

Critical Effort and Leadership in Specialised Virtual Networks

Kurt April^{1, 2}, Victor Katoma¹ and Kai Peters²

¹UCT Graduate School of Business

University of Cape Town

Private Bag X3, Rondebosch 7701, RSA

E-mail: aprilkur@gsb.uct.ac.za

²Ashridge

Berkhamsted, Hertfordshire, HP4 1NS, UK

E-mail: Kai.Peters@ashridge.org.uk

ABSTRACT

Leadership has been defined in various ways with some scholars strongly suggesting that it is a calling or something driven by a trait [1], which is expressed through personal values, integrity and certain qualities [2-5]. Leadership in virtual networks, however, is more of an earned recognition. This article argues that leadership in these virtual networks is about character-building.

We approach this study by reviewing the literature around character-building, which we then model as discretionary effort (DE), a construct of expectancy, instrumentality, valence and self-affirmation, which explains the extra effort spent beyond the work-role requirement. Additionally, we review the coaching literature, which, when applied to our DE model, provides a path along which DE can be encouraged.

We investigate whether work leverage earned through DE is shaped by process-oriented factors such as 'experience'. 'Gender' and 'profession' are also investigated as other added influencer factors. The study is based on professional networks with a data sample of 1548 managers and specialists in different sectors. Results reveal that process-oriented variables, such as 'experience', significantly explain the variability in the DE build-up process. DE levels are also observed to be different between sectors. 'Gender' did not have any effect on the results, either at unit or inter-unit relations, in clusters of employees who are either virtually-located or co-located.

Key words: Coaching, Expectancy, Instrumentality, Professional Networks, Self-Affirmation, Valence, Virtual Networks

INTRODUCTION

The main aim of this paper is to discuss the factors influencing discretionary effort (DE)¹ and its relationship to leadership in professional and virtual networks. We suggest that the issues surrounding DE are separable from those governing leadership generally, which are manifested through other artefacts like organisational citizenship behaviour and stewardship.

Thus, instead of focussing on leadership characteristics, which tend to be complex constructs, in order to explain and develop performance in professional and virtual networks, DE may be the construct which can serve this function more simply.

Measuring the real impact this approach may provide, must, we believe, take context into account. Specialised networks have specific characteristics that require redefined leadership roles. Virtual network leadership², manifested through the desire to generate DE, requires an ability to influence indirectly. In this paper, the two terms of leadership and DE are thus used interchangeably when looking at the unsolicited effort especially at the networking level, and the behavioural variables involved. An alternative would be to state this concept as the discretionary leadership effort (clearly decoupling the concept from the traditional view, i.e., organisational positions of authority).

Although, initially, DE is based upon individuals, the application of multiple-level modelling in this study indicates that researching team or sector DE is possible. From this perspective, rather than conceptualising a team's entire leadership status, it seems sensible to discuss a team's total discretionary force. The DE constructs, which are illustrated later in this paper, provide substantive response variables, with little or no ambiguity. The statistical inference, or modelling strategies, adopted support the measurement of DE, and are thus used to model leadership development more broadly.

The content of the research is subdivided into four sections. First, we discuss professional and virtual networks, focusing on leadership and DE. Second, we review the coaching literature to consider whether coaching specifically for DE in virtual networks is plausible. Third, we explain how we measure DE overall and the underlying variables used. Fourth, we implement multi-level modelling using LISREL. This approach is taken because of the layered nature of the information gathered, taking employees in virtual and co-located work environments into account.

The data was collected from a sample of 1548 employees in different sectors including education, engineering, mining, finance, and retail industries. Respondents were either virtually located and/or co-located.

¹ We define discretionary effort (DE) as an individual's free choice, in which intrinsic motivation is operationalised, and which emanates from the individual's desire to engage in, or to bring to bear his/her already full engagement to, an activity or activities because s/he enjoys, is interested in, and/or is committed to, the activity.

² Virtual teams or networks can be described as those that work on projects with interdependent tasks and common objectives. Their interaction wholly or solely takes place through the use of some kind of technology; be it computer, telephone, video, etc. In this context, virtual network leadership in turn can be defined as the set of competences, approaches and outlook needed to lead such teams effectively, in a way that allows them to develop, learn and operate to their best ability.

RESEARCH CONTEXT

Professional and virtual networks are informal teams that arise because individuals need to learn and share knowledge. They can be defined as communities of practice (COP) [6], to describe an activity system where individuals that are united in action and meaning can collectively share ideas and find solutions. Professional networks include public ones such as LinkedIn or the Linux COP. These networks also exist within complex organisations where geographic dispersion creates virtual teams with similar characteristics.

The purpose of this study is to survey the factors that influence people in exercising DE within professional and virtual networks. Our main concern in this study is with virtual teams. Virtual teams can easily involve global membership, such as in Shell International and Novartis. Traditional DE researchers have targeted co-located teams, but the rapid emergence of virtual teams attracts debate about how DE is affected by this geographic dispersion.

Creating cohesive teams is critical for organisational success. Cohesive teamwork drives competitiveness [7], with such mobilized action also driving innovation [8]. This is especially necessary in the global knowledge economy where the focus is on knowledge and service, such as in Ernst & Young, Edwardian Hotels and Standard Chartered Bank. Mullins [9] notes that while teamwork is important to any organisation, it is particularly significant in a service industry where there is a direct affect on customer satisfaction.

Secondly, other vital business strategies, such as knowledge management which have been linked to organisational performance [10-12] are also highly reliant upon professional and virtual networks. These virtual networks are also redefining work configurations and shift the employee-employer relationship. A virtual worker now can be a contingent or contract employee who is self-employed and has no dominant organisational affiliation, but has temporary relationships with multiple organisations. These electronically-connected contractors are part of the move from the traditional command-and-control organisational unit, to one based on the work of individuals.

What is not clearly known, however, is the nature, direction and magnitude of the influence these teams of individuals have on DE, and hence the extent of the business value they create. This is mainly because very little research has been conducted on DE in professional network environments. When these networks extend beyond co-location to virtual professional networks, there is even less research available. In both instances, the way network members relate and exercise DE is dependent on team leadership. Intuitively, it seems fair to suggest that networks of professionals are less likely to flourish in a command-and-control environment than in a non-threatening and supportive environment. This suggests that influencing is more important than commanding, and we thus seek to measure leadership influence and understand how leadership roles are perceived and should be executed in these virtual conditions.

LEADERSHIP IN PROFESSIONAL NETWORKS

Recent studies on organisational team leadership have pointed out that the use of teams can foster productivity, result in optimal use of resources and improve innovation and creativity [13-15]. Different researchers note, however, that a major

challenge lies in identifying the factors that make teams more practical and effective [16], as team leadership is complex and premised on multiple social dimensions, and is not well understood [17-19]. Murphy [20] suggested that, irrespective of work location, there are always situational needs that demand certain knowledge, skill and abilities. Consequently, leadership attitudes have to be developed flexibly.

In professional and virtual networks, face-to-face interactions are uncommon and membership is often based on interests and needs. Unless leadership is effective and appropriately administered in these specialised networks, the rapidly changing work landscape will gradually and easily disconnect network members from their team leaders. Such contingent or situation-based leadership is a challenge, especially for charismatic leadership, since contingent leadership is context-oriented where the leader has to fit in with particular situations rather than being driven purely by a more uni-dimensional charisma [21-24].

In virtual networks, DE and leadership are not as obvious as they may have been perceived in traditional settings. Virtual professional networks tend to be shaped by many more factors that are naturally dynamic, and require continuous interpretation. Some of these factors are technology-inherent, since communication technologies continue to evolve, but others are social elements such as trust, a sense of belonging and perceived leadership support; especially where members have never physically met. Sproull and Kiesler [7] posit that performance, as the key measure of team dynamics, is related to team composition, trust and cohesiveness. Team members contribute readily if there is a need for knowledge or help, but they also want some form of control over their own intellectual property. Bollen and Hoyle [25] suggest that perceived cohesiveness is based on an individual's sense of belonging to a particular group, and his or her feelings of moral association to that membership. Self-efficacy, emanating from an internal locus of control [26], is another attribute important to virtual network success.

