Arab Journal of Administrative Sciences

2010, Vol. 17, No. 1, 137 - 167

* *Abdullah Al-Beraidi*

** *Tudor Rickards*

* Qassim University, Saudi Arabia

** Manchester University, UK

TEAM CREATIVITY IN HIGHLY REGULATED CONTEXTS: A QUANTITATIVE INVESTIGATION IN ACCOUNTING OFFICES IN SAUDI ARABIA

Key Words

Creativity; Motivation; Leadership; Climate; Workload pressure Accounting; CPA Firms.

Abstract

This study examined quantitatively the creativity within two professional groupings found toward the more regulated end of the spectrum. The work was carried out in both the accounting and consulting domains within the Saudi Arabian financial services sector. The professionals within the less regulated domain (consulting) showed self-reports of more intrinsically motivated creative behaviors, transformational leadership, and a range of supportive team factors and less structural constraints. The findings suggested that such differences could not be explained by personal education/ aptitude variations, and could be a consequence of more support for creative behaviours, a significantly different form of transformational leadership, and also weaker structural constraints on creativity. The work draws attention to the wide-ranging impact of external regulation on creativity performance. In the context of investigating creativity within the highly regulated environments, the research established a link between the models of Kirton (1994) and Senge (1990), i.e. Kirton's 'adaptive creativity' is a concept closely related to Senge's 'adaptive learning', while 'innovative creativity' is closely linked to 'generative learning'. This guides us to state that professionals in the more regulated environments can be 'professional' and 'adaptive learners' "within the task" and 'creative' and 'generative learners' "around the task".

Introduction

The definition of a complex, multi-faceted phenomenon such as creativity is a difficult task (Isaksen, 1987; Mackinnon, 1978; Rhodes, 1961; Sternberg & Lubart, 1996). Amabile defines creativity as 'the production of

Submitted April 2008, accepted December 2008.

novel and useful ideas in any domain' Amabile *et al.* (1996: 1155), Woodman *et al.* (1993).

Magyari-Beck (1993) suggested a taxonomy of levels of creativity ranging from individual, group, organizational to cultural. Early studies favored the individual level (Isaksen, 1987; Mackinnon, 1978; Guilford 1975), arguably still the most researched level. At this level, key themes include intrinsic motivation (e.g., Amabile, 1983, 1996; Barron & Harrington, 1981); and cognitive factors (Basadur Graen and Green, 1982; Carrol 1985; Runco, 1999) among which divergent thinking has had special prominence (Torrance, 1981).

A group of European workers has concentrated on creativity at the level of work teams (Hohn, 1999; Rickards and Moger, 1999a, 1999b, 2000; West, 1990). A systemic approach at the level of the organizational group or domain has been proposed by Csikszentmihalyi, (1988), while interest at the societal level has also been reported (Simonton, 1999). The literature reminds us that there are cultural variations of the creative process, person, and product across different cultures. It has been argued that culture shapes the types of creativity and channels it (Lubart, 1999; Raina, 1999). The literature has informed us that multiple cultures might coexist within a particular context, e.g. society and organization (e.g., Sackmann, 1997).

Globalization and the rapid fluctuation of the world markets cause a variety of challenges in the business world. One of the most important challenges is 'competition' which requires organizations to produce new products and services with high quality that satisfies both old and new clients alike. Accounting offices are not exempt from these challenges and are also required to be increasingly more flexible. Such changes impact on behaviour and performance and require a high degree of flexibility that allows organizations to adapt successfully to swift changes. Merritt and Baile (1998) noted that as businesses become more complex and technology advances, accountants must work more creatively.

A focus simply on individual capabilities and performance might lead to the conclusion that accounting professionals are of a lower creativity than professionals in other functions such as R&D, advertising or marketing. However, if we take a contextual view, we should examine those features within the environment that inhibit individual creativity. The environmental focus would include attention to organizational climate as indicated by several studies (e.g., Amabile *et al.*, 1996; Ekvall, 1983).

