

Perceived health and energy

As discussed in Chapter 3, the study aims to measure both the actual and subjective dimensions of health and energy. The actual state of health and energy is measured by the SOC scale. In this research, the subjective factor is termed as Perceived Health and Energy (PHE). Perceived health and Energy is defined as the extent to which individuals believe that they possess an adequate level of health and energy; a prerequisite to vitality. In order to devise a measure for this factor, it has been divided into two sub-categories; a) Perceived Health; and b) Perceived Energy. To measure the dimension of Perceived Health, previous literature was consulted but no adequate instrument was found to satisfy the requirement of this study. Tessler and Mechanic (1978) employed a single item for measuring perceived health status. However, it is suggested that single-items scales should not be used to measure psychological constructs because they reduce the reliability of a scale. In fact, the use of single-item scales for measuring psychological constructs has been termed as a 'fatal error' in academic circles (Wanous et al., 1997). Another measure known as the Nottingham Health Profile is a highly reliable and valid instrument of perceived health status (Hunt et al., 1980). However, this measure consists of 38-items, and was therefore rejected on the basis of its volume of questions. Finally, in order to measure this construct, three items were developed (Item code PHE5, PHE6, PHE7 in Table 9). For assessment of Perceived Energy, a scale developed by Ryan and Fredrick (1997) was employed. The authors have addressed a similar concept called "subjective vitality" (Ryan and Frederick, 1997). In their study, subjective vitality is defined as a feeling of energy and aliveness. This is identical to the definition of Perceived Energy in this research. They developed a seven item scale to measure the subjective assessment of an individual's level of energy. Therefore, the scale developed by Ryan and Fredrick (1997) was considered appropriate for use. It is a seven item scale with internal consistency of 0.85. However, three items were deleted after comments from the pilot study. The respondents raised the issues of duplication and redundancy, in the light of which, the scale was adjusted with only four items included in the questionnaire. Table 9 enlists the seven items for the factor of Perceived Health and Energy.

Item Code	Item Statement	Sub-category
PHE1	I feel alive and vital.	Perceived Energy
PHE2	I don't feel very energetic.	Perceived Energy
PHE3	I look forward to each new day.	Perceived Energy
PHE4	I nearly always feel alert and awake.	Perceived Energy
PHE5	I think I am losing my health gradually.	Perceived Health
PHE6	I feel quite healthy.	Perceived Health
PHE7	I think I will be able to live a long, healthy life.	Perceived Health

Table 9: Questionnaire items for measuring Perceived Health and Energy

Job Involvement

Job Involvement has been defined as the "degree to which individuals psychologically identify themselves with their work" (Lodahl and Kejner, 1965; Lawler and Hall, 1970; Kanungo, 1982a). Lodahl and Kegner (1965) developed a 20-item scale to measure Job Involvement. Kanungo (1982a) criticized the scale on the grounds that it includes items that relate to two distinct work attitudes which they termed as "job involvement" defined as the degree to which an individual identifies with the job and "work involvement" defined as the extent to which an individual gives importance to work in general. However, the study by Kanungo (1982) did not use the original Lodahl and Kejner (1965) job involvement scale and used their own scale to confirm the distinction about the multi-dimensional nature of job involvement construct. As a result, the discrepancies in Lodahl and Kejner (1965) scale were not identified and it was used without alteration for many years. In many instances, researchers randomly picked a few items from the 20-item scale without explaining their choice (Stilwell et al., 1998; Brown et al., 1998; Rush et al., 1995). In the light of these observations, the scale has not been employed in its entirety. Reeve and Smith (2001) empirically concluded that the scale had erroneous items and addressed multidimensional constructs. They refined the scale using a convergent evidence approach employing five methodologies (qualitative content analysis, classical item analyses, item response theory analyses, partial confirmatory factor analyses, and discriminant validity analysis). The refined scale that accurately taps the construct of Job Involvement consists of 9 items (Reeve and Smith, 2001) and is therefore, employed to measure Job Involvement in this study. Table 10 enlists the items employed to represent the construct of Job Involvement.

Item Code	Item Statement
JI1	I will stay overtime to finish a job, even if I am not paid for it.
JI2	The major satisfaction in my life comes from my job.
JI3	The most important things that happen to me involve my work.
JI4	Sometimes I lie awake at night thinking ahead to the next day's work.
JI5	I have other activities more important than my work.
JI6	I live, eat, and breathe my job.
JI7	To me, my work is only a small part of who I am.
JI8	I am very much involved personally in my work.
JI9	Most things in life are more important than work.

Table 10: Questionnaire items for measuring Job Involvement

Organizational commitment

Organizational commitment is a work-related attitude which describes an individual's sense of association with the organization (Steers, 1977). It is defined as the extent to which an individual strongly identifies with the organization, feels pride in being its member and intends to stay with it in the long term. Commitment has been classified into three categories; affective, continuance and normative (Meyer and Allen, 1987); out of which affective commitment has been found to relate more significantly with positive outcomes (Hunter and Thatcher, 2007) and has been defined as "the relative strength of an individual's identification with and involvement in a particular organization" (Mowday et al., 1982, p. 27). The three dimensions of Organizational Commitment were validated by Allen and Meyer (1990) in two studies which confirmed the distinct nature of affective, continuance and normative organizational commitment. The authors also developed and validated instruments to measure each of the components of Organizational Commitment. This study employs the affective component of organizational commitment as a factor of Vitality at Work and therefore employs an 8 item scale developed by Allen and Meyer (1990) to measure Affective Organizational Commitment. The items were anchored by seven point Likert scale response format. The scale was developed employing a rigorous statistical analysis including factor analysis, canonical correlation, item endorsement proportions, item-total correlations, and content redundancy. The scale carried a reliability measure of 0.87. Table 11 enlists the 8 items included in the questionnaire for this factor.

Item Code	Item Statement
OC1	I would be very happy to spend the rest of my career with my current organization.
OC2	I enjoy discussing my organization with people outside it.
OC3	I really feel as if my organization's problems are my own.
OC4	I think that I could easily become as attached to another organization as I am to this one.
OC5	I do not feel like part of the family at my organization.
OC6	I do not feel emotionally attached to this organization.
OC7	My organization has a great deal of personal meaning for me.
OC8	I do not feel a strong sense of belonging to my organization.

Table 11: Questionnaire items for measuring Organizational Commitment

Goal Commitment

The efficacy of Locke's Goal Setting theory has been widely established which posits that challenging and difficult goals rather than "do your best" significantly affect employee's motivation and drive towards work and result in higher performance (Tubbs, 1986; Locke, 1968; Latham and Yukl, 1975; Miner, 1980). However, an assumption made in this theory is the presence of Goal Commitment, whereby, the goals presented to an employee would be automatically accepted, which, in some cases, may not be accomplished (Locke et al., 1988). The lack of goal commitment will reduce the effectiveness of setting goals for organizational members. Therefore, it is important to measure both the dimensions, i.e. the presence of challenging goals and goal commitment. Literature has discussed two variants of goal commitment; one is termed as goal acceptance and the other variant is termed as goal commitment itself (Locke, 1968). The difference between the two constructs is that "commitment is the more inclusive concept because it refers to one's attachment to or determination to reach a goal, regardless of the goal's origin. Thus it can apply to any goal, whether self-set, participatively set, or assigned. Acceptance is one type of commitment; it refers specifically to commitment to a goal which is assigned" (Locke et al., 1988, p. 24).Therefore, it is concluded to include goal commitment because it would not require the specificity of the goal's origin. In order to measure the presence of goals, three items have been drafted, which tap three important dimensions of goal setting; presence of goals, feedback and organizational support in goal setting (Locke et al., 1981). In order to measure goal commitment, a scale developed by Hollenbeck et al. (1989) has been employed to measure goal commitment (Item code GC4-GC7). The authors employed four empirical tests for validation of this unidimensional scale which included "(a) dimensionality and internal consistency, (b) convergence with alternative measures of the

same construct, (c) relatedness to measures of separate constructs that lie within the *nomological net* of the focal construct, and (d) discriminability from constructs not lying within the nomological net" (Hollenbeck et al., 1989, p. 952) . The 4-item scale carries an internal consistency of 0.71. Table 12 enlists the items employed to measure aspects of goal setting and goal commitment. The items are anchored by a seven point 'strongly disagree/strongly agree' Likert scale response format.

Item Code	Item Statement	Dimension measured
GC1	I always have a set of challenging goals to achieve at work.	Presence of Challenging Goals
GC2	I receive immediate feedback upon completing my work targets.	Feedback
GC3	My institution helps me determine specific goals for the future.	Organizational Support in Goal setting
GC4	It's hard to take my goals at work seriously.	Goal Commitment
GC5	It's unrealistic for me to expect to reach the goals presented to me by my organization.	Goal Commitment
GC6	It is quite likely that the goals presented to me may need to be revised, depending on how things go.	Goal Commitment
GC7	Quite frankly, I don't care if I achieve these goals or not.	Goal Commitment

Table 12: Questionnaire items for measuring Goal Commitment

Creative Work Involvement

Creative work involvement has been defined as "the extent to which an employee engages his or her time and effort resources in creative processes associated with work'' (Carmelli and Schaubroeck, 2007, p. 36). This construct is a subjective assessment of an individual about their personal involvement in creative processes at work and is separate from creative performance. A nine-item scale developed by Tierney et al. (1999) has been used to evaluate this construct in the present study. The scale has consistently shown high levels of reliability in various studies. Initially, the scale scored an internal consistency score of 0.95 in the study by Tierney et al., (1999). Then, it carried a Cronbach Alpha of 0.93 in a study evaluating the relationship between other people's expectations and an individual's level of creative work involvement (Carmelli and Schaubroeck, 2007). Kark and Carmelli (2009) have employed this scale in a study to investigate the relationship between creative work involvement, vitality and psychological safety in which it carried an alpha score of 0.95. The scale, however, has been slightly altered with respect to its response format. In previous studies, a 6-point Likert scale has been used as a response format. In the present study, the response format was converted into a 7-point Likert scale anchored by 'strongly disagree/strongly agree' options. There were two concerns behind this decision. The first objective was to maintain a smooth and uniform format throughout the questionnaire in

order to facilitate response from participants and the second, to obtain uniform results for robust data analysis. Moreover, the scale was developed for a generalizable usage across different industries and sectors, because of which it included items which might have been too general to cause ambiguity. Therefore, to make it specific to the academic profession, examples of academic-related activities were added to clarify the meaning of the statement. Consequently, three items 'I took risks in terms of producing new ideas in doing my job', 'I tried out new ideas and approaches to teaching and research' and 'I identified opportunities for new product/processes' were altered by adding some profession-specific wordings. Table 13 enlists the items employed to represent the factor of Creative Work Involvement.

Item Code	Item Statement
CWI1	I have demonstrated originality in my work.
CWI2	I took risks in terms of producing new ideas in doing my job. (e.g. researches, teaching methods, etc)
CWI3	I found new uses for existing methods or equipment.
CWI4	I solved problems that had caused others difficulty.
CWI5	I tried out new ideas and approaches to teaching and research.
CWI6	I identified opportunities for new products/processes. (e.g. research projects, new programs, revised curriculum, pedagogy, etc)
CWI7	I generated novel, operable work-related ideas.
CWI8	I generated ideas revolutionary to my field.
CWI9	I served as a good role model for creativity.

Table 13: Questionnaire items for measuring Creative Work Involvement

7.1.3 Independent Variable/ Subjective Career Plateau

Initially, career plateau has been defined as the point in career when the probability of future hierarchical promotions is low and assessed as an objective phenomenon, measured in terms of tenure in a job position (Veiga, 1981). However, it has also been studied as a subjective or perceptual concept (Tremblay et al., 1995; Chao, 1990; Tremblay and Roger, 1998), which is separate from the actual length of tenure spent in a particular job position and takes into account the attitudinal self-evaluation of an individual's state of career progression. Career plateau can be further classified into two types; structural plateau whereby the probability of vertical hierarchical advancement is low; and work-content plateau described as a state where learning opportunities and the possibility of undertaking new, challenging and diverse tasks are absent (Nachbagauer and Riedl, 2002). For the

purpose of this study, Subjective Career Plateau (both structural and work-content) will be taken into account. A two item scale has been used to measure subjective career plateau (Tremblay and Roger, 1998; Tremblay et al., 1995). But in order to evaluate subjective structural plateau and subjective content plateau, additional items were required. Subjective structural plateau has been defined as *an individual's personal assessment of having less chances of vertical growth and promotions and a sense of becoming immobile or stuck in profession* and Subjective content plateau as *an individual's self assessment of having low probability of having learning opportunities and undertaking diverse, new and challenging task.* The questionnaire contains two items to measure overall state of subjective career plateau by using the two item scale by Tremblay and Rogers (1998). Three items have been drafted to measure work-content dimension and two items for structural dimension by the researcher.

Item code	Item Statement	Dimension addressed
SCP1	I work in a dead end position.	Overall Career Plateau
SCP2	I think I have stayed for too long in my current position.	Overall Career Plateau
SCP3	Career growth is too slow at my organization.	Structural Career Plateau
SCP4	I am not likely to obtain a much higher job title in my organization.	Structural Career Plateau
SCP5	I have limited opportunities to enhance my current skills.	Work Content Plataeu
SCP6	It does not make any difference if I do not get promoted; I am content with my current position.	Structural Career Plateau
SCP7	I have been doing the same things at work for ages.	Work-content Career Plateau
SCP8	I have diversified my areas of interest by working in relevant but different fields.	Work-content Career Plateau

Table 14: Questionnaire items for measuring Subjective Career Plateau

7.1.4 Control Variables and Miscellaneous Information

The following control variables have been employed while analyzing the influence of Subjective Career Plateau on the variation in VAW.

Control Variable	No of questions
Age	One question
Number of years in current position	One question
Number of years in academic profession	One question
Current position held	One question

Table 15: List of Control Variables

The questionnaire also requested some additional information in order to categorize responses on the basis of gender, academic department, university and type of employment, if required. This information was not related to the theoretical framework, but was requested to explore any possible relationships emerging from the analysis.

Additional Information requested
University
Faculty
Department
Nature of Employment
Full-time/Part-time

Table 16: List of additional information

In addition to the above mentioned questionnaire items, there are six statements included in the questionnaire to explore the effect of Vitality at Work on student engagement. However, the theoretical framework was revised in light of the argument that student engagement as perceived by the academics themselves is a weak concept and the assessment of engagement should be carried out from the side of student themselves.

7.2 Likert Scales

All constructs in the questionnaire were measured using a 7-point Likert Scale. Likert Scales are frequently used to measure attitudes in psychometric and attitudinal research. Sarantakos (1998, p. 90) lists the following advantages of using Likert scales;

1. They "have a high degree of validity even if the scale contains only a few items;
2. Provide single scores from a set of items;
3. Have a high degree of reliability (between 0.85 and 0.94);
4. Allow ranking of the respondents; and
5. Are relatively easy to construct

Theoretically, Likert scales are ordinal scales which means that the response can be rank ordered but the interval between the values cannot be considered equal as in the case of interval scales. Therefore, there has been a long standing controversy about analyzing Likert scale data using parametric statistics. Strictly speaking, analyzing ordinal data using parametric statistics would violate the assumptions underlying the statistical tests (Jamieson, 2004). Therefore, it would be erroneous to use parametric tests to analyze data generated from Likert scales. However, there are scholars who contest these limitations. One simple explanation is given by Carifio and Perla (2008) who argue that Likert scales take the form of an ordinal scale in case of one variable, but when Likert scales are used to calculate the average of sum of scores on a number of variables, which in most places is the case, they take the form of an interval scale. Towards the more pragmatic practitioners about this controversy are those who allow the use of parametric tests on ordinal scales but with the condition that the distribution should approximate a normal distribution and that the sample size should be large enough to be representative of the population (Kuzon et al., 1996). But the assumption of normality must not be satisfied while using parametric tests such as factor analysis and regression analysis in case of every variable by employing the central limit theorem. According to the central limit theorem, the mean of a large number of independent random samples takes the form of a normal distribution, even if the mean from which the distribution is calculated in not normal. Further towards the other extreme are those who argue that the robustness of parametric tests on ordinal data from Likert scales are unaffected even in cases where the conditions of normality and a large sample size are not satisfied. Norman (2010) has empirically shown that parametric tests can be

applied to Likert scale data without losing the robustness of analysis even in small samples, with unequal variances and with non-normal distributions.

Moreover, there is also a debate regarding the number of value points on the Likert scales. Although 5-point scales are also widely accepted, there are several arguments in favour of a 7-point scale (Jamieson, 2004). With more points on the scale, it is possible to achieve a higher level of validity and reliability (Sarantakos, 1998). There is more flexibility for the respondents and also more freedom for the researchers to conduct sophisticated and advanced statistical analysis (Cohen et al., 2007). It is also argued that the robustness of statistical tests is improved while analysing categorical variables where there are a large number of categories (Rust and Golombok, 2000).

Based on the aforementioned observations, it is concluded that it is customary to assume data from Likert scales as continuous and that parametric tests can be applied without losing the robustness of analysis. The conditions of sample size and normal distribution are taken into account in places where other considerations required doing so, but they are not essential to be satisfied for the use of parametric tests in analyzing data from Likert scales. Hence, 7-point Likert scales are employed to measure all constructs and sub-constructs in the present study.

7.3 Research Ethics in Business and Management

The study was designed to collect primary data about key attitudes and behaviours from prospective participants. When primary data is collected, there are a number of ethical considerations that must be satisfied so that the research process does not impose any trouble or harm for the participants and that they are aware of the consequences of their participation. Ethics are defined as the "moral principles, norms or standards of behaviour that guide moral choices about our behaviour and our relationships with other" (Blumberg et al., 2005, p. 92). Specifically in research, ethics are concerned with the "questions about how we formulate and clarify our research topic, design our research and gain access, collect data, process and store our data and write up our research findings in a moral and responsible way. This means that you will have to ensure that the way you design your research is both methodologically sound and morally defensible to all those who are involved" (Saunders et al., 2007, p. 178). In the business and management discipline, there are two major philosophies about the ethics of research. One is the deontological view

which purports that the ends achieved through unethical means can never justify the purpose of research. Therefore, even if there are benefits arising from an unethical conduct, such as deception can improve the validity and reliability of the data, it should never be employed for the research process. On the other hand is the teleological stance which argues that the ends achieved from the research can justify the means employed for it. Therefore, if an unethical conduct is carried out during the research process which is beneficial for the overall good is justifiable. In this case, the benefits received from the research are compared with the costs of a particular unethical behaviour (Akaah, 1997). However, it is very difficult to design and defend an unethical conduct that deviates from ethical standards and therefore must be very cautiously approached.

Following are the general principles of ethical conduct in business and management research;

Privacy and confidentiality: The confidentiality and privacy of possible and actual participants should be ensured and any possibilities where information can be revealed to any person or group of persons should be disclosed explicitly to the participants before gaining their consent.

Voluntary participation: There must not be any pressure or coercion on the participants to take part in the research. Participation must be entirely voluntary. It is also advised to abstain from offering financial or material rewards to prospective participants in academic research.

Informed consent: Prospective participants must be completely informed about the purpose, use of information and possible consequences arising from participation in the research. After receiving the information, they should give their consent for participation. In most cases, the participant fills a consent form prior to participation. Another type of consent is implied consent in which it is assumed that if the participant has responded to the request for participation, e.g. filled and returned the questionnaire; it means that he has given his consent. This is not the most ideal type of informed consent but is customary in research where there are no risks attached to participation.

Anonymity: Another issue of ethics is anonymity of the participants. Their identity must not be revealed to persons other than essentially required. For example, in case of interviews, the identity of participant cannot remain hidden from the researcher. However, this is possible in case of surveys and questionnaires where the respondents are not asked to fill in their personal details. Nonetheless, the participants must be informed the extent to which their identity will be kept anonymous and possibilities of any disclosures.

Dignity: It must be ensured that the process of collecting information from the participation must not cause any embarrassment or ridicule. The researcher must employ the best possible etiquettes to communicate to the participants and must not be authoritative and coercive.

Emotional and physical effects: Any possibilities of stress, pain, discomfort, embarrassment, loss of self-esteem, fear, anxiety, etc must be addressed before seeking consent from the participation. If there are chances of any of the above-mentioned consequences, it must be clearly stated beforehand.

Possible Publications: Participants must also be informed about the possibilities of any publications arising out of the research, which is a normal outcome of academic research. However, they must be informed about how the data will be interpreted and presented and how any particular individual, group, or organization can be affected. For example, in a comparative study between two ethnicities or two countries can create an inferior image of one of them, and in this case, the interpretations must be handled in a very sensitive manner (Saunders et al., 2007; Collis and Hussey, 2009; Sarantakos, 1998; Gill and Johnson, 2010).

7.3.1 Ethical approval

The University of Glasgow operates a highly structured program for strict adherence to ethical guidelines where primary information has to be collected from research subjects. It is ensured that all ethical issues have been addressed including voluntary participation, informed consent, confidentiality, anonymity and complete disclosure. For this purpose, after the questionnaire was finalized for pre-testing, an application for ethical approval was filed with the ethics committee for social sciences at the university. It was a lengthy process and took almost four months to get ethical approval finalized. The university guidelines approve to collect responses through online web-based surveys. However, a comprehensive cover letter should be emailed to the participants informing them about all the aspects of the research. The University requires that researchers provide the following information to prospective participants in the cover letter.

"You must clearly explain the following matters in terms that an ordinary person, rather than a specialist in your field, can understand:

- that you are inviting them to take part in a research project
- who you are – a student/your post in the University and, where relevant, your experience in conducting research of this kind

- the nature, risks (if any), benefits (if any), duration and purpose of the research project. This must include clear information about what the subject will be asked to do, where the research will be carried out, any risks to the subject's health and safety and the steps that will be taken to minimise those risks
- that participation in the project is entirely voluntary
- if the project is funded (and if so, by whom)
- if the research project is part of a student's coursework
- what the information gathered is intended to be used for including whether it is intended to publish the results
- the arrangements concerning confidentiality of and access to information about the research subject
- what, if any, arrangements are in place for compensation in the event of something going wrong
- how the research subject can obtain further information about the project (such as by the provision of work contact numbers/email for the researcher. Home contact numbers should not be given nor should university office numbers be given where the researcher is a student.)
- who the research subject can contact if they are concerned about any aspect of how the research was conducted. This would normally be the Convener of the College Ethics Committee, whose email address should be provided." (University of Glasgow, 2002, p. 39)

According to the abovementioned guidelines provided by the university, a cover letter was drafted, revised and finalized during the approval process (See Appendix I).

7.4 Designing the Online Survey

After Ethical approval was received on 15th April, 2010, an effort was made to arrange funding for a Web Based Online Survey Account. The Department of Management provided access to departmental online web survey account on Survey Monkey on 13th of May. A survey was designed on this online account. It had twelve pages. First eleven pages were used to generate responses on items using a 7-point Likert scale. The items were divided on several pages in order to facilitate reading and scrolling on each page. The last page required demographic information. The questionnaire was to be accessed through a link sent in the email introducing the study to respondents. The email also included all the information concerned with disclosure, anonymity, wilful consent and confidentiality.

7.5 The Pilot Study

For the purpose of Piloting the questionnaire, an email was sent out to 88 faculty member in University of Glasgow Business School on 28th May, 2010. After two weeks a reminder email was sent out, after making some minor changes to the cover letter because it was pointed that the person who could be approached in case of any complaints about the questionnaire was also the line manager of the respondent, i.e. the Head of Department of Glasgow University Business School. The questionnaire also included items that directly referred to the respondent's immediate line manager/boss. Therefore, it should be explicitly assured that the line manager will not have any access of the information provided to the respondents and that it cannot be identified with them personally. These changes were incorporated in the cover letter.

7.6 Modification of the Questionnaire

There were 13 complete responses to the questionnaire. There were no serious problems and a few respondents suggested minor issues with item statements. Accordingly, changes were made as follow;

a) In one item assessing Energizing Connections, it was pointed that the word "politics" was ambiguous. Therefore, the wording was changed from "*Whenever I have experienced political pressure, someone from my workplace has been there to guide me and protect my interests*" to "*Whenever I have experienced pressure due to organizational politics, someone from my workplace has been there to guide me and protect my interests*".
b) The response format of "Never – Always" did not fit well with the item stating "There are people at my workplace with whom I feel more charged and energetic, and therefore the wording of this statement was changed to "While interacting with certain people at my workplace, I feel charged and energized."
c) Two items were added to the "Energizing relationships" dimension of Quality of Connection because there should have been at least three items for each dimension of the construct. These were;
    i. *Interaction with certain people at my workplace enhances my motivation.*
    ii. *Talking to certain people at my workplace can make my problems look smaller.*

d) The items for measuring Sense of Coherence were adapted from Antonovsky's 13-item scale. The items had a varying response format with some of items in interrogative form and some in the narrative style, with the respondent being addressed as the second person. Items for all the other constructs, most of which were also adapted from other prevailing measures, were in first person format. In order to achieve consistency and uniformity with other parts of the questionnaire, the items were converted into first person narrative format.

e) In piloting, it was reported that one item stating "*Until now my life has had no clear goals or purpose*" did not match with the "Never – Always" response format, therefore, the response format was changed to "Strongly Agree – Strongly disagree".

f) Another item in SOC construct stating "*I have the feeling that I am not sure I can keep under control*" was reported to be ambiguous. One of the respondents stated, "The last question is a little ambiguous. I wasn't sure if you are asking if I have feelings I can't keep under control (e.g. could be upset) or if I can't keep control of myself (e.g. very angry and aggressive). The two could be different." Therefore, the wording was modified to "*I have feelings that I am not sure I can keep under control*" since this item was employed to measure the "manageability" dimension of SOC whereby a person believes that they are in control of their life and the events arising out of it. It is not a measure of person's temperament of being aggressive or cool-minded.

g) One of the response prompts was wrong, and stated "slightly agree", where it should have been "strongly agree". This was corrected.

h) It was pointed that the items for Perceived health and energy appeared to be repetitive. Therefore, three of the items stating, "*Sometimes, I feel so alive, I just want to burst", "I have energy and spirit",* and *"I feel energized*" were removed from the questionnaire.

7.7 Sampling method and Sample generation

One of the most important questions faced by researchers in any research project is the decision about the number and type of participants that should be included. In survey research where there is large population under study, the researcher has to make the decision about covering the entire population or a representative sample appropriate to carry out the analysis. Surveys that cover the entire population are called saturation

surveys. However, in many cases, due to reasons stated below, it is more appropriate to carry out an incomplete coverage and target participants that are a small part of the population; *the sample.* Sampling is therefore defined as "the process of choosing the units of the target population which are to be included in the study" (Sarantakos, 1998, p. 139). There are a number of reasons that drive the decision to carry out a sample survey instead of complete coverage. The following are identified as important factors affecting this decision;

1. It is practically not possible to cover the entire population.
2. There may not be a substantial benefit from complete coverage as compared to the sample population. Rather, it is also argued that it is better to opt for sampling because survey population is accessed in a significantly short time period and therefore generates comparable and consistent results.
3. Sample surveys take a lesser amount to time to implement and generate quick results.
4. These are more economical in terms of costs associated with materials and work force.
5. It is argued that sampling produces more detailed information and also a high level of accuracy because there are a lesser number of units to be dealt with (Selltiz et al., 1976).

Based on the abovementioned reasons, the research design opted for a sample survey. There are a number of sampling methods that can be employed according to the requirements of the research questions being addressed. There are two basic types of sampling, i.e. probability/random sampling and non-probability sampling. In probability sampling, the target units are selected under strict rules and all units have an equal chance of being selected. The data collected through probability sampling is highly representative and can be utilized to generalize results for the entire population. On the downside, the units selected through this process are largely scattered and the process is expensive, time-consuming and complicated (Sarantakos, 1998). Based on the fact that data collected through probability sampling is representative and that statistical inferences made from it can be generalized for the population, probability sampling technique was employed for the present research study.

Within the general category of probability sampling, there are a number of further classifications based on the process adopted to identify and select the target units. These are described below.

Simple random sampling: All the units in target population have an equal chance of selection.

Systematic sampling: The difference between systematic sampling and simple random sampling is that in simple random sampling, each unit has an independent chance of selection, whereas, in systematic sampling, the chance of selection of a subsequent unit is dependent on the selection of previous ones.

Stratified random sampling: In this type of sampling, the population is divided into various strata or groups on the basis of certain criteria identified according to the research questions. After dividing the population into these strata, target units are selected from each of the sub-groups. This sampling procedure is adopted where the sample must include members of each group or where the researcher is interested in some particular characteristic of a specific group.

Cluster sampling method: This sampling method is adopted where sampling frames are not available for the entire population, there are significant economic considerations and where the criteria of clusters are relevant to the research questions. In this type of sampling, clusters or groups are identified in the first step (e.g. universities, schools, etc.), Then, individual elements are selected from these groups in the next step.

Multi-stage sampling: In this type of method, samples are drawn a number of times from previously selected samples. Thus, in the first step, a sample is selected from the entire population. Then, from the first sample, a subsequent sample is drawn again, and the process continues until the required number of units is selected (Sarantakos, 1998).

In the present study, the questionnaire had to be sent to academics at top UK universities. A cluster sampling technique was employed, because it was important to identify universities that satisfied the criteria of top UK universities. On the basis of this criterion, target universities were selected in the first step. Then, in the second step, the most frequently occurring disciplines in the target universities were identified. This was done to ensure that a uniform and homogeneous sample was generated in which participants came from similar academic backgrounds and experiences, so that variation was minimized due to unidentified factors and unexplainable noise could be reduced in the analysis stage.