As the work landscape changes, professional and virtual team members' needs also change. Team leaders thus need to learn to analyse situations rapidly depending on what is required [27]. Zaccaro, Rittman and Marks [28] note that leaders must use discretion in altering their approach to managing virtual networks, due to the communications challenges that virtual teams present. Leadership therefore can be viewed as mediation and coordination [27], and as the creation of inclusive environments [29]. When a leader meets the necessary behaviour of the circumstance, the fulfilment of the team's desires are likely to be met [30].

DEVELOPING LEADERSHIP IN PROFESSIONAL NETWORKS

Morgan [31], among others, suggests that managers require increasing skill and competence in dealing with change. Research has indicated that a failure to manage change successfully leads to stress and negative attitudes. [32-34] Mumford, Zaccaro, Harding and Marks [35] note that leaders develop competencies over time through exposure to increasing difficulty and complex long-term problems, as they ascend an organisational hierarchy.

Numerous authors [36-39] indicate that while traditional classroom education, based on the transfer of knowledge, is suitable where technical skills are required, coaching is more suitable as issues become more complex. Helping individuals

develop their skills at advanced levels of organisational hierarchy requires thoughtful engagement with multiple, people-centred issues. De Haan [40] posits that coaching encourages and facilitates the self-development of the coachee within the coachee's own network of relationships, which closely mirrors the professional and virtual network situation.

De Haan [40] suggests a valuable typology of the intellectual sources of coaching traditions, which he classifies into four categories: *person-focused coaching*, based on Kline [41] among others, focuses on facilitating the coachee with encouragement and understanding; *insight-focused coaching* [42] based on greater distance, seeks to explore unmentioned issues; *problem-focused coaching* [43, 44] makes concrete suggestions on ways in which problems can be tackled; and *solution-focused coaching* [45, 46], which is similar to problem-focused coaching, but searches for solutions to challenges rather than trying to deconstruct problems.

All of these coaching traditions have precedents in various strands of psychology, with many relying on psychotherapy and De Haan [40] spends considerable effort in relating the psychotherapy evidence-base to the modern coaching construct, in order to intuit the efficacy of each specific approach. Coaching is clearly shown to benefit the development of individuals as they grapple with the challenges facing them, especially as issues involve relationships rather than technical challenges.

While De Haan [40], and the various studies he cites, can be seen to provide an indication that coaching could be considered an appropriate methodology to deal with relationship issues which are virtual rather than co-located, issues of virtual teams are not specifically mentioned. Caulat [47] is one of very few authors who have specifically investigated the development of virtual teams in order to raise levels of trust. She notes that knowing how to develop and maintain high performing virtual teams has become a critical competitive advantage. Her research indicates that by coaching virtual team leaders, using a methodology closely aligned to De Haan's [40], problem-focused coaching yields considerable benefits.

Caulat [47] indicates that since there is such a dearth of information on managing in virtual teams, certain transferred insights are beneficial. She suggests that in order to better understand how to 'contract' the rules of the virtual team, we should begin with our understanding of informality in live face-to-face meetings. Of interest then, would be how we perceive and understand large degrees of informality and spontaneity. Spending sufficient time in such a setting, research shows, creates trust and intimacy. Furthermore, she claims that we could learn from communication theory – for instance, orderly discussions were shown to facilitate the defence of individual's positions (debate) and the closing off of individuals to learn from others' perspectives, as opposed to dialogue, in which judgement is suspended, positions are lightly held and individuals open themselves up to learn from others. In this way, her research has debunked some of the common perceptions regarding, for instance, teleconferencing, where it is believed that good order should be maintained and only one person should speak at a time. Caulat [47] has shown such behaviour to actually be counterproductive to involvement and engagement.

Additionally, in a virtual environment, one cannot see others in the traditional sense, one must therefore become sensitized to the messages being sent through tone of voice, speed of delivery and intonation during a teleconference; visual cues from a videoconference; reading between the lines in all of the above situations as well as

with e-mail/electronic exchanges. A further suggestion is to learn to live with silences, which can seem tremendously long in an audio environment.

Even at this level of insight, virtual team development remains within the general leadership realm. By applying our DE model, we believe that coaching and specifically virtual team coaching, can be made more efficient and effective.

METHOD

THE INTRICACIES OF DISCRETIONARY EFFORT (DE)

In this section, we introduce and investigate the details of DE to highlight the relationship between DE and leadership. At the basic level, DE can be described as the act of doing more for the organisation, without necessarily receiving extra pay for extra effort. DE is the voluntary level of performance above that which is required for the team member to maintain their employment. In certain cases, highly motivated, innate character may be evident in individuals. The challenge, however, is in understanding how to create an environment in which others want to willingly offer their DE to the team and/or organisation, and how to encourage the exercise of DE in an optimal manner for other individuals who are in a position to calculate whether they will, or will not, contribute any extra effort.

The process of DE builds from a rational mental analysis of motivational variables that are defined by expectations. When people join work, they come with expectations that must be fulfilled for them to be motivated. Expectations are necessary for gauging the value we pin on work and are also the channels to best performance. Well-tested motivational variables are expectancy, instrumentality and valence [48]. Self-affirmation [49] is another important variable, particularly in virtual teams, and was included in this study because it has not been fully explored in relation to DE.

The variables that we have identified, and tested for, within this professional network context are therefore expectancy, instrumentality, valence and self-affirmation. When these are combined, these variables produce a cohesive force known as expectancy force, or usually called DE.

Expectancy This is a belief based on the principle that an effort is likely to lead to an anticipated performance outcome [50, 51]. It is a probability that a certain goal can be attained by making a particular attempt. Expectancy is therefore mostly guided by an individual's experience, by self-efficacy (confidence), and by the perceived difficulty of the task in question. While self-efficacy is influenced by skill and work level-appropriate competencies, perceived difficulty is determined by goal-setting. When goals are too high, expectations are likely to be low [52]. To avert the problem of low expectations caused by too high goals, employees should possess some sort of perceived control over the task output requirements, so that the ability to achieve that goal is within reach.

Instrumentality This is a probability based on the belief that, by attaining performance expectations, a greater reward awaits [50, 52]. Rewards can be in terms of pay rises, recognition and/or sense of accomplishment. Instrumentality is, nonetheless, likely to be low if it is not sufficiently differentiated. For example, if a company gives the same bonuses to everyone, regardless of performance levels, then instrumentality would be low.

Valence This is the value an individual places on the reward [50, 51]. Usually, this is a function of an individual's needs, goals, values and sources of motivation. Valence has also been described as the perceived emotional-orientation people develop towards the outcome or reward [52]. Valence is associated with high positive and negative outcome perceptions in a situation, and therefore can be defined as consequential.

Self-Affirmation This is based on the understanding that, following a particular performance or engagement, an individual will achieve something such as a skill that builds and protects the image of self-worth [53]. Affirmation of self is further described as something that provides an individual with the abilities to adapt to change [54]. Rather than perceiving self-affirmation as a response to threatening events, it can be seen as a process of reinforcement, or enhancement, for future challenges. Others look at physiological factors, and changes in behaviour, that arise from threatening experiences [55, 56]. The process of enhancement can also emanate from contrasting mental models, in order to assess and develop ideas concisely. Examples of self-affirmation thus include positive comparisons of expectancy with peers, and whether expectancy is meaningful and is evaluated positively in the workplace. It would also depend on whether the self is seen to have the capacity for efficacious action.

Expectancy, Instrumentality and Self-Affirmation are therefore attitudes or cognitive leanings that an individual perceives [52, 57]. They are based on the likelihood that an effort would lead to performance, and performance would lead to reward (desired outcome). Consequently, they can be assigned a value domain of $[0,1]$ while *Valence* may range from -1 to $+1$ $[-1,1]$. This makes valence deterministic of the stability of the expectancy processes. A negative valence would entail a negative DE. Results that place valence in the range of $[0,1]$ are henceforth important, and of much interest in this study.