An environmental perspective indicates that perceived differences to team climate arise from structural features of the work, rather than the personality of individuals. For the purpose of this study, a proposition was formulated that the consulting teams would show a more positive climate for innovation and change, compared to non-consulting teams. This proposition is based on the literature review and the view that consulting departments are less restricted in various ways (for example, by sets of professional and legal requirements).

Creativity within Highly Regulated Contexts

There is an increased need for creative thinking, even in those professions that rely more on convention (i.e. regulated professions) in order to address challenges arising from evermore complex and ambiguous work challenges. In this context, regulation refers to those prfoessions governed by a set of rules issued by professional bodies. This study examined creativity within two such professional groupings found toward the more regulated end of the spectrum. These were the accounting and consulting domains within Saudi Arabia, themselves of differing levels of externally imposed constraints to creative performance. We suggest that our study has potential for extension beyond the confines of Middle Eastern cultures, and beyond the professional domain of financial managers.

Our results were derived from individuals, within work teams, and we have utilized literature at these levels of analysis. However, in what follows, in light of our interest in the impact of regulation on creative performance, we have taken as the most significant level of analysis as the professional domain, which we consider the fundamental context to the work. To further these ends, we explore a set of general hypotheses, drawing on the general theoretical base of creativity research, together with a specific contextualizing hypothesis at the level of the domain. The vocabulary of the domain is taken from the systems approach of Csikszentmihalyi (1988) to indicate a social or professional grouping organized around a structurally codified set of standards or rules.

Creativity in Context: A Bias Towards Stimulants of Creativity

Over the past several years, many studies have attempted to identify those factors that enhance creativity within the work environment. A range of supporting factors have been proposed (Amabile *et al.*, 1996; Amabile 1996; Oldham & Cummings, 1996; De Bono, 1971, 1992; Adams, 1980).

Other studies have suggested techniques of Creative Problem-Solving (CPS), pioneered by Osborn (1963), De Bono (1971) and Parnes, Noller, and Biondi (1977).

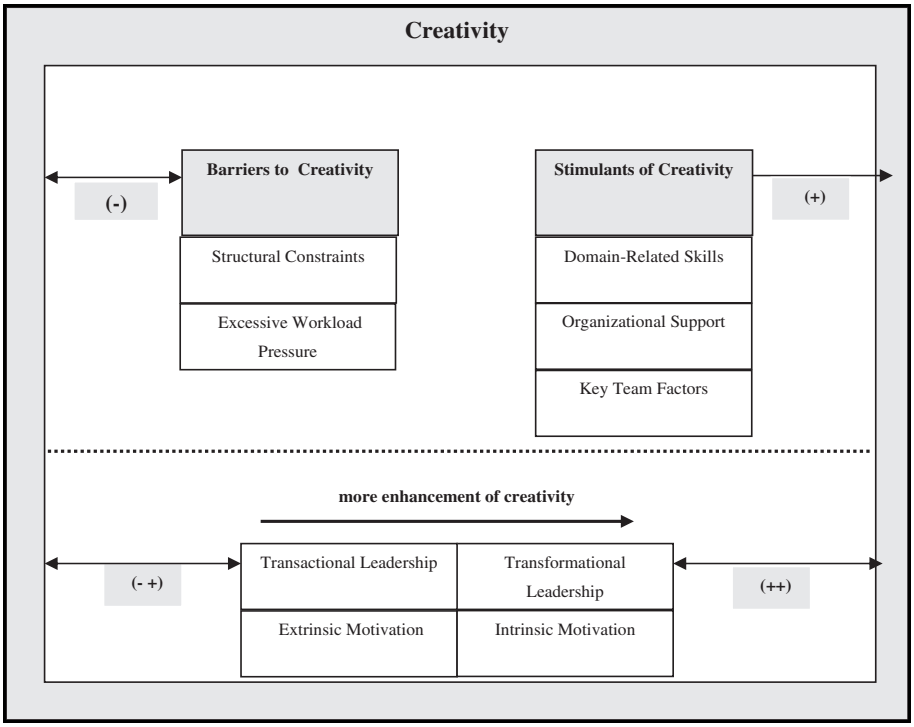
This bias may have ontological, methodological and practical aspects. One ontological and methodological aspect lies in such questions as 'what do researchers mean by stimulants and barriers?', 'do they consider stimulants are opposed to barriers and vice versa?'; moreover 'do they view the absence of stimulants as barriers and vice versa?'. The literature, unfortunately, has suggested no clear answers for such significant questions.