Sampling Step 1

First, a list of top UK universities had to be developed. University rankings were used to draw this list. As stated on Times Higher Education website;

> "The publication of the world rankings has become one of the key annual events in the international higher education calendar. .... They are now regularly used by undergraduate and postgraduate students to help select degree courses, by academics to inform career decisions, by research teams to identify new collaborative partners and by university managers to benchmark their performance and set strategic priorities" (Times Higher Education Website, 2009)

However, rather than relying on only one ranking, universities were selected that met top university criteria on four different university rankings. The rankings used for selecting the top universities were;

1. Times Higher Education 2009 University Rankings: This is an international ranking of universities all over the globe. Since their first appearance in 2004, Times Higher Education's global university league tables have been recognised as the most authoritative source of broad comparative performance information on universities across the world (Times Higher Education Website, 2009). Top UK universities were screened out of the top 200 universities internationally. There were 30 UK universities in the top 200 universities all over the world according to Times Higher Education League Table, 2009.
2. Guardian University Guide 2010: Guardian university guide assesses the performance of UK universities on the basis of teaching excellence and therefore, uses different criteria for ranking. These league tables cover full-time, undergraduate courses at higher education institutions in England, Scotland, Wales and Northern Ireland. (Guardian Website, 2010). Top 40 universities were selected for the sampling frame.
3. Complete University Guide 2010: The complete university league tables also provide rankings of UK universities. These league tables use 10 different criteria of performance to assess the overall ranking of each of the university. (Complete University Guide Website, 2010). Top 40 universities were selected for the sampling frame.
4. Russell Group of Universities: "The Russell Group represents the 20 leading UK universities which are committed to maintaining the very best research, an

outstanding teaching and learning experience and unrivalled links with business and the public sector. The 2008 Research Assessment Exercise found that over 60% of the UK's very best ('world leading') research took place in Russell Group universities on average, twice as much of the research undertaken at Russell Group universities is 'world leading' compared to the rest of the sector." (Russell Group Website, 2010)

No.	Universities	Times Higher Education League Table 2009	Guardian University League Table 2010	Complete University Guide League Table 2010	Russell Group Universities 2010
1	University of Cambridge	Yes	Yes	Yes	Yes
2	University College London	Yes	Yes	Yes	Yes
3	Imperial College London	Yes	Yes	Yes	Yes
4	University of Oxford	Yes	Yes	Yes	Yes
5	University of Edinburgh	Yes	Yes	Yes	Yes
6	King's College London	Yes	Yes	Yes	Yes
7	University of Manchester	Yes	Yes	Yes	Yes
8	University of Bristol	Yes	Yes	Yes	Yes
9	University of Warwick	Yes	Yes	Yes	Yes
10	University of Birmingham	Yes	Yes	Yes	Yes
11	London School of Economics	Yes	Yes	Yes	Yes
12	University of York	Yes	Yes	Yes	No
13	University of Glasgow	Yes	Yes	Yes	Yes
14	University of Sheffield	Yes	Yes	Yes	Yes
15	University of St Andrews	Yes	Yes	Yes	Yes
16	University of Nottingham	Yes	Yes	Yes	Yes
17	University of Southampton	Yes	Yes	Yes	Yes
18	University of Leeds	Yes	Yes	Yes	Yes
19	Durham University	Yes	Yes	Yes	No
20	University of Aberdeen	Yes	Yes	No	No
21	Cardiff University	Yes	No	Yes	Yes
22	University of Liverpool	Yes	No	Yes	Yes
23	University of Bath	Yes	Yes	Yes	No
24	Newcastle University	Yes	Yes	Yes	Yes
25	Lancaster University	Yes	Yes	Yes	No
26	Queen Mary, University of London	Yes	No	No	No
27	University of Sussex	Yes	Yes	Yes	No
28	University of Reading	Yes	No	Yes	No
29	University of Leicester	Yes	Yes	Yes	No
30	University of Loughborough	No	Yes	Yes	No
31	SOAS	No	Yes	Yes	No
32	University of Exeter	No	Yes	Yes	No
33	University of Dundee	No	Yes	No	No

34	City University London	No	Yes	No	No
35	Heriot-Watt University	No	Yes	Yes	No
36	University of Surrey	No	Yes	Yes	No
37	Royal Holloway University	No	Yes	Yes	No
38	Bournemouth University	No	Yes	No	No
39	Robert Gordon University	No	Yes	No	No
40	University of Stirling	No	Yes	No	No
41	University of Strathclyde	No	Yes	Yes	No
42	Goldsmiths University	No	Yes	Yes	No
43	Aston University	No	No	Yes	No
44	University of Essex	No	No	Yes	No
45	University of East Anglia	No	No	Yes	No
46	Queen's – Belfast	No	No	Yes	Yes
47	University of Kent	No	No	Yes	No

Red = Universities that fall among first 40 UK universities according to all three rankings and also are members of Russell Group
Green = Universities that fall among first 40 UK universities according to all three rankings but are not a member of Russell Group
Blue = Universities that fall among first 40 UK universities according to two rankings and are also a member of Russell Group
Black = All others

Table 17: University rankings on the four selected criteria

18 universities were screened through this analysis. These universities were among the top ranking of all three league tables and were also a Russell Group member.

Sampling Step 2

The next step was to select the subjects/disciplines in order to maintain a homogeneous sample with similar respondents. Therefore, it was decided to approach academics in the social sciences disciplines of Business/Management, Law and Education. These disciplines were the most commonly taught disciplines in the 18 universities that were selected. 16 universities had Business school, 15 had Law schools and 13 had Education schools. All other disciplines of Social Sciences e.g. Economics, Political Science, Sociology and History, etc appeared less frequently in these 18 universities. Secondly, these three disciplines had larger institutions with large number of faculty members, so there was a higher probability of the prospective respondents belonging to the same cluster.

Sampling Step 3

The entire population of all the academics employed in the three subject areas was selected.

7.8 Data Collection

A total of 3336 emails were sent, with one subsequent reminder in two phases. The pilot study had resulted in a response rate of 16%. In order to carry out proper statistical analysis for the proposed research questions, a minimum of 250 valid questionnaires were required (Minimum sample size discussed in Chapter 8). Therefore, keeping the probability expectation towards a pessimist view, the initial emails were sent to 2079 academics in 7 universities randomly selected from the 13 universities that had all three of the selected disciplines, i.e. Business, Law and Education. However, after one initial email and one reminder, only 156 valid questionnaires were received. Therefore, a second wave of emails was sent to 1257 academics in 6 more universities that had all three of the disciplines and 1 university that housed only two of the disciplines, i.e. London School of Economics. The remaining 3 universities that had only one discipline were left out. University of Glasgow was not included in the survey as it was going through restructuring exactly at the time when the survey was being conducted. Moreover, participants from the business school were exhausted during the pre-test stage. The following table enlists the schedule on which the emails were sent. A large number of out-of-office and mail delivery failure responses were received. A few recipients informed that they no longer hold the post. Some commented that items in the questionnaire are not relevant to how they carry out their work and thus, are not relevant to their work-life. Some also appreciated that the questionnaire was drafted very well and the research was an interesting topic. One respondent suggested that one of the Sense of Coherence item *'I have the feeling that I am not sure I cannot keep under control'* does not make sense. This item was adapted from the original item stating '*How often do you have the feeling that you're not sure you can keep under control?'* The respondent suggested that it would be more appropriate to word the item as *'I have feeling I am not sure I can keep under control'.* Considering that the respondent was an accomplished academic, the reply was received early on during the first wave and that the alteration was a minor change, the wording was changed to the suggested version. A summary of remarks is presented in the following table.

Found the questionnaire very interesting. Would like to receive results of the study
We get lots of these but I was very impressed by the care that you'd taken in complying with ethical guidelines so I did yours. Time well spent preparing this email and a very well thought through survey.
Send me the results. I find it very interesting.
Completed the questionnaire but found wording of some items confusing
Cannot contextualize with the information required and statement included are rather arbitrary, but after providing a more detailed explanation about the study, the respondent was satisfied and completed the questionnaire
Questions do not reflect the realities of my workplace. I do not have a boss!
Questions were difficult to answer and the image of the workplace they imply does not fit with my own workplace experience
Many of the questions did not apply to me – I need a Not Applicable category
Some of the questions are not sensible – I am considerably senior in my department, so many questions do not fit my context. What are you trying to focus --- is it our health, our attitudes or the way the department works?
Questions are too long, and the questionnaire is not that well-structured
The questionnaire does not make sense in my situation.
Many questions do not fit me.
It is not appropriate to my position.
Some of your questions are unanswerable or misleading
Very interesting. Keep me informed about the results.
The questions imply a relationship I don't have. It is not suitable for senior academics.
Some questions are irrelevant or inappropriate for an academic or researcher.
Some of the language is strange in an academic context. For example, I don't have a boss.
I don't think I can fill because I am head of the department and therefore, I am my own boss.
You have a view of management embedded in the questions that does not fit mine. For example, Boss!

Table 18: Summary of remarks received from academics approached

In cases, where the objection was explicitly about the wording of "boss", a further email was sent explaining that a boss in this questionnaire does not mean a person having administrative authority over them, but is rather assessed with the lens of someone who provides/does not provide a supportive and congenial work environment. He does not have to be a leader, nor an administrator, but only a facilitator of maintaining a positive organizational culture. Where the statement refers to the boss, the respondent can refer to a person who is senior to them in the organization and possesses the greatest influence to affect their performance, career or work activities in any positive or negative manner. With reference to the objection of arbitrary nature of questions and items that did not fit well with the respondent's situation, questionnaire has been designed to gain generalizability, and includes statements about organizational life that almost every member encounters, but with different intensity. Secondly, because of a high level of variability in the types of

responsibilities undertaken by academics according to their positions, there has to be trade-off between specificity and generalizability while designing a questionnaire that is adaptive to all kinds of academic profiles. Finally, only 15 recipients out of 3336 showed some discontent with the structure, language and overall fit of the questionnaire, which is a significantly low proportion to warrant any serious flaws or problems. A total of 421 surveys were started, out of which 365 were complete and valid responses. This gives an overall completion rate of 87.1%. Such high level of completion rate makes it evident that respondents were able to understand and complete the questionnaire, regardless of the fact that it was a 12-page lengthy exercise. 82.4% of responses were received in the first three days of both cases of initial email or the reminder.

Table 19 provides a list of facts about the number of emails sent to each university and responses received from them.

UNIVERSITY	Business	Education	Law	SENT	STARTED	VALID
University of Cambridge	54	78	119	251	16	14
University of Oxford	171	99	139	409	31	25
University of Edinburgh	91	143	65	299	27	25
King's College London	54	72	44	170	34	29
University of Manchester	272	75	80	427	49	46
University of Bristol	78	66	46	190	45	35
University of Warwick	157	56	34	247	29	25
University of Birmingham	135	104	38	277	23	18
London School of Economics	110	0	59	169	23	19
University of Sheffield	47	47	43	137	5	3
University of Nottingham	128	58	46	232	43	40
University of Southampton	69	73	41	183	30	27
University of Leeds	122	50	55	227	42	38
Newcastle University	54	52	12	118	24	21
Total	1542	973	821	3336	421	365

Table 19: University/Faculty-wise distribution of emails sent and responses received

7.8.1 Response Rate

There were a significant number of out-of office, delivery failure, change of employment and explicit unwillingness to take part in the study replies. These declines must be deducted from the number of emails sent in order to calculate the response rate. Table 20 enlists the occurrence of such declines in each phase of data collection.

Email Schedule	No. Of Emails sent	Out of office replies	Mail-Delivery Failure	Not employ-ed	Other reasons	Total No. Of Declines
23-24 June, 2010 First wave of emails sent to 7 universities	2079	144	47	8	1 – Not related to own work 1 – Don't have time 1 – Not willing	202
12 July, 2010 Reminder emails sent	2042	190	48	7	1 – Does not fit to their work life	246
18 August, 2010 Second wave of emails sent to 7 more universities	1257	291	17	0	2 – Does not fit to work life 1 – Not willing 2 – Don't have time	313
16 September, 2010 Reminder email sent	1207	108	19	2	1 – Decline 2 – Not willing 2 – Does not fit to work like	134

Table 20: Distribution of declines

From the information collected about the total number of declines in each phase, the response rate was calculated by deducting the number of declines from total number of email sent. Note that there is still no way to calculate the actual number of emails read by prospective respondents.

Collection Phase	Emails sent	Declines	Received and not declined	Valid Responses	Response Rate
First Wave	2079	448	1631	156	9.56%
Second Wave	1257	447	810	209	25.8%
			Average Response Rate		**17.68%**

Table 21: Calculation of Response rate

The overall response rate stands at 17.68%. After a discouraging response rate of 9.56% in the first wave, a minor amendment was made in the way emails were sent to prospective recipients. While emails in the first wave were not addressed to specific persons and started with a general *'Dear Faculty Member'* salutation, each recipient was personally addressed with their appropriate title and surname in the second wave. Such a minor

amendment improved the response rate to 25.8%. The improvement can be attributed to this factor because none of the other conditions changed. On the contrary, there were a higher proportion of declines received in the second wave, thus there was a lesser probability of response. Therefore, it can be claimed that personal contact was an important social factor in improving response rate, as it added a personal touch to the message. This has also been supported by previous research where Cook et al., (2000) found that response rate can be improved by contacting a large number of prospective participants and by making the contact in personalized format. It has also been advised that embedded questionnaires as compared to attached questionnaires, screen design rather than scroll design and inclusion of progress bar can improve the response rate (Vicente and Reis, 2010). All these measures were taken into account while designing the online questionnaire. The survey opened by clicking on a link embedded in the email, the items were distributed over twelve screens and a progress bar displayed progress at the top of each screen.

A response rate of 17.68% is satisfactory because it is an established fact that response rate tends to be lower in email surveys as compared to the traditional mail surveys (Couper, 2000; Vicente and Reis, 2010; Lozar Manfreda et al., 2008). However, the use of online technologies may not be the only factor contributing towards a low response rate. Even in postal surveys, Sarantakos (1998) states that the researchers may have to face a response rate as low as 10%. Moreover, response representativeness is more important characteristic than response rate (Cook et al., 2000). It is argued that the population which is targeted by email is the one that possesses an access to internet facility and therefore, may not be a true representation of the population. However, this was not an issue in this study, since all the academics had their official university email addresses, and internet is available to all the faculty members at these institutions. Therefore, the sample did not omit any possible subjects and it can be said that the sample was representative. Other problems associated with low response rate are coverage and sampling error. It has been argued that the participants may not have an equal probability of being accessed by the internet because internet users may not be evenly distributed across various segments of the society (Hudson et al., 2004). In this case, this bias does not exist because the participants belong to a profession where use of Internet and email is highly practiced. Coverage does not appear to be concern in this research because the email was sent to all the faculty members in the selected disciplines. Therefore, it can be concluded that issues arising from low

response rate in Internet surveys do not exist with the same magnitude in the present research as compared to other situations. Nonetheless, measurement error arising from low response is a limitation and will be addressed in the last chapter.

7.9 Summary

This chapter has elaborated the methods and tools employed to collect data from the respondents. The first part has explained the process of operationalization of variables and presented questionnaire items that were adopted, adapted or developed for measuring each variable. Control variables relevant to the research questions have also been identified and the preparation of survey instrument for the present study has been explained. Steps employed to acquire ethical approval have been outlined and described. The designing of online survey, conducting the pilot study and modification of questionnaire items in the light of feedback received from the pilot study has been explained. Then, the selection of adequate sampling method has been described and the step-wise process of sample generation has been explained. Finally, the process of data collection through online web-based survey has been outlined and explained. Response rate has been calculated and the adequacy of response rate in case of the present research design has been argued and supported through existing literature.

Chapter 8: Data screening and preparation

Chapter Objectives

This chapter aims to;

1. Describe the process of preparing and screening data collected from the survey through Missing Value Analysis.
2. Elaborate the criteria of minimum sample size for each set of statistical analysis and provide support for sample adequacy in each case.
3. Present characteristics of respondents who filled the survey with respect to their demographic indicators relevant to the research questions.
4. Explain the concepts of construct validity, content validity and reliability for validation of scales for individual constructs and the steps employed to ensure adequacy of these aspects in each case.

8.1 Introduction

The first part of this chapter focuses on describing the process through which the data was prepared and screened for analysis by conducting Missing Value Analysis. Then, discussion has been presented to describe the minimum criteria of sample size for each type of statistical analysis employed in this research. Arguments have been given to support the adequacy of sample size for each set of analysis. The next part of the chapter presents the basic description of the sample with respect to their demographic characteristics such as age, gender, position held in the institution, years of experience, academic discipline and university. Finally, conceptual issues of construct validity, content validity and reliability regarding validation of measurement instruments for individual constructs have been described and tests employed to ensure each aspect have been outlined.

8.2 Data Screening and Preparation

All the data was collected online and was stored in the secure account on the website. After all the collectors were closed two weeks after the final reminder in the second wave was sent, the results were downloaded to the researcher's personal computer secured by a password. The results were received in dot csv format which can be easily transferred to statistical softwares such as SPSS and Excel. All the analyses were carried out in SPSS version 18, except Confirmatory Factor Analysis which was conducted in AMOS version 18; an advanced software for structural equation modeling. SPSS and AMOS are one of the most commonly used statistical softwares particularly in social sciences (Hancock and Mueller, 2006).

A total of 421 responses were received from the online survey which was emailed to prospective respondents in two waves. Before data was processed for statistical tests pertaining to the research questions, it was essential to scan for missing values in the dataset. The issue of missing values in questionnaires is a routine phenomenon in survey research (Brick and Kalton, 1996). Missing values occur in a number of ways and it is important for the researcher to identify the form and extent of missing values to take appropriate remedial action. In some cases, missing values occur due to attrition; a situation where the respondent chooses to stop filling the questionnaire before completion

(Malhotra, 1987). In this case, a large number of values are left blank in the later parts of the questionnaire. Another situation occurs where missing values are concentrated over a set of specific items; this happens when the respondent refuses to respond on a particular type of item. It is possible that the respondent is sensitive towards the nature of items, feels that the items are irrelevant to their situation or that they do not have sufficient knowledge to answer those questions. Such cases where there are a large number of nonrandom missing values are candidates for deletion. Another possibility is the concentration of missing values on a specific set of variables. In this case, entire variables will have to be deleted otherwise bias will be introduced in the analysis. Finally, it is possible that the missing values occur in a random pattern. If the missing values occur in a random pattern, it is possible to take remedial actions such that cases are retained and values can be imputed through various methods. Before a remedial action is taken, it is essential to determine the extent of randomness amongst any missing values. There are two steps in ascertaining the extent of randomness. MAR (Missing at Random) requires that only specific methods should be applied to replace the missing values. On the other hand, if a higher level of randomness called MCAR (Missing Completely at Random) is identified, the randomness is sufficient enough to accommodate any type of remedy applied for replacing missing values (Hair et al., 2010).

According to the steps recommended for missing value analysis, data was scrutinized for cases and variables with a large number of missing values. 56 cases were identified as candidates for deletion. These cases carried missing values either because of attrition, or concentration of missing values on one or more sets of variables. An analysis of missing values with respect to variables was also carried out. None of the variable carried missing values of more than 10%, except one, i.e. ‘Position in current organization’ where 13.2% of responses were missing. However, this information was only collected to create a demographic profile of the respondents and to be used as a control variable and was not fundamentally important to the multivariate analysis used to address the research questions. Therefore, it was concluded that none of the variables had to be considered for deletion.

After the invalid cases were deleted, a dataset comprising of 365 remaining cases was obtained. An examination of individual cases revealed that all of the cases contained no more than 5% of missing values. It is recommended that missing data of less than 10% can

be ignored provided the pattern of missing values is random (Raymonds and Roberts, 1987). A test of randomness was performed to confirm the randomness of missing data and after that it was decided that the missing values can be replaced through a remedial method. It should be noted here that replacement is possible only in case of continuous or interval variables. Therefore, further analysis was only conducted for quantitative variables in the dataset. However, this does not warrant any serious concerns because all the major variables (scores on questionnaire items pertaining to primary constructs of the framework) are quantitative and continuous variables. Only control variables and variables relating to miscellaneous demographic information were recorded in the form of categorical variables. In order to select the method of replacement, a test of randomness was carried out for all quantitative variables. Little's MCAR test was performed which resulted in a non-significant level of randomness with a p-value of 0.322. This test compares the actual pattern of missing data with the predicted pattern of data which would have appeared if the missing values were distributed completely randomly. A p-value of more than 0.05 confirms that the difference between the two is not significant. Prima facie, it may seem counter-intuitive that a p-value of more than 0.05 confirms the hypothesis of missing values randomness, because generally a p-value of less than 0.05 is considered acceptable in statistical tests. However, this is a test of NON-significance confirming that there is no significant difference and therefore the null hypotheses is accepted, whereas, most of the other cases are tests of significance confirming that the null hypothesis can be rejected. An MCAR pattern of missing data provides two benefits to the researcher. "First, it should not involve any hidden impact on the results that need to be considered when interpreting the results. Second, any of the imputation method can be applied as remedies for the missing data" (Hair et al., 2010, p. 64).

After concluding that missing values in all the continuous variables were MCAR, a remedial method had to be selected. There are two types of remedies available to deal with missing data. The first one involves use of valid cases only, and the second replaces missing values with an estimate. The use of valid cases only approach was not suitable for the circumstances of this study. A large sample size is required in order to conduct factor analysis on both exploratory and confirmatory stages (discussed in detail in Section 8.3). Therefore, including valid cases only would have reduced the sample size with consequent impact on the reliability and robustness of results generated. Therefore, it was more appropriate to use a replacement method. Within the replacement methods, there are again

three types of methods available to the researchers; a) Mean Substitution; b) Regression Imputation; and c) EM estimation. Out the three methods, EM estimation is the most robust method of replacement (Arbuckle, 1996; Brown, 1994; Duncan and Rubin, 1983). It involves complex calculations, which may be difficult to undertake in the absence of supportive software, but since its inclusion in the Missing Value Analysis section of SPSS, it is being widely used for replacement. The Mean substitution method is the easiest to perform and for this purpose, it the most commonly used method of imputation, but it has several disadvantages which includes distortion of data distribution and depressing of observed correlations (Little and Donald, 2002). Regression Imputation also carries a few disadvantages, e.g. it strengthens the already existing relationships and therefore, decreases generalizability (Roth, 1994). EM method of replacement provides the "best representation of original values with least bias" (Hair et al., 2010, p. 55) and was therefore employed to impute missing values in the dataset.

Apart from the continuous variables, there were a few categorical variables in the study as well. Some of them are nominal categorical variables, such as university, faculty position etc whereas, others are ordinal variables such as age or years in current position, etc. Some of these variables were involved as control variables in the regression analysis. The remaining variables were only collected for the purpose of generating a demographic profile of the respondents, and therefore, their missing values do not affect the analysis. In case of categorical variables, it is not possible to replace their missing values. However, the magnitude of missing values was negligible, and the effect of deletion did not impair the effectiveness of analysis. Table 22 summarizes the extent of missing values in these variables. Note that there are no missing values in University and Faculty because although this information was asked in the questionnaire, the data was prepared by using the collector ID of each of the respondent. There were separate collectors designed in the online survey for each faculty of each university. Therefore, it was possible to identify each response with their respective faculty and university from their collector ID.

Categorical Variable	Number of Observations	Missing (Count)	Percent missing
University	365	0	0.0
Faculty	365	0	0.0
Position *(Control Variable)*	317	48	13.2
Age *(Control Variable)*	342	23	6.3
Years in Current Position *(Control Variable)*	347	18	4.9
Years in Academic Profession *(Control Variable)*	347	18	4.9
Gender	350	15	4.1
Nature of employment	348	17	4.7

Table 22: Missing values in categorical variables

8.3 Sample Size

The consideration of sample size is an essential element of statistical analysis. The minimum sample size requirement and rules-of-thumb vary with the type of analysis. After deletion of invalid cases, a dataset consisting of 365 complete cases with respect to all the continuous variables was prepared. From the standpoint of sample size requirements, there are three types of statistical analysis conducted in this study.

1) Exploratory Factor Analysis
2) Confirmatory Factor Analysis
3) Regression Analysis

The requirement of minimum sample size and sample adequacy of the present study is discussed for each the statistical analysis.

8.3.1 Sample size in Exploratory Factor Analysis

For the purpose of exploratory factor analysis, there are a number of guidelines available from the literature. It is prescribed that the minimum absolute sample size (N) should not be less than 50 observations (Hair et al., 2010). However, the absolute sample size criterion should not be viewed in isolation. Another important dimension is the ratio of observations to variables, therefore, as the number of variables increase in the factor analysis, the required sample size for obtaining a stable factor solution also increases. An observation to variable ratio of 5:1 is deemed satisfactory however, a ratio of 10:1 is considered ideal. It is advised that researchers must try to achieve the maximum observation to variable ratio in order to minimize the probability of overfitting the data in which factor solution is sample-specific and does not represent the characteristics of an overall population (Fabrigar et al., 1999; MacCallum et al., 1999). An analysis of previous studies employing exploratory

factor analysis finds that it is a common practice to achieve an observation to variable ratio between 2:1 and 10:1 (Costello and Osborne, 2005). Table 23 shows the observation to variable ratio in previous studies.

Subject to item ratio	% of studies
2:1 or less	14.7%
> 2:1, ≤ 5:1	25.8%
> 5:1, ≤ 10:1	22.7%
> 10:1, ≤ 20:1	15.4%
> 20:1, ≤ 100:1	18.4%
>100:1	3.0%

Table 23: Current Practice in Factor Analysis (Costello and Osborne, 2005, p. 4)

In another analysis of previous studies employing exploratory factor analysis, it was found that approximately 40% of the studies employed an observation to variable ratio of 10:1 or less (Conway and Huffcutt, 2003). However, the same analysis also found that about 77% of the studies employed samples size of 500 observations or less. Moreover, Costello and Osborne (2005) argue that absolute sample size or observation to variable ratio are not a fixed criteria to determine the robustness of the factor solution, but also depends on the quality of sample characteristics. They particularly signify the importance of communalities in the factor solution. If item communalities are high in the factor solution, even a low observation to variable ratio can produce reliable results, however, in case of low communalities, ranging from 0.40 or less, a low observation to variable ratio will pose the danger of overfitting the data (Velicer and Fava, 1998; Mulaik, 1990).

For the purpose of this study, EFA was carried out at two levels;

1) To validate questionnaire items for which measures were designed or previous measures were used with major modifications. These constructs are;
    a. Energizing connections
    b. Perceived health and Energy
    c. Goal Commitment
    d. Subjective Career Plateau
2) To determine the construct validity of Vitality at Work by employing the factors proposed.

For each EFA process, the absolute sample size was 365 which was a satisfactory sample size as recommended in various literatures cited in the previous paragraphs. The observation to variable ratio would be different in each analysis because the number of items in for each measure varies.

Table 24 enlists the observation-to-variable ratio for each of the EFA process/procedure.

Purpose of EFA	Total number of observations (N)	Number of items in questionnaire (variables)	Observation-to-variable ratio (Rounded to nearest whole number)
Validation of Individual Measure of Energizing Connections	365	17	21:1
Validation of Individual Measure of Perceived Health and Energy	365	7	52:1
Validation of Individual Measure of Goal Commitment	365	7	52:1
Validation of Individual Measure of Subjective Career Plateau	365	8	45:1
Construct Validity of Vitality at Work	365	70	5:1

Table 24: Observation-to-variable ratio for Exploratory Factor Analysis

The observation-to-variable ratio falls in a meritorious range to perform EFA to validate the individual measures constructed during the present research. For the purpose of construct validation of Vitality at Work, the ratio is much lower, because there are a large number of items measuring the construct. However, it falls in an acceptable range of 5:1. Considering that the sample is large (N=365) and shows high communalities (discussed in previous paragraphs), it can be concluded as a satisfactory sample size.

8.3.2 Sample size for confirmatory factor analysis

The appropriate sample size for confirmatory factor analysis is not clearly specified as an absolute number in the literature, nor do any strict rules of observation-to-variable ratio exist. However, it has been argued that sample size has an effect on the good-of-fit indexes. For example, Marsh and Balla (1988) have found that both incremental fit indexes and goodness-of-fit indexes are affected by sample sizes in a study using real and simulation data. They employed seven different sample sizes of 25, 50, 100, 200, 400, 800, and 1600 and tested the effect of varying sample size on 30 different indexes. They conclude that the effect of sample size is greater in small samples and reduces as the sample size becomes larger. Although they have not suggested an optimum sample size for CFA application; they do suggest that studies employing a sample size of less than 200

should be careful in their research design, implying that a smaller sample size would warrant weaknesses in data analysis. Cole (1987) provides some general guidelines for conducting CFA emphasizing that such statistical techniques are founded on large sample theory therefore, results that are based on small samples may be spurious and not reliable. It is advised that for simple models (with one, two or three factors), the number of observations should not be less than 100 (Bearden et al., 1982); studies modeling more complex designs with a larger number of factors should employ larger samples accordingly. Similarly, Hair et al. (2010) also suggest that CFA requires a larger sample size, especially in case of studies where there are a large number of variables in the model.

In the present study, the sample size for the purpose of CFA is 365. For confirming the measurement model of VAW, there are a total of seven factors. After screening of items in Exploratory Factor Analysis, 29 items were retained to measure Vitality at work. With 29 items, the observation to variable ratio in a sample of 365 observations stands at approximately 12.5:1. From the above mentioned literature (Marsh and Balla, 1988; Cole, 1987; Bearden et al., 1982; Hair et al., 2010), it can be concluded that a sample size of 365 observations is satisfactory to carry out Confirmatory Factor Analysis in a seven factor model to test the construct validity of Vitality at Work. It is a good-sized sample when compared with prescribed sample sizes in previous literature. The observation-to-variable ratio is also adequate. The number of factors is neither too large nor small but falls in a mid-range. Moreover, the proposed model is not very simple but can be classified as moderately complex, being a second-order CFA model with seven factors and 29 observed variables. The size and complexity of the model adequately corresponds with a mid-range sample size of 365 complete observations.

CFA has also been conducted to test the measurement models of Subjective Career Plateau, Energizing Connections and Sense of Coherence constructs. For Subjective Career Plateau, validation of the measurement model was essential because the majority of items were constructed during the study. The construct would serve as the independent variable in later hypothesis, therefore carries significant importance for the research questions. For Energizing Connections, this has been done for two reasons. First, the measure for this construct was developed from stage one during the study. The items were never used previously, and therefore, required a thorough testing within the present study to validate the construct of Energizing Connections as well as the items measuring it. Second, the final

CFA model for VAW includes the sub-factors of Energizing Connections, i.e. Task Enabling and Energizing Interactions, and does not include a combined factor of both. It was not possible within the CFA design to create a third-order model, in which the observed variables represent a latent variable, which appears as a factor of a broader latent variable, which again is a factor of the core, overarching latent variable/construct. Therefore, it was important to test separately whether the two sub-factors carry significant construct validity for the underlying latent construct of Energizing Connections. For the same reason, the sub-constructs of Sense of Coherence, i.e. Manageability, Comprehensibility and Meaningfulness were tested for construct validity within the present study, because in the final model, they appear as separate factors and not as sub-factors of Sense of Coherence. Out of 13 items, 7 were screened from EFA which loaded on two factors which have been relabeled as Controllability and Perceived Social Justice. The absolute sample size for both the CFA models of Energizing Connections and Sense of Coherence is 365. Eight items screened from the initially drafted 17 items from EFA measuring the construct of Energizing Connections. The observation-to-variable ratio in case of Energizing Connections is 45:1 approximately, which is sufficiently adequate. In case of Sense of Coherence, there are 8 items and therefore the observation-to-variable ratio is 45:1, which falls also within a meritorious range of observation-to-variable ratio for factor analysis. Finally, CFA has also been conducted to confirm the measurement model for Subjective Career Plateau. EFA was performed to screen out 6 items loading on a single factor. In this case, the observation-to-variable ratio is 60:1 approximately.

8.3.3 Sample Size for Regression

Finally, the adequacy of sample size has to be assessed for the third type of statistical analysis employed. For the purpose of running regression analysis, the sample size is determined by the number of independent variables in the equation. There are two dimensions of effect of sample size with respect to regression. The first impact of sample size is on the statistical power of the analysis. Statistical power means the probability of computing a statistically significant value of R^2 at a specified significance level for a particular sample size (Cohen et al., 2002). In other words, small samples reveal a statistically significant R^2 value only in case of strong relationships at a given level of significance. Therefore, only large R^2 values will be considered statistically significant. However, in case of large samples, even small R^2 values are indicated as statistically significant. Thus, in a sample of 1000 observations, with only one independent variable

and 0.80 level of statistical power, even 1% R^2 value will result in a statistically significant relationship. Therefore, in case of large sample sizes, the practical significance of the relationships should also be considered in addition to statistical significance (Weisberg, 1985; Johnson, 2002).