Expectancy and Instrumentality have also been noted as perceptions that are influenced by an individual's experiences (learning theory), observations of others (social learning theory), and self-perception [51]. This paper also tests these assumptions, and investigates what role self-affirmation plays with these viewpoints. These behavioural variables are attitudes. They are not just individually-formed, but arise out of interaction with others. Attitudes, in some sense, are defined as providing a state of readiness to respond in a particular way [58]. Katz [51] further suggests that motives and attitudes are interlinked, and are functions of the following:

1. *Knowledge* – with a good knowledge-base, employees attain grounds to provide a basis for interpretation and classification of new information. Well-natured attitudes provide the necessary openness and the base of knowledge, and the framework from which new information can be placed and enriched.
2. *Expressiveness* – attitudes are one form of conveying expressions. They allow employees to show the values they hold to their affinity-tribe and peers, thereby expressing their self-concept.
3. *Instrumentalism* – long-held path-dependent attitudes maximize rewards and minimize sanctions. Such historicity of attitudes towards an object, or

other people, can thus be helpful because of past positive or negative experience. It can be deduced that behaviours or knowledge that resulted in the satisfaction of needs are therefore more likely to culminate in a favourable attitude for the future.

4. *Ego-Defensiveness* – attitudes can also be held if they are seen to protect one's image or ego. Such attitudes are helpful in protecting one's ego from undesirable truth or reality [59].

RESEARCH QUESTIONS

In addition to measuring for expectancy, instrumentality, valence and self-affirmation, the study looks at a number of *influencer variables*. Earlier on in the literature review, 'experience' was noted by a number of authors [27, 28] as an important factor.

We therefore control for experience with the hypothesis that there is a correlation between 'experience' and how employees come to learn and master how to use DE in professional networks (H_1).

Additionally, the study included profession and gender as influencer variables because we believe that while individuals may be the direct objects on which DE can be measured, profession may in certain cases be a strong influencer. For example, professions such as financial [60], retail and education industries may yield more DE because of, for instance, the close interface between financial organisations and their clients.

Gender was also investigated as an influencer variable due to suggested differences in both DE and communication skills [61]. In separate studies using multivariate-ordered logistic regression models controlling for individual abilities, household and family responsibilities and workplace characteristics, no gender differences were self-reported for DE in the USA. In the UK, however, women reported greater DE than men [61]. This lack of clarity both about gender and about the specific professional work environments led us to control for the hypotheses that there is a correlation between 'gender' and DE variation in professional networks (H_2) and there is a difference in DE between organisations (H_3).

DATA COLLECTION

For this study, data was collected through the use of a questionnaire. The questionnaire was designed to assist respondents in thinking through the critical behaviours in 10 key areas for effectively engaging in, utilizing and creating conducive, value-adding, professional network relationships. The questionnaire (Appendix 1) addressed the expectancy issues (our definitions) listed below:

- *Effort-Performance Expectancy* (EP): Belief that desired levels of performance are possible, given the resources, competencies and skills s/he possesses.
- *Interpersonal-Performance Expectancy* (IP): Belief that one is seen to be assisting, and developing, others.
- *Effort-Learning Expectancy* (EL): Belief that expended personal effort will have future, value-adding learning benefits.

- *Leading-Visibility Expectancy (LV)*: Belief that one is seen to be in step with new trends and the cutting-edge, and acknowledged as being knowledgeable and practicing at the forefront.
- *Network-Performance Expectancy (NP)*: Belief that you or your colleagues are committed to the goals and objectives of the network.
- *Internal-Recognition Expectancy (IR)*: Belief that one will be recognized (with little or no financial rewards), both within the network and the greater organisation, for the contribution s/he has made.
- *Mutual-Reciprocity Expectancy (MR)*: returning directly, or indirectly, aid, resources and/or friendship offered by another network member.
- *Individual-Network Learning Expectancy (NL)*: Belief that one's own personal learning, knowledge and insights are of value, and can contribute, to the network's learning.
- *Performance-Outcome Expectancy (PO)*: Belief that what one's doing will lead to certain outcomes.
- *Team-Sustainability Expectancy (TS)*: Belief that you are focused on sustaining the network, and its future.

Organisations, we believe, that cultivate these expectancy behaviours will begin to meet employees' personal expectancies, leading to the meeting of workplace goals that will lead to the employee offering his/her DE. The four variables underlying DE (expectancy, instrumentality, valence and self-affirmation) are developed from the 10 items above.

The questionnaire was sent out through e-mails, fax and the web-based survey software system at <http://www.questionpro.com>. Parts of the data were collected from managers on a leadership course at the Graduate School of Business (University of Cape Town). Responses were subsequently collected on the database in a spreadsheet format, and thereafter exported to SPSS. The internal consistency of the measurement yielded a Cronbach's alpha of 0.84, indicating that the responses and the items on the questionnaire were appropriate and sufficient to the study. After the initial analysis and further screening, the data was finally exported to LISREL for modelling.

RESULTS

MULTI-LEVEL MODELLING

In the process of investigating the aforementioned variables, multi-level data analysis was used. This was prompted by the clustered nature of the data, since multi-level data arise when units are nested in clusters [62, 63]. Students in a class and employees in a particular department or group are some of the examples. The latter is interpreted as follows: employees form or work in units because of location or work interests and these units form clusters which are teams or departments. In this study, employees were clustered into units within virtually and or co-located workspaces. Departments were further nested into sectors such as education, finance and retail. In this case, sectors are super or higher clusters, in what is reviewed as a *level three structure*. Employees fall in the first cluster called the *micro-level*, departments in the second called the *macro-level*, and sectors are the last level in the hierarchy. Units tend to

share the same cluster influence. For instance, employees in the same unit (team) could be led by one leader and therefore influenced by that same leadership and, to some extent, share similar work experience. However, not all information in the clusters is usually present, as it is not feasible to account for all cluster-specific influences as covariates in the analysis. This creates what is called cluster-level unobserved heterogeneity [64]. Because of unobserved heterogeneity, not all relations between the variables in the units are therefore determined. Specific response variables, namely, expectancy, instrumentality, valence and self-affirmation, are therefore measured on these clusters, and the variability in the response recorded.

Usually, units in clusters tend to lie in particular areas around some means that are different from the overall group variable means. This creates inter-unit dependence or intra-cluster correlations [65, 66]. In order to explain unobserved heterogeneity error ($m_{ij} + e_{ij}$) values are included in the measurement equations of the response variables, as shown in Equation 1 later on.

MULTI-LEVEL ANALYSIS RELEVANCE

Multi-level analysis is very useful for data that shows complex patterns of variability. Mostly, it is the variability focused in nested sources of data, and the social context on individual behaviours [67].

Specifically this data set had nested information, such as employees in different locations, who were either co-located or virtual. And, apart from localities, these employees belonged to professional networks and further sectors. There is variability between employees' responses to DE actions, and also between the groups they belong to, by location and by profession. In this study, the primary objective was to identify some of the factors that lead to this variability and tackle the following questions:

1. Do variables such as 'experience', 'education', 'age', and 'gender' contribute to variability in the processes of generating DE?
2. Does 'profession' contribute to this variability in the clusters, at the individual level?
3. Are there some differences in DE between organisations, and what should be done to improve DE if differences do exist?

In the diagram below, given as an example, there are 11 clusters with units clustering around means indicated by horizontal bars. The response in this case measures expectancy, instrumentality, valence and self-affirmation. Employee units are represented by the white and dark circles according to whether they are virtually or co-located, respectively, and are clustered around the mean (horizontal bars).

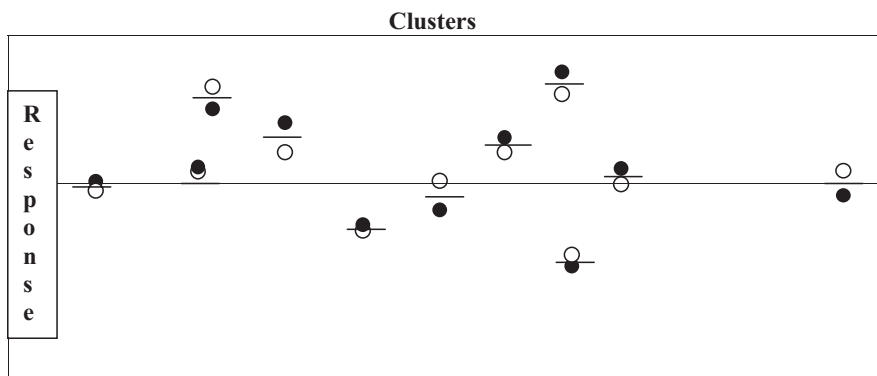


Figure 1. Clusters Around Mean Values

The final model is specified as:

$$Y_{ij} = \beta_0 + \beta_1 \text{Experience}_{ij} + \beta_2 \text{Profession}_{ij} + m_{ij} + e_{ij} \dots\dots\dots 1.$$

j is the index for the groups (j= 1,.....,N)

i is the index for the individuals within the groups (i = 1,.....nj)

Characteristics of the data set (n = 1548) are shown below:

Table 1. The Sectors and Percentage of the Respondents in Each Particular Sector

Sector	%
Education	4%
Engineering	5%
Financial	25%
FMCG	3%
ICT	15%
Medical	4%
Mining	15%
NGO	3%
Petroleum	13%
Retail	4%
Support	6%
Media	0%
Consulting	0%
Transport	3%
Grand Total	100%

Table 2. The Distribution of the Age Groups of the Respondents

Age Group	%
<30	20%
31-35	25%
36-40	21%
41-45	19%
46-50	9%
>50	4%
Not given	2%
Grand Total	100%

Table 3. Seniority of the Respondents

Position	%
CEO	1%
Director	17%
Lecturer	0%
Manager	65%
Not given	1%
Section Head	2%
Specialist	14%
Grand Total	100%

Table 4. Qualification Levels of the Respondents in the Six Selected Sectors

Lower Qualification refers to the Matric in the South African education system which is the equivalent of the senior secondary school general certificate.