Another possible explanation for this bias may be attributable to one aspect of the nature of the creativity phenomenon. Creativity could be described as a phenomenon that refers to 'a desired-oriented behaviour'. Thus, it might be logical for some researchers to focus on what stimulates such behaviour in different settings, especially with the use of a 'pragmatic approach'. The pragmatic approach concentrates mainly on understanding and utilising creativity without testing the validity of the thoughts involved. de Bono (e.g., 1971, 1992) is one among those who advocate this approach, which focuses on the enhancement of creative skills through training courses. Such training depends heavily on applying a wide variety of creativity techniques which call for the investigation of what fosters creativity.

Fewer empirical attempts have sought to investigate barriers to creativity (Amabile *et al.*, 1996; Rickards & Jones, 1991; Witt and Beorkrem, 1989; Danzig & Nevis, 1970). Among these, Amabile *et al.* (1996) has investigated organizational impediments to creativity within their more widely ranging exploration of creativity supports. Danzig & Nevis (1970), and later Rickards & Jones (1991) examined barriers at the individual level. This study extends the few earlier attempts by investigating some environmental barriers within a professional domain, namely workload pressure and structural constraints.

Creativity Models Influencing the Study

Two models influenced our study profoundly. Amabile's *Three Component Model of Creativity* (Amabile 1983, 1996) contains three overlapping components: domain-relevant skills, creativity-relevant skills, and intrinsic motivation. The author indicates that the three components are jointly necessary for exploring creativity in context (Amabile, 1996). Another model which relates leadership,



(+) represents a hypothesized positive relationship to creativity (stimulants)
(-) represents a hypothesized negative relationship to creativity (barriers)
(++) represents a hypothesized more positive relationship to creativity (strong enhancing factor)
(-+) represents a hypothesized less positive relationship to creativity (weak enhancing factor)

Figure 1: The Development of HHI

team factors, and creative outputs, has been developed by (Rickards, *et al.*, 2001; Rickards & Moger 1999a). These models incorporate earlier research into leadership, team performance and group effectiveness (e.g. Bass 1990; Mumford 2000; Mumford, Scott, Gaddis, and Strange, 2002; Yukl 1994). Figure 1 show factors studied in this research and manifest the key inter-relations between these factors.

Creativity Defined: Routine vs. Non-Routine Performance

In this research, creativity (i.e. the non-routine type of performance) is defined as the production of new and useful ideas in any domain within a given context (Amabile *et al.*, 1996; Woodman *et al.*, 1993). In contrast, productivity (assessment of routine types of outputs) is seen as performance benchmarked against required standards (Pritchard, 1992).

Context for Deriving the Research Hypotheses

Two kinds of hypotheses were developed. The majority (H1 to H8) dealt with general issues derived from the literature. However, we acknowledge that the empirical bounds of our study restrict any findings to two rather highly regulated environments. An additional contextualized hypothesis (CH) was developed to address our interest in the impact of regulation on creative performance, in the two specifically selected environments.