The second aspect of effect of sample size on regression analysis is generalizability of the findings. To be able to generalize a relationship, there should be at least a 5:1 ratio of observation-to-independent variables. This means that for every independent variable, there must be 5 observations in the dataset. However, a ratio of 15:1 to 20:1 is considered ideal (Hair et al., 2010). The generalizability of the relationship also depends on the degrees of freedom. The greater the degrees of freedom, the more generalizable are the findings of the regression analysis. Degrees of freedom is computed by subtracting the number of estimated parameters (number of independent variables plus one) from the total sample size. There is no specific number which is prescribed as a minimum desired level of degrees of freedom, but it is suggested that a higher value will result in greater generalizability (Weisberg, 1985; Wilkinson, 1975).

Degrees of freedom = Sample size - (number of estimated parameters)
= Sample size - (number of independent variables + 1)

For the purpose of computing regression analysis, the sample size is 310 after listwise deletion of missing cases in categorical variables. These categorical variables are included in the research design as control variables. Because these are categorical variables, it was not possible to replace the missing values. Therefore, after deleting cases listwise, a valid sample size of 310 observations is processed for the analysis. For calculating the observation-to-variable ratio, the number of variables is 5, out of which only 1 is an independent variable and the remaining 4 are control variables. Thus, the observation-to-variable ratio is 62:1 and degrees of freedom is 304. Comparing these numbers to the prescribed standards for regression analysis, it can be concluded that the sample is more than adequate to proceed with the analysis.

8.4 Basic characteristics of the respondents

A number of demographic characteristics were collected from the survey in addition to responses on items measuring attitudinal constructs. There were three reasons of collecting this information: First, to ensure the homogeneity of the sample in order to facilitate factor analysis. The second objective was to control for variation due to factors affecting the relationship of Vitality at Work and Subjective Career Plateau. Another secondary reason for collecting this information was to explore and gain useful insight into relationships that might exist but have not been pre-defined by the research objectives. This study has explored upon behaviours and constructs that have not been defined in previous literature and to the best of my knowledge, the relationships have never been explored in academia in a quantitative study, therefore, it was possible that other relevant insights may emerge during the course of this research. For these reasons, it was considered adequate to define the characteristics of respondents who responded to the online survey.

Gender

The analysis shows that the sample is approximately equally distributed with respect to gender. There are 50.6% male and 49.4% female respondents out of those who responded to the question. There are also 4.1% missing values out of the entire sample which is a negligible proportion in order to conclude that the sample is evenly distributed with respect to gender. This is a favorable characteristic of the sample because it means that a homogeneous sample has been attained and the analysis will not be more representative of one category of respondents than the other.

Gender

		Frequency	Percent	Valid Percent
Valid	Male	177	48.5	50.6
	Female	173	47.4	49.4
	Total	350	95.9	100.0
Missing	System	15	4.1	
Total		365	100.0	

Table 25: Distribution of male and female respondents

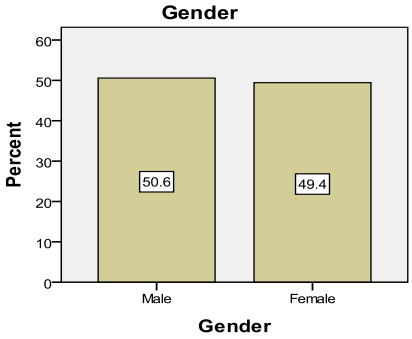

Figure 7: Distribution of respondents w.r.t. gender

Age

The response on the question of age was obtained on a continuous scale starting from 25 or less and continuing on a year-wise increment as options provided in the drop-down menu. However, in order to gain a more meaningful picture of distribution of respondents with respect to age, the variable was transformed from continuous to a categorical variable, spreading over six categories. The categories are shown below in Table 26, except the first category of 25 or less, because there were no respondents within this age range. Out of the remaining five categories, almost 60% of the respondents belong to the range of 36-55 years. Only 8 respondents (2.2%) of the respondents are above 65, which is also explainable, because many people retire by that age. Other than this category, the remaining categories although not evenly distributed show sufficient representation from each group. Nonetheless, this variable has been added as a control variable in the regression analysis to control for any effect caused due to its variation.

Age

		Frequency	Percent	Valid Percent
Valid	26 to 35	54	14.8	15.8
	36 to 45	106	29.0	31.0
	46 to 55	100	27.4	29.2
	56 to 64	74	20.3	21.6
	65 or more	8	2.2	2.3
	Total	342	93.7	100.0
Missing	System	23	6.3	
Total		365	100.0	

Table 26: Distribution of respondents with respect to age

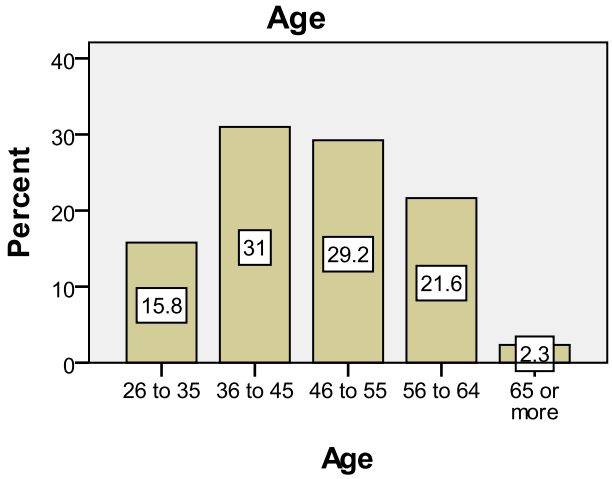

Figure 8: Distribution of respondents w.r.t. age

Years in Academic Profession

The number of years an academic has spent in the profession is an important aspect of career and therefore relates to the concept of career plateau. It was important to collect information on this variable so that the effect of years spent in academic profession can be controlled in the regression analysis. The response on this variable was also collected on a continuous scale with a range of 3 to 35 years, but was transformed into a categorical variable with 4 categories as shown in Table 27. 43% of the respondents have spent between 4-14 years in academic profession, 29% have spent 15-24 years, 11% have spent 3 or less years and approximately 17% of the respondents out of those who responded to the question have spent more than 25 years in the profession. There are also 5% missing values out of the total sample.

Years in Academic Profession

		Frequency	Percent	Valid Percent
Valid	3 or less	39	10.7	11.2
	4 - 14	149	40.8	42.9
	15 - 24	99	27.1	28.5
	25 or more	60	16.4	17.3
	Total	347	95.1	100.0
Missing	System	18	4.9	
Total		365	100.0	

Table 27: Distribution of respondents with respect to number of years spent in academic profession

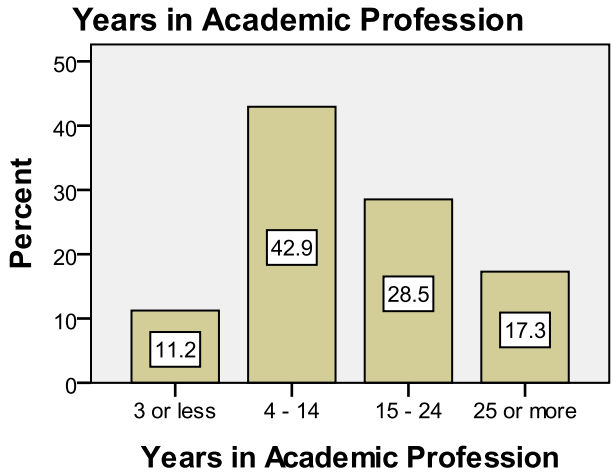

Figure 9: Distribution of respondents with respect to number of years spent in academic profession

Years in Current Position

This actual time spent in the current position is an important dimension of career plateau termed as objective career plateau. Objective career plateau which is defined as the stage when an individual has spent a prolonged period of time, calculated in number of years, can be assessed by asking the respondents the number of years they have spent in their current position. However, consensus is not found about the number of years from which a person should be considered objectively plateaued. Nonetheless, the objective of this study has not been to define objective career plateau, but this information has been collected to control for any effect that might have been caused on the dependent variable of VAW due to the fact that an individual has objectively plateaued.

Years in Current Position

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3 or less	131	35.9	37.8	37.8
	4 – 9	129	35.3	37.2	74.9
	10 – 14	37	10.1	10.7	85.6
	15 – 19	23	6.3	6.6	92.2
	20 or more	27	7.4	7.8	100.0
	Total	347	95.1	100.0	
Missing	System	18	4.9		
Total		365	100.0		

Table 28: Distribution of respondents with respect to number of years spent in current position

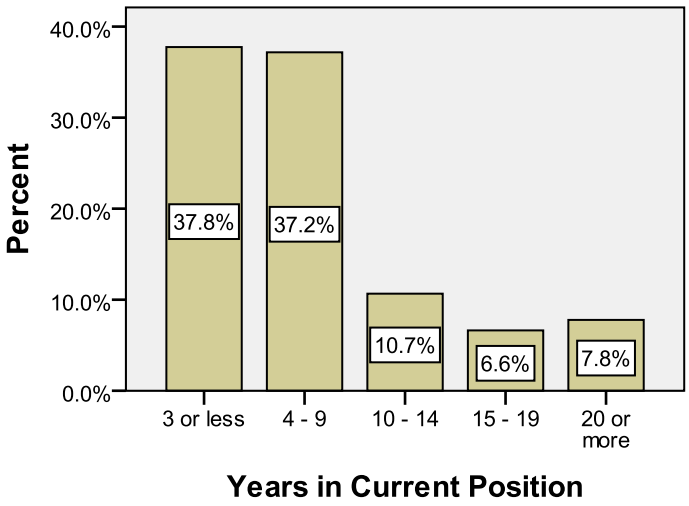

Figure 10: Distribution of respondents with respect to number of years spent in academic profession

Position

Response to this question was a blank open-ended textbox in the online questionnaire. However, there was a high degree of similarity between the responses, and the answers were transformed into categories of professor, associate professor/reader, senior lecturer/assistant professor, lecturer and research/teaching fellow. This variable has the highest percentage of missing values, amounting to 13.2% of the sample. The reason for this high proportion is that some responses had to be deleted because they did not match with the description of either of the categories, such as MSc Projects Consultant or International director. Therefore, such values were left blank. Out of those who responded, 29% were Lecturers, 23% were Professors, 21% were Senior Lecturers, 18% were Research/Teaching Fellows and 9% were Associate Professors. The sample consists of sufficient entries for each category to have adequate representation in the dataset.

Position

		Frequency	Percent	Valid Percent
Valid	Research/Teaching Fellow	56	15.3	17.7
	Lecturer	92	25.2	29.0
	Senior Lecturer	68	18.6	21.5
	Associate Professor	29	7.9	9.1
	Professor	72	19.7	22.7
	Total	317	86.8	100.0
Missing	System	48	13.2	
Total		365	100.0	

Table 29: Distribution of respondents with respect to position held

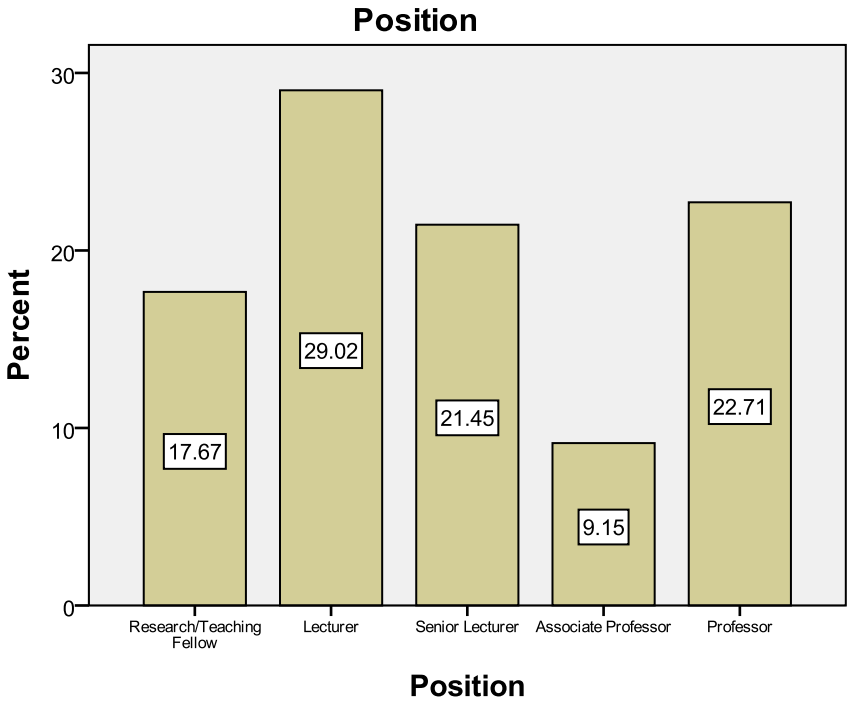

Figure 11: Distribution of respondents with respect to position held

Institution

The response to this question was also a blank text-box. However, as already explained in Section 8.2, this information was collected from the collector ID. Therefore, there are no missing values in this variable. It is apparent from Table 30 and Figure 12 that the distribution of responses with respect of each university is rather uneven. At first glance, it looks problematic. However, a deeper inquiry reveals that the number of responses received from each university is dependent on the size of their respective faculties. Certainly, in universities, where there are considerably larger faculties of the selected disciplines, a larger number of responses were received from them. However, there is an exception of responses from University of Sheffield from where there are only 3 responses received out of a total of 137 emails sent. It is possible that the university operates on a strict filtering policy for spam, and a bulk mail action might have blocked or restricted the emails to faculty members. It was considered to remove these responses from the dataset. However, there was no significant difference between the results obtained from datasets with or without these observations. Therefore, these observations were retained.

University

		Frequency	Valid Percent
Valid	Oxford	25	6.8
	Cambridge	14	3.8
	Manchester	46	12.6
	Edinburgh	25	6.8
	Warwick	25	6.8
	Sheffield	3	.8
	Birmingham	18	4.9
	Nottingham	40	11.0
	Southampton	27	7.4
	Leeds	38	10.4
	Newcastle	21	5.8
	Kings College	29	7.9
	LSE	19	5.2
	Bristol	35	9.6
	Total	365	100.0

Table 30: Distribution of respondents with respect to Institution

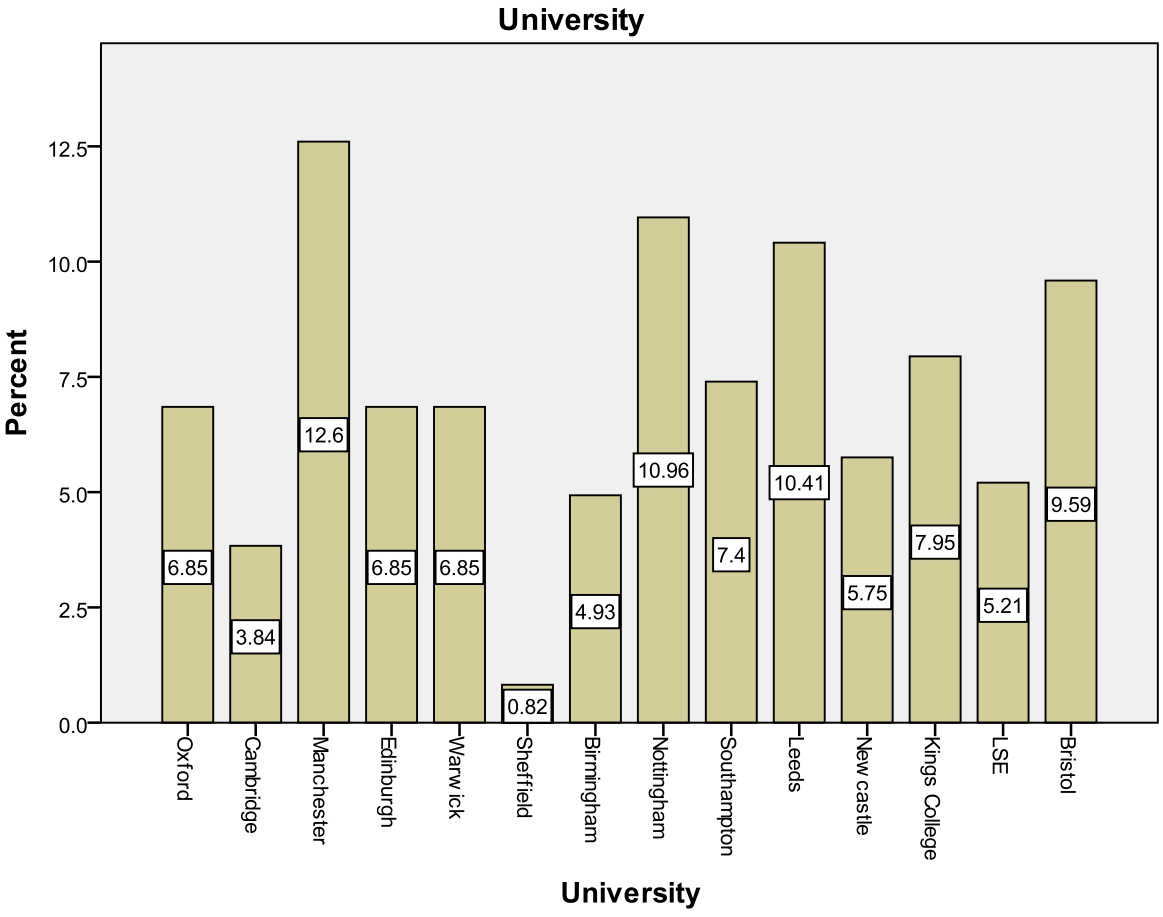

Figure 12: Distribution of respondents with respect to Institution

Faculty

Another characteristic of the sample is the composition of respondents with respect to faculty. It has been already reported that three disciplines i.e. Business, Education and Law were selected. Out of the three disciplines, business schools or similar departments had the largest academic faculty in general. Therefore, out of a total of 3336 academics contacted, 46% belonged to Business schools or similar disciplines, 30% belonged to Education schools, and the remaining 24% belonged to Law schools. Likewise, a similar percentage appears in the proportion of responses received from these faculties. 45% of the responses were received from Business schools, 35% from Education and 20% from Law schools. Again, the information was collected from the collector ID of each respondent, since a separate collector was established for each faculty of the respective universities. Thus no missing values were present. The sample distribution appears to be much similar to the population distribution, therefore it can be said that it is representative of the population.

Faculty

		Frequency	Percent	Valid Percent
Valid	Business	165	45.2	45.2
	Education	129	35.3	35.3
	Law	71	19.5	19.5
	Total	365	100.0	100.0

Table 31: Distribution of respondents with respect to faculty

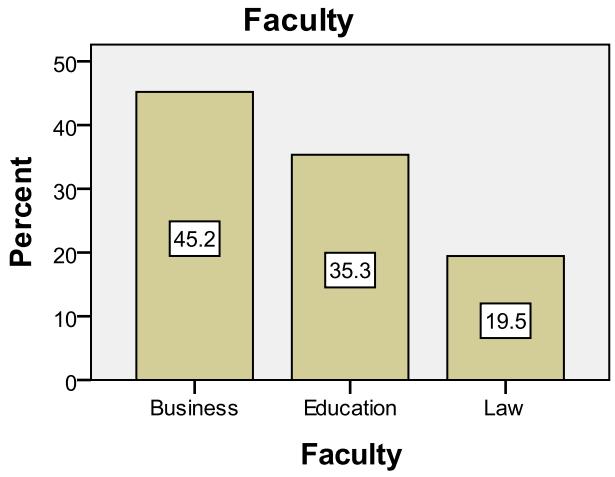

Figure 13: Distribution of respondents with respect to faculty

Nature of Employment

The final characteristic of the respondents is their nature of employment with respect to their involvement in the profession as full-time or part-time. As expected, majority of respondents were employed full-time in their universities. Universities in the UK generally employ staff on a full-time basis with small proportion of faculty members serving on part-time contracts (Locke, 2007). Within the full-time employment, they can be employed on fixed-term contracts or permanent employment/tenure tracks, but this information was not collected from the respondents. In the current sample, approximately 88% of the respondents were employed full-time and only 12% were employed part-time. According to a report published by Higher Education Statistics Agency, approximately 67% of the academic staff work on a full-time basis in UK Higher Education institutions (HESA, 2006). Therefore, it can be said that the sample is representative of the overall composition of faculty with respect to nature of employment.

Nature of employment

		Frequency	Percent	Valid Percent
Valid	Full Time	307	84.1	88.2
	Part Time	41	11.2	11.8
	Total	348	95.3	100.0
Missing	System	17	4.7	
Total		365	100.0	

Table 32: Distribution of respondents with respect to nature of employment

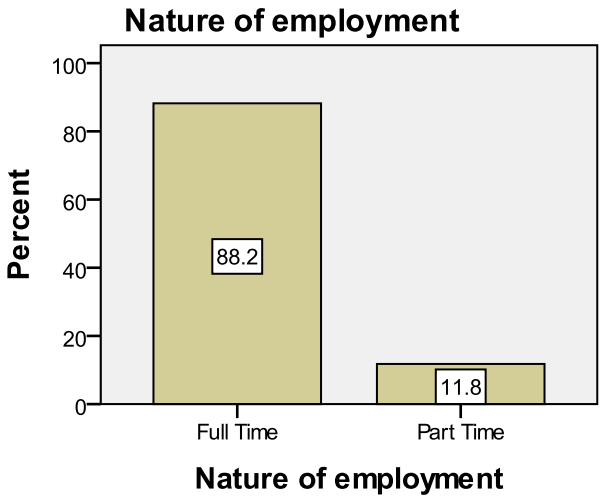

Figure 14: Distribution of respondents with respect to nature of employment

From the above discussion, it can be concluded that data collected from the respondents is homogeneous and representative. It can be deemed homogeneous because it has been collected from people with similar characteristics which are relevant to the research questions. All respondents are academics employed in top ranking higher education institutions of UK. Their professional engagement is related to similar disciplines of the social science, i.e. Business, Education and Law. They belong to the same country, thus a similar geographical location. This means that they are subject to identical national, political, environmental, economical and socio-economical conditions. Although there are some differences in the organization and structure of these universities, but the research has been designed to minimize these variations and it was not possible to achieve greater similarity in a real life situation. The data collected is also representative of the composition of overall population with respect to demographic characteristics discussed in the preceding sections. Homogeneity and representativeness of the sample are some of the desirable characteristics for multivariate techniques such a factor analysis which is being employed extensively in this study (Fabrigar et al., 1999; MacCallum et al., 1999; Hair et al., 2010).

8.5 Validation of scales for Individual Constructs

It has already been summarized in Table 6 in Chapter 7 that different types of scales with respect to their previous validity have been employed to measure the constructs involved in the research study. Therefore, the extent to which analytical rigor has been employed to test the validity of each scale varies in each case. Where the scale has a pre-established validity and reliability, lesser checks have been used to establish its usefulness. On the other hand, where the entire scale has been developed during the study, or contains newly developed items in addition to previously used items, more checks have been applied. Table 33 specifies various tests of validity and reliability employed in case of each individual construct.

Individual Construct	Mode of Inclusion	Types of validation tests
Energizing Connections	Developed entirely	1. Construct Validity (Using Factor Analysis) 2. Content Validity (Face validity) 3. Reliability (Internal Consistency – Cronbach's Alpha)
Perceived Health and Energy Goal Commitment Subjective Career Plateau	Developed partially by employing previously used items and adding new items.	1. Construct Validity (Using Factor Analysis) 2. Content Validity (Face validity) 3. Reliability (Internal Consistency – Cronbach's Alpha)
Sense of Coherence	Adapted completely with minor adjustments	1. Reliability (Internal Consistency – Cronbach's Alpha)
Job Involvement Organizational Commitment Creative Work Involvement	Adapted completely with no adjustment	1. Reliability (Internal Consistency – Cronbach's Alpha)

Table 33: Types of tests employed for validation of scales measuring individual constructs in the study

Before elaborating the process of validation for each individual construct, it will be useful to explain the concepts of construct validity, content validity and reliability. A description of techniques, i.e. Factor analysis, Face validity and Cronbach's Alpha will also be provided in the following sections.

8.5.1 Construct Validity

'A measure can claim construct validity if its theoretical construct is valid' (Sarantakos, 1998, p. 79). Construct validity relates to the internal structure of a scale and the construct that it is being employed to measure. In social research, constructs usually exist in a form which cannot be directly observed through a measuring instrument. This is specifically applicable to conceptualization of opinions, perceptions attitudes. Such as self-efficacy is an abstract concept. It is not possible to measure an individual's level of self-efficacy by getting into their mind and thoughts. Therefore, measurable or observable indicators will need to be identified which theoretically relate to the concept of self-efficacy. Such concepts which are not directly observable are called *latent variables*. Therefore, in order to measure such constructs, scales are developed linking specific observable behaviours or attitudes, such as instruments consisting of questionnaire items. Each of the questionnaire items is thus measuring a dimension of the latent construct and hence is called the manifest variable. It is also possible that a construct consists of more than one dimension. Such multidimensional constructs are conceptualized by identifying the underlying dimensions or sub-constructs and then designing instruments measuring each of the identified sub-constructs (Muijs, 2011). For example, there are three dimensions of organizational commitment; affective; normative; and continuance (Meyer and Allen, 1987). In order to measure the latent construct of organizational commitment, items will need to be designed for the latent sub-constructs at first. Then, these measurable items will be tested for accurately measuring the sub-constructs individually and the overarching construct of organizational commitment collectively. With specific reference to construct validity of questionnaire items, it can be defined as the "extent to which a set of measured items actually reflects the theoretical latent construct those items are designed to measure (Hair et al., 2010, p. 708). A simple way to determine construct validity is to administer an instrument to two separate groups of people who already have an established difference with respect to the concept being measured. For example, if it is already known that a set of students are highly satisfied with 'university life' and another set which is highly dissatisfied, such groups can be used to establish the construct validity of an instrument measuring attitudes towards university life. If the instrument is administered to both the groups and the results show a significant difference between the satisfaction of students with university life between the two groups, the instrument will conclude to have construct validity. However, with instruments measuring a number of variables, and with a complex research designs, it would not be possible to identify groups with pre-determined

differences. A more advanced and sophisticated method of establishing construct validity is factor analysis which will be discussed in detail in later sections.

8.5.2 Content Validity

This type of validity refers to the content included in the manifest variable. It means that the manifest variables contain the appropriate content to measure the latent variable. For questionnaire items, it also refers to the wording and tone of a statement that is used to indicate a particular attitude or behaviour. For example, if it is intended to measure the attitude of students towards their university, it would be incorrect to ask their response on 'How do you get along with your siblings?' A more difficult situation would be to ask a response on 'My friends always try to help me in my assignments if I am not sure about something' which is obviously an aspect of university life, but does it tell about students' attitude towards the university or attitude towards university friends, and whether attitudes towards university friends is a separate concept than attitude towards the university (Muijs, 2011).

Content validity has a close relationship with the theory behind the concept that a manifest variable is being employed to measure. Only through a comprehensive and extensive understanding of the relevant literature is it possible to design an instrument that contains all the required aspects of a construct desired to be measured. This type of validation is not possible through statistical analysis and should be based on the prevalent theoretical standards and also on the personal judgement of the researchers (Sarantakos, 1998).

One way of establishing content validity is confirming for face validity. By face validity, this refers to the fact that the items which are supposed to measure a particular construct *appear* to measure it appropriately. For ascertaining face validity, the questionnaire is administered in a pilot study to respondents who possess similar characteristics with the respondents for which the questionnaire is designed. A panel of users are asked to comment on the questionnaire before it is launched in the actual field settings. In this way, the users of the questionnaire can advise if its components look valid to them. However, one of the problems that may arise is that the lay users may not be familiar with the theoretical background of the questionnaire items and subtlety involved in designed in the statements, especially in case of psychological constructs. Another possible way of

establishing face validity is to ask a panel of experts to review the questionnaire and judge the adequacy of questionnaire items in measuring the desired concept (Muijs, 2011).

8.5.3 Reliability

Another important characteristic which establishes the quality of any measurement instrument is its reliability. Reliability carries the same meaning in measurement theory as it carries in general. A thermometer which checks body temperature will have to be reliable in that it shows the accurate temperature every time it is used. It would be considered unreliable if it takes away a few degrees off the actual temperature once and adds on a few degrees on another occasion, or that it consistently shows a lower or a higher temperature than actual. Similarly, for an instrument measuring attitudinal concepts, it is very important to carry a significant level of reliability. A score which is obtained from a measurement instrument consists of two elements; true score and measurement error. Within measurement error, there are again two types; systematic error and random error. Systematic error is the error that remains the same from one measurement to another measurement. This means that this error will show in all measurements taken from the instrument. Random error is the type of error that varies from one measurement to the other. This type of error is the one which needs to be controlled more carefully because this makes the measurements unpredictable and therefore unreliable. Random error can be caused due to many factors, some of which may be located within the instrument itself and others elsewhere. For example, if we are trying to measure organizational commitment of the employees, random error can be caused by statements that are confusing, misleading or ambiguous. It can also be caused by other factors such as the mood of the employees. The first type of error can be controlled by carefully designing the measuring instrument, whereas the latter cannot. There are probably other steps which can be taken to avoid such error, but those are the elements of research design and not instrument design (Muijs, 2011).

It is suggested that reliability of an instrument can be increased by using several items for each construct (Sarantakos, 1998). This will reduce the level of measurement error caused due to individual errors such as mistakes, omissions or confusion. It is suggested that a minimum of three items per construct should be included for achieving an adequate structure (Hair et al., 2010; Fabrigar et al., 1999).

For scales consisting of more than one item, internal consistency reliability score of the instruments is calculated. One way of establishing internal consistency is split-half test of reliability. Another type of test is the score on Coefficient Alpha. For this, a commonly used indicator is Cronbach's Alpha and the items should ideally score a 0.70 for sufficient reliability. However, a score exceeding 0.60 is also considered appropriate in exploratory research (Hair et al., 2010).

Another type of diagnostics for internal consistency relates to measuring the adequacy of each separate item. A score of item-to-total correlation is calculated, which shows the correlation of an item with the overall summated scale score. This figure reveals the extent of the relationship of an item's score with the overall score calculated using the entire scale. The second measure for assessing internal consistency is the inter-item correlation. This figure measures the strength of relationship among all the items included in a scale. It is suggested that items in a scale should have a minimum score of 0.50 on item-to-total correlation and a score of 0.30 on inter item correlation.

After providing a description of the prerequisites involved in validation of measurement scales for measuring attitudinal constructs, the discussion will move forward to presenting an introduction to Exploratory Factor Analysis, a statistical test used extensively in examining the construct validity of questionnaire items in an exploratory phase. As already stated, EFA has been conducted at two levels in this research; for examining the construct validity of measurement scales for individual constructs; and examining the construct validity of VAW.

8.6 Summary

In this chapter, the process of preparing and screening the data for statistical testing has been discussed and elaborated. Missing value analysis has been carried out in the step-wise process. In the first step, cases were deleted on the basis of large number of missing values, either concentrated in a set of questionnaire items or occurring due to attrition. Then, it was demonstrated that missing values occurred completely at random in the remaining 365 cases and therefore, an EM method of estimation was adopted to replace missing values in the second step. However, missing values were only replaced in continuous variables obtained through Likert scales. Missing values in categorical variables were not replaced and a process of list-wise deletion was adopted when these categorical variables were

involved in the analysis. The second part of the chapter explained the minimum criteria of sample size for each set of statistical analysis. It was demonstrated that sample size obtained in the present study was sufficiently adequate to satisfy the statistical conditions for each type of analysis. Then, the next part of this chapter described the basic demographic characteristics of the sample and demonstrated that the sample was representative and homogeneous which are desirable characteristics for statistical tests such as exploratory factor analysis. Finally, the issues of construct validity, content validity and reliability for validation of scales for individual constructs were described and steps employed to ensure each aspect were outlined. In a nutshell, this chapter explains the steps employed to ensure the adequacy of data for statistical analysis required to answer the research questions outlined in Chapter 1.