Sector		Qualification				
		Lower Qualification	Secondary School	Bachelors Degree	Masters Degree	Doctoral Degree
Education		4.1%	19.2%	32.9%	23.3%	17.8%
Engineering		7.1%	18.9%	52.0%	18.9%	0.0%
Finance		7.4%	6.0%	59.5%	23.3%	0.9%
ICT		15.4%	13.7%	46.9%	15.4%	2.9%
Mining		4.3%	24.3%	55.7%	12.9%	1.4%
Retail		40.3%	15.6%	28.6%	7.8%	0.0%

Table 5. Highest Qualification Obtained by the Respondents

Highest Qualification	%
Doctoral Degree	3%
Masters Degree	17%
Bachelors Degree	49%
Secondary School Diploma	19%
Lower Secondary School Qualification (Matric)	11%
Not Given	1%
Grand Total	100%

In terms of qualifications, Table 5 shows that the majority had Bachelors degrees (49%), followed by Secondary School Graduates at 19%. Masters degrees were at 17%, a Lesser Secondary School Qualification at 11%, and a Doctorate Degree at 3%.

Females constituted 36%, while males 64% of the total sample survey.

CROSS-SECTOR SAMPLING

Sampling from across sectors or organisations increases the test of predictive accuracy of DE [68]. For clarity, a few sectors were later identified as important in illustrating how DE is evolving. These were Education, Mining, Retail, ICT, Finance and Engineering. The selection of these sectors was simply based on how independent, or distinct, these were between each other, and from the rest. Secondly, these sectors had a large number of respondents as compared to the rest, and had formed distinct clusters according to the location of employees, whether these were co-located or virtually-located. Thirdly, there is little literature on DE in sectors. We did find some motivation and performance literature relating to these six sectors, that to some extent confirmed our findings (for example, the Engineering sector was much lower in DE as compared to the Retail industry). The point is that while at *micro-level* (employee-level) DE is very much influenced by ‘experience’ in these networks, this may not be so at the *macro-level* (sector-level) level.

The computer output for the three PRELIS multi-level programs are summarised in Table 6, for the variance decomposition of the response variable, *Expectancy*. Model 1 provides a baseline – models 2 and 3 help determine if additional variables help in reducing the amount of variability in Expectancy variables. It is evident from the deviance chi-square value (Deviance -2LL) of 4625.31, that additional variables are needed to reduce the variability in Expectancy. Model 2 with Experience added, reduces substantially the unexplained variability in Expectancy (chi-square difference = 2943.60, df = 1). Model 3, with Profession added, did not significantly reduce the amount of unexplained variability in Expectancy (chi-square difference = 1.1, df = 1). Therefore, Expectancy is statistically significantly explained by Experience fixed variables.

The computer output for the three PRELIS multi-level programs are summarised in Table 7, for the variance decomposition of the response variable, *Instrumentality*. It is evident from the deviance chi-square (Deviance-2LL) value of 5413.28, that additional variables are needed to reduce the variability in Instrumentality. Model 2 with Experience added, substantially reduces the unexplained variability in

Table 6. Results of the *Expectancy Response Variable* in the Models (df = 1, p = 0.05)

Multi-Level Model Fixed Factors	Model 1 Intercept Only	Model 2 Intercept + Experience	Model 3 Intercept + Experience + Profession
Intercept only (β_0)	4.08 (0.02)	4.00 (0.013)	4.00 (0.034)
Experience (β_1)		0.0058 (0.0013)	0.0058
Experience(β_2)			0.0011
Level 1 error Variance (μ_{ij})	0.122	0.008	0.01
Level 2 error Variance (e_{ij})	0.25	0.01	0.008
Deviance(-2LL)³	4625.31	1681.71	1680.70
Df	3	4	5
Chi-square Difference (df = 1)		2943.60	1.1

Instrumentality (chi-square difference = 177.30, df = 1). Model 3, with Profession added, did not significantly further reduce the amount of unexplained variability in Instrumentality (chi-square difference = 0.0, df = 1). Therefore, Instrumentality is statistically significantly explained by the Experience fixed variables.

The computer output for the three PRELIS multi-level programs is summarised in Table 8, for the variance decomposition of the response variable, *Valence*. The results from the deviance chi-square value (Deviance-2LL) of 4755.19 show that additional variables are needed to reduce the variability in the Valence response variable. Model 2, with Experience added, substantially reduces the unexplained variability in Valence (chi-square difference = 1551.91, df = 1). Model 3, with Profession added, did not significantly further reduce the amount of unexplained variability in Expectancy (chi-square difference = 0.11, df = 1). Therefore, Valence is statistically significantly explained by the Experience fixed variables.

³ Deviance – instead of finding the best fitting line, by traditionally minimizing the squared residuals (as one does with ordinary least squares (OLS) regression), we have used a different approach with logistic–maximum likelihood (ML). ML is a way of finding the smallest possible deviance between the observed and predicted values (almost like finding the best fitting line) using calculus (derivatives specifically). With ML, the computer uses different iterations in which it tries different solutions, until it gets the smallest possible deviance or best fit. Once it has found the best solution, it provides a final value for the deviance, which is usually referred to as “negative two log likelihood”. This deviance statistic is referred to as “-2LL” by some researchers. A log “likelihood” is a probability, specifically the probability that the observed values of the dependent may be predicted from the observed values of the independents (and is the basis for tests of a logistic model). Because -2LL has approximately a chi-square distribution, -2LL can be used for assessing the significance of logistic regression, analogous to the use of the sum of the squared errors in OLS regression (and is therefore referred to as deviance chi-square by some, D_M).

Table 7. Results of the *Instrumentality Response Variable* and the Models (df = 1, p = 0.05)

Multi-Level Model Fixed Factors	Model 1 Intercept Only	Model 2 Intercept + Experience	Model 3 Intercept + Experience + Profession
Intercept only (β_o)	6.653 (0.046)	6.651 (0.082)	6.644 (0.046)
Experience (β_1)		-0.00048 (0.0013)	-0.0045
Experience(β_2)			0.0011
Level 1 error Variance (μ_{ij})	0.122	0.149	0.122
Level 2 error Variance (e_{ij})	0.149	0.122	1.149
Deviance(-2LL)	5413.28	5235.98	5235.98
Df	3	4	5
Chi-square Difference (df = 1)		177.30	0.000

Table 8. Results of the *Valence Response Variable* and the Results of the Multi-Level Analysis Models (df = 1, p = 0.05)

Multi-Level Model Fixed Factors	Model 1 Intercept Only	Model 2 Intercept + Experience	Model 3 Intercept + Experience + Profession
Intercept only (β_o)	2.58 (0.021)	2.529 (0.03)	2.50 (0.05)
Experience (β_1)		0.0048 (0.0013)	0.00493
Experience(β_2)			0.00151
Level 1 error Variance (μ_{ij})	0.27	-0.02892	0.285
Level 2 error Variance (e_{ij})	0.033	0.045	0.0447
Deviance(-2LL)	4755.19	3203.48	3203.27
Df	3	4	5
Chi-square Difference (df = 1)		1551.91	0.11