Literature-Derived Hypotheses (H1-H8)

Leadership Styles and Team Factors

The literature of creativity suggests that the creative performance of teams can be stimulated by leadership intervention (Mumford & Connelly, 1999; Rickards & Moger, 1999b; West, 1990). Much leadership research has focused on transformational/transactional leadership (e.g., Bass & Avolio, 1993; Howell & Avolio, 1993; Bass, 1990; Burns, 1978), and their relationships with creative outputs (e.g., Chen, 2001; Jung, 2001; Sosik, *et al.*, 1998). We follow Bass & Avolio (1993) in treating transformational leadership as involving processes which transform follower motivation and performance, and transactional processes as those which require only traditional compliance behaviors from followers. More specifically, creativity skills (fluency and flexibility) have been more strongly linked with transformational, than with transactional, leadership (Jung 2001; Sosik *et al.*, 1998). We hypothesized that:

H1: Perceived creativity (as an important output) in team outputs is more strongly associated with transformational leadership than with transactional leadership.

Many researchers have agreed that the psychological climate of a team plays a role in achieving its objectives, and in its processes. (Chen, 2001; Rickards & Moger, 1999a; Sparrow & Gaston, 1996; Nystrom, 1990). Rickards and Moger (1999a, 2000) suggested seven team factors and proposed that team creativity is fostered if those factors are enhanced. These factors can be summarized as follows:

Platform of Understanding. The concept of a 'platform of understanding' has been used as a metaphor by Rickards to indicate 'a process for seeking those ideas shared by a social group on some topic of concern to the group' (Rickards, 1999: 4). Such a process is viewed as a means for the team members to share knowledge, beliefs, assumptions, and meanings that contribute to the way those mem-

bers deal with their inner world, as well as the external environment

Shared Vision. A vision becomes shared when it effectively converts multiple and diverse views into a common vision which emerges from personal vision (Senge, 1990). Senge (1990) argues that shared vision powerfully joins and binds team members with the task, since such a vision makes them share a sense of purpose and responsibility that motivates and sustains team progress. It has been argued that the exceptional team will successfully break out of the old view to espouse an unexpected (i.e. creative) shared vision for the future through 'creative tension'. Creative tension (i.e. a gap between the shared vision and current reality) assists the team to see a more accurate picture of current reality as significant as a compelling picture of a desired future (Senge, 1990).

Climate. It has been argued that climate setting is crucial for creative behaviour (Rickards, 1990; Ekvall *et al.*, 1983; Napier & Gershenfeld, 1981). Ekvall defined climate as 'an attribute of the organization, a conglomerate of attitudes, feelings, and behaviours which characterize life in the organization, and exist independently of the perceptions and understandings of the members of the organization' (1996: 105). A climate would be a creative one if it makes people trust each other so that they can take the psychological risk of being open and revealing their deeper needs and fears.

Resilience. Abbey and Dickson (1983) argue that being successful in responding to setbacks and frustration is one significant feature of flexibility. A dysfunctional team normally considers setbacks as reasons for scrapping the project. In addition, Rickards (1990) argues that in the case of facing setbacks or frustrations, dysfunctional team members tend to blame the person and/or situation that put the team in difficulty.

Idea Owners. The concept of idea ownership indicates efforts that should be made to take care of ideas for change, and building commitment to the ideas in the team's functions (Rickards & Moger, 1999a). This concept concerns formal systems and procedures for idea generation (Ekvall, 1991). More specifically, idea ownership means that the members of a given group feel that they originally generated and developed the ideas, processes, and procedures, and so they have a strong commitment to their success.

Network Activators. Numerous studies have suggested that boundary-spanning activities serve as very significant linking mechanisms between project groups and external settings (e.g.,

Kanter, 1988; Aldrich & Herker, 1977). The special boundary roles allow the group members to contact different types of networks outside of the group, and are supposed to bring intelligence about the world beyond (Tushman, 1977). Rogers and Shoemaker (1971) argue that 'cosmopolitan' rather than 'local' orientations has been identified in several studies as a significant feature in attaining innovation. Moreover, it has been argued that the more innovative units bring broader perspectives and various information from various channels from outside sources (Kanter, 1988).

Learning