Chapter 9: Data analysis and hypotheses testing

Chapter Objectives

This chapter aims to;

1. Describe the process of conducting Exploratory Factor Analysis and the steps required to conduct the analysis.
2. Explain the process of validating questionnaire items for each construct of the study through EFA and reliability tests.
3. Describe the results obtained from Exploratory Factor Analysis to validate the constructs involved in the study.
4. Explain the process of carrying out Confirmatory Factor Analysis and the steps required to satisfy statistical testing.
5. Outline the results of Confirmatory Factor Analysis to confirm model fit and construct validity of measurement models developed in the study.
6. Explain the Regression Analysis performed to test the hypothesis of association between Subjective Career Plateau and Vitality at Work.

9.1 Introduction

This chapter describes the entire process of data analysis carried out to confirm the propositions presented in Chapter 1. A variety of quantitative techniques and statistical tools are applied to investigate the research questions outlined in Chapter 1. The research design is entirely based on quantitative methodology and therefore, all the data has been collected in terms of quantitative indicators. As already described in Chapter 7, responses on all constructs have been collected on a 7-point Likert scale response format, which labeled each response category with a number ranging from 1 to 7. Responses on other variables were also collected in quantitative/quantifiable close-ended formats. Therefore, the material presented in this Chapter is based on statistical analysis and testing. The first part of the chapter focuses on describing the process of Exploratory Factor Analysis employed for screening of questionnaire items as well as construct validation. The following section will explain the screening, validation and deletion of less performing items from the questionnaire with respect to individual constructs involved in the study through EFA and reliability tests. Then, the chapter explains the process of EFA carried out to validate the construct of Vitality at Work by demonstrating that it is the latent phenomenon underlying the factors of VAW identified from literature review. Then, EFA has been performed to test the validity of measurement instrument developed to measure the construct of Subjective Career Plateau. EFA has also been performed to test the construct validity of concepts for which measurement instruments were designed entirely in the study or previous instruments were adapted by addition of items to include another related concepts. After conducting EFA, a description has been given about the statistical test of Confirmatory Factor Analysis, which confirms the model of Vitality at Work and its underlying factors. Similarly, CFA has also been performed to validate the measurement models for Sense of Coherence, Energizing Connections and Subjective Career Plateau. Finally, the chapter explains the process of regression analysis conducted to evaluate the effect of Subjective Career Plateau on Vitality at Work. At the end of the chapter, a summary reiterates the major findings of the study.

9.2 Exploratory Factor Analysis

EFA is a multivariate data analysis technique which involves interdependence among a set of variables. The main objective of factor analysis is to ascertain the underlying structure

among variables in a set of data collected with the purpose of identifying multiple interrelationships. Factor analysis allows us to identify underlying dimensions in a given set of variables that are highly correlated with each other. These underlying dimensions are termed as *factors*. Thus, by identifying these underlying dimensions or *factors*, factor analysis can reduce the number of variables to arrive at a smaller, more concise list of variables to work with. However, if the analysis is based on a predetermined theoretical framework which specifies particular interrelationships between variables, the factor analysis provides evidence to support the a-priori structures and gives meaning to what is being collectively prepositioned (Gorsuch, 1983). Factor analysis can be carried out both in an exploratory mode or a confirmatory mode. In an exploratory mode, the researcher does not have a predefined structure of variables and factors. They are not aware about the nature of structures that can emerge from the data analysis, and adopt the 'take what the data gives you' approach in arriving at factors. There are no a-priori constraints applied on the estimation or the number of components. Although, in principle EFA should be carried out in an exploratory mode only, however, there are situations in which the researcher wants to test a predefined structure where a set of variables are categorized as part of one factor on the basis of pre-existing theory, it becomes important to adopt a confirmatory approach in which it is examined whether the data fits the expected structure. Nonetheless, whether the objective is to reduce the number of variables or to validate predefined constructs, whether the researcher adopts an exploratory or a confirmatory approach, "the general purpose of factor analytic technique is to find a way to condense (summarize) the information contained in a number of original variables into a smaller set of new, composite dimensions or variates (factors) with a minimum loss of information – that is, to search for and define the fundamental constructs or dimensions assumed to underlie the original variables" (Hair et al., 2010, p. 96).

9.2.2 Steps to Conduct EFA

The process of carrying out EFA involves a number of systematic steps to follow in a sequential and ordered manner. These steps involve decision making points at each level, which are driven by the objectives of research and the conceptual framework underlying data analysis. Figure 15 illustrates the step-wise process of decision making undertaken for conducting EFA. The following paragraphs will briefly explain the criteria for making decisions at each step.

Step 1: Determining the objectives of factor analysis

It has already been discussed that the objective of factor analysis is to summarize the information from a large number of variables into a smaller set of factors and identify the underlying structures. The research questions can be purely exploratory or the researcher may have an a-priori framework before conducting the analysis. In this study, every time EFA has been applied, a predefined theoretical framework has been hypothesized before the analysis. The objective of factor analysis has not been focused on data reduction, but to empirically demonstrate the robustness of hypothesized underlying constructs in the form of factors associated with the manifest variables. Another objective of conducting EFA has been to screen out weak questionnaire items from the measuring instruments. Finally, on the basis of construct validity and measurement scale adequacy, summated scales have been developed to summarize the information from a large number of variables into a single composite measure of the underlying latent construct.

Step 2: Designing the factor analysis

In designing the factor analysis, there are three important elements that must be reviewed before proceeding for the analysis. First, it must be assessed whether the analysis requires identifying structures among similar variables or similar cases/respondents. Where the factor analysis is designed to summarize similar respondents, Q-type factor analysis is employed. On the other, if similar variables are being combined in new composite variates, R-type factor analysis is used. In this study, factor analysis has been conducted to group together similar variables and identify underlying latent constructs, therefore, in all instances, R-type factor analysis has been applied. Therefore, discussion in the following sections will be entirely based on the process of R-type factor analysis.

The second important consideration in designing a factor analysis is the type of variables that can be entered in the analysis. In general, traditional factor analysis is conducted using metric variables. Metric variables are required because factor analysis is based on computing a correlation matrix among the desired variables. Computing correlations among nonmetric variables is not an appropriate statistical technique. Therefore, it is highly desired that the factor analysis should involve metric variables. However, if it is essential to enter dummy variables, specialized types of factor analysis such as Boolean factor analysis is employed. In this study, all the variables entered in the factor analysis are metric variables. More specifically, all are continuous variables ranging from a value of 1-

7 generated from responses obtained from a 7-point Likert scale on questionnaire items of respective constructs.

Another consideration in the design of factor analysis is the number of variables per factor. Although, on one hand it is important to limit the number of variables to the minimum, at the same time it is essential to allow an adequate number of manifest variables per latent factor to arrive at a meaningful structure. It would be of little use to demonstrate the presence of a latent factor which is represented by only one variable. This is particularly important when the researcher aims to test a proposed structure. Hair, et al. (2010) have advised that a minimum of five variables should be designed per factor to provide sufficient representation to each factor. MacCallum et al. (1999) suggest that EFA gives more accurate results when multiple items are used to represent a common factor. They advise that each factor should be measured by 3 to 5 variables. In this study, all the factors have been assessed using more than five variables. Table 34 enlists the number of variables per factor designed in this study.

Factor/Latent Construct	Variables per factor
Energizing Connections	17
Sense of Coherence	13
Perceived Health and Energy	7
Job Involvement	9
Organizational Commitment	8
Goal Commitment	7
Creative Work Involvement	9
Subjective Career Plateau	7

Table 34: Number of Variables per factor

Finally, the analysis should be designed according to appropriate sample size which has already been discussed in Section 8.3.1 and the adequacy of the sample size has been demonstrated in each case.

Step 3: Assumptions underlying Factor Analysis

After the adequacy of design is determined, the next step is to address the assumptions underlying factor analysis. There are two aspects of assumptions in data analysis carried out through EFA. The first aspect of these assumptions is conceptual. There must be a concrete conceptual background that supports the assumption that a structure does exist. The variables which are identified for interrelatedness on the basis of some underlying dimensions must be selected through rigorous conceptual scrutiny and should be

represented by sound theoretical background. Similarly, the sample which is selected to test the underlying dimensions must be theoretically justified for homogeneity and relevance. When a set of variables is entered in a factor analysis, it is assumed that there *must be some* underlying structure through which they are related to each other conceptually. Therefore, the analysis will identify any correlations that are present without knowing their conceptual linkages. However, the presence of interrelated variables and the identification of underlying structures statistically do not confirm conceptual relevance even if the results are statistically significant. Therefore, it is the responsibility of the researcher to identify variables and sample that are theoretically sound and are relevant to the proposed factors. In this study, a comprehensive literature review has been conducted for identification of factors and variables relevant to the research questions. The homogeneity of the sample has been assured by obtaining responses from individuals related to the same profession, from similar institutions and from similar disciplines. The process of sample selection has been described in detail in Chapter 7.

The second aspect of assumptions underlying factor analysis is statistical. Like all other multivariate data analysis techniques, factor analysis requires data to fulfil the assumptions of normality, homoscedasticity and linearity. However, departure from these restrictions only affects the analysis by reducing the correlation among variables and statistical testing for these assumptions is rarely used (Hair et al., 2010). Therefore, the data in this study has not been tested to satisfy the assumptions of normality, homoscedasity and linearity for the purpose of EFA. On the other hand, one of the other restrictions termed as multicollinearity among variables is rather desirable in factor analysis. This is because the objective of factor analysis is to identify interrelationships among groups of variables, and therefore, it is desirable that the variables are correlated to a certain extent. Therefore, before EFA is applied to a dataset, it is essential to investigate whether a sufficient amount of correlations exist among the observed variables. It is advised that in the absence of such adequate intercorrelation, it cannot be justifiable to proceed with a factor analysis. There are a number of statistical techniques available to test the magnitude of overall intercorrelation among variables.

1. One of the tests to determine the appropriateness of applying factor analysis to a given dataset is known as the Bartlett's test for sphericity. This is a statistical test that examines the entire correlation matrix and calculates a single statistic for presence of significant correlation among atleast some of the variables. A p-value

of statistical significance (p-value < 0.05) is indicative that an adequate number of correlations exist among the variables and the researcher can proceed onwards with the analysis.

2. Another test for measuring the adequacy of factor analysis is the Measure of Sampling Adequacy (MSA). While the Bartlett's test for sphericity only gives a value of significance or non-significance for sufficient correlation among variables, MSA also gives information about the pattern of these correlations between each combination of variables. For this reason, this test can be used to identify individual variables that fall below the required level and therefore, can be deleted to improve the correlation matrix. The MSA value ranges between 0 and 1, with 1 depicting perfect level of prediction of one variable by the other. It is suggested that an MSA value of 0.80 or more is meritorious, while a value of less than 0.50 is unacceptable and variables showing lower individual values should be deleted to meet the minimum criteria of 0.50. In SPSS, the output is presented in the form of Kaiser-Meyer-Olkin Measure of Sampling Adequacy or more commonly known as the KMO value.

In this study, before proceeding on with factor analysis, it was ensured that both the tests of intercorrelation among variables met the required level of adequacy. A Bartlett's test of sphericity significance value of less than 0.05 and a KMO value of atleast more than 0.70 was achieved in all the factor solutions finalized for reporting

Step 4: Derivation of factors and assessment of overall fit

Selection of Factor Extraction Method

After the correlation matrix is examined and variables are selected on the basis of adequate interrelation, the next step is to enter the specified variables into factor analysis. The decision at this stage is to specify the factor extraction method. There are two major types of factor extraction methods. One is the Component Analysis which is also commonly known as Principal Component Analysis and the other is Common Factor Analysis. The difference between the two methods is that Principal Component Analysis takes into account the overall variance which includes the common/shared variance as well as specific variance while extraction, whereas Principal Factor Analysis takes into account the shared variance only. The decision between using either of the two extraction methods is guided by the objectives of the factor analysis. If the objective of factor analysis is to summarize data for prediction purposes, then Component Analysis is used. On the other

hand, Common Factor Analysis should be employed if the identification of underlying structures is required. However, both the methods are used widely in research. In fact, Principal Component Analysis is the default method of many types of statistical software for performing factor analysis (Hair et al., 2010). Moreover, it is more widely used in factor analysis research than the other method of extraction. In a study conducted by Fabrigar et al. (1999), it was found that approximately 50% of the studies employed Principal Component Analysis, whereas only about 20% of published research employed Common Factor Analysis in two well-known journals, i.e. Journal of Applied Psychology and Journal of Personality and Social Psychology. Another study also found that PCA was the most popular extraction method and accounted for about 40% of the cases employing EFA in their analysis (Conway and Huffcutt, 2003). It is also argued that Common Factor Analysis is problematic because it produces indeterminate factors (Steiger, 1990). This means that no single factor score can be found for one individual respondent and there are a number of factor scores that can be calculated from a single factor score model. Moreover, the computation of erroneous communalities (greater than 1) also emerges in this type of extraction method (Velicer and Jackson, 1990). A communality of greater than 1 show that a variable accounts for more than 100% of variance explained which is mathematically not possible.

On the basis of the above mentioned observations, the present study has employed Principal Component Analysis as the factor extraction method in all cases of EFA.

Number of factors to be retained

Another important element in factor analysis is specification of the number of factors to be extracted in the factor solution. Unless the researcher does not specify some criteria to limit the number of factors extracted, factor analysis will extract as many factors as there are variables in the analysis. One of the most common and reliable technique used in EFA is extraction of factors on the basis of Latent Root Criterion (Hair et al., 2010). This technique is equally effective in Principal Component Analysis as well as the Common Factor Method. The latent root criterion works on the rationale that each factor extracted should account for explained variance equal to atleast one variable if it has to qualify to be retained. Latent root value is commonly known as eigenvalue and the rule of thumb is to retain those factors that have an eigenvalue of 1 or more. Factors scoring less than 1 eigenvalue are not extracted in the factor solution. SPSS specifies a default setting of factor extraction for factors having eigenvalue of 1 or more. Other methods of specifying

the number of factors are extraction of fixed number of factors, extraction on the basis of percentage of variance explained and the use of scree test. However, all these criteria are based on the arbitrary judgement of the researcher. Therefore, in this study, the number of factors has been determined on the basis of latent root criterion because of its wide usage, simplicity of application and minimal arbitrariness.

Step 5: Selecting Factor Rotation Method and interpreting the factors

After the factors have been extracted, an initial unrotated factor solution is obtained which shows the correlation of each variable and the factor. However, an unrotated factor solution satisfies the requirement of data reduction but the factor solution cannot provide a straightforward interpretation of factors. An unrotated factor solution is obtained from extracting factors in the sequence of variance extracted. It means that the first factor will show the largest amount of variance explained and it will have the maximum number of variables loading significantly on it, with subsequent factors showing loadings which are extracted from the remaining amount of variance. This makes it difficult for the researcher to interpret the contribution of each variable with respect to its relevant factor. For this reason, rotation is applied to the factor solution, which distributes the variance from initial factors to the subsequent ones, making the factor solution theoretically interpretable. Out of the various types of rotation methods, Varimax rotation is the most widely used method for factor rotation (Costello and Osborne, 2005) and it has been employed to obtain factor solutions in all cases in the present study.

After the factor solution is obtained through factor rotation, the component matrix is examined for improvements and respecification. The researcher may wish to employ a different rotation method to arrive at an improved interpretation of the factor structure. There is no specific rotation method which has been proven to be superior to the other, therefore, it is upon the judgement of the researcher to arrive at the most appropriate interpretation of the factor solution.

Next, a component matrix needs to be examined for significant factor loadings. Loading is simply the correlation of an individual variable with its respective factor. Therefore, the square of a factor loading is equal to the amount of variance explained by the factor in the total variance of an individual variable. Hence, a factor loading of 0.50 means that 25 percent of the variance is explained by the factor. Variables having low loadings or those showing cross-loading on more than one factor are removed and the analysis is run again

after their deletion. As the sample becomes larger, even small values of factor loadings can pass for statistical significance. For example, with a sample size of 350, a factor loading of 0.30 with a 0.05 significance level will be considered statistically significant (Hair et al., 2010). However, statistical significance is not the only decisive factor in assessing the adequacy of factor loadings. Practical significance is also an important aspect (Gorsuch, 1983). As stated above, if a factor is explaining less than 25% of variance in a variable, then it means that 75% of the variance is error variance. Although this loading will be statistically significant if the sample size is more than 350, it carries little practical meaning. For this reason, it is suggested that a factor loading of at least 0.40 should be considered appropriate (Ford et al., 1986). However, there are no definitive cut-off valued applied in previous literature. In a review of literature conducted on scale development practices, Timothy (1995) found that items with low loadings were frequently retained on the argument that they contributed to the construct validity of the measure. It was also stated that 0.40 was the most commonly employed cut-off value for item retention, but there were instances where the threshold was lowered to 0.30 in certain studies, although this reduced the internal consistency of the measures. Hair et al. (2010) have suggested that variables showing loading of less than 0.50 should be considered for deletion. Based on these observations, variables with factor loadings of more than 0.50 have been retained. Moreover, variables showing significant cross-loadings have also been considered for deletion. As a starting point, variables showing significant cross-loadings with a difference of less than 0.30 have been assessed for deletion. However, this has not been strictly applied in isolation. The significance of a variable in the theoretical framework has also been considered while assessing it for retention in the factor model.

Finally, after variables have been identified on the basis of their significant factor loadings, the variables are examined for their communalities. Communality is the extent of variance explained by the overall factor solution in each individual variable. The presence of significant communalities on all variables shows that there is a clear latent construct underlying the set of observed variables. A rule of thumb is to retain variables with communalities of more than 0.50 and this guideline has been adopted in the present study to assess retention/deletion of variables.

5.6.7 Step 6: Validation of Factor Solution

EFA has been employed in the present study to validate the appropriateness of questionnaire items in measurement instruments for individual constructs. Where an instrument has been developed entirely within the present study, a further step has been taken to confirm construct validity of the instrument. Confirmatory factor analysis (discussed in later sections) has been employed to confirm the appropriateness of the factor model of individual construct in case of Energizing Connections, Sense of Coherence and Subjective Career Plateau because all the variables and factors were designed entirely during the study and a measurement instrument was developed henceforth. CFA has also been employed to confirm the overall model of Vitality at Work.

Step 7: Use of factor models for creating summated scales

As it has already been discussed, EFA is carried out to summarize the information from a large set of variables into their underlying common factors or latent constructs. When the factor model is validated, these latent constructs are then used in their own capacity to depict a real-life concept or phenomenon. For the purpose of statistical analysis, the information from these factor models can be used for subsequent purposes, one of which is the creation of summated scales. Summated scales are the sum or average of the score on items measuring a particular construct. Summated scales are widely used in applied and managerial research because they simplify large sets of information into a single figure and also reduce the error variance (Hair et al., 2010). The development of summated scales will be discussed in later sections.

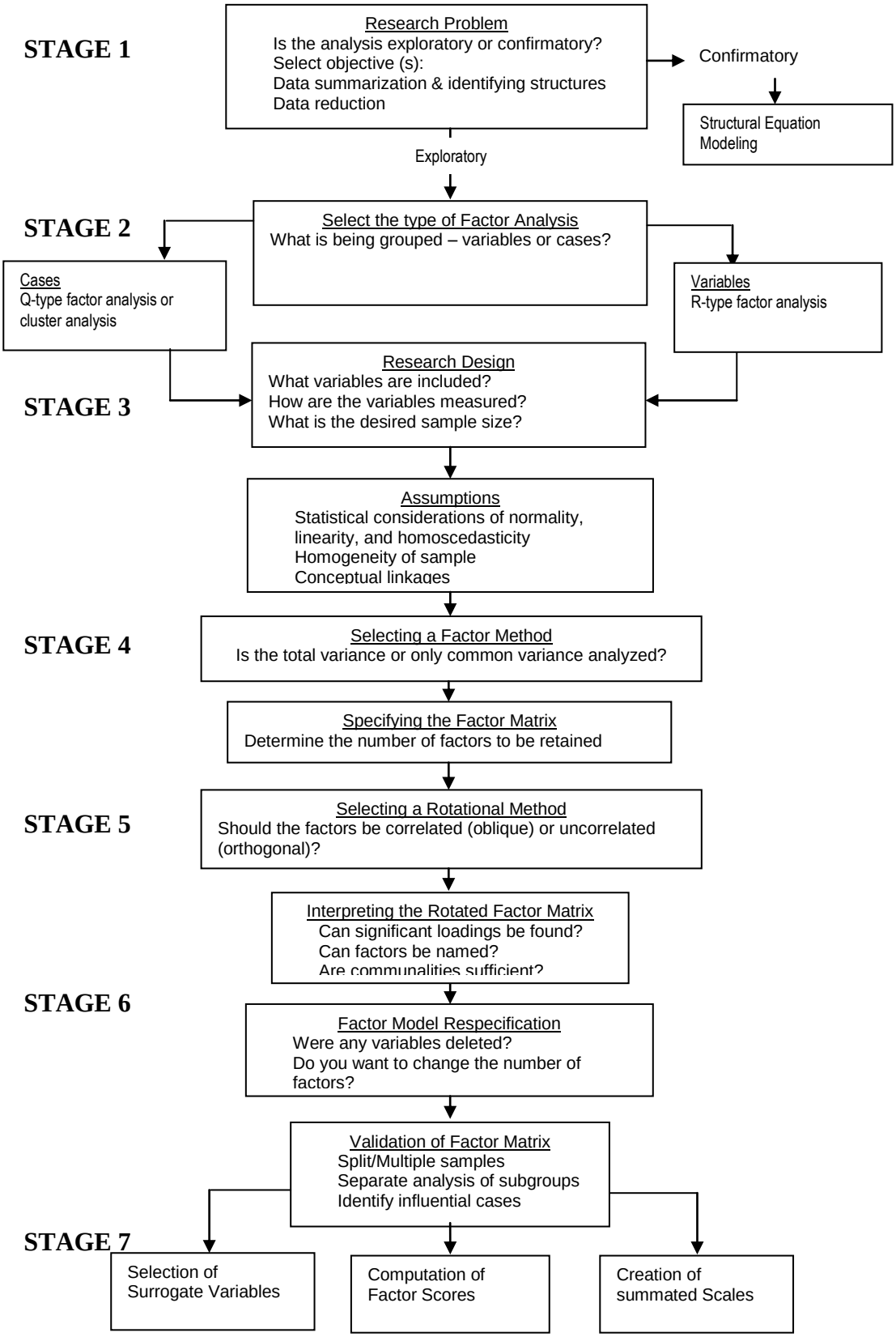

Figure 15: Stages in Factor Analysis Decision Diagram (Adapted from Hair et al., (2010))

After providing a detailed description of the steps involved in EFA and the general guidelines adopted in the present study to undertake this technique, an explanation of its application to each construct in this study and the results obtained therein is provided in the following sections. To refresh the reader's memory, EFA has been conducted to test the construct validity of the following;

(1) Subjective Career Plateau
(2) Energizing Connections
(3) Perceived Health and Energy
(4) Vitality at Work

Reverse transformation of Negative Statements

When developing measurement instruments with multiple items, it is a traditional practice to include items with both positive and negative statements. This improves the reliability of an instrument by ensuring that the respondents have completed the questionnaire with due attention (Sarantakos, 1998). For this reason, where the instruments were being designed by the researcher in this study, negative statements have been included in the overall set of items. However, before proceeding with the analysis, it is important to reverse the values on negative statements. All the negative statements have been reversed before further analysis. The following equation has been used to reverse the values on negative items;

$$\text{Reverse Score} = \frac{(\text{Score on the negative statement} - 8)}{(-1)}$$

The negative statements which have been reversed are shown with an 'A' in their item codes, such as Item No. 8 in the statements relating to Energizing Connections is a negative statement and the reversed item will appear as EC8A in results and tables.

9.3 Factor Analysis for Subjective Career Plateau

There were 8 items designed to measure Subjective Career Plateau (see Section 7.1.3). EFA was carried out to establish construct validity and unidimensionality of items. Before running the analysis, the correlation matrix was tested for significant correlations. KMO value of 0.853 and a p-value < 0.05 on Bartlett's test of Sphericity confirm the sample's adequacy to run a factor analysis on these variables. However, SCP6A and SCP8A did not perform well statistically. These items were deleted and the model was respecified. Finally, 6 items were finalized for retention. One item, SCP4, has a lower communality, but it carried a satisfactory factor loading (>0.60) and was also theoretically important for the scale. Therefore, it was decided to retain it in the final scale.

Item Code	Item Statement	**Communalities**	**Loadings**
		Extraction	Component1
SCP1	I work in a dead end position.	.613	**0.783**
SCP2	I think I have stayed for too long in my current position.	.613	**0.783**
SCP3	Career growth is too slow at my organization.	.542	**0.736**
SCP4	I am not likely to obtain a much higher job title in my organization.	.396	**0.630**
SCP5	I have limited opportunities to enhance my current skills.	.599	**0.774**
SCP7	I have diversified my areas of interest by working in relevant but different fields.	.504	**0.710**
	Eigenvalue		3.268
	% of Variance		54.466
	KMO Measure of Sampling Adequacy		0.853
	Bartlett's Test of Sphericity		Chi-Square =717.87 (sig = 0.000)
	% of Total Variance		54.466
Extraction Method: Principal Component Analysis Rotation Method: Varimax with Kaiser Normalization			

Table 35: Factor Analysis of Subjective Career Plateau (including Communalities)

After performing EFA, the reliability of the scale was calculated. The internal consistency measure of Cronbach's Alpha equals 0.826 which shows that the scale carries sufficient reliability. Moreover, the Alpha value was also examined for each item if it was deleted. If the value increases with deletion of an item, it means that the particular item reduces the reliability of the overall scale and should be considered for removal. For these items, the overall reliability does not decrease in case of either item if it is deleted. Therefore, none of the items needs to be considered for deletion.

Item-Total Statistics

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SCP1	.655	.789
SCP2	.647	.787
SCP3	.603	.797
SCP4	.489	.825
SCP5	.649	.788
SCP7	.562	.806
Cronbach's Alpha		0.826
N of Items		6

Table 36: Reliability and individual item statistics for SCP

9.4 Factor Analysis for Energizing Connections

Factor Analysis using Principal Component Analysis was carried out with Varimax Rotation. Before running the analysis, the test for correlation was applied to test if there were significant correlations present among the variables to conduct a factor analysis. KMO test for sampling adequacy revealed a value of 0.851 which is satisfactory to run a factor analysis. Also, the Barlett's test of Sphericity produced satisfactory result, the p-value being less than 0.05, which shows that there are significant correlations to conduct factor analysis (Hair et al., 2010).

Item Code	Item Statement	Factor Loadings		
		Component		
		1	2	3
EC1	If I feel stuck about a work-related issue, I am likely to get some guidance from my boss.	**.787**	.219	.003
EC3	My boss has advocated my competence and abilities in crucial situations, e.g. for promotion/sanctions/project approvals etc.	**.790**	.223	.038
EC4	Whenever I have experienced pressure due to organizational politics, someone from my workplace has been there to guide me and protect my interests.	**.616**	.436	-.032
EC5	My boss acknowledges my domestic responsibilities and tries to accommodate them where possible.	**.784**	.134	.042
EC8A	My colleagues use their computers/mobile phones/work equipment while I am talking to them.	.014	.101	**.803**
EC10	When I tell my boss about an issue which is affecting my performance, he/she genuinely acknowledges my problem.	**.839**	.164	.136
EC12A	When a co-worker is talking to me, my mind wanders away to other thoughts.	.079	.027	**.807**
EC15	While interacting with certain people at my workplace, I feel charged and energized.	.203	**.868**	.128
EC16	Interaction with certain people at my workplace enhances my motivation.	.248	**.893**	.081
EC17	Talking to certain people at my workplace can make my problems look smaller.	.250	**.806**	.011
Eigenvalue		4.378	1.382	1.239
% of Variance		43.776	13.815	12.393
KMO Measure of Sampling Adequacy				0.851
Bartlett's Test of Sphericity				Chi-square=1606.235 (Sig=0.00)
% of Total Variance				69.984
Extraction Method: Principal Component Analysis Rotation Method: Varimax with Kaiser Normalization				

Table 37: Factor Analysis for Energizing Connections

Item Code	Communalities
EC1	.667
EC3	.676
EC4	.571
EC5	.635
EC8A	.655
EC10	.750
EC12A	.658
EC15	.811
EC16	.865
EC17	.712

Table 38: Communalities of EC

Tables 37 and 38 show communalities and factor loadings of items that perform significantly on factor analysis, respectively.

Out of the 17 items designed to measure four dimensions of Respectful Engagement, Task Enabling, Energizing Interactions, and Trusting, 10 items related to the first three dimensions of Respectful Engagement (2-items), Task Enabling (5-items) and Energizing Interactions (3-items) loaded significantly on the component matrix. However, items related to the dimension of Trusting did not load significantly on any of the components. Therefore, the final scale includes items measuring Respectful Engagement, Task Enabling and Energizing Interactions and the items on Trusting were not included in the scale.

A cut-off value of 0.50 was set as this value is considered satisfactory for an item loading to be considered statistically significant. Items were also considered for deletion if they cross-loaded on two or more components and the difference between the two cross-loadings was less than 0.30. The table shows that all factor loadings are much above the minimum standard of 0.50 with only one loading in the 0.60s range and all else above 0.70. Communalities are also much above the 0.50 cut-off value which shows that all items perform well on the given criteria for inclusion.

Finally, the internal reliability of the selected items was examined. A Cronbach's Alpha of 0.839 shows a high level of internal consistency and reliability. When the scale was examined for individual items, it was found that two items; QC8A and QC12A, both relating to the dimension of Respectful Engagement increased the internal reliability if deleted. However, both items showed high factor loadings (>0.80) and also carried high communalities (>0.60) with the overall underlying latent construct. Deleting both items would remove the dimension of Respectful Engagement entirely from the concept.

Therefore, it was decided that the items should be retained because of their theoretical importance and also sufficient performance on other criteria.

Item-Total Statistics

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
EC1	.637	.813
EC3	.656	.811
EC4	.625	.814
EC5	.589	.819
EC8A	.157	.856
EC10	.695	.808
EC12A	.175	.850
EC15	.594	.819
EC16	.638	.816
EC17	.570	.822
Cronbach's Alpha		0.839
N of Items		10

Table 39: Reliability and individual item statistics for SCP

9.5 Factor Analysis for Perceived Health and Energy

Factor Analysis for determining the validity of items designed to measure Perceived Health and Energy was carried out in a similar fashion, using Principal Component Analysis with Varimax Rotation. The KMO value and Bartlett's test of Sphericity both show significant correlations; hence the correlation matrix is appropriate to proceed with factor analysis.

Item Code	Item Statement	Communalities	Loadings
		Extraction	Component 1
PHE1	I feel alive and vital.	.718	0.847
PHE2A	I don't feel very energetic.	.641	0.801
PHE3	I look forward to each new day.	.562	0.750
PHE4	I nearly always feel alert and awake.	.584	0.764
PHE5A	I think I am losing my health gradually.	.502	0.709
PHE6	I feel quite healthy.	.698	0.835
PHE7	I think I will be able to live a long, healthy life.	.566	0.752
Eigenvalue			4.272
% of Variance			61.023
KMO Measure of Sampling Adequacy			0.880
Bartlett's Test of Sphericity			Chi-square=1393.284(Sig=0.000)
% of Total Variance			61.023
Extraction Method: Principal Component Analysis Rotation Method: Only one component extracted			

Table 40: Factor Analysis of Perceived Health and Energy (including Communalities)

According to Table 40, the factor solution revealed one single component, with all items loading significantly on the component. All the items show high communalities.