Table 9. Results of the *Self-Affirmation Response Variable* and the Results of the Multi-Level Models (df = 1, p = 0.05)

Multi-Level Model Fixed Factors	Model 1 Intercept Only	Model 2 Intercept + Experience	Model 3 Intercept + Experience + Profession
Intercept only (β_0)	5.977 (0.046)	6.03 (0.081)	4.00 (0.034)
Experience (β_1)		-0.0049 (0.005)	-0.00483
Experience(β_2)			0.00628
Level 1 error Variance (μ_{ij})	0.123	0.1233	0.1234
Level 2 error Variance (e_{ij})	0.21	0.21	1.21
ICC			
Deviance(-2LL)	5426.47	5249.59	5248.95
Df	3	4	5
Chi-square Difference (df = 1)		176.88	0.000

The computer output for the three PRELIS multi-level programs is summarised in Table 9, for the variance decomposition of the response variable, *Self-Affirmation*. There is enough evidence, given by the deviance chi-square value (Deviance-2LL) of 5426.47, that more variables should be added in the equation to reduce the variability in the Self-Affirmation response variable. The addition of the Experience fixed-variable significantly reduced the deviance chi-square value by 176.88. On the other hand, the addition of the Profession fixed-variable did not significantly reduce the variability in the response variable Self-Affirmation (just a difference of 0.36).

Apart from Profession, we also tested other variables such as Gender and Position to check whether they affected the variability in the response variable, but none of them showed this to be the case.

DISCUSSION

FINDINGS AT THE MICRO AND MACRO LEVEL

'Work experience' showed high variability influence in the way employees responded to all the four attributes of DE, namely expectancy, instrumentality, valence and self-affirmation at the *micro-level* (i.e., at the basic network level). We also tested other personal attributes such as 'age' and 'gender' and the results suggested that these do not reduce variability in the DE process. We suspect that 'experience' has high influence, because individuals have significant knowledge and high inter-sector relationships, which are critical in virtual environments.

Although at the micro-level employees' attitudes towards discretionary effects, such as valence, were much influenced by their experience in a particular work environment, the results were a bit different at the sector-level (*macro level*). The results in the four tables showing the models, suggest that 'profession' did not

influence the levels of valence, expectancy, instrumentality and self-affirmation perspectives within the networks.

Tests for DE without the cluster-level analysis revealed slightly different results. For example, the average work experience for the Engineering sector and Retail was about 13 years, yet Retail showed higher expectancy, instrumentality and ultimately higher DE than did Engineering. The strongest point in the Engineering sector, as compared to the rest of the five sectors, was valence.

Retail was, on average, the sector with highest levels of DE, followed by Education and then Mining. This was very interesting, for one would have anticipated Retail to have the lowest DE as it had the highest number of managers with lesser academic qualifications. In a roundabout way, 'educational levels' can be shown to not necessarily determine DE, but to be a powerful influencing factor. This can be tested in further investigations and studies.

At the *macro-level*, the retail industry (Table 10) generally was high on expectancy, instrumentality, and self-affirmation and ultimately DE. This was followed by mining, and then education. In terms of 'experience', self-efficacy and perceived difficulty play important roles. This could be as a result of the fact that employees in the retail industry are more oriented to providing grounds for the stated expectancy variables. Finance and ICT were in the middle, while engineering was generally last on both DE and on the expectancy outcomes. An interesting and opposite result was that valence was highest on the engineering category, and lowest on the education and retail sectors. This could possibly be because engineers are more concerned with rewards, such as bonuses. The structure of engineering firms could also be a contributing factor to the high valence values. Project managers may be very certain that they will get rewards on the completion of specific large-scale projects. It is therefore much easier to be certain of a result in engineering than in service-oriented, human-centred industries such as retail, which are highly fragmented and unpredictable.

The high values in sectors such as education, retail and mining could also be attributable to short- and long-term training. For instance, education was the field with the most highly-experienced employees. This was followed by engineering, then retail, ICT and finance in that order. A further potential explanation of the disparities could be associated with management hierarchies; for example, retailers generally have flatter management hierarchies compared to fields such as engineering, with steep organisational structures.

Table 10. Results of Scoring Recorded at the Macro-Level of the Specified Industry

Sector	DE	Expectancy	Instrumentality	Valence	Affirmation
Mining	0.887	4.0507	6.7841	2.5194	6.4136
Finance	0.838	4.0298	6.7791	2.5978	5.9165
Engineering	0.759	4.0295	6.5192	4.495	5.8658
Education	0.87	4.14	6.93	2.37	6.37
Retail	0.888	4.1635	6.8118	2.49	6.1953
ICT	0.8228	4.0879	6.4771	2.754	5.603

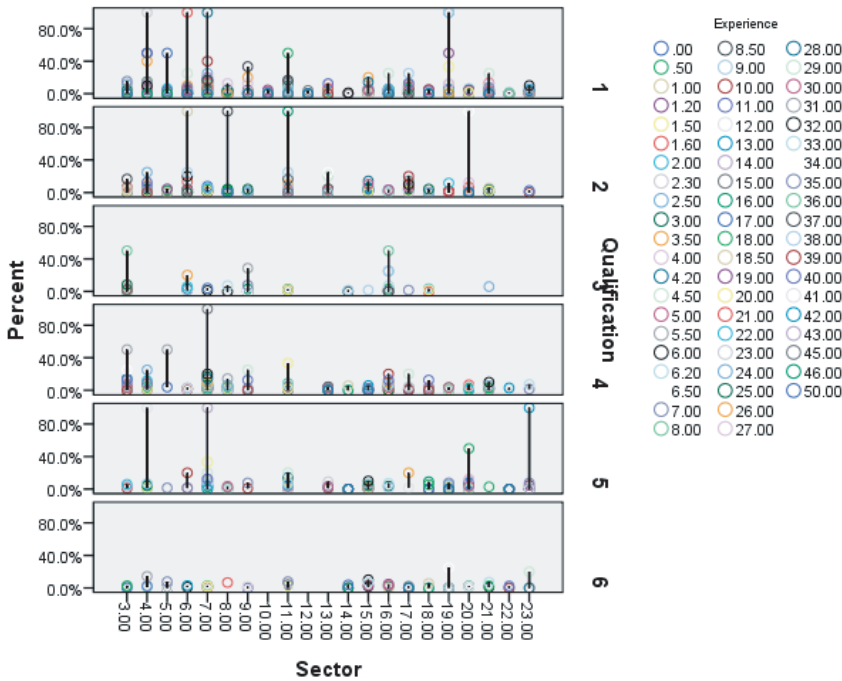


Figure 2. Sectors, Qualifications and the Percentage (Skill Levels of the Industries)

Some sectors had very few employees, and also were very much in line with other sectors. Therefore, most of the sectors were merged so that we only had six sectors to represent the entire population. Engineering is represented by 4, Finance by 7, retail by 20, Mining by 17, education by 3 and ICT by 11.

The level of qualification can be seen in Table 12. It can be deduced that retail employees respond well to experience and self-efficacy variables of expectancy. This could be as a result of training, and the more direct nature of their tasks. Goal-setting and control of tasks are also part of expectancy understanding and measure, which also scored highest for retail employees.

A TECHNICAL NOTE

It is common practice in social research with two-level data to integrate the micro-level data to the macro-unit. This is usually done by averaging the results of each and every macro-unit. However, in cases where the research refers to details that are more implicit at the micro-level, this can result in gross errors. One of such errors would be a shift in meaning [69]. A variable that is considered at *macro-level* refers to the macro unit, not directly to the micro-unit. The firm’s average of a rating of employees on performance, for example, may not be used as an index for an individual performance. This variable refers to the firm, not directly to the employees.

Table 12. Level of Qualification: Frequencies of the Respondents

Positions (excluding missing variable)					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 (CEO)	72	2.0	5.4	5.4
	2 (Director)	212	5.8	15.9	21.3
	3 (Lecturer)	1	.0	.1	21.4
	4 (Manager)	673	18.6	50.6	72.0
	6 (Section Head)	69	1.9	5.2	77.2
	7 (Specialists)	302	8.3	22.7	99.8
	8 (Not given)	2	.1	.2	100.0
	Total	1331	36.7	100.0	

Furthermore, averaging may neglect the original data-structure, especially when analysis of some form of covariance is considered. A correlation between *macro-level* variables cannot be used to make assertions about correlations concerning *micro-level* relations. Because of these factors, we embarked on investigating DE variables at both *micro-* and *macro-levels*.