After running factor analysis, the scale was examined for its reliability. The results for Perceived Health and Energy show good reliability which is evident from a 0.888 Cronbach's Alpha value. Individual items statistics are also satisfactory. None of the items increase the Alpha value if deleted.

Item-Total Statistics

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PHE1	.770	.862
PHE2A	.705	.869
PHE3	.653	.875
PHE4	.674	.873
PHE5A	.606	.884
PHE6	.760	.863
PHE7	.656	.875
Cronbach's Alpha		0.888
N of Items		7

Table 41: Individual item statistics for PHE

9.6 Factor Analysis for Goal Commitment

The scale for Goal Commitment included 3 items that were added to a previously established scale by Hollenbeck et al. (1989) consisting of 4-items. Therefore, the seven item scale was tested for its construct validity through EFA. A KMO value of 0.707 and Bartlett's Test of Sphericity significance value of less than 0.05 confirm the factor model for adequate correlations. Five items out of the total loaded significantly on two components. These items include two items from those developed within the study, and three items from the previous scale. The two factors extracted are labeled as Goal Setting Support and Personal Goal Commitment. All loadings are significant exceeding the minimum cut-off value of 0.50. The communalities also show that all items carry sufficient relationship with the overall factor model. All communalities exceed the minimum satisfactory communality score of 0.50.

Item Code	Item Statement	Communalities	Factor Loadings	
		Extraction	Component 1	Component 2
GC2	I receive immediate feedback upon completing my work targets.	0.801	.192	**.874**
GC3	My institution helps me determine specific goals for the future.	0.804	.168	**.881**
GC4A	It's hard to take my goals at work seriously.	0.701	**.829**	.113
GC5A	It's unrealistic for me to expect to reach the goals presented to me by my organization.	0.580	**.741**	.175
GC7A	Quite frankly, I don't care if I achieve these goals or not.	0.690	**.756**	.193
Eigenvalue			2.445	1.050
% of Variance			48.900	21.002
KMO Measure of Sampling Adequacy				0.707
Bartlett's Test of Sphericity				Chi-square=427.085 (Sig=0.000)
% of Total Variance				69.902
Extraction Method: Principal Component Analysis Rotation Method: Varimax with Kaiser Normalization				

Table 42: Factor Analysis of Goal Commitment (including Communalities)

The reliability test carried out on the selected items show a satisfactory Cronbach's Alpha value of 0.734. Individual item statistics also show that each of the items is adequate as Cronbach's Alpha decreases if any of the items is deleted from the scale.

Item-Total Statistics

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
GC2	.527	.675
GC3	.506	.685
GC4A	.500	.688
GC5A	.468	.699
GC7A	.495	.691
Cronbach's Alpha		0.734
N of Items		5

Table 43: Individual item statistics for GC

9.7 Reliability of Adapted Measures

The next step was to assess the reliability of individual measures that were adapted from previous scales and items were not added or deleted from the previous scales. It was not deemed necessary to run a factor analysis on the already established measures because they have already been tested for their construct validity in measuring the constructs they are employed for. The four scales that were adapted from previously established measures are Sense of Coherence, Job Involvement, Organizational Commitment and Creative Work Involvement. However, the reliability of these scales was examined for the present study and low performing items were deleted from the scale.

Reliability of SOC Scale

The 13-item Sense of Coherence scale by Antonovsky (1987) was examined for it reliability. The overall scale shows a high Cronbach's Alpha value of 0.867. None of items increases the Alpha value if deleted; therefore, none of the items were considered for deletion and the scale was used in its entirety in EFA.

Item-Total Statistics

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
SOC1A	.492	.861
SOC2A	.507	.860
SOC3A	.528	.858
SOC4A	.487	.862
SOC5A	.503	.860
SOC6	.476	.861
SOC7A	.608	.854
SOC8A	.626	.852
SOC9A	.563	.856
SOC10A	.490	.861
SOC11A	.680	.849
SOC12A	.589	.855
SOC13A	.441	.864
Cronbach's Alpha		0.867
N of Items		13

Table 44: Reliability and Individual item statistics for GC

Reliability of Job Involvement Scale

The initial Alpha coefficient of the original 9 item scale was 0.797 and it was found that the reliability of the scale can be brought up to 0.812 if one of the items is deleted from the scale. Therefore, JI4 was deleted because its inclusion reduced the reliability of the overall scale.

Item-Total Statistics

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
JI1	.375	.810
JI2	.685	.766
JI3	.671	.768
JI5A	.538	.789
JI6	.608	.778
JI7A	.575	.784
JI8	.367	.811
JI9A	.409	.810
Cronbach's Alpha		0.812
N of Items		8

Table 45: Reliability and Individual Item statistics for JI

Reliability of Organizational Commitment Scale

The 8-item scale for Organizational Commitment developed by Allen and Meyer (1990) was employed in this study. The overall reliability of the scale for the present sample was good with a Cronbach's Alpha coefficient of 0.865. All items performed adequately in the individual analysis. None of items increased the overall alpha value; therefore the scale was finalized without any change to be used in further analysis.

Item-Total Statistics

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
OC1	.521	.860
OC2	.569	.853
OC3	.468	.864
OC4A	.415	.867
OC5A	.722	.835
OC6A	.766	.830
OC7	.705	.838
OC8A	.753	.832
Cronbach's Alpha		0.865
N of Items		8

Table 46: Reliability and Individual Item statistics for OC

Reliability of Creative Work Involvement Scale

Finally, the 9-item scale for Creative Work Involvement developed by Tierney et al. (1999) was examined for its reliability statistics. The scale showed a good Cronbach's Alpha value of 0.880 with none of items improving the alpha value if deleted from the scale. Therefore, this scale was also used in its entirety in further analysis.

Item-Total Statistics

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CWI1	.650	.870
CWI2	.627	.868
CWI3	.591	.872
CWI4	.568	.872
CWI5	.652	.866
CWI6	.653	.865
CWI7	.747	.857
CWI8	.626	.871
CWI9	.651	.865
Cronbach's Alpha		0.880
N of Items		9

Table 47: Reliability and Individual Item statistics for CWI

From the foregoing, the findings suggest that all scales for individual constructs adapted from previous measures have a high level of internal consistency. Cronbach's Alpha value for all constructs exceeds 0.80. As already discussed, a value of 0.80 or more is considered meritorious whereas a value of 0.70 is considered appropriate, although values as low as 0.60 are also accepted in exploratory research (Hair et al., 2010).

9.8 Factor Analysis for Vitality at Work (VAW)

After establishing the construct validity and reliability of individual constructs in this study, the analysis proceeds forwards to ascertain the validity of Vitality at work. A Factor Analysis was carried out using Principal Component Analysis with Varimax rotation to ascertain a factor structure of the proposed factors. Before carrying out the factor analysis, variables were tested for sufficient correlations by running KMO and Barlett's Test for Sphericity. A KMO value of 0.871 and p-value of less than 0.05 on Barlett's Test confirms that the dataset is appropriate for factor analysis.

Item Code	Factor Loadings								
	Creative Work Involvement	Perceived Health and Energy	Task Enabling (EC)	Controllability (SOC)	Organizational Commitment	Job Involvement	Energizing Interactions (EC)	Goal Commitment	Perceived Justice (SOC)
EC1	-.091	.028	**.773**	.128	.129	-.029	.184	.059	.021
EC3	.072	.097	**.744**	.101	.150	.000	.147	.106	.148
EC4	-.019	.187	**.588**	.057	.104	-.051	.368	.066	.191
EC5	-.067	.110	**.740**	.084	.084	-.111	.109	.114	.046
EC10	-.083	.052	**.791**	.097	.204	.010	.107	.164	.093
EC15	.126	.181	.247	.001	.261	.012	**.765**	.056	.088
EC16	.049	.125	.289	.048	.249	.009	**.814**	.081	.064
EC17	.016	.144	.300	-.002	.124	.015	**.738**	.061	.086
SOC2A	-.040	.129	.197	.241	.056	-.027	.098	.083	**.834**
SOC3A	-.083	.123	.261	.234	.165	-.078	.172	.084	**.772**
SOC7A	.080	.207	.049	**.740**	.019	-.001	.049	.104	.021
SOC8A	.035	.232	.165	**.755**	.006	-.033	.026	.062	.077
SOC9A	.076	.098	.000	**.783**	.074	-.077	.012	.061	.091
SOC10A	.146	.106	.075	**.652**	.002	-.043	-.108	-.018	.110
SOC12A	.069	.229	.150	**.625**	.039	-.119	.095	.052	.095
JI2	.075	.075	.007	-.015	.081	**.848**	.048	.042	-.066
JI3	.042	.080	.040	-.080	.125	**.846**	.051	.020	-.071
JI5A	-.035	-.166	-.152	.005	-.032	**.705**	.016	.073	-.026
JI6	.174	-.085	-.006	-.089	.083	**.743**	.003	-.102	-.080
JI7A	.061	-.090	-.052	-.099	.208	**.617**	-.131	.053	.277
OC5A	.019	.240	.250	.093	**.709**	.076	.202	.187	.152
OC6A	.052	.070	.104	.038	**.847**	.119	.145	.155	.053
OC7	.065	.081	.144	.021	**.803**	.183	.118	.057	-.010
OC8A	.049	.072	.208	.036	**.801**	.082	.162	.173	.070
GC4A	.102	.117	.123	.110	.303	.032	.043	**.684**	.215
GC5A	-.083	.271	.208	.119	.160	-.064	.036	**.635**	.102
GC7A	.090	.073	.209	.072	.160	.106	.111	**.728**	-.080
CWI1	**.702**	.075	-.097	.127	-.061	.083	.143	.232	.001
CWI2	**.722**	-.010	-.127	.044	-.059	.078	.095	.222	-.025

CWI3	**.709**	.059	.151	-.004	.040	-.053	-.102	-.062	-.061
CWI4	**.663**	-.042	.058	.066	.210	.063	-.022	-.213	.050
CWI5	**.742**	.137	.043	.002	-.054	.015	.010	.143	.045
CWI6	**.754**	.148	.050	-.021	-.036	-.020	-.100	-.052	-.016
CWI7	**.804**	.126	-.015	.063	.079	.047	-.047	-.066	-.031
CWI8	**.666**	.079	-.151	.158	.056	.116	.163	-.075	-.060
CWI9	**.674**	.109	-.198	.175	.111	.083	.183	.063	.010
PHE1	.213	**.698**	.017	.305	.191	.040	.219	.117	-.003
PHE2A	.121	**.666**	.035	.297	.132	.007	.181	.117	.141
PHE3	.134	**.584**	.066	.340	.131	-.006	.282	.096	.009
PHE4	.176	**.674**	.108	.256	.044	.024	.148	.050	-.031
PHE5A	.022	**.740**	.132	.044	-.071	-.040	.008	.233	.054
PHE6	.080	**.853**	.022	.122	.082	-.070	.024	.007	.046
PHE7	.091	**.790**	.110	.064	.085	-.110	-.051	-.043	.079
Eigenvalue	9.312	5.139	3.966	2.444	1.982	1.588	1.408	1.203	1.140
% of Variance	21.657	11.952	9.223	5.684	4.609	3.693	3.275	2.861	2.652
KMO									0.871
Bartlett's test of Sphericity									Chi-square = 8571.850 Sig (0.000)
% of Total Variance									65.607
Extraction: Principal Component Analysis; Rotation: Varimax with Kaiser Normalization									

Table 48: Factor loadings and communalities of factor analysis of Vitality at Work (Initial Model)

Table 48 shows the results of a rotated factor solution. The guidelines for retention of items on the basis of factor loadings and cross-loadings were same as for factor analysis of Energizing Connections discussed in previous sections. Of the 60 items, 43 were retained. The results show a clear factor structure with 9 components. Since Energizing Connections and Sense of Coherence were both multi-dimensional constructs, their items loaded on more than one component. For Energizing Connections, one of the items on Respectful Engagement was problematic because it cross-loaded on two factors. Upon deletion, only one item remained for the dimension of Respectful Engagement. Following the guideline of representation of a factor with multiple items, the entire sub-construct was removed from the factor structure and the factor model was respecified. Energizing Connections was now represented by two sub-constructs of Task Enabling and Energizing Interactions. Eight items loaded significantly on two components of Task Enabling and Energizing Interactions. Items measuring Sense of Coherence also did not emerge in the same factor structure as proposed by Antonovsky (1987). Seven of the original 13-item SOC short scale loaded on two factors, which have been relabelled as Controllability and Social Comprehension in the resulting factor structure. The emergence of factors incongruent to Antonovsky's proposed factor structure was also found previously, where Breed et al. (2006) observed that the items expressing Comprehensibility and Meaningfulness loaded significantly on two factors but Meaningfulness cross-loaded on the first two factors. However, this does not affect the efficacy of the SOC scale to successfully predict Physical and psychological well-being which has been well established in previous studies and explained in an earlier section, and thus consistent the theoretical framework of this study.

Following an initial EFA, the internal consistency reliability of the items was examined. The scale thereby developed through this study with 43 items loading significantly on 9 components, shows a high level of reliability. The Cronbach Alpha value for the 43 items equals 0.895 which is clearly within the 'meritorious' range of internal consistency reliability of the scale. However, the results for the individual item statistics revealed some problematic item-total correlation value. Item-total correlation value shows the strength of relationship of an individual item with the overall underlying construct being measured by the scale. It is suggested that this value should ideally be above 0.50 and low values suggest that an item should be considered for deletion (Hair et al., 2010). In the present case, it was observed that a severe problem existed in case of all items measuring Job Involvement with one item even showing a negative correlation with the overall scale and

all else showing a very low value of item-total correlation. A less severe but considerably problematic situation was apparent in case of items measuring Creative Work Involvement with all items showing consistently low item-total correlation values. This means that the entire factors of Job Involvement and Creative Work Involvement did not significantly relate with the underlying construct of VAW. Thus, it was concluded that the factors of Job Involvement and Creative Work Involvement do not fit into the initially suggested seven factor model of VAW. The model therefore required respecification. One of the items on Controllability dimension of SOC (SOC10A) also showed considerably low item-to-total correlation. This item was also removed from the model. However, two items (SOC11A and SOC13A) from the original sub-factor of Meaningfulness performed adequately in the new composition and loaded significantly on the relabelled factor of Controllability. These items were therefore added back to the model. An EFA was run on the respecified factors.

Item-Total Statistics

Item Code	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Item Code	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
QC1	.368	.893	OC7	.491	.891
QC3	.485	.891	OC8A	.538	.890
QC4	.453	.892	GC4A	.480	.892
QC5	.347	.894	GC5A	.397	.893
QC10	.441	.892	GC7A	.417	.893
QC15	.544	.891	CWI1	**.376**	.893
QC16	.528	.891	CWI2	**.281**	.894
QC17	.443	.892	CWI3	**.264**	.895
SOC2A	.360	.893	CWI4	**.294**	.894
SOC3A	.403	.893	CWI5	**.359**	.893
SOC7A	.395	.893	CWI6	**.270**	.894
SOC8A	.412	.893	CWI7	**.355**	.893
SOC9A	.335	.894	CWI8	**.317**	.894
SOC10A	**.285**	.894	CWI9	**.396**	.893
SOC12A	.394	.893	PHE1	.644	.889
JI2	**.258**	.895	PHE2A	.571	.890
JI3	**.254**	.895	PHE3	.564	.891
JI5A	**-.002**	.899	PHE4	.527	.891
JI6	**.121**	.898	PHE5A	.394	.893
JI7A	**.136**	.898	PHE6	.458	.892
OC5A	.631	.889	PHE7	.410	.893
OC6A	.516	.891			

Table 49: Individual Item Statistics for VAW (Initial Model)

Item Code	Factor Loadings							Communalities
	Perceived Health and Energy	Controllability (SOC)	Task Enabling (EC)	Organizational Commitment	Energizing Interactions (EC)	oal Commitment	Perceived Justice (SOC)	
EC1	.020	.088	**.781**	.122	.185	.064	.059	0.675
EC3	.100	.117	**.742**	.170	.162	.110	.101	0.653
EC4	.187	.039	**.602**	.113	.350	.049	.226	0.587
EC5	.094	.099	**.780**	.064	.087	.089	.059	0.651
EC10	.029	.075	**.795**	.213	.108	.170	.113	0.738
EC15	.162	.092	.198	.261	**.814**	.079	.067	0.815
EC16	.102	.098	.267	.245	**.822**	.075	.093	0.842
EC17	.125	.018	.277	.113	**.759**	.085	.106	0.700
SOC2A	.101	.217	.174	.058	.097	.101	**.839**	0.814
SOC3A	.088	.203	.241	.152	.164	.095	**.815**	0.830
SOC7A	.196	**.736**	.076	.028	-.026	.033	.107	0.600
SOC8A	.211	**.728**	.202	.017	-.071	-.030	.198	0.661
SOC9A	.104	**.722**	.041	.064	-.063	-.008	.182	0.576
SOC11A	.254	**.673**	.057	.127	.243	.238	-.001	0.652
SOC12A	.185	**.697**	.151	-.026	.115	.071	.089	0.569
SOC13A	.086	**.580**	-.049	.100	.144	.272	-.095	0.460
OC5A	.223	.106	.261	**.739**	.164	.155	.192	0.763
OC6A	.062	.040	.096	**.861**	.147	.155	.061	0.806
OC7	.049	.066	.113	**.819**	.144	.086	-.029	0.719
OC8A	.062	.049	.213	**.812**	.150	.164	.070	0.766
GC4A	.103	.136	.099	.293	.054	**.698**	.223	0.665
GC5A	.262	.113	.248	.122	-.015	**.627**	.176	0.582
GC7A	.038	.134	.145	.162	.171	**.779**	-.097	0.712

PHE1	**.682**	.383	.028	.230	.195	.091	-.018	0.711
PHE2A	**.655**	.336	.047	.161	.168	.089	.135	0.624
PHE4	**.665**	.298	.084	.060	.157	.065	.003	0.571
PHE5A	**.757**	.026	.129	-.072	.021	.259	.096	0.672
PHE6	**.867**	.151	.027	.075	.054	.017	.039	0.786
PHE7	**.794**	.126	.101	.067	.010	-.015	.043	0.663
Eigenvalue	8.907	3.379	2.060	1.826	1.388	1.201	1.102	
% of Variance	30.713	11.652	7.103	6.296	4.785	4.143	3.801	
KMO								0.892
Bartlett's test of Sphericity								Chi-square = 5719.778 Sig =(0.000)
% of Total Variance								68.493
Extraction: Principal Component Analysis; Rotation: Varimax with Kaiser Normalization								

Table 50: Factor Analysis of Respecified Model of Vitality at Work (including communalities)

Item-Total Statistics

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
QC1	.488	.913
QC3	.559	.912
QC4	.553	.912
QC5	.478	.914
QC10	.557	.912
QC15	.569	.912
QC16	.578	.912
QC17	.492	.913
SOC2A	.448	.914
SOC3A	.519	.913
SOC7A	.424	.914
SOC8A	.464	.914
SOC9A	.366	.915
SOC11A	.578	.912
SOC12A	.464	.914
SOC13A	.361	.915
OC5A	.672	.910
OC6A	.503	.913
OC7	.456	.914
OC8A	.545	.912
GC4A	.498	.913
GC5A	.501	.913
GC7A	.424	.914
PHE1	.623	.911
PHE2A	.589	.912
PHE4	.514	.913
PHE5A	.442	.914
PHE6	.490	.913
PHE7	.455	.914
Cronbach's Alpha		0.916
N of Items		29

Table 51: Reliability and Individual Item Statistics for VAW (Respecified Model)

9.9 Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) is a branch of statistical techniques that fall under the family of a newer, more recent approach to multivariate analysis known as Structural Equation Modelling. Other multivariate techniques can either be employed in interdependence or a dependence framework but not together. SEM is a combination of both these techniques, in that it employs both the multivariate techniques of factor analysis and multiple regression analysis (Joreskog and Sorbom, 1983).

Within the domain of SEM techniques, CFA is a technique to establish the validity of a measurement theory in which a large number of observed variables are being represented by a smaller number of latent constructs (Byrne, 2010; Hair et al., 2010; Hurley et al., 1997). Measurement theory is the specification of a logical and systematic framework between observed variables and their theoretically defined latent constructs. Measurement theory forms the basis of measuring a latent construct by a set of observed variables. As already demonstrated, Exploratory Factor Analysis does not specify a measurement theory prior to analysis. The difference between EFA and CFA is that EFA is a data driven technique of analysis whereas, CFA is theory-driven (Hurley et al., 1997). By data driven, it means that the researcher cannot specify variables to particular factors. It depends upon the data what factors emerge from the analysis and which variables load on what particular factors. Thus, the data specifies how many factors underlie the measured variables and how the variables load on each of these factors. On the other hand, CFA is an approach used to test predefined theory or hypothesis. In CFA, the researcher can specify which variables are represented by a particular factor (Marsh and Hocevar, 1985). Furthermore, in EFA, the relationship of factors with each other has to be the same, i.e. correlated or uncorrelated. However, in CFA, the researcher can specify certain variables to be correlated and others as uncorrelated.

In this study, the construct of Vitality at Work has been developed and validated through empirical evidence from Exploratory Factor Analysis. Initially, seven factors were identified through literature review and 70 items were used to measure these factors. The results of EFA screened out two of the factors, i.e. Job Involvement and Creative Work Involvement. The remaining factors are represented by 29 items loading on seven factors.

Two of the factors, i.e. Sense of Coherence and Energizing Connections are further represented by two sub-constructs which emerge as separate factors in the factor solution. However, theoretically, the sub-constructs fall under the definition of the main constructs. This respecified factor solution has been subjected to Confirmatory Factor Analysis to test the measurement model of VAW. This approach of screening and preparing a measurement model through EFA is a viable procedure adopted prior to confirming the model through CFA. Research suggests that EFA can provide accurate results, both with orthogonal as well as oblique rotation methods. Therefore, it can be utilized as a useful strategy to filter and validate a factor model before application of CFA (Gerbing and Hamilton, 1996).

Hair et al. (2010) specify five stages to test a measurement model through CFA. Figure 16 illustrates this process in a step-wise diagram.

Stage 1: Defining Individual Constructs

Individual constructs have been defined in detail in the Chapter 4 and 5. The scales have been selected or constructed and this process has been described in Chapter 7. It is emphasized that a sound theoretical background should support the hypothesized measurement theory. In order to pretest the measurement model and to refine the items included each scale, EFA and reliability tests have been conducted on each scale. CFA has been conducted to confirm the measurement theory for the following constructs;

1) First-order factor model for Subjective Career Plateau
2) Second-order factor model for Energizing Connections
3) Second-order factor model for Sense of Coherence
4) Second-order factor model for Vitality at Work.

The difference between First-order factor model and Second-order factor model is that First-order models hypothesize a construct that cause a set of measured variables in one layer. On the other hand, Second-order factor models are designed with two layers of latent constructs. A latent construct in the first layer causes a set of latent constructs or factors which in turn cause a set of measured variables for each factor (Byrne, 2010).

Stage 2: Developing and Specifying the Measurement Model

CFA has been performed on the measurement models developed through EFA using the AMOS program. The AMOS program allows the researcher to choose between two types of input methods. One method is the graphical input, in which the researcher prepares a graphical representation of the latent and measured variables and the relationships in which they are grouped together. The other method inputs the hypothesized models in the form of equation statements. The choice of method is completely arbitrary and depends on the selection of the researcher with none of the methods having any superiority over the other. In this study, a graphical approach has been selected because of a comfortable user-interface and ease of understanding.

The following shapes and graphics are used to represent constructs and relationships in a graphical representation of SEM models

Ellipse:	Latent Constructs
Rectangle:	Observed Variables
Circle:	Error/Residual term
Single-head Arrow (←):	Regression path
Two-head Arrow (↔):	Covariance path

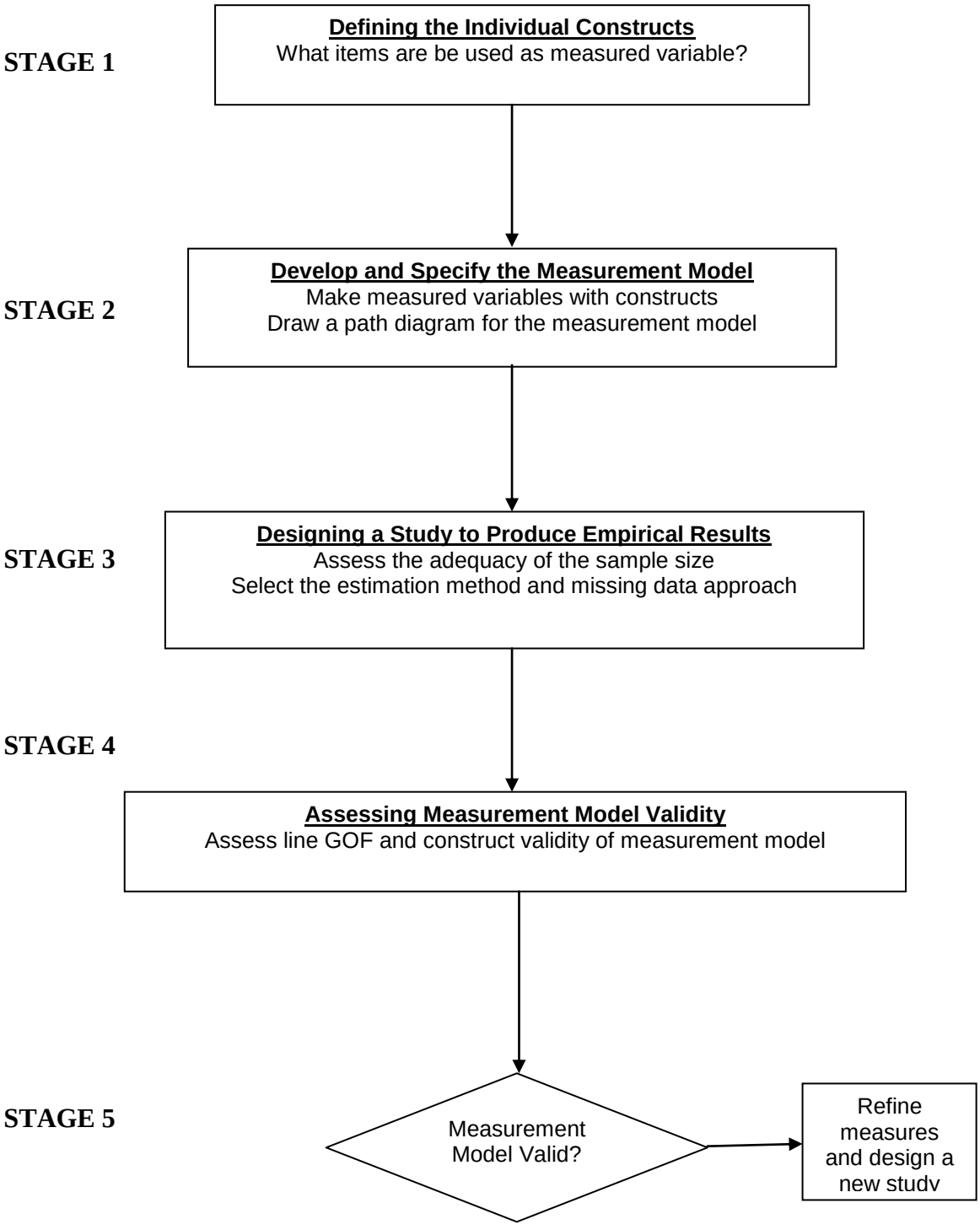

Figure 16: Step-wise process of validating a measurement model (Adapted from Hair et al. (2010 p.654)

Stage 3: Designing a study to produce empirical results

There are a number of issues involved in the research design and estimation of an SEM model. One of the issues is concerned with the use of metric or non-metric data. However, all the variables in the measurement models are metric variables in this study. The next question relates to use of covariance or correlation matrix as input in the model. The only advantage of using correlation matrix is that the results are obtained in the range of -1.0 to +1.0 with the interpretation becoming straightforward and simple. With covariance results, there is no such defined range. However, this problem can be easily countered by requesting a standardized solution which can be easily specified in the SEM programs. Therefore, covariance matrices have been employed to input data for analysis.

The third issue is related to handling of missing data. A complete description of missing data analysis and its estimation was provided in Section 8.2. For the SEM analysis, there is a dataset of 365 complete cases.

Sample size is also one of the important aspects of research design in SEM analysis, as in most of other multivariate data analysis techniques. The discussion about sample size has been presented in Section 8.3.3 where it has been elaborated that the sample size is adequate for each of the measurement models tested through CFA.

After designing the measurement model, an estimation technique has to be selected which applies a particular mathematical algorithm to estimate the free parameters in the model. Maximum likelihood technique is one the most commonly used techniques in CFA. However, this technique assumes data normality. One of the problems encountered in this study was the deviation of data from multivariate normality. For each of the measurement model, the data deviated to some extent from the ideal conditions of normality. This can be problematic for performing CFA with ML estimation. However, it is suggested that where data deviates from normality, a larger sample size should be provided and a sample size greater than 300 can reduce the severity of the problem. One of the other estimation techniques known as Asymptotically Distribution Free (ADF) estimation was also considered. The ADF estimation technique is an alternative to deal with non-normal data because of its insensitivity to normality. But it has been found that ADF estimation performs accurately in samples as large as 1000 to 5000 cases and in smaller samples, the

performance of the estimator is very poor and can produce distorted results (West et al., 1995; Curran et al., 1996). Therefore, it was concluded that ADF estimation would not serve as a better alternative in this situation.

Another remedy to counter non-normally distributed data was also considered. Transformation is the primary means of correcting univariate non-normality. There are a number of methods that transform variables to reduce the effects of non-normality in univariate situations (Hair et al., 2010). An attempt was made to transform individual variables to reduce the effects of non-normality. The two major issues of non-normality are skewness and kurtosis. A number of techniques were applied to transform variables to reduce the two deviations. Transformations were performed by taking square, cube, inverse, square root, cube root or logarithm of the variables. However, it was found that none of the techniques corrected the deviations from normality in majority of the variables. This happened because most of the variables showed deviations both in the form of skewness and kurtosis. When a transformation was applied, it would remedy one form of deviation but increase the other. As a last resort, all variables were corrected for kurtosis, in the hope that the problem of multivariate kurtosis will be reduced because it is one of the most important aspects of normality for SEM modeling (Byrne, 2010). However, univariate transformations correcting for kurtosis did not alleviate the problem of multivariate kurtosis in the final analysis within either of the measurement models. Neither did the magnitude of multivariate kurtosis reduce to any considerable extent. Therefore, it was decided to use the data in its original form. This is a limitation of the data that could not be corrected.

Stage 4: Assessing Measurement Model Validity

There are two aspects of establishing the validity of a measurement model. The first relates to evaluating an appropriate level of goodness-of-fit, where it is established that the hypothesized model statistically fits the actual data adequately. The other relates to the construct validity of the measurement model, where it is examined whether the model actually measures the construct it is meant to measure. The guidelines for establishing both the aspects of model validity are discussed below.

Evaluating Goodness-of-fit

There are a number of GOF indices available to ascertain how well the observed covariance matrix (reality) and estimated covariance matrix (theory) of the hypothesized

model reconcile with each other. In ideal circumstances, if the hypothesized model perfectly depicted reality, there would be a perfect match between the observed and estimated values. However, this does not happen in real world, and particularly not in social sciences. Therefore, the objective of a researcher is to model theory which can close the gap between the observed reality and estimated theory. In SEM modelling, there are two main types of GOF indices that provide information to determine this goodness-of-fit. These indices are Absolute GOF indices and Incremental Fit Indices.

Within the Absolute GOF indices, the fundamental measure is the Chi-square (χ^2) GOF index. The χ^2 gives information about the probability of an observed covariance matrix to fit closely with the estimated covariance matrix. A relatively low chi-square value signifies that the model fits well and a p-value greater than 0.05 confirms the hypothesis that the observed matrix is not significantly different from the estimated matrix. However, the χ^2 value is significantly influenced by sample size (Hair et al., 2010). With small sample sizes, it is possible for the χ^2 test to show significant difference even though the theory has other serious problems. On the other hand, as the sample becomes larger and the model becomes complex with a larger number of parameters to be estimated, the χ^2 test becomes increasingly insensitive and it becomes difficult to obtain insignificant values even with models that otherwise fit well. "In sum, the statistical test or resulting p-value is less meaningful as sample sizes becomes large, or the number of observed variables becomes large" (Hair et al., 2010, p.667). Therefore, it is recommended that other tests of GOF are used in addition to χ^2 in order to establish model-fit.

Another absolute GOF index is the Normed Chi-square which is simply calculated by taking the ratio of χ^2 with degrees of freedom. It is suggested that χ^2:df ratio should be less than 3:1 to be associated with good-fit. This index takes into account model complexity by employing degrees of freedom in its calculation. However, it still fails to account for the problem of sample size because the χ^2 statistic is influenced by this aspect.

One of the most widely used absolute GOF index which accounts for the problems of model complexity or large sample sizes is the Root Mean Square Error of Approximation (RMSEA). This index explicitly takes into account both the problems of sample size and model complexity in its algorithm and therefore provides much superior information about model fit (Hu and Bentler, 1999). A low value indicates better fit. Generally, a value less

than 0.05 to 0.08 is considered to indicate good fit. However, it is suggested that an absolute cut-off value should not be the employed to evaluate a good or bad fit in isolation and the RMSEA value should be taken together with other indicators to arrive at a conclusion.

The difference between Absolute and Incremental GOF indices is that Incremental indices evaluate the good-of-fit of a model by evaluating it with a baseline comparison of a null model. A null model is defined as a model in which all the variables are assumed to be uncorrelated. Therefore, the Incremental GOF indices compare the model fit of the null model and the hypothesized model and establish GOF by ascertaining the improvement of fit from the null model to the proposed model. There are a number of Incremental GOF indices out of which CFI (Comparative Fit Index) is the most commonly used indicator. It is a better performing index than other incremental fit indices such as NFI and TLI because of its many merits including its considerable but not complete insensitivity to model complexity (Bentler, 1990). The value ranges between 0 and 1 with 1 demonstrating a perfect fit. A higher value is associated with good-fit and values higher than 0.90 are considered acceptable to claim that a model fits well with the data.

In this study, the normed χ^2, CFI, TLI, NFI and RMSEA have been employed to assess GOF of each of the measurement model. In addition to these indexes, the χ^2 index has also been reported. However, as discussed earlier, the p-value in either cases has not been found significant (>0.05) as the sample size was quite large in all cases and the model was also comparatively complex in case of the measurement model for VAW. As Hair et al. (2010, p. 670) note;

> "...typical models are more complex and have sample sizes that make the χ^2 significance test less useful as a GOF measure that always separates good from poor models. Thus, no matter what the χ^2 result, the researchers should always complement it with other GOF indices, but just as important, the χ^2 value itself and the model degrees of freedom should always be reported."

Evaluating Construct Validity

The concept of construct validity has already been discussed in previous sections (see Section 8.5.1). In order to establish construct validity of a measurement model in CFA, a number of evaluation techniques are used.

Factor Loadings: One of the means to establish construct validity is by examining the factor loadings. For this purpose, standardized factor loading should be used for interpretation, because it is difficult to assign a uniform range and cut-off values to unstandardized loading. It is recommended that standardized factor loadings should atleast be statistically significant as a minimum (Anderson and Gerbing, 1988). A loading of 0.50 or more is considered acceptable with loadings exceeding 0.70 being ideal.

Average Variance Extracted: Another technique to establish construct validity is to calculate the average variance extracted. It is calculated by taking the mean of the variance extracted from each item loading on a construct. This value is not reported in the output of the AMOS program and therefore has to be calculated manually. It is calculated by taking the square of standardized loadings and dividing it by the number of items in the construct. The following equation is used;

$$AVE = \frac{\sum_{i=1}^{n} L_i^2}{n}$$

Where L_i^2 represents the standardized factor loadings and *n* represents the number of items. It is recommended that the AVE should be 0.50 or more to represent that the variance explained by the items is more than the error variance in the latent construct. However, it should be noted that in order to achieve an AVE of 0.50 or more, it is essential that on average, all the items should have a standardized loading of 0.71 or more. This is possible in highly converging items and factor loadings of more than 0.71 are only achieved in ideal situation. If on average, all items have a loading of 0.50, which is considered an acceptable level of loading, then the AVE would be equal to 0.25. Therefore, given the standard of individual item loadings being acceptable between 0.50 and 0.70, an AVE ranging between 0.25 and 0.50 should also be considered acceptable.

Reliability: The third aspect for establishing construct validity is the reliability of the overall measurement model. The term reliability has also been discussed in detail in previous sections. In this study, the Cronbach's Alpha reliability score has been calculated for each measurement model.

Stage 5: Respecification of Initial Model

After examining both the aspects of validity of a measurement model, a conclusion is achieved about how well the measurement model has performed on each of the given criteria. In case there are weaknesses observed in the initial model, the AMOS program

reports a number of modification indices which can be utilized to improve model fit. It is a common practice to respecify the original model to improve model fit. It is observed;

> "Most uses of confirmatory factor analyses are, in actuality, partly exploratory and partly confirmatory in that the resultant model is derived in part from theory and in part from a respecification based on the analysis of model fit" (Gerbing and Hamilton, 1996, p. 71).

However, these modification indices should be employed with care and should reconcile with the theoretical foundations of the model. In this study, a few amendments have been made on the basis of modification indices to improve model fit for each of measurement model.

After elaborating the overall process of performing CFA to establish the validity of measurement models, the discussion will now focus on the individual measurement models and their analysis.

9.10 Evaluating Second Order Factorial Model for Energizing Connections

After screening from EFA, the two factor model of Energizing Connections has been tested for its measurement theory through CFA. The overall model shows an acceptable goodness-of-fit with CFA = 0.976, TLI = 0.965, NFI = 0.965, RMSEA = 0.072 showing that the hypothesized model fits well with the data.

Incremental Fit Indices					
Model	NFI	RFI	IFI	TLI	CFI
Default model	.965	.948	.977	.965	.976
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000
RMSEA					
Model	RMSEA	LO 90	HI 90	PCLOSE	
Default model	.072	.050	.095	.047	
Independence model	.388	.372	.404	.000	
Chi-Square (χ^2)					
Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	17	55.127	19	.000	2.901
Saturated model	36	.000	0		
Independence model	8	1560.443	28	.000	55.730

Table 52: Good-of-fit indices for Measurement Model of Energizing Connections

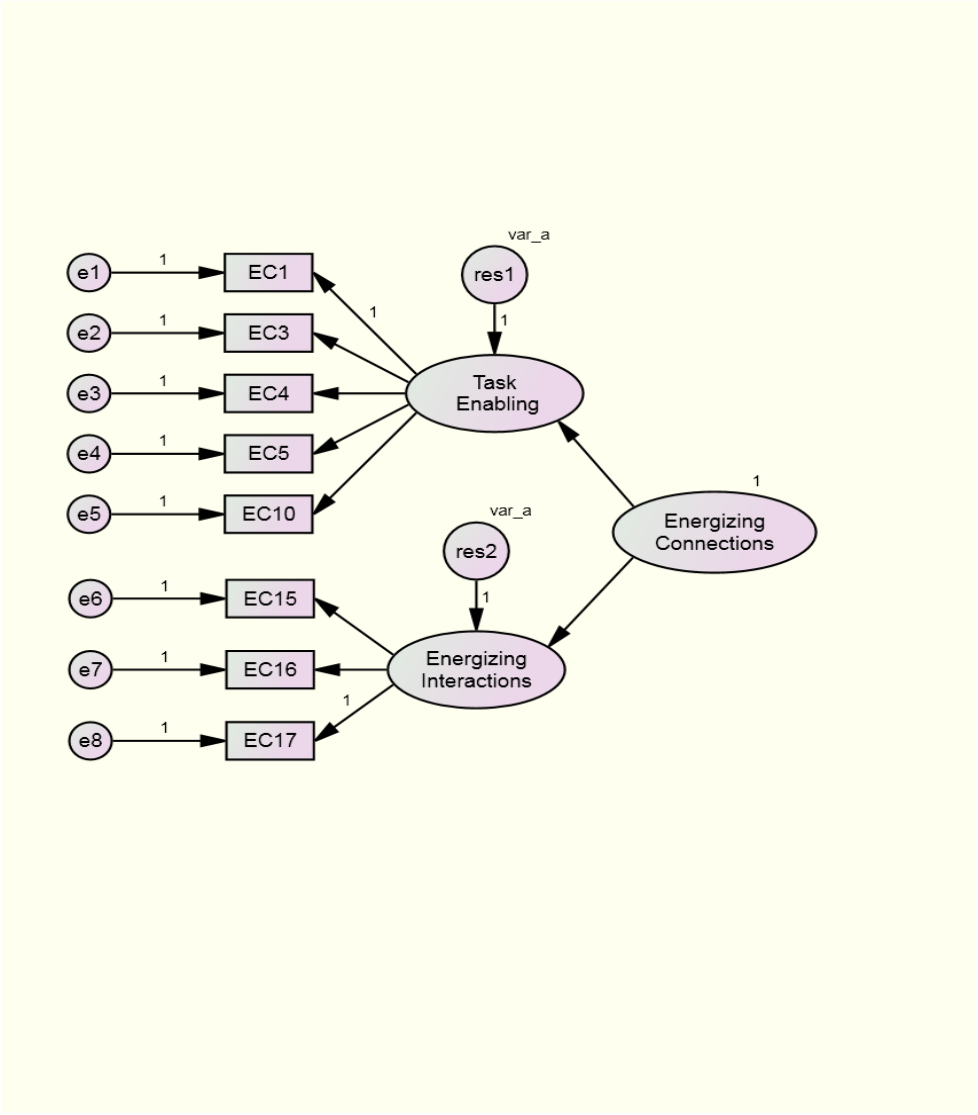

Figure 17: Path Diagram of measurement model of Energizing Connections

All factor loadings are greater than 0.50, indeed all the loadings were greater than 0.70 except one item, i.e. EC4. The two sub-factors of Task Enabling and Energizing Interactions load significantly on the core underlying construct of Energizing Connections with factor loadings of more than 0.60.

			Estimate
Task_ Enabling	<---	Energizing_Connections	.886
Energizing_Interactions	<---	Energizing_Connections	.632
EC10	<---	Task_ Enabling	.812
EC5	<---	Task_ Enabling	.706
EC4	<---	Task_ Enabling	.674
EC3	<---	Task_ Enabling	.774
EC1	<---	Task_ Enabling	.759
EC17	<---	Energizing_Interactions	.722
EC16	<---	Energizing_Interactions	.952
EC15	<---	Energizing_Interactions	.852

Table 53: Standardized Factor Loading for EC

	Estimate
Energizing_Interactions	.399
Task_ Enabling	.785
QC15	.726
QC16	.906
QC17	.522
QC1	.576
QC3	.599
QC4	.454
QC5	.499
QC10	.659

Table 54: Squared Multiple Correlations for EC

The AVE for each of the constructs is given in the following table. All values are above the recommended value of 0.50 which shows that model bears meritorious construct validity. The Cronbach's Alpha value of the 8-item scale is 0.873 which also shows that the items demonstrate high construct validity.

Construct	**Average Variance Extracted**
Factors loading on Energizing Connections	0.59
Items loading on Task Enabling	0.56
Items loading on Energizing Interactions	0.72

Table 55: Average Variance Extracted for EC

9.11 Evaluating Second-order factorial model for Sense of Coherence

Because the original factors and items of Sense of Coherence scale did not emerge as hypothesized by Antonovsky (1987), therefore it was considered important to test the validity of the respecified model in measuring the theoretical construct of Sense of Coherence. There were eight items that loaded significantly on two factors labeled as Controllability and Social Comprehension in EFA. This measurement model was tested through CFA.

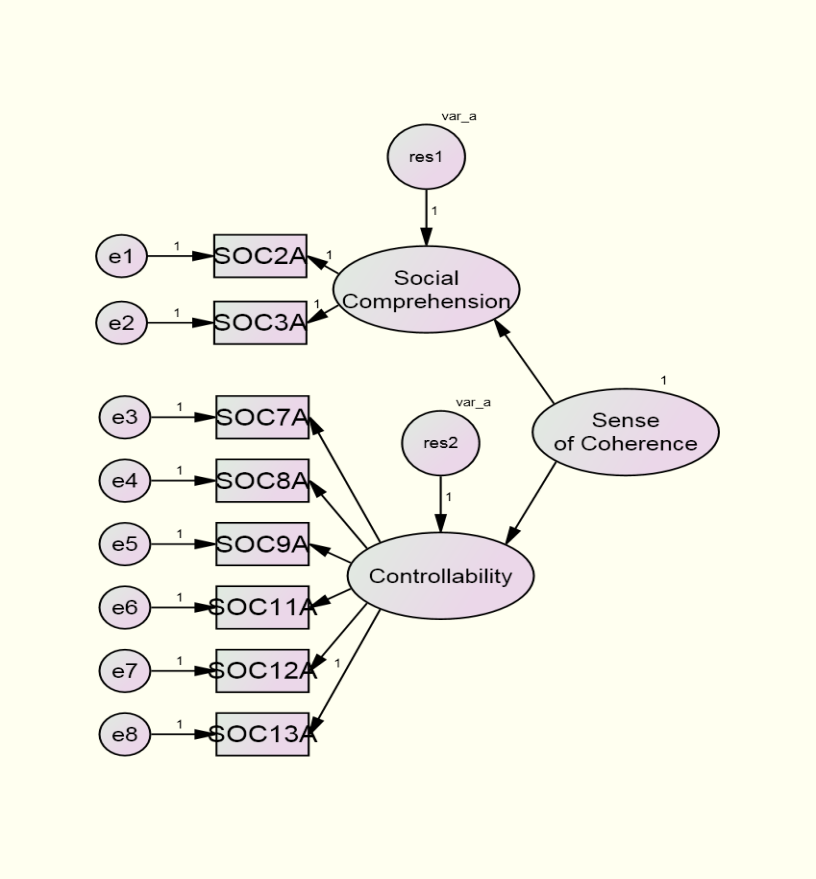

Figure 18: Path Diagram of measurement model of Sense of Coherence

The GOF indexes show adequate fit. CFI value is above 0.90 and so are the NFI and the TLI values. RMSEA is 0.10 which is slightly above the recommended cut-off of 0.05-0.08 range. However, the lower boundary of the confidence interval for RMSEA falls around 0.08. Therefore, it can be concluded that the model fit indexes show an acceptable fit.

Incremental Fit Indices					
Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.915	.880	.931	.903	.931
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000
RMSEA					
Model	RMSEA	LO 90	HI 90	PCLOSE	
Default model	.101	.081	.122	.000	
Independence model	.324	.308	.341	.000	
Chi-Square (χ^2)					
Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	16	93.997	20	.000	4.700
Saturated model	36	.000	0		
Independence model	8	1100.023	28	.000	39.287

Table 56: Good-of-fit indices for Measurement Model of Sense of Coherence

All standardized factor loadings fall above the cut-off value of 0.50 except one item, which is just on the boundary and stands at 0.491. The AVE of the overall model is 0.51 which shows good construct validity. A Cronbach's Alpha reliability value of 0.83 complements this conclusion that the overall model shows adequate construct validity.

			Estimate
Social_Comprehension	<---	Sense_of Coherence	.835
Controllability	<---	Sense_of Coherence	.560
SOC3A	<---	Social_Comprehension	.821
SOC2A	<---	Social_Comprehension	.867
SOC13A	<---	Controllability	.491
SOC12A	<---	Controllability	.690
SOC11A	<---	Controllability	.675
SOC9A	<---	Controllability	.662
SOC8A	<---	Controllability	.758
SOC7A	<---	Controllability	.735

Table 57: Standardized Factor Loading for SOC

	Estimate
Controllability	.314
Social_Comprehension	.697
SOC7A	.540
SOC8A	.574
SOC9A	.438
SOC11A	.456
SOC12A	.476
SOC13A	.241
SOC2A	.753
SOC3A	.675

Table 58: Squared Multiple Correlations for SOC

Construct	**Average Variance Extracted**
Factors loading on Sense of Coherence	0.51
Items loading on Social Comprehension	0.71
Items loading on Controllability	0.45

Table 59: Average Variance Extracted for SOC

9.12 Evaluating first-order factorial model of Subjective Career Plateau

The measurement instrument for Subjective Career Plateau has also been designed during the present study. 6 items out of the original 8 items were selected through EFA. The 6-item measurement model was tested through CFA and a minor modification was made by deleting one item because its loading was lower than the standard. The respecified model with 5-items shows adequate model fit. All the incremental fit indexes show excellent fit with CFI=0.979, TLI=0.957 and NFI=0.971. RMSEA also demonstrates adequate fit with a value of 0.84.

Incremental Fit Indices					
Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.971	.941	.979	.957	.979
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000
RMSEA					
Model	RMSEA	LO 90	HI 90	PCLOSE	
Default model	.084	.044	.128	.077	
Independence model	.405	.378	.433	.000	
Chi-Square (χ^2)					
Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	10	17.789	5	.003	3.558
Saturated model	15	.000	0		
Independence model	5	607.857	10	.000	60.786

Table 60: Good-of-fit indices for Measurement Model of Subjective Career Plateau

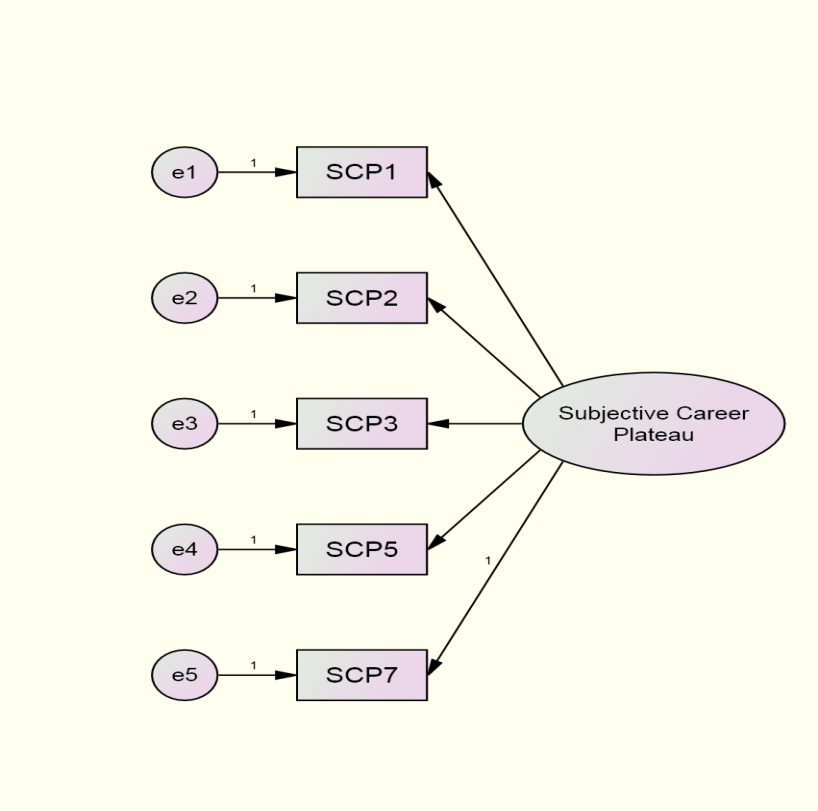

Figure 19: Path Diagram of measurement model of Subjective Career Plateau

All factor loadings are above 0.50 showing good construct validity. AVE stands at the boundary of cut-off value and equals 0.49 and can be accepted to demonstrate adequate convergent validity. A Cronbach's Alpha value of 0.825 represents high internal consistency reliability of the scale. A comparison of all the foregoing indicators can be used to conclude that the measurement model for Subjective Career Plateau shows adequate model fit and construct validity.

			Estimate
SCP7	<---	Subjective Career_Plateau	.659
SCP5	<---	Subjective Career_Plateau	.681
SCP3	<---	Subjective Career_Plateau	.661
SCP2	<---	Subjective Career_Plateau	.761
SCP1	<---	Subjective Career_Plateau	.734

Table 61: Standardized Factor Loading for SCP

	Estimate
SCP1	.538
SCP2	.579
SCP3	.436
SCP5	.463
SCP7	.434

Table 62: Squared Multiple Correlations for SCP

Construct	**Average Variance Extracted**
Items loading on Subjective Career Plateau	0.49

Table 63: Average Variance Extracted for SOC

9.13 Evaluating second-order factorial model for Vitality at Work

Finally, the last measurement model to be tested is the second-order factorial model for Vitality at Work. 29-items loading on 7 factors were screened through EFA and reliability tests. The measurement model was tested for model fit and construct validity. Four items were deleted from the overall model. One item from Controllability, one from Organizational Commitment and two items from Physical health and Energy factors were deleted. An examination of the modification indices revealed that the error terms of these items covaried with the error terms of within-construct items. One of the remedies for this situation was to introduce interaction between the two covarying error terms (Byrne, 2010). However, it is recommended that interaction of error terms should not be introduced in a model, because although this remedy can improve model fit but the validity becomes seriously questionable (Hair et al., 2010). Therefore, it was decided to remove the items whose error terms covaried considerably with other error terms.

An examination of the model fit results of the respecified model shows that the model fits adequately with data. Incremental fit indexes represent adequate fit with CFI = 0.91, TLI = 0.904 and NFI = 0.861. RMSEA value of 0.062 also shows an acceptable level of goodness-of-fit.

Incremental Fit Indices					
Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.861	.845	.914	.904	.914
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000
RMSEA					
Model	RMSEA	LO 90	HI 90	PCLOSE	
Default model	.062	.056	.068	.001	
Independence model	.199	.194	.204	.000	
Chi-Square (χ^2)					
Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	56	643.941	269	.000	2.394
Saturated model	325	.000	0		
Independence model	25	4638.769	300	.000	15.463

Table 64: Good-of-fit indices for Measurement Model of Vitality at Work

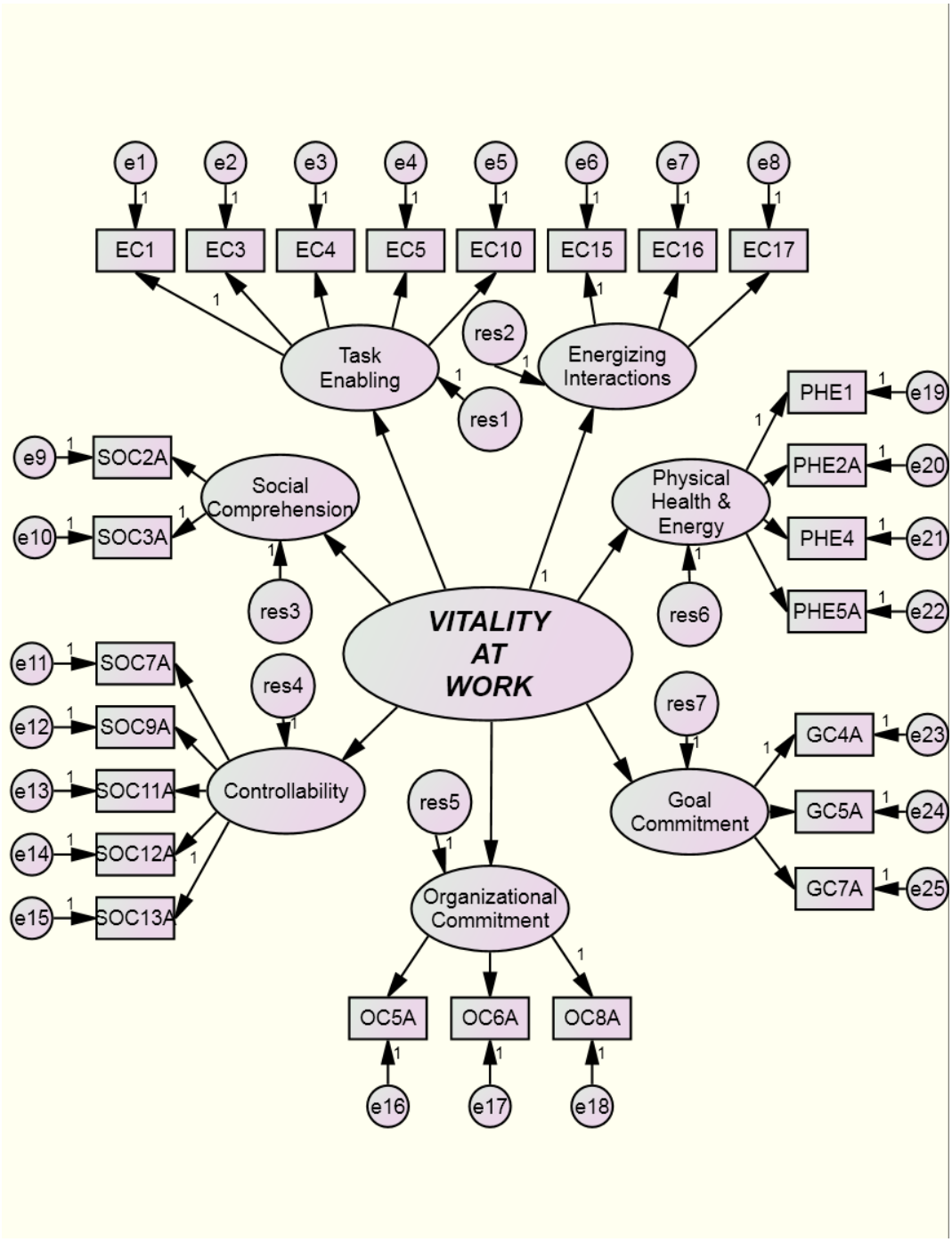

Figure 20: Path Diagram of measurement model of Vitality at Work

Finally, an examination of standardized factor loadings shows that all factor loadings are above 0.50 with majority of loadings falling above the ideal level of 0.70. The AVE of core construct of VAW by its factors equals to 0.55 which shows that a greater proportion of variance is extracted by the specified factors than the proportion of error variance. This shows adequate construct validity. The AVE of individual factors by their respective items also shows good convergence for each of the constructs. A Cronbach's Alpha score of 0.91 represents a meritorious value of reliability of the scale and complements the other results obtained to confirm construct validity.

			Estimate
Organizational_Commitment	<---	VITALITY_AT_WORK	.756
Goal_Commitment	<---	VITALITY_AT_WORK	.795
Social_Comprehension	<---	VITALITY_AT_WORK	.666
Physical_Health &_Energy	<---	VITALITY_AT_WORK	.722
Energizing_Interactions	<---	VITALITY_AT_WORK	.706
Task_Enabling	<---	VITALITY_AT_WORK	.733
Controllability	<---	VITALITY_AT_WORK	.815
QC1	<---	Task_Enabling	.776
QC3	<---	Task_Enabling	.801
QC4	<---	Task_Enabling	.699
QC5	<---	Task_Enabling	.733
QC10	<---	Task_Enabling	.840
QC15	<---	Energizing_Interactions	.878
QC16	<---	Energizing_Interactions	.949
QC17	<---	Energizing_Interactions	.747
PHE1	<---	Physical_Health &_Energy	.871
PHE2A	<---	Physical_Health &_Energy	.844
PHE4	<---	Physical_Health &_Energy	.734
PHE5A	<---	Physical_Health &_Energy	.580
GC4A	<---	Goal_Commitment	.761
GC5A	<---	Goal_Commitment	.679
GC7A	<---	Goal_Commitment	.664
OC8A	<---	Organizational_Commitment	.824
OC6A	<---	Organizational_Commitment	.828
OC5A	<---	Organizational_Commitment	.913
SOC13A	<---	Controllability	.780
SOC12A	<---	Controllability	.767
SOC11A	<---	Controllability	.860
SOC9A	<---	Controllability	.670
SOC7A	<---	Controllability	.690
SOC3A	<---	Social_Comprehension	.928
SOC2A	<---	Social_Comprehension	.796

Table 65: Standardized Factor Loading for VAW

	Estimate
Social_Comprehension	.444
Controllability	.664
Organizational_Commitment	.572
Goal_Commitment	.631
Physical_Health &_Energy	.521
Energizing_Interactions	.498
Task_Enabling	.538
SOC2A	.633
SOC3A	.861
SOC7A	.476
SOC9A	.449
SOC11A	.740
SOC12A	.588
SOC13A	.608
OC5A	.833
OC6A	.686
OC8A	.679
GC7A	.442
GC5A	.461
GC4A	.579
PHE5A	.337
PHE4	.539
PHE2A	.712
PHE1	.758
QC17	.557
QC16	.901
QC15	.771
QC10	.705
QC5	.537
QC4	.489
QC3	.641
QC1	.602

Table 66: Squared Multiple Correlations for VAW

Construct	**Average Variance Extracted**
Factors loading on VAW	0.55
Items loading on Social Comprehension	0.75
Items loading on Controllability	0.57
Items loading on Organizational Commitment	0.73
Items loading of Goal Commitment	0.49
Items loading on Physical Health and Energy	0.59
Items loading on Energizing Interactions	0.74
Items loading on Task Enabling	0.59

Table 67: Average Variance Extracted for SOC

From the above results, it can be concluded that all the measurement models show adequate model fit and construct validity from an analysis of goodness-of-fit indexes and indicators of construct validity including factor loadings, average variance extracted and internal consistency reliability of the measurement models.

9.14 Regression Analysis

The last set of analysis has been employed to ascertain the relationship between Subjective Career Plateau and Vitality at Work. The construct validity of both the concepts has been established through EFA, CFA and other related tests. The next step in the study is to test the hypothesis about the association of SCP with VAW. The same analysis could have also been performed through SEM. However, it is difficult to incorporate control variables into the path analysis, because the control variables do not contribute significantly to the model. This reduces the overall fit of model, because there are path estimates that are statistically non-significant. For this reason, SEM models do not commonly involve the use of control variables in their analysis. It is noted: "It is not clear whether researchers use control variables with less frequency because of (1) theoretical reasons such as the model to be tested does not require control variables, or (2) methodological reasons such as the difficulty in modeling variables that contribute little to the overall model" (Fletcher et al., 2006, p. 4).

For this study, the control variables of age, years in academic profession, years in current position and position held at present are important to the theoretical concept of SCP and therefore, it was important to include them into the study. Therefore, it was concluded to perform regression analysis instead of SEM to test this hypothesis.