CONCLUSION

The global knowledge economy has led to the development of increasingly complex professional and virtual networks. These networks have generated social and technological characteristics that need careful planning.

In our study, we have researched discretionary effort (DE) based on expectancy, instrumentality, valence and self-affirmation within these professional and virtual networks. We have shown that while each factor is important on its own, a combined construct of DE provides further differentiation between organisations and performance. We have shown that DE is particularly important in newly emerging professional and virtual networks.

We suggest that organisations conduct a DE audit and use that as a basis for development. We have gone on to posit that developing the attitudinal factors described as DE can be addressed through coaching, as coaching focuses on behaviours rather than on knowledge accumulation. Coaching explicitly for the specific DE attributes is suggested as a methodology which supercedes more general behavioural coaching. Further research to specifically link performance with the development of DE attributes is suggested.

We have also noted that Profession is an important factor concerning DE. Research by Hicks [70] in the hotel industry (which in this study was part of Retail) confirms our finding that Profession is significant. Similarly, Gellerman [71] notes that, of the many different occupational groups identified in his research on motivation, scientists (inclusive of engineers) emerged as the most strongly oriented as motivation seekers. This could, in part, explain our finding that engineers were lowest on expectancy, instrumentality and self-affirmation responses, but highest on valence. While Experience is equally significant in our findings, we note that Gender is not an important influencing variable.

Finally, our research could be extended by examining dynamic models of newcomer processes and effects [72]. For instance, newcomer trust evolution, as well as newcomer credibility evolution, over time in an established professional network, would potentially have effects on both the newcomer's and established members' DE. It would be interesting to note the consequences on team performance of such time-based changes, starting from initial levels (without newcomer introduction), to newcomer introduction, and finally to full credibility and trust establishment. Additionally, it may be interesting to research locus of control effects in relation to DE, and potential ego altering in relation network development.

REFERENCES

1. Jago, A.G., Leadership: Perspectives in Theory and Research, *Management Science*, 1982, 28(3), 315-336.
2. Seijts, G.H. and Kilgour, D., Principled Leadership: Taking the Hard Right, *Ivey Business Journal*, 2007, May/June, http://www.iveybusinessjournal.com/article.asp?intArticle_ID=688, accessed 13th August 2007.
3. Giberson, T.R., Resick, C.J. and Dickson, M.W., Embedding Leader Characteristics: An Examination of Homogeneity of Personality and Values in Organizations, *Journal of Applied Psychology*, 2005, 90(5), 1002-1010.
4. Tourigny, L., Dougan, W.L., Washbush, J. and Clements, C., Explaining Executive Integrity: Governance, Charisma, Personality and Agency, *Management Decision*, 2003, 41(10), 1035-1049.
5. Mirvis, P., Executive Development Through Consciousness-Raising Experiences, *Academy of Management Learning & Education*, 2008, 7(2), 173-188.
6. Wenger, E., *Communities of Practice: Learning, Meaning and Identity*, Cambridge University Press, Cambridge, MA, 1998.
7. Sproull, L. and Kiesler, S., *Connections: New Ways of Working in the Networked Organization*, MIT Press, Cambridge, MA, 1991.
8. Prahalad, C.K. and Ramaswamy, V., The New Frontier of Experience Innovation, *MIT Sloan Management Review*, 2003, 44(4), 12-18.
9. Mullins, L.J., *Managing People in the Hospitality Industry*, Addison-Wesley Longman, Harlow, 1998.
10. Baldwin, T.T., Bedell, M.D. and Johnson, J.L., The Social Networks in a Team-Based MBA Program: Effects on Student Satisfaction and Performance, *Academy of Management Journal*, 1997, 40, 1369-1397.
11. Gorelick, C., Milton, N. and April, K., *Performance Through Learning: Knowledge Management in Practice*, Butterworth-Heinemann, Burlington, MA, 2004.
12. Mehra, A., Kilduff, M., and Brass, D.J., The Social Networks of High and Low Self-Monitors: Implications for Workplace Performance, *Administrative Science Quarterly*, 2001, 46, 121-146.
13. Parker, G.M., *Team Players and Teamwork*, Jossey Bass, San Francisco, 1990.
14. Ensley, M.D., Pearson, A. and Pearce, C.L., Top Management Team Process, Shared Leadership, and New Venture Performance: A Theoretical Model and Research Agenda, *Human Resource Management Review*, 2003, 136, 1-18.
15. Day, D.V., Gronn, P. and Salas, E., Leadership Capacity in Teams, *The Leadership Quarterly*, 2004, 15, 857-880.
16. Ilgen, D.R., Major, D.A., Hollenbeck, J.R. and Segoe, D.J., Team Research in the 1990's, in: Chermers, M.M. and Ayman, R., eds., *Leadership Theory and Research: Perspectives and Directives*, Academic Press, San Diego, CA, 1993, 245-270.

17. Bass, B.M., *Bass and Stogdill's Handbook of Leadership: A Survey of Theory and Research*, Free Press, New York, 1990.
18. Bryman, A., *Charismatic and Leadership in Organizations*, Sage, London, 1992.
19. Gardner, J.W., *On Leadership*, Free Press, New York, 1990.
20. Murphy, A.J., A Study of the Leadership Process, *American Sociological Review*, 1941, 6, 674-687.
21. Blanchard, K., Zigarmi, D. and Nelson, R., Situational Leadership after 25 Years: A Retrospective, *Journal of Leadership Studies*, 1993, 1(1), 22-36.
22. Blanchard, K., Zigarmi, P. and Zigarmi, D., *Leadership and the One Minute Manager: Increasing Effectiveness Through Situational Leadership*, William Morrow, New York, 1985.
23. Hersey, P. and Blanchard, K.H., *Management of Organizational Behaviour: Utilizing Human Resources*, 3rd edn., Prentice Hall, Englewood Cliffs, NJ, 1977.
24. Hersey, P. and Blanchard, K.H., *Management of Organizational Behaviour: Utilizing Human Resources*, 5th edn., Prentice Hall, Englewood Cliffs, NJ, 1988.
25. Bollen, K.A. and Hoyle, R.H., Perceived Cohesion: A Conceptual and Empirical Examination, *Social Forces*, 1990, 69(2), 479-584.
26. Rotter, J.B., Generalized Expectancies for Internal versus External Control of Reinforcement, *Psychological Monographs: General and Applied*, 1966, 80(1 Whole No. 609), 1-28.
27. Barge, J.K., Leadership Skills and the Dialectics of Leadership in Group Decision Making, in: Hirokawa, R.Y. and Poole, M.S., eds., *Communication and Group Decision-Making*, 2nd edn., Sage, Thousand Oaks, CA, 1996, 301-342.
28. Zaccaro, S.J., Rittman, A.L. and Marks, M.A., Team Leadership, *The Leadership Quarterly*, 2001, 12, 451-483.
29. April, K. and Shockley, M., eds., *Diversity: New Realities in a Changing World*, Palgrave Macmillan, Basingstoke, 2007.
30. Drechsel, G.L., Leadership Research: Some Issues, *Communication Yearbook*, 1991, 14, 535-546.
31. Morgan, G., Emerging Waves and Challenges: The Need for New Competencies and Mindsets, in: Henry, J., ed., *Creative Management*, Sage, Newbury Park, CA, 1991, 283-293.
32. Richmond, A. and Skitmore, M., Stress and Coping: A Study of Project Managers in a Large ICT Organization, *Project Management Journal*, 2006, 37(5), 5-16.
33. Cartwright, S. and Cooper, C.L., *The Psychological Impact of Merger and Acquisitions on the Individual*, Paper presented at the British Psychological Society Occupation Psychology Conference, Liverpool, UK, 1992.
34. Spender, J.C., Exploring Uncertainty and Emotion in the Knowledge-Based Theory of the Firm, *Information Technology & People*, 2003, 16(3), 266-288.
35. Mumford, M.D., Zaccaro, S.J., Connelly, M.S. and Marks, M.A., Leadership Skills: Conclusions and Future Directions, *The Leadership Quarterly*, 2000, 1, 155-170.
36. Wexley, K.N. and Baldwin, T.T., Management Development, 1986 *Yearly Review of Management of the Journal of Management*, 1986, 12(2), 277-294.
37. Baldwin, T.T. and Patgett, M.Y., Management Development: A Review and Commentary, in: Cooper, C.L. and Robertson, I.T., eds., *Key Reviews in Management Psychology*, Wiley, New York, 1994, 270-320.
38. Peters, B.K.G., The Four Stages of Management Education, *Biz Ed – Journal of AACSB International*, 2006(May/June), 36-40.
39. Peters, B.K.G., National and International Developments in Leadership and Management Development, in: Mumford, A., Gold, J. and Thorpe, R., eds., *Handbook of Management Development*, 5th edn., Gower, London, 2009.