Regression analysis is a statistical technique used to establish and measure the nature of relationship between independent and dependent variables. When the analysis involves one independent variable and one dependent variable, it is termed as simple regression. If the analysis is performed between a set of two of more independent variables and one dependent variable, it is known a multiple regression. The independent variables are also known as predictor variables and the dependent variables is also called criterion variable.

For the purpose of this set of analysis, summated scales were developed for both the constructs of VAW and SCP. From the final CFA respecified models, VAW consisted of 25 items and SCP was represented by 5 items. Summated scales were calculated for both the variables. The use of summated scales provides two basic advantages. "First, it provides a means of overcoming to some extent the measurement error inherent in all measurement" and second is "its ability to represent the multiple aspects of a concept in a single measure" (Hair et al., 2010, p. 124). Summated scales are calculated by taking the sum or average of items showing high loadings in factor analysis. In the present study, a mean score of all the items finalized through CFA has been taken to calculate the summated scale.

The first analysis is performed between SCP which is the predictor variable and VAW which is the dependent variable. The hypothesis states;

H3a: Subjective Career Plateau is negatively associated to Vitality at Work.
It is expected that there should be a negative relationship between SCP and VAW. As the sense of career plateauing increases, there should be a corresponding decrease in vitality of an individual.

The second hypothesis takes into account the effect of control variables on the relationship between SCP and VAW. It is expected that there should be a mediating effect of age, years in academic profession, years in current position and position held at present in that all these variables would increase the effect of SCP on VAW. The analysis would also demonstrate that when the effect of these variables is controlled, VAW can be better explained by SCP. Thus, the hypothesis states;
H3b: There is a mediating effect of age, years in academic profession, years in current position and current position held on the association between SCP and VAW.

As a preliminary step before running regression analysis, correlation of the two variables was calculated. It was expected to obtain a significant negative value of Pearson's Correlation co-efficient. Pearson's correlation is the most widely employed correlation co-efficient to test the association between two continuous variables. A Pearson's co-efficient value of -0.650 was obtained which is significant at 0.01 level of significance. This

demonstrates that the two variables are significantly correlated with each other. The negative sign confirms that there is an inverse relationship between the two variables.

Correlations

		VAW25	SCP
VAW25	Pearson Correlation	1	-.650**
	Sig. (2-tailed)		.000
	N	365	365
SCP	Pearson Correlation	-.650**	1
	Sig. (2-tailed)	.000	
	N	365	365

**. Correlation is significant at the 0.01 level (2-tailed).

Table 68: Pearson's correlation between SCP and VAW

Also before running the regression analysis, a check of normality was performed. As in all multivariate statistical techniques, it is important to satisfy the assumption of normality in case of regression analysis (Cohen et al., 2002). The two metric variables of SCP and VAW25 were tested for normality. All the control variables were categorical variables; therefore, it was not required to perform to check of normality for them. It was found that VAW25 satisfied the conditions of normality and skewness and kurtosis were within required limits. However, SCP showed signs of skewness. The variable was transformed by taking the square root of the original variable. This corrected for the deviation and the transformed variables demonstrated normality with respect to skewness as well as kurtosis.

After transforming for normality, simple regression was run between SCP and VAW. As hypothesized, SCP explains significant association in the dependent variables VAW. This is demonstrated by a significant R^2 value of 0.422 which shows that SCP explains 42.2% of variation in VAW. R^2 or co-efficient of determination is the single most important and commonly used indicator in regression analysis to ascertain the predictive power of an independent variable or a set of variables in explaining the variation in a dependent variable.

Model Summary

Model	R	R square	Adjusted R Square	Std. Error of the Estimate
1	.650[a]	.422	.421	14.84852

Table 69: Model Summary for regression between SCP and VAW

ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	58518.189	1	58518.189	265.415	.000[a]
	Residual	80033.693	363	220.478		
	Total	138551.882	364			

a. Predictors: (Constant), SCP
b. Dependent Variable: VAW25

Table 70: ANOVA statistics for regression between SCP and VAW

The next analysis was run by adding control variables to the regression equation. All the control variables were added to the independent variables list and results were calculated using the 'enter' method in SPSS. The results show that the addition of control variables has significantly increased the predictive power of SCP in explaining variation in VAW. The model has an R^2 value of 0.479. It means that there is an increase of 5.7% in the predictive power of the model by adding the control variables. This result supports the hypothesis that there is a significant mediation of control variables in the association of SCP and VAW. Although the control variables are not individually significant in explaining the change in VAW but their inclusion improves the predictive power of the overall model. It is evident from insignificant t-test values of individual control variables. The overall model explains about 48% variation in VAW which supports both the hypothesis (H1 and H2) and confirms that SCP is significantly associated with VAW.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.692[a]	.479	.471	14.23520

a. Predictors: (Constant), Position, SCP, Years in Current Position, Age, Years in Academic Profession
b. Dependent Variable: VAW25

Table 71: Model Summary for regression between SCP and VAW including control variables

ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	56678.076	5	11335.615	55.939	.000[a]
	Residual	61602.818	304	202.641		
	Total	118280.894	309			

a. Predictors: (Constant), Position, SCP, Years in Current Position, Age, Years in Academic Profession
b. Dependent Variable: VAW25

Table 72: ANOVA statistics for regression between SCP and VAW

Finally, the discussion will address the assumptions underlying regression analysis and the process of diagnosing if these assumptions have been satisfied. In addition to normality of the variables, there are four other assumptions that should be satisfied to conclude that the results are valid. These assumptions are;

1. Linearity of the phenomenon measured
2. Constant Variance of the error terms
3. Independence of the error terms
4. Normality of the error terms distribution (Hair, et al., 2010)

The first three assumptions of linearity, constant variance of error terms and independence of error terms are checked by examining a scatter plot of the predicted values of the dependent variable and residual values. There is an option of saving predicted and residual values in SPSS when regression is run and a scatter plot has been generated. Figure 21 shows that the predicted values are randomly distributed and there are no patterns showing deviation from the assumptions of regression.

The normality of error terms distribution is ascertained by examining a normal probability plot of the error terms. The plot compares the error terms with the normal probability distribution. If the values consistently follow the normal probability line in the graph, it can be concluded that the error terms are normally distributed. Figure 22 shows that the error terms are evenly spread close to the normal probability distribution and therefore, the assumption has been satisfied.

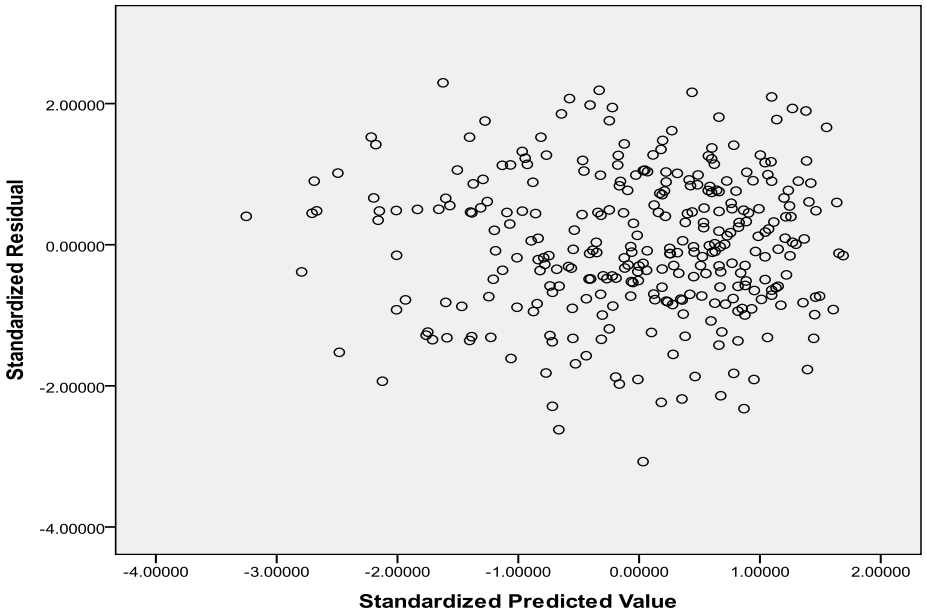

Figure 21: Scatter Plot between residuals and predicted values

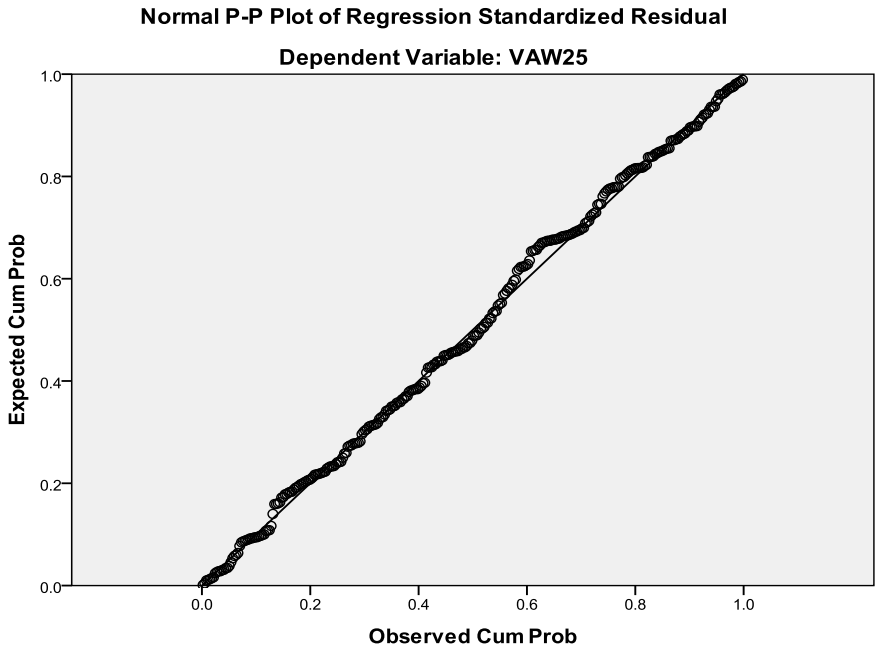

Figure 22: Normal probability plot of residuals

9.15 Summary

In this chapter, the entire process of data analysis has been described in a step-wise format. It has been demonstrated that rigorous statistical testing has been employed to ensure the robustness of data analysis. Analyses have been employed so that they accurately correspond with the requirements of the research question as well as the data satisfies particular assumptions of the statistical test being employed. Where it has not been possible to satisfy an assumption, it has been acknowledged as a limitation of the study.

Quantitative research should possess a number of desirable characteristics. The three most important characteristics include validity, reliability and generalizability (Saunders et al., 2007). Validity of the statistical tests has been demonstrated throughout the analysis. As already defined, validity refers to the ability of an analysis to produce valid results, thereby meaning that the results accurately reflect real phenomenon. To ensure validity, the data was prepared and screened thoroughly through a rigorous missing value analysis. Invalid and incomplete cases were removed from the dataset and the remaining dataset was analyzed for missing values. The pattern of missing values was found to be MCAR, and an EM method of replacement was employed to replace the missing values. Then, all the measurement instruments were thoroughly tested for their construct validity in being able to measure the phenomenon they were employed to measure. Face validity of the instruments was established by getting the questionnaire reviewed by two academic supervisors who provided their feedback on the questionnaire items. Then, the survey was administered in a pilot study in which respondents were asked to comment on the wording and structure of the questionnaire. Modifications were made on the basis of their feedback. Construct validity has been demonstrated through step-wise statistical testing. First, EFA was employed to validate the measurement instruments and to screen out low performing items and variables. Instruments that were constructed or considerably modified were verified for their construct validity through this interdependence technique. EFA was also conducted to test the validity of factors of VAW. EFA in conjunction with other individual item statistics revealed that two factors of the initial model did not fit well with the data. Therefore, these factors, i.e. Job Involvement and Creative Work Involvement were removed from the model and the EFA was performed on the modified model. The model performed well on all the recommended criteria including high factor loadings, high

communalities and adequate item-to total correlations. Finally, CFA was employed to confirm the validity of measurement instruments and also the measurement model for Vitality at Work. Non-normality of the data for performing CFA was one of the limitations of the present study. This is a weakness of the overall robustness of statistical results, which could not be overcome or corrected. This aspect therefore opens an opportunity for future researchers to confirm the measurement model with data that satisfies the condition of normality. A twenty-five item measurement model comprising of five factors of VAW was confirmed through CFA. Thus, the present study has been able to demonstrate that VAW is a valid construct which combines positive well-being with positive organizational attitudes in a single over-arching concept. Two of the positive organizational attitudes were excluded from the model. There could be several possibilities for this, which have been discussed in the final chapter. However, the concept of VAW still holds valid, where it has been prepositioned that well-being and work attitudes exist in a symbiotic relationship, where one reinforces the other and all are positively related to each other to a considerable extent.

The validity of the second set of analyses which measured the effect of SCP on VAW through regression analysis was established through testing for the assumptions of normality of the variables, linearity, heteroscedasticity, independence and normality of error terms. Adjustments were made to correct for normality of one variable. All other tests confirmed that assumptions were satisfied. Control variables were employed to control for variance occurring due to situational factors, and the relationship strengthened when control variables were introduced into the equation. This shows that control variables were effectively identified. A considerably significant R^2 value confirmed the effect of SCP on VAW, thus the proposed hypothesis was supported.

Reliability of the statistical results has been ensured at every step of the analysis. Instruments with pre-established validity and reliability have been adopted from previous studies wherever possible. To ensure complete reliance, their reliability has also been examined for the current data and items with high reliability scores have been retained in the instruments. For self-developed instruments, rigorous statistical tests have been employed including internal consistency reliability and individual item statistics coupled with EFA and CFA for construct validity to ensure their robustness.

Generalizability, which is another desired characteristic of quantitative research, has been ensured through a careful sampling and sample generation. Such sampling techniques have been adopted so that the data is representative of the overall population under observation. The analysis of sample profile in Section 8.4 demonstrates that the sample is representative of the population. Moreover, a large sample has been generated in order to ensure adequate observation-to-variable ratio. As already discussed, an adequate sample size ensures representativeness. Therefore, it can be concluded that the results are generalizable to the population. However, generalizability is also established through replication of results from repetitive samples. This could not be done with the given resources of this study, and multiple samples could not be collected. Therefore, this aspect of the study leaves an opportunity for future researchers to replicate the findings on further samples

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Chapter 10: Conclusions and recommendations

Chapter Objectives

The main objectives of this chapter are;

1. Reiterate and summarise the main findings of the study in the light of research question and objectives outlined in Chapter 1.
2. Establish contributions of the present study to theory and knowledge.
3. Assess how these contributions can be used to advise managers and practitioners in the context of positivity-based attitudes and employee well-being.
4. Based on findings of the present study, give recommendations to policy-makers
5. Discuss the limitations of the study
6. Identify possibilities of future research

10.1 Summary of findings

In order to summarize the findings of this research study, it will be suitable to re-state the research question and sub-questions outlined on page 12-13 of Chapter 1. The primary research question of this study is;

What is the association between Subjective Career Plateau and Vitality at Work where Vitality at Work is conceptualized as a symbiotic relationship between individual/personal and organizational health?

From the primary research question, the following specific sub-questions were designed;

1. **What are the essential dimensions of Vitality at Work?**
2. **What are the factors contributing to Vitality at Work?**
3. **And finally, does the subjective state of Career Plateau impact on Vitality at Work?**

In order to answer the first part of the primary research question regarding the effect of Subjective Career Plateau on Vitality at Work, it was first required to develop and conceptualize Vitality at Work as an overarching, integrative concept that assumes a symbiotic relationship between personal and organizational health. If the research could confirm and validate the concept of Vitality at Work, only then it would have been possible to move forward to test the hypothesis between SCP and VAW. As demonstrated through the empirical evidence generated from rigorous statistical analysis in Chapter 9, it has been shown that both parts of the research question were answered sufficiently and adequately. The research has been able to meet its primary objective of conceptualizing the unique construct of Vitality at Work by combining positive individual well-being with positive organizational attitudes in an energizing and enabling work environment. The study has also been able to generate significant empirical evidence to support the hypothesis which proposes that Subjective Career Plateau is negatively associated with Vitality at Work.

In addition to these two primary research questions, the study has also achieved the objectives of developing measurement instruments for a number of constructs including Vitality at Work, Energizing Connections, Perceived Health and Energy and Subjective

Career Plateau. These research objectives have been met by collecting a sample of 419 questionnaire responses from academic professionals from 14 top ranking universities in the UK. After screening the dataset for complete and valid cases, a sample of 365 cases was obtained. After validating the responses through Missing Value Analysis, a rigorous statistical procedure was adopted to meet each objective of the study.

The results of the study confirm the model of Vitality at Work with some slight modifications. Initially, seven factors of Vitality were identified from the literature review. These factors corresponded to the three primary dimensions of Vitality, i.e. positive well-being, positive organizational attitudes and positive organizational environment. Sense of Coherence (SOC) and Physical Health and Energy (PHE) corresponded to positive well-being; Job Involvement (JI), Organizational Commitment (OC), Goal Commitment (GC) and Creative Work Involvement (CWI) corresponded to positive organizational attitudes; and Energizing Connections (EC) corresponded to positive organizational environment. Out of these four positive organizational attitudes, JI and CWI did not fit well according to the results obtained through EFA and individual item statistics. These factors loaded significantly in EFA, but the item-total correlation for the items corresponding to these factors were significantly low. A low item-total correlation shows that the items do not correlate significantly with the underlying construct which is being measured by the instrument. Therefore, these factors were excluded from the Vitality at Work model and the model was respecified with five primary factors. Two of these primary factors, i.e. Sense of Coherence and Energizing Connections were represented by two sub-constructs each. Sense of Coherence was represented by Controllability and Social Comprehension and Energizing Connections was represented by Task Enabling and Energizing Interaction. Therefore, the respecified VAW model was represented by a total of seven constructs.

There could be a number of reasons why Job Involvement and Creative Work Involvement did not fit into the initial VAW model. Studies involving the concept of job involvement and its relationship with other organizational attitudes have produced mixed results. Some studies relating job involvement with performance have found no significant relationship between the two concepts (Rabinowitz and Hall, 1977; Schwartz, 1982). More specific to the VAW model, the relationship of job involvement with well-being has been elusive. There have been studies which found a significant and positive relationship between job involvement and well-being (Wiener et al., 1987; Castro, 1986); there are also examples

where it has been found that there is no significant relationship (Gechman and Wiener, 1975); whilst others have even found that there is negative relationship of job involvement with personal well-being (Ladewig, 1986; Kanungo, 1982b). One of the explanations for these contradictory findings has been given by Riipinen (1997), who found that job involvement which is based on need-congruence is related to well-being, whereas when there is a dissonance between JI and need-congruence, the relationship takes a negative direction. Therefore, it can be said that JI is a complex phenomenon which is affected by other situational variables to a considerable extent, and therefore, its inclusion in isolation has not been able to fit well into the model.

Contrary to job involvement, creative work involvement has been a recently introduced phenomenon in organizational research. There is a large amount of literature available on job involvement, which helps in making an inference about the nature of results obtained in the present study, whereas, there have not been many studies on CWI in previous researches. Although creativity has been discussed many times in literature, but CWI which is a distinct concept from creativity has recently emerged. Nonetheless, there have been some interesting findings which may support the results of this study. For example, it was found that positive mood had a negative effect on creative performance and also that negative mood had in fact a positive effect on creative performance (George and Zhou, 2002). However, in another study, a completely separate set of results were obtained. It was found that positive affect had a positive relationship with creativity in a study involving longitudinal data collected from both quantitative and qualitative sources (Amabile et al., 2005). Similar positive influences were found in another study showing that positive moods made a significant contribution to creativity and negative and neutral moods had no influence on creativity in organizational settings (Madjar et al., 2002). Based on these findings, Kark and Carmelli (2009) conducted a study to find the relationship between psychological support, vitality and creative work involvement. They report that there is a positive relationship between all the three concepts. However, on close scrutiny of the results, the model shows considerably low regression coefficients. The R^2 value explaining variation in CWI by vitality was only 0.26. The results obtained in this study are also consistent with this pattern. It is seen that CWI has a positive relationship with the overall construct of vitality, which is slightly higher than JI. All the items carry high factor loadings, but the item-to-total correlation is considerably lower than the acceptable range.

The concept of CWI does have a positive relationship with Vitality but not enough to be included as a factor of this construct.

The results can also be viewed in the light of Warr's (1994) 'Vitamins Model' where it is proposed that job characteristics do not work synergistically with employee well-being. The Vitamins model works on the assumption that well-being follows an n-shaped curve, increasing in magnitude, peaking and then declining when the job characteristics become an overdose. It is called the Vitamins Model because the effects of job characteristics have a similar pattern to the effects of Vitamins A and D on the well-being of an individual.

In a study relating job characteristics and well-being, Warr (1990) has empirically found that there is a presence of non-linear relationships between the two phenomenon. Warr's Vitamin Model was also supported by an empirical study in which it was found that job characteristics (job autonomy, job demands and workplace social support) follow a curvilinear relationship with aspects of employee well-being (job satisfaction, job-related anxiety and emotional exhaustion) (De Jonge and Schaufeli, 1998). Although this model has not been tested with the specific work attitudes of Job Involvement or Creative Work Involvement, but the concept of job demands has a direct influence on the extent to which an individual needs to be involved with the job itself. In another study, it was found that the job characteristics of highly involved individuals vary significantly from the job characteristics of those whose job involvement is moderate or low. One of the differentiating factors in the job profile of highly involved individuals was the level of work-related stress experienced by them (Igbaria et al., 1994) Therefore, it is possible that with increasing job demands, involvement also increases and therefore, a curvilinear relationship also exists between JI and well-being. Similarly, nature of the job also relates to creative involvement. It is highly likely that jobs that require individuals to carry out complex tasks requires them to be creatively involved, which in turn affects their well-being when the involvement becomes too high. It has also been found that there is a curvilinear relationship between creative time pressure and creativity, therefore implying that when pressure for creative work increases, creativity also increases but after a certain point, when the pressure becomes too high, creative performance starts to decrease (Baer and Oldham, 2006). The nature of work in universities is marked with a high demand and pressure for creative performance in terms of research and publications (Abouserie, 1996),

there is a possibility that the effect of this pressure creates a curvilinear relationship with creative involvement of an individual.

Having established the objective of conceptualizing VAW, the discussion will now move forward to summarize the remaining objectives of the study. The second primary objective of the study was to measure the effect of SCP on VAW. The study has been able to demonstrate through regression analysis that SCP has a significant negative effect on vitality for an individual. It shows that individuals who feel stuck in their career with less chances of upward hierarchical movement and also a monotonous and stagnant work-content tend to experience a lowered vitality. The relationship is strengthened in the presence of control variables of age, years in current position, years in academic profession and position of the individual in the organization. The R^2 value increases from 0.422 to 0.479 when the control variables are introduced into the equation, representing an approximate increase of 6% of variation. These findings are consistent with previous researchers where it was found that subjective career plateau is a better predictor of work attitudes than the actual tenure in a position termed as objective plateau (Chao, 1990; Chay et al., 1995; Nachbagauer and Riedl, 2002). The R^2 value found in this study is statistically significant with a P-value of less than 0.05. However, it is argued that with a larger sample size, the test becomes increasingly sensitive and considerably low R^2 values will emerge as statistically significant values in regression analysis (Hair et al., 2010). Therefore, it is also important to evaluate the practical significance of the results. As a starting point, according to the results in the present study, SCP is able to explain 47.9% of variation in Vitality, which is almost half of variation explained in the concept. A correlation co-efficient of 0.692 (see Table 71) emerged between the two concepts, thereby implying that the two concepts possess a correlation of about 70% between each other. Prima facie, the results carry adequate strength to support the hypothesis. Moreover, in previous published research where it was claimed that SCP has a significant effect on a particular organizational phenomenon, the correlation co-efficient and R^2 values were much lower than the results found in this study. For example, in Chay et al. (1995) which was published in International Journal of Human Resource Management, the correlation co-efficient and R^2 value between SCP and Organizational Commitment were -0.35 and 0.22; between SCP and Job satisfaction were -0.56 and 0.34; between SCP and Career Satisfaction were -0.52 and 0.30; and between SCP and Extra-role behaviours were -0.21 and 0.05 respectively. In another study by Chao (1990), published in Journal of

Management, the R^2 values between SCP and Intrinsic job satisfaction, extrinsic job satisfaction, career planning and company identification were 0.234, 0.394, 0.152 and 0.348 respectively. In this study, only the hypothesis between SCP and career planning with an R^2 value of 0.152 was evaluated as unsupported, whereas, all the other values were considered significant and thus all the remaining hypotheses were considered to be supported in this publication. Based on these examples, this study has found results that are statistically significantly higher than previously published research and therefore, it can be concluded that the hypotheses are well-supported.

The next set of objectives relates to development of measurement instruments for which instruments were not available in previous literature. Although, scales for all the constructs involved were tested for validity and reliability for the present study, scales for Energizing Connections, Vitality at Work and Subjective Career Plateau were developed during the research conducted for this thesis.

A 70-item scale for VAW was initially developed, measuring factors of the construct by developing, adopting or adapting measurement instruments. The scale measured seven constructs on 10 factors of VAW proposed in the initial mode. In the preliminary analysis, two factors of JI and CWI were excluded from the model and a 29-item scale was developed after EFA, individual item statistics and reliability statistics. This measurement model was tested by performing CFA on the 29-item and 7-factor model. Four items were dropped from the measurement model because of the high correlation between error terms with other items of the same construct. The modification indices suggested including interactions between error terms to improve the good-of-fit. However, the use of interaction between error terms has been cautioned because it makes the validity of results questionable. Therefore, it was decided to remove the four problematic items. A 25-item scale was finalized after respecification. The measurement model shows adequate GOF and AVE.

A scale was also developed for the construct of Subjective Career Plateau. At first, an 8-item scale was designed. Six items were screened through EFA and individual item statistics, and two items were dropped because they did not perform well on the initial analysis. The 6-item scale was tested in CFA, and after removal of one item and model

respecification, a 5-item scale was confirmed as an adequate measurement model based on GOF indices and AVE.

A seventeen item scale was developed to measure the Energizing Connections construct over four dimensions, i.e. Task Enabling, Respectful Engagement, Trusting and Energizing Interactions. Out of the four dimensions, task enabling and energizing interactions emerged as the most significant dimensions on the construct of Quality of Connections. It therefore demonstrates that interactions which bring an energizing effect on the individuals are highly related with an enabling environment. Although trust and respectful engagement have been proposed as important elements of high quality connections (Dutton, 2003b), these have not emerged as significant factors in the empirical study. On the other hand, scales measuring high quality connections in previous studies have not included the dimensions on task enabling and energizing effects of positive interaction (Carmeli et al., 2009; Carmeli, 2009; Brueller and Carmeli, 2011), but rather have focused on the emotional capacities and connectivity of a relationship, which are elements of social support, whereas the energizing effect of a high quality interaction which leads to positive arousal and feelings of vitality and is the most central element of the concept of quality of connections has not been included the previous instruments. Therefore, it appears that trust and respectful engagement are considerably distinct and separate constructs and do not fit into the concept of high-quality connections which are represented by task enabling and energizing interactions. It could have been possible to include the previous scale in addition to the items on Energizing Interactions and Task Enabling to find if the overall construct of High Quality Connections was represented by all the previously measured dimensions along-with with the added dimensions. However, the scale was a lengthy 20-item instrument and measured dimensions of high quality interactions which carried less relevance to the objectives of the present study. Therefore, a shorter and more focused scale was developed to measure the construct of Energizing Connections. An 8-item scale was finalized after performing EFA and evaluating individual item statistics along-with reliability statistics. The measurement model was confirmed through CFA with adequate GOF indices and Average Variance Extracted.

10.2 Contributions of the present study

10.2.1 Contribution to theory and knowledge

This study builds upon the emerging discipline of positivity agenda in behavioural and organizational sciences and has contributed to the organizational research by consolidating and integrating positive work attitudes, individual well-being and positive organizational environment, and has therefore, developed a unique and comprehensive concept of "Individual Vitality". Within the previous literature on OB, particularly the recent developments of POS, there is no integrative or overarching concept that encompasses individual well-being and effectiveness. The concept of Vitality has already been discussed in literature but has neither been clearly defined nor measured. Where it has been measured, it has been considered as a one-dimensional construct, focusing either on performance (Clark et al., 1986b; Bland et al., 2002b; Baldwin, 1990) or on positive energy and well-being (Ryan and Frederick, 1997; Kark and Carmelli, 2009). Moreover, the literature lacks an objective definition and operationalization of this concept. The first main contribution of this study is that it provides a comprehensive definition of Vitality and operationalization of the construct through powerful empirical support.

The suggestion that health itself is an organizational phenomenon has already been established (MacIntosh et al., 2007) and the POS agenda focuses on finding the best of human conditions in organizations (Cameron et al., 2003). This study defines Vitality at Work as a multi-dimensional construct. Although there has been an increased emphasis on positivity in organizational life in recent years, the concept is not new. It has been discussed many times by scholars and practitioners at various points in time. Maslow discussed positive psychology in his book *Motivation and Personality* as early as the 1950s (Maslow, 1954). Even earlier, Karl Marx discussed the concept of worker involvement and engagement in the 19th century. Marx argued that work was a major dimension of an individual's identity, and that estrangement from the 'fruits of one's labour' was a major aspect of alienation and demoralisation (Marx, 1867). Later, Nussbaum and Sen (1993) have proposed the capabilities theory as an alternative to the typical capitalist approach and emphasize that human capabilities are the most important resource for running the human society. However, a collective and concerted effort towards defining, describing and explaining the concept of positivity and its relationship with individual and organizational health has been pushed forward through the positivity agenda initiated during the last

decade or so. It was presented as the positive psychology movement by Seligman (2000) in the general field of psychology and health. The idea of positivity was applied to organizational science and the concept of positive organizational behaviour was proposed Fred Luthans (Luthans, 2002c; Luthans, 2002a; Luthans et al., 2004). Later, Cameron et al. (2003) introduced a broader area of research called positive organizational scholarship and emphasized the importance of investigating the states, traits, antecedents, consequences, processes and dynamics of all the positive phenomenon in organizational life. These developments have spawned a large amount of research on positive emotions (Fredrickson, 2002), health and well-being (Kark and Carmelli, 2009) and positive interactions at the workplace (Dutton, 2003b). This research study is an attempt to integrate the current knowledge on positivity and conceptualize a phenomenon that combines dimensions of organizational effectiveness and individual health and well-being within a single construct. By demonstrating that positive work attitudes, positive organizational environment and individual well-being can co-exist, the second contribution of this study has been to facilitate and promote research which assumes the symbiotic and interdependent relationship of individual and organizational health. As I understand it, the combination is unique in literature, and considers individual well-being as an integral aspect of a fully-functioning individual at work.

Emerging from the positive psychology agenda, many organizational research studies have emerged during the past decade which focuses on the positive aspects of organizational life. One such example is Positive Organizational Behaviour and research in this area has developed the concept of Psychological Capital which is a multidimensional concept represented by four factors which are hope, resiliency, optimism and efficacy (Luthans et al., 2004; Luthans et al., 2008). Another similar development has been the conceptualization of a positivity-based construct termed as Employee Engagement which encompasses the concepts of vigor, dedication and absorption (Schaufeli et al., 2006). However, both concepts of psychological capital and employee engagement do not incorporate the concept of individual health and well-being within their framework. The concept of vigor within the framework of employee engagement has similarity with the concept of energy in VAW, but vigor only explores the magnitude of energy experienced at work. Furthermore, none of the concepts include the dimension of positive organizational environment. The work on high quality relationships has shown that positive interactions and relationships at the workplace significantly contribute to the

effectiveness of individuals (Carmeli, 2009). The concept of VAW has also included the aspect of energizing relationships in its framework, thereby creating a comprehensive and holistic construct that combines separate positivity-based concepts in one construct, which have never been combined in literature before this study.