40. De Haan, E., *Relational Coaching: Journeys Towards Mastering One-to-One Learning*, Wiley, London, 2008.
41. Kline, N., *Time to Think: Listening to Ignite the Human Mind*, Cassell, London, 1999.
42. Brunning, H., *Executive Coaching: A Systems-Psychodynamic Perspective*, Karnac, London, 2006.
43. Whitmore, J., *Coaching for Performance: GROWing People, Performance and Purpose*, Nicholas Brealey, London, 1992.
44. Skiffington, S. and Zeus, P., *Behavioral Coaching*, McGraw-Hill Professional, New York, 2003.
45. Green, J. and Grant, A.M., *Solution-Focused Coaching*, Momentum Press, London, 2003.
46. Pemberton, C., *Coaching to Performance*, Butterworth-Heinemann, Oxford, 2006.
47. Caulat, G., Virtual Leadership, *The Ashridge Journal*, 2006, Autumn, 6-11.
48. Mitchell, T.R., Expectancy-Value Models in Organization Psychology, in: Feather, N.T., ed., *Expectations and Actions: Expectancy-Value Models in Psychology*, Lawrence Erlbaum Associates, Hillsdale, N.J, 1982, 293-312.
49. Steele, C.M., The Psychology of Self-Affirmation: Sustaining the Integrity of the Self, in: Berkowitz, L., ed., *Advances in Experimental Social Psychology*, Academic Press, New York, 1988, 21, 261-302.
50. Vroom, V., *Work and Motivation*, Wiley, New York, 1964.
51. Katz, D., The Motivational Basis of Organizational Behavior, *Behavior Science*, 1964, 9, 131-146.
52. Scholl, R.W., *Motivational Processes – Expectancy Theory*, 2002, http://www.cba.uri.edu/Scholl/Notes/Motivation_Expectancy.html, accessed 2nd August 2008.
53. Mruk, C., *Self-Esteem: Research, Theory and Practice*, Free Association Books (Springer), London, 1999.
54. Howard, A., Positive and Negative Emotional Attractors and Intentional Change, *Journal of Management Development*, 2006, 25(7), 657-670.
55. Meirick, P.C., Self-Enhancement Motivation as a Third Variable in the Relationship between First- and Third-Person Effects, *International Journal of Public Opinion Research*, 2005, 17(4), 473-483.
56. Langner, E.E., Cognitive Dissonance: A Motive for Self-Affirmation or Self-Consistency?, *Dissertation Abstracts International*, Section B: The Sciences and Engineering, 1997, Vol. 57(9-B).
57. April, K. and Smit, E., Diverse Discretionary Effort in Workplace Networks, in: Özbilgin, M.F. and Syed, J., eds., *Diversity in Asia*, Edward Elgar, London, 2009.
58. Ribeaux, P. and Poppleston, S.E., *Psychology and Work*, Macmillan, Basingstoke, 1978.
59. Katz, D., The Functional Approach to the Study of Attitudes, *Public Opinion Quarterly*, 1960, 21, 163-204.
60. Fai, F., A Structural Decomposition Analysis of Technological Opportunity, Corporate Survival and Leadership, *Industrial and Corporate Change*, 2007, 16(6), 1069-1103.
61. Kmec, J.A. and Gorman, E.H., *Gender and Self-Reported Discretionary Work Effort*, Sheraton Boston and the Boston Marriot Copley Place, Boston, MA, 2008, 7-31.
62. Hox, J.J., *Applied Multilevel Analysis*, TT-Publikaties, Amsterdam, 1994.
63. Longford, N.T., *Random Coefficient Models*, Oxford University Press, New York, 1993.
64. Bryk, A.S. and Raudenbush, S.W., *Hierarchical Linear Models, Applications and Data Analysis Methods*, Sage Publications, Newbury Park, CA, 1992.
65. Goldstein, H., *Multilevel Statistical Models*, 2nd edn., Edward Arnold, London, 1995.
66. Kreft, I.G.G. and De Leeuw, J., *Introducing Multilevel Modelling*, Sage Publications, London, 1998.

67. Robinson, W.S., Ecological Correlations and the Behavior of Individuals, *American Sociological Review*, 1950, 15, 351-357.
68. Budhwar, P.S. and Sparrow, P.R., Developing Levels of Strategic Integration and Devolvement of Human Resource Management in India, *International Journal of Human Resource Management*, 1997, 8(4), 476-494.
69. Huttner, H.J.M., Contextual Analyses, in: Albinski, M., ed., *Onderzoekstypen in de Socologie*, Van Gorcum, Assen, 1981, 262-288.
70. Hicks, L., Excluded Women: How Can This Happen in the Hotel World?, *The Service Industries Journal*, 1990, 10(2), 348-363.
71. Gellerman, S.W., *Motivation and Productivity*, Amacom Books, New York, 1963.
72. Chan, D. and Schmitt, N., Inter-Individual Differences in Intra-Individual Changes in Proactivity in during Organizational Entry: A Latent Growth Modeling Approach to Understanding Newcomer Adaptation, *Journal of Applied Psychology*, 2000, 85, 190-210.

APPENDIX 1: PROFESSIONAL NETWORK EXPECTANCY QUESTIONNAIRE

Self-Assessment Tool for Expectancies within Professional Networks

The following self-assessment tool is designed to assist you in thinking through critical behaviours in 10 key areas for effectively engaging in, utilising, and creating conducive, value-adding, professional network relationships. Through self-reflection, the tool highlights areas for personal growth, and raises personal awareness with regard to working through a professional network. It will also assist the researchers in establishing a baseline against which to measure future development and success of employees and managers such as yourselves, and gain understanding of the enhancing and mediating effects of expectancies in professional network performance and learning.

INDUSTRY	CURRENT AGE	GENDER	NATIONALITY	ETHNICITY
HIGHEST ORGANISATIONAL POSITION	YEARS WORK EXPERIENCE	CURRENT & PRIOR QUALIFICATIONS		
circle YES / NO	circle YES / NO	circle YES / NO	CL%	V%
CO-LOCATED WORK EXCLUSIVELY	VIRTUAL WORK EXCLUSIVELY	MIX OF CO-LOCATED & VIRTUAL WORK	APPROX. % MIX	

This questionnaire is designed so as to help you to reflect on your own experiences in your professional network (possibly team) in the workplace, i.e., the people you draw on, work with and count on, to complete your work successfully. Expectancy refers to a person's strength of belief and conviction about whether or not what they set out to do on a personal level is achievable, and desirable, on a workplace level, of their effort and productivity. Underpinning this expectancy is the fact that people have different expectations and levels of confidence about what they are capable of doing. Desire and expectation are interwoven, and only mitigated by workplace issues and openness to their expectations, as well as personal self-esteem and self-confidence issues.