Cameron, et al. (2003) highlight that there is a considerable need for research in the discipline of Positive Organizational Scholarship since most of the extant literature is found to be of prescriptive nature. The self-help accounts do not develop upon scientific procedures and therefore, there is no reliability if they will work or not. They note; "There is no lack of self-help accounts that prescribe relatively simple and uncomplicated prescriptions for achieving happiness, fulfilment, or effectiveness. What is lacking in most of these contributions, however, is empirical credibility and theoretical explanations for how and why the prescriptions work …. POS requires careful definitions of terms, a rationale for prescriptions and recommendations, consistency with scientific procedures in drawing conclusions, and grounding in previous related work" (Cameron et al., 2003, p. 6). This study contributes to the strength of empirical evidence associated with Positive Organizational Scholarship that is drawn through scientifically valid procedures and therefore the findings are reliable, valid and generalizable. This study satisfies all the above criteria of POS; the constructs have been defined and operationalized through a rigorous literature review; a strict scientific procedure has been adopted in making decisions about data collection and analysis; all the requirements of scientific inquiry have been fulfilled, and where a limitation has arisen, it has been acknowledged; and finally, the entire process of research has been grounded in previous relevant literature. Therefore, this study makes a methodological contribution by empirically testing the synergistic and symbiotic relationship of individual and organizational health.

In addition to defining and operationalizing the construct of Vitality, the study also contributes to literature by developing and validating an instrument to measure Vitality at Work. This is also a methodological contribution because the study provides a measurement instrument to employ in further research and practice. Because VAW has never been defined as a multidimensional construct, there has been no scale to measure this phenomenon. This study has taken a further step in development of the concept of VAW by providing a reliable and valid scale for assessment of this phenomenon in organizational life. The items included in this scale are of a general nature. There are no profession-

specific or situation-specific questions. Therefore, this scale can be easily employed in all sectors and types of work environments. It is good-sized scale with only 25 items employed to evaluate VAW. Given that the concept of VAW encompasses a number of factors within its framework, it is reasonably short questionnaire, therefore, providing ease of administration and greater chances of high completion rates.

The study also explores the relationship between Subjective Career Plateau and Vitality of an individual. When people subjectively consider their careers to lack progression and variety, it is expected that their vitality and enthusiasm towards work will diminish. Career plateauing is an important organizational phenomenon but (Salami, 2010) notes that research on career plateauing and its antecedents and outcomes is scarce. However, there have been a number of studies on the concept of SCP, but this concept has never been explored in context of the academic profession. Specifically, in academic careers, where hierarchy is relatively flatter than in some other settings and academics are responsible for their own career progression rather than the organization (Baruch and Hall, 2004), this stage is expected to set in and affect work and individual well-being. The academic profession is very different from other sectors and is quite unique in terms of its career model (Baruch, 2004). Based on the unique characteristics of the academic career model, it was proposed that subjective state of career plateauing would have a greater influence on work attitudes and well-being of academics. Moreover, there has not been an investigation into the effect of SCP on health, well-being or vitality of an individual. This study contributes to literature by demonstrating a significant relationship between SCP and VAW.

Finally, the study validates the construct of Vitality at Work and provides empirical support for the effect of VAW and SCP in a specific work setting, that is, academia of top-ranking higher education institutions in the UK. The UK Higher Education sector is an important sector of Britain's economy and it is continuously growing over the past decades (Locke, 2007). The sector is also facing considerable challenges: In England, Wales and Northern Ireland, there has been a radical change to the fee structure, which impact on the balance of academic activities. There is also the salient issue of fiscal retrenchment, which will impact on the sector, probably in a very uneven way. There has not been much research on the organizational attitudes, well-being or career development of academics in higher education.

In order to answer the research questions, it was necessary to select a homogeneous group of respondents, so that it was possible to identify proposed structures in the data. By selecting a homogeneous sample, it could be ensured that noise arising from various situational variables is reduced to minimum. If data had been collected from a heterogeneous sample originating from a number of sectors, it was possible that situational variables such as varying organizational cultures, different pay-and-reward structures, diverse career development strategies, and many more differences, would have resulted in a highly variable data, where structures could not have been identified and validated. Therefore, it was concluded that the best strategy to obtain clear patterns and structures was to obtain a homogeneous sample. Certainly, there had to be trade-off between homogeneity and generalizability, because obtaining the sample from a single sector would reduce the generalizability of the results to other sectors and other organizational settings. However, this study has conducted the seminal research in conceptualizing Vitality at Work and laid the foundation for future research to validate and confirm this phenomenon in other settings. Therefore, it was most justified to position the research in a selected sector and choose to prefer homogeneity over generalizability.

Having said that the research questions required selection of one sector, it was discussed in Section 3.1.3 that the concept of vitality has been already discussed in the education sector, and more specifically, higher education sector. It has been defined and operationalized within the specific work setting of higher education and has been termed as “faculty vitality” (Clark and Lewis, 1985; Bland and Schmitz, 1988; Baldwin, 1990; Clark et al., 1986; Bland et al., 2002). In fact, it is the only sector where the particular concept of vitality has been discussed by referring to the notion of interdependence of individual and organizational health. Clark et al. (1986) have made this point by stating that individual and institutional vitality is a shared responsibility and that the institutions must make a contribution towards sustaining individual vitality. They state; “While commentators, scholars, and faculty developers work toward agreement about the concepts of "faculty" and "institutional vitality," several guidelines can serve to enhance policy-making and personnel management for increased institutional effectiveness and productivity. First and foremost, it must be recognized that individual and institutional vitality are interrelated. The individual pursues a career that is structured by academic organizations. Individual career vitality is affected by academic organizational structure and professional socialization processes as well as by personal variables such as intelligence and

personality" (Clark et al., 1986, p. 177). In another place, Gardner (1963) has attempted to define and conceptualize faculty vitality and has noted that it is essential that institutional strategies must be able to inspire its members for improved performance and asserts that personal growth of the faculty is an institutional responsibility. He writes in his book *Self-Renewal*; "Too often in the past we have designed systems to meet all kinds of exacting requirements except the requirement that they contribute to the fulfillment and growth of the participants …. It is essential that in the years ahead we undertake intensive analysis of the impact of the organization on the individual (pp. 63-64). From this excerpt, it is evident that the writer is suggesting that institutions will only succeed when they satisfy the requirement of providing their members with a fulfilling, meaningful and rewarding environment. Another reference to the interdependent nature of individual and organizational health in higher education sector comes from the writing of Maher (1982) where it is asserted that institutional vitality can only be ensured under the conditions that the faculty is ready to direct their abilities for their own needs as well as organizational strategies. The author states; "In essence, then, the quest for vitality might be said to focus on the capacity of the college or university to create and sustain the organizational strategies that support the continuing investment of energy by faculty and staff both in their own career and in the realization of the institution's mission" (Maher, 1982, p. 7). Therefore, within the higher education sector, the symbiotic relationship between individual and organizational health has been proposed in some form several times in academic scholarship. Another major feature of the academic career is the importance of connections and networks. It has been discussed that high quality connections are specifically valued in the academia because they are not only considered as means to an end only, but an end in itself. The membership of esteemed research groups and circles is considered a reward of acclaimed scholarship (Baruch and Hall, 2004; Gersick, et al., 2000). Therefore, the concept of energizing connections had a strong theoretical relationship with the concept of Vitality at Work in the academic work-setting.

Moreover, the literature on faculty vitality also makes frequent reference to the concept of career plateau. In fact, in the initial literature on faculty vitality, the distinction between highly vital professorate and a less vital cohort was made by naming the vital group as the "moving" academics whereas, the other group as "stuck" (Kanter, 1979). This suggested a high interrelationship between subjective career plateau and vitality of an academic.

The literature on academic career model also suggested a strong reference to vitality as an important work attitude and its relationship with career plateau for this specific work setting. In higher education institutions, the hierarchy is considerably flat and advancement in career is individually led and mostly occurs in terms of lateral diversification (Baruch and Hall, 2004). The authors describe the typical characteristics of the academic career model by stating; "The major features of the academic career model are: flat structure (but quite rigid), professionally based. Individually lead where lateral and even downward movements are accepted (e.g. when a Dean returns to serve as a Professor, conducting research and teaching, it is not considered "demotion"). Upwards mobility is limited, even not desired (becoming a Dean might take scholars off the research route). Cross organizational moves (but not cross functional) have become the norm of career moves (i.e. scholars in biology can move around universities, but will not move within the university to a different section, say to sociology). Sabbaticals are part of the career. Perhaps more fundamental, the academic career model builds on networking within and across organizations" (p.68). The authors also emphasize that the career needs of academics continuously change during different career stages in their lifetime. Therefore, the occurrence of career plateau is more likely because unless intrinsically motivated, there are few impending external pressures that would require an academic to perform. For example, if the deadline for a journal is not met, the head of the department of the academic will have nothing to do with it and will not be concerned; therefore, there will be no imminent external pressure. Therefore, if an academic is not internally motivated and such behavior persists, this will result in a slowed career momentum, and therefore career plateau will set in early.

Therefore, the findings of this study have made a significant contribution to the academic career literature by conceptualizing Vitality at Work that confirms the interdependence of individual and organizational health/vitality which had been proposed and theorized several times in previous academic scholarship, thus providing empirical evidence for this symbiotic relationship. The study has also confirmed the relationship between Subjective Career Plateau and VAW within the higher education sector, which was discussed several times in literature but was not empirically tested in this sector before. Therefore, the findings of this study carry significant implications for the academic career theory. On the other hand, Baruch and Hall (2004) have suggested that the corporate career structure is taking the shape of an academic career model in today's environment. While the traditional

corporate career consisted of successive hierarchical movements with a fixed career path, the career paths are now becoming more protean or boundaryless in the corporate world, thus replicating the structure of an academic career. The authors note; "… academic psychological contracts were always characterized the following qualities: professional challenge, learning environment, social status, job security, professional development, good working conditions, and flexibility. Moreover, career advancement was first, subject to performance (e.g., publications) rather than tenure, and second, self-initiated. Further, the university organizations had a very flat system of hierarchy levels, usually consisting of three grades …These qualities in the traditional design of the academic career were different from the old corporate career contract but now seem quite similar to the new protean contracts in the business environment" (p. 248). Therefore, it can be implied that because the corporate career is now taking the shape of the academic career model, the finding of this study will also carry high relevance with the individually led, boundaryless, protean corporate careers, which are now becoming increasingly common in the current organizational settings.

From the foregoing discussion, it can be safely concluded that there was an impending need to develop and enhance current knowledge about academics in higher education. This area has been significantly neglected in the previous literature and thus, this study makes a significant contribution by exploring the multi-faceted phenomenon of VAW and its relationship with SCP in an academic setting. In summary, the study has made seven major contributions as set out above;

1. The study has investigated an important organizational attitude termed as Subjective Career Plateau and has examined its association with the newly developed concept of Vitality at Work. Results have confirmed that Subjective Career Plateau has a significant negative effect on Vitality of individuals.
2. The study has conceptualized and defined a unique phenomenon of Vitality at Work by integrating literature rooted in the positivity movement in behavioural and organizational sciences.
3. The study has combined factors from dimensions of positive health and well-being, positive organizational attitudes and positive organizational environment in a single, over-arching and integrative concept of Vitality at Work.

4. The factors of Vitality identified through a rigorous literature review have been validated and confirmed through empirical evidence generated from robust statistical analysis.
5. A measurement instrument to evaluate Vitality through questionnaire items has also been developed and validated through the present research.
6. To measure Subjective Career Plateau, the study has also developed and validated a measurement instrument based on questionnaire items.
7. The research has been conducted within the Higher Education sector of United Kingdom, and presents empirical evidence from a specific work setting of academics working in top ranking universities of UK

10.2.2 Practical and managerial implications

From the standpoint of managers and practitioners, this study makes a number of contributions that carry practical implications for work settings specific to the academic sector and also to the general organizational context.

The managerial implications of the concept of VAW cannot be discounted. This study has strengthened the evidence about the need for developing and evaluating positivity-based factors at the work place. The debate has been long-standing that a healthy, happy worker is a more productive worker, and there is also supportive evidence for this (Quick and Quick, 2004). What VAW brings more is that the management is able to assess if this health and well-being is actually directed towards work. The study provides empirical evidence that there is a symbiotic and interdependent relationship between health and well-being of its members, positive organizational climate and positive work attitudes. Given this finding, it is essential for managers to devise strategies to enhance positive interactions and also the health and well-being of its members.

The study has demonstrated that Energizing Connections are an important factor of Vitality of an individual. In order to develop and maintain energizing interactions at the workplace, the managers should create an organizational climate that fosters openness and empowerment. Cameron et al. (2003) emphasize that empowerment of members is the key to developing positive connections among organizational members. When power is decentralized and distributed among members, the feeling of shared power energizes and

enables those who share it. It provides an opportunity to create relationships that are built on the concept of sharing. As it is suggested by Kouzes and Poser (1995, p. 185) , managers can "take the power that flows to them and connect it to others, becoming power generators from which their constituents draw energy." In the context of higher education institutions, this empowerment can be brought through decentralizing tasks within the faculties and departments and making academics participate in the decision-making process at all levels.

Another important element in creation of energizing interactions is shared knowledge. The shared knowledge is related to two aspects of knowledge; one aspect is sharing information about each other's tasks (Gittell, 2003); the other aspect is related to knowledge sharing for new knowledge creation or idea generation (Lee, 2003). With respect to the first aspect of sharing information about each other's tasks, such activities create a positive bond between the participants to the interaction. Individuals working within different divisions or functions of an organization carry little knowledge about how other departments are organized. This causes alienation and obstacles to effective communication and collaboration. When members across the organization share their experiences at work with each other, it fosters openness and effective communication, thereby creating an enabling climate which is an essential element of energizing interactions. On the other hand, the dynamics of knowledge sharing for knowledge creation, idea generation and problem-solving are well established (Nonaka and Takeuchi, 1995). Positive interactions are the key for creating organizational climate for knowledge sharing. Many times, when people are working individually on a task, they come around obstacles that they are unable to solve because a block is created in the learning process. If the problem is discussed with a peer or colleagues, the discussion can lead to resolution of the learning block. (Lee, 2003) note that help-seeking is an important behaviour to foster knowledge creation. They contested that attitudes such as independence which are usually considered as 'positive' and desirable are actually detrimental to the process of knowledge creation. On the contrary, behaviours involving dependence and help-seeking have a positive effect on the learning process and are energizing for both sides of the relationship. Therefore, managers should emphasize the importance of an environment where individuals are not reluctant to share knowledge; where people help and seek help from other people for problem solving and dependence is supported and fostered by organizational members. In this context, the function of mentoring carries a very important implication for a culture of knowledge

sharing, help-seeking and dependence. Organizations should develop formal mentoring programs, which are not only geared towards providing support to new members. Mentoring programs should be designed to span over an individual's entire career, and members should be allowed to seek help and support at any stage of their career.

This study has demonstrated that health and well-being is an integral dimension of Vitality. This has several implications for managers in today's organizations. There has been a considerable amount of research on the importance of well-being for a productive and effective workforce. On the other hand, employers are facing serious challenges as the statistical figures show an entirely opposite picture. In a report published by Chartered Institute of Personnel and Development (CIPD) and healthcare provider Simplyhealth, it was reported that stress has become one of the most common cause of long-term absence in the United Kingdom, and this has happened for the first time in the past 12 years. While literature and research is emphasizing the importance of well-being and health, the actual state of health is declining. It was also reported that sickness and absence leaves in UK costed £673 per employee on average in 2011 (Allen, 2011, October 5). This creates a very challenging task for organizations to create an environment which truly fosters the well-being of its members. The present study has significant implications in this context. It has demonstrated that Vitality is not only a one-dimensional concept which can be developed or maintained by promoting the physical health of the individual, rather it is multi-dimensional phenomenon which is created and co-created by several other factors in the work-life and overall-life of an individual. As noted by Diener et al. (2010, p. 37); "the concept of well-being should include not only life satisfaction and positive affect, but also purpose in life, a sense of autonomy, self-acceptance, connectedness, and a psychological sense of vitality". Therefore, when managers devise strategies to enhance the well-being of their workforce, it should not only be focused on providing health-promoting activities such as sports and recreation centres, health clubs, etc, but the strategy on well-being should be a holistic set of objectives that address all the essential components comprehensively. The time has arrived when the concept of employee well-being is considered as one of major strategy domains of an organization. Health and well-being cells should be developed within an organization's HR division to design and execute well-being programs that are geared towards enhancing the overall sense of Vitality of its members. The incentive is twofold. Not only it ensures a healthy and enthusiastic workforce, it also allows for a more flexible and self-directed work environment. Wright

and Cropanzano (2004) observe this dual benefit in their study in which they assert that on one hand employee Psychological Well-Being (PWB), which is an integral dimension of VAW, is "an intrinsic good" for which all members of the organization should strive for, and on the other hand there is strong evidence linking PWB with performance. Moreover, with the increasing emphasis on decentralization, less supervision, participatory management, there is a need for employees to be more proactive towards work (Belschak and Hartog, 2010). Quick et al., (2007) assert that in order to maintain organizational productivity, it is essential to have leaders and executives who are in a contended and healthy state. A high level of VAW can ensure that employees will be happy, healthy and positively charged with enthusiasm towards work and shall be ready to take initiative by taking the goals of the organization as their own.

Another practical contribution of this study is that it has developed a measurement instrument which managers can utilize to measure the level of vitality of its organizational members. By assessing Vitality of an organization's workforce, managers will have a starting point to enhance these positive attitudes. The instrument contains questions of general nature and therefore, it can be employed in all types of professions. It will take about 10 minutes to respond to the questionnaire, therefore, it will not be a stressful and lengthy task for the employees to complete. The questionnaire is simple in an easy-to-understand format, and therefore, does not require personal supervision or assistance, therefore carries minimal costs. The questionnaire can be used to evaluate the effectiveness of a well-being initiative by administering it before and after the execution of the program.

Finally, the study carries practical implications by providing empirical support for the effect of SCP on VAW. As already stated in literature review, the phenomenon of career plateau is widespread and increasing. Despite the fact that it exists to a considerable extent, there has been a minimal amount of research on this aspect of organizational life, and even lesser HR practices directed towards its management. The study has demonstrated that there is a significant effect of SCP on vitality of an individual. Previous studies have found that SCP is related to many negative work attitudes such as stress, lowered job satisfaction, reduced organizational commitment, and higher turnover etc (Salami, 2010). Based on the findings of this study, managers should devise strategies to reduce the occurrence of career plateau among employees. Strong mentoring programs are one option for HR managers to reduce the phenomenon of career plateau. There has been previous evidence that

mentoring has a moderating effect on the relationship between career plateau and negative work attitudes (Lentz and Allen, 2009). Organizations should also focus on providing an environment which fosters skill development and capacity building of its employees. With the changing organizational climates, organizations are not considered responsible to provide fixed career paths to their employees that spread throughout their entire career life. Rather, it is expected that organizations will enable their employees that enhance their skills and abilities so that they can diversify their activities in work-life. Hierarchical plateauing is a reality that cannot be avoided beyond a considerable level because organizations are structured in a pyramidal design. Moreover, organizations are becoming increasingly flatter; therefore, hierarchical plateauing cannot be reduced. However, this problem can be countered by reducing work-content plateauing by providing novel and challenging tasks and opportunities for skill development. In the context of higher education, sabbaticals which are a common feature of academic life should be made available to a larger number of faculty members. The concept of sabbaticals can also be adopted by other sectors to reduce the stress of career plateauing among their employees.

10.3 Recommendations for policy makers

The changing environment of business and educational institutions alike is becoming increasingly challenging and competitive. According to Locke (2007) who investigated the changing academic profession, universities are facing the challenge to produce more output with lesser resources. Public funding has diminished and the gap is being filled by students having to pay more tuition fees. This coupled with increasing internationalism has required the education sector to operate in a more business-like manner. These environmental changes have made the job of an academic much more entrepreneurial and challenging. It has also created more opportunities for academics to be more productive in roles other than academic, such as industry collaboration. On the other hand, knowledge and knowledge-creation are being viewed as the most important activities for human progress. This places the higher education sector and its members at a place of prime importance. Based on the challenges of the current environment, and the findings of the current study, the government and policy makers should take serious action to facilitate the development of a dynamic and energizing environment on institutional and national level so that the academic community can meet the challenges of today's world. For this purpose;

- The government should set up a health and well-being task force for the higher education sector which should devise long-term strategies and short-term goals

specifically directed towards improving vitality and well-being of academic faculty. The task force should also identify and formulate best practices that can be followed to achieve targets.

- Each institution should be required to administer a vitality and well-being survey every 2-3 years to gather actual data about its members.
- Each institution should be required to design a vitality and well-being division which is exclusively dedicated towards formulating programs and activities directed towards improving vitality of its members. These activities should be crafted by keeping in view the VAW model which shows that energizing interactions are one of the key sources of vitality. Therefore, these activities should be based on work-related collaboration, information sharing and networking. These should be coupled with activities directed towards enhancing physical and emotional health of the individuals. The division should be required to submit its performance and achievements reports every year.
- The government can also facilitate action on this agenda by announcing a performance award for the institution that best achieves the targets every year.
- The government should also structure a national career counselling service for higher education sector to reduce the effects of career plateauing. Programs should be formulated to identify redundancy, career stagnancy and viable exits.

10.4 Limitations of the study

As with every research enquiry, some limitations are inevitable and are beyond the control of the researchers.

To begin with, the first limitation is that the study was conducted on a specific sector. The data was gathered from academics of high performing, top ranking institutions of the United Kingdom. These institutions are rated the best educational institutions in the world by some of the most authentic institutional rankings and league tables. The academic faculty therefore is among the top percentiles of the overall academic faculty in higher education all over the world. Therefore, the results need to be validated on a wider population and in other contexts to confirm generalizability. Although the reason for gathering data from a specific narrow group of individuals was to ensure uniformity and homogeneity, however, the results should be used with caution when applying them to

other types of educational institutions, educational institutions in other countries and organizations in other sectors of the economy.

The second limitation of the study is that only individual opinion has been collected to validate the model. This has been done to obtain consistency of responses, and to build the concept as a subjective phenomenon. However, the study could be considered to have developed a one-sided picture only, which needs to be complemented by exploring the phenomenon from the angle of other informants. In future research, this may be done by gathering data from a variety of respondents, such as the immediate supervisors, peers, sub-ordinates and customers. In the specific work-setting of academia, responses may be collected from the Head of the Department/School, colleagues and students. However, separate measurement instruments will need to be developed according to the context of each respondent.

The third limitation of the study is that the sample size was not very large. Given that statistical techniques such as factor analysis and structural equation modelling were employed, the sample set was satisfactory and statistically robust. It was ensured that the minimum criteria are met for statistical analysis in this study; however a larger sample size is desirable in SEM. Nonetheless, a diverse set of statistical techniques have been used to validate and corroborate the results and therefore, it can be claimed that the results obtained in the study are reliable.

The fourth limitation is that the data was collected as a single snapshot. Although cross-sectional research is common and largely prevalent in academic community in organizational studies literature, there is question about stability of the phenomena that have been studied. Therefore, further studies should be carried out to validate the results. Whether VAW and SCP remain stable over a longer period of time should be investigated through longitudinal research. However, within the time frame provided for a PhD study, it was not possible to design and execute a longitudinal study, therefore, a cross-sectional analysis was considered the only option.

Although a number of statistical techniques have been used to corroborate the results, the model has a great potential to be investigated through qualitative research. The present quantitative study has provided a starting point for organizational researchers to further

delve into the lives of individuals and obtain participant observation and diary records about the concept of VAW and how it evolves from their everyday life, workplace interactions and organizational environment. The reason why a straight-forward quantitative study was designed was that researcher believed that there is sufficient amount of previous literature to support the theoretical framework and therefore, qualitative exploration was excluded from the research design. Moreover, it was also difficult to fit both types of data collection provided in the time-frame of the study. Therefore, the validation of results through in-depth qualitative analysis is left for future research.

The sixth limitation of the study has been the multivariate non-normality of the variables. Although non-normality can be ignored in exploratory factor analysis, but its presence in structural equation modelling creates questionable results. The issue could not fixed even by univariate transformation. The transformation did not alleviate univariate nonnormality in all the variables on both dimensions of skewness and kurtosis. One option to deal with this problem was the use of ADF estimation in SEM, but this option could not be employed because it requires very large sample size, exceeding at least 1000 observations. Thus, the analysis was carried out with the nonnormal data. Therefore, this limitation remains untreatable in this study, and the study should be replicated with normal data to confirm the validity of the results. However, the issue was identified and acknowledged. As discussed in Chapter 8, there are a large number of studies that employ SEM but where the issue is not even mentioned, let alone highlighted and acknowledged as a limitation.

Seventh, the study has employed Likert scale as continuous variables in the data analysis. Likert scales which are theoretically ordinal scales are frequently used in social and psychometric research as continuous variables. However, this can create measurement error because the distance between all the response options may not be equal. However, this problem is offset to some extent when a number of items are used to measure a single construct. This issue has been discussed in detail in Section 7.2, and the fact that Likert scales are so commonly assumed as continuous variables makes it an avoidable limitation.

Finally, it should be highlighted that a large amount of data was collected on several individual attitudes, which could have been used to explore many other structures among the observed variables apart from the initial theoretical framework. However, given the

scope of obtaining one PhD, the researcher remained committed to the initially designed framework and hypotheses.

10.5 Further research

This study has opened several opportunities for furthering research about the concept of Vitality, the interdependence of concept of health in organizations and in the field of career management. The study has provided the ground-breaking work on the concept of VAW as a combination of personal and organizational factors.

With respect to the concept of VAW, there are a number of possibilities for future research in various directions. One possibility is to validate the model in other organizational settings of other sectors. This study has been the initial attempt to conceptualize the phenomenon of VAW in specific disciplines in higher education institutions. The data was collected from academics of similar social sciences disciplines of business, law and education. Therefore, further research is needed to validate this concept in other disciplines such as engineering and pure sciences. There is also an issue here that academics may identify more with their chosen subject specialism than the institution where they work. This could lead to some interesting consequences, such as economists feeling disoriented and demotivated by the state of their discipline as opposed to their personal/individual circumstances at work. The subject therefore acts as a potent source of coherence and identity for the individual, and hence the individual's Vitality at Work. The model also needs to be validated in other geographical areas with different socio-economic and cultural environments. The present research opens an opportunity for furthering research to assess the validity of this construct in other types of educational institutions, institutions located in other geographical areas, and also in other professions as well. The instrument developed to measure VAW carries generalizable characteristics and can be administered to an individual of any professional background.

The concept of VAW and its relationship with SCP can also be augmented and complemented by conducting qualitative research on these phenomena. It can be useful to investigate how vitality is created, sensed and elevated in organizational setting, and what are the processes and dynamics involved in the creation and co-creation of this important human strength. Another interesting area of exploration can be to investigate the stability of these concepts with respect to events of everyday life, and over a longer period of time.

This can be best achieved by a longitudinal research design with qualitative data collection. It can also be done by administering the same survey questionnaire two to three times spread across a suitable period of time. Further exploration can be carried out to relate everyday life-events and information about other changes occurring in a person's life to ascertain the stability or variation of vitality due to other factors.

Given that the issue of non-normality could not be overcome, there is a need of further research to validate the model with data that satisfies this statistical condition. This can either be done by obtaining data which satisfies the assumption of normality or a large sample size is obtained (between 1000-5000), so that ADF estimation technique can be employed which produces robust results even in the presence of non-normality.
Another useful exploration which can be developed from this study is the relationship of Vitality with actual performance of an individual. Performance is multi-faceted phenomenon which can be evaluated from a number of angles. One possible direction for research in the context of higher education could be to explore if vitality of an academic is translated into vitality in the classroom. Thus, it would be interesting to explore whether a vital and energized academic is able to transfer this sense of vitality and enthusiasm into his/her students.

It would also be useful to investigate the contextual variables that affect or moderate the relationship between VAW and performance. It would be interesting to explore if the concept of VAW operates in the same way in other national cultures. Similarly, it would be worthwhile to investigate if the relationship of VAW and SCP operates in a similar manner in other national cultures. Because values are held differently in various cultures, it can have a significant influence on how connections are created and held in work-settings. Moreover, it should also be explored whether the phenomenon of career plateauing is also subjectively experienced in the similar manner or people attach differing expectations from their careers.

Based on the work on spirituality in organizations (Robbins and Judge, 2007), another important connection that can been explored is the relationship of VAW with the strength of spiritual or religious beliefs of an individual. Spirituality in organizations is an emerging area of research and proposes the importance of purpose, meaningfulness and fulfilment at work. Organizations are making an increasing effort to enhance the spiritual experience of

their employees at the workplace. The American Academy of Management launched a special interest group called Management, Spirituality and Religion in 1999. It appears that VAW and spirituality in organizations could be strongly connected concepts.

Finally, another interesting area of exploration would be to relate the concept of VAW with an objective assessment of physical and psychological health evaluated by certified experts. It would lend more reliability to the concept if it is found that there is a strong relationship between the subjective assessment of VAW by the individual itself and his actual state of health, physically as well as psychologically. It would confirm that a fully-functioning individual at work is a healthy and strong individual physically and psychologically.

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Appendix I – Covering Email

Dear Faculty Member,

I am a doctoral student at University of Glasgow Business School. I invite you to participate in my study; "Vitality at work and its relationship with Subjective Career Plateau and Student Engagement". Along with this email is the link to a questionnaire that asks a variety of questions about your opinions, attitudes and behaviors, primarily in relation to your work place. I am collecting responses from academia of top UK universities and will be incredibly grateful if you would complete the questionnaire as my PhD requires primary data. I realize that your time is precious but it takes about fifteen minutes to complete the questionnaire.

As part of University of Glasgow's policy on the conduct of research, I can guarantee that your responses will not be identified with you personally, will be held in the strictest confidence, will be used solely for the purpose of my PhD work, and that there is no possibility of identifying an individual respondent from their employment information. To this end, you should not put your name on the questionnaire. Your participation in this survey is voluntary and completion of this questionnaire will be considered as your implicit consent.

This email contains a link to the online survey which will lead you to the online questionnaire. Responses to this questionnaire are being saved online and raw data is stored in an account which is only accessible by the researcher through a user name and password. Your responses cannot be identified to you in anyway. From the online user account, the data will be transferred to the researcher's personal laptop, access to which is also password protected. The results will be published in PhD thesis of the researcher and possible academic articles originating from the study.

I hope you will extend your support in this effort and I will be profoundly grateful if you do so.

If you have any queries about the questionnaire please contact me in the first instance. Should you wish to address any concerns to a higher authority you can contact the Head of the Department of Management, Professor Fiona Wilson (f.wilson@mgt.gla.ac.uk).

If you consent to participate in the survey, please click on the link below. If the link does not open directly, please copy and paste it in a new browser window;

http://www.surveymonkey.com/s/V3WKSFC

Regards,
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Appendix II – Online Questionnaire