1. EFFORT-PERFORMANCE EXPECTANCY

Network member (you) believes that desired levels of performance are possible, given the resources, competencies and skills s/he possesses

SPECIFIC RESPONSES

(1-5)

-
- 1a Am confident in my skills and competencies, and therefore show courage and sense of purpose to stand up for what I believe, in pushing for the desired levels of performance
-
- 1b When appropriate, honestly acknowledge to my network when I am unable to contribute significantly or am “lost” (i.e., don’t fully know what I am doing nor do I know what to do next)
-
- 1c Believe that, with some effort, I am capable of learning the required amount, and at the required pace, in order to work competently in all workplace eventualities and situations
-
- 1d Believe that my network members will match my effort in ensuring our shared success in overcoming challenging tasks/projects or navigating areas not previously ventured into
-
- 1e For any given workplace scenario/situation, possess both the required technical and organisational skills to perform well
-
- 1f Comments or further insights on the impact of this expectancy on your self-esteem and productivity:
-

2. INTERPERSONAL-PERFORMANCE EXPECTANCY

Network member (you) believes that s/he is seen to be assisting, and developing, others

SPECIFIC RESPONSES

(1-5)

-
- 2a Is seen, by organisational employees as well as other stakeholders, to be treating network members, as well as their inputs and perspectives, with respect and dignity
-
- 2b Provide network members with the necessary development, and resources, to play meaning roles in something that is quite significant to the network, and/or organisation
-
- 2c Allow for the expression of emotion as it relates to the performance and under-performance of network members, without allowing it to impact negatively on others or the organisation
-
- 2d Insist on, and am known to insist on, the same high standards of cooperation as I personally demonstrate in my dealings with my network members
-
- 2e Proactively seek out opportunities to assist network members in challenging projects, or help them to do something extra, beyond the minimal requirements of workplace performance
-
- 2f Comments or further insights on the impact of this expectancy on your self-esteem and productivity:
-

3. EFFORT-LEARNING EXPECTANCY

You believe that expended personal effort will have future, value-adding learning benefits

SPECIFIC RESPONSES

(1-5)

- | | |
|----|---|
| 3a | Make use of all the available communication tools (newsletters, Intranet, Internet, articles in business press, papers in academic journals, workshops, etc.) to raise personal awareness |
| 3b | Seek to involve myself in activities that exposes me to knowledge and learning, that could eventually aid my future career(s), inside my current organisation, or outside of it |
| 3c | Proactively seek to create and shape a performance support & shared-learning context (environment) for network members, in order that I may gain from their knowledge & insight |
| 3d | Expend my personal energy and effort only in those things/processes/projects that currently has personal learning benefit for me, or will have in the future |
| 3e | Tailor my effort and contribution expenditure to match the amount of learning I receive in return from my network members |
| 3f | Comments or further insights on the impact of this expectancy on your self-esteem and productivity: |

4. LEADING-VISIBILITY EXPECTANCY

You are seen to be in step with new trends and the cutting-edge, and acknowledged as being knowledgeable and practicing at the forefront

SPECIFIC RESPONSES

(1-5)

- | | |
|----|--|
| 4a | Purposefully explore unconventional ideas and different approaches that could eventually (currently, or in the future) be important for my network to know |
| 4b | Actively seek to ensure the transference of my knowledge and insights across, and outside my, discipline boundaries (both within and outside of the organisation) |
| 4c | Regularly subject my ideas to scrutiny from non-network members (i.e., present at conferences, publish in international peer-reviewed journals, write books, etc.) |
| 4d | Regularly feed back new and different information and knowledge to my network members (information and knowledge that they may not have come across) |
| 4e | Seek out, and participate in, cutting-edge research projects (both within the organisation and outside) |
| 4f | Comments or further insights on the impact of this expectancy on your self-esteem and productivity: |

5. NETWORK-PERFORMANCE EXPECTANCY

Network member (you) believes that his/her colleagues are committed to the goals and objectives of the network

SPECIFIC RESPONSES

(1-5)

-
- 5a Monitor whether all network members contribute to shaping organisational policy, work practices and learning processes to promote network effectiveness
-
- 5b Assess the reliability and dependability of individual network members (e.g., whether they attended all face-to-face meetings, completed tasks and projects on time, etc.)
-
- 5c Regularly elicit accurate and constructive feedback from network members regarding their understanding or misunderstanding of important knowledge relating to our network's work
-
- 5d Identify barriers that sometimes hinder the self-determination and self-motivation of my network members in achieving the network's goals
-
- 5e Monitor whether individual network members proactively seek project engagements, and periods of projects, that suit (are aligned to) their personal team styles
-
- 5f Comments or further insights on the impact of this expectancy on your self-esteem and productivity:
-

6. INTERNAL-RECOGNITION EXPECTANCY

Network member (you) believes that s/he will be recognised (with little or no financial rewards), both within the network and the greater organisation, for the contribution s/he has made

SPECIFIC RESPONSES

(1-5)

-
- 6a Am satisfied with the amount of recognition I receive, from my network members and general organisation, for contributing to my network-, and organisational success
-
- 6b Prefer non-financial rewards over financial rewards
-
- 6c Look for alignment (connections and gaps) between the feedback I get, and the team or organisation recognition programs being used
-
- 6d My preference is for specific recognition and feedback concerning my contribution (not general platitudes and global statements)
-
- 6e Prefer feedback and recognition from my other network members, than from the other organisational members and general stakeholders (non-network members)
-
- 6f Comments or further insights on the impact of this expectancy on your self-esteem and productivity:
-

7. MUTUAL-RECIPROCITY EXPECTANCY

Network members returning directly, or indirectly, aid, resources and/or friendship offered by another network member

SPECIFIC RESPONSES (1-5)

7a	Feel pressured to enforce equal sharing of resources and aid (by myself, and others) within acceptable time frames
7b	Mobilise opposition against would-be dominant individual's, who do not appear to share the same, underlying intent and values of the network (e.g., public complaint, ridicule, ignoring)
7c	Consistently work at, and seek through the eliciting of their viewpoints and perspectives, the integration and alignment of my work goals with the goals of reciprocal members
7d	Continuously seek to improve network processes and communication to achieve more effective network cooperation and higher levels of reciprocity among network members
7e	Share reputation and successes of network members with other networks (not necessarily organisational stakeholders or related to organisational outcomes)
7f	Comments or further insights on the impact of this expectancy on your self-esteem and productivity:

8. INDIVIDUAL-NETWORK LEARNING EXPECTANCY

Network member believes that his or her own personal learning, knowledge and insights are of value, and can contribute, to the network's learning

SPECIFIC RESPONSES (1-5)

8a	Proactively assists network members to stay informed of industry/sector developments (e.g., access to, and sharing of, professional periodicals, making them aware of conferences, etc.)
8b	Put aside specific time slots/periods for sharing, informally and formally, personal knowledge and insights with other network members
8c	Provide accurate and constructive feedback to my network members regarding their understanding or misunderstanding of important knowledge relating to our network's work
8d	Confidently and consistently, where knowledgeable, state positions and ideas on issues that I believe are important for my network to know
8e	Seek to pull knowledgeable people, and sources of learning and knowledge, into my network (who/that do not yet have informal, or formal, membership of my network)
8f	Comments or further insights on the impact of this expectancy on your self-esteem and productivity:

9. PERFORMANCE-OUTCOME EXPECTANCY

Network member (you) believes that what s/he is doing will lead to certain outcomes

SPECIFIC RESPONSES

(1-5)

- | | |
|----|--|
| 9a | Establish measurement criteria, using quantitative- and qualitative measures, of the impact effect of my network's contribution to an organisational goal(s) |
| 9b | Ensure that my network members' personal goals and needs are aligned with the desired organisational outcome(s), and therefore their needs are gratified when achieved |
| 9c | Periodically highlight and celebrate my network members' behaviours and actions that appear to be aiding the achievement of the desired organisational outcomes |
| 9d | Personally play a pivotal role in consistently ensuring the achievement of desired organisational outcomes (i.e., I am needed and valuable to organisational success) |
| 9e | Often draw on my intuitive sense and faith in believing that desired organisational outcomes will be achieved, even when it does not look possible to others. |
| 9f | Comments or further insights on the impact of this expectancy on your self-esteem and productivity: |

10. TEAM-SUSTAINABILITY EXPECTANCY

Network member (you) focused on sustaining the network, and its future

SPECIFIC RESPONSES

(1-5)

- | | |
|-----|--|
| 10a | In consultation with stakeholders of my network's contribution (not network members), build a coherent set of both achievable, and stretch, long-term goals for the professional network |
| 10b | Set time aside for regular feedback and honest disclosure from my network members, to ascertain their perspectives on possible hindrances that could impact the network's future |
| 10c | Consistently demonstrate high levels of respect for my network members in conversations and dealings with other non-members (in & out of the presence of my network members) |
| 10d | Provide consistent protection for my network members, and their work, through my authority, influence and persuasion of stakeholders (non-members) of my network's contribution |
| 10e | Build a broad base of support, for my network, among key stakeholders by identifying and positioning ideas to satisfy their needs, interests and concerns. |
| 10f | Comments or further insights on the impact of this expectancy on your self-esteem and productivity: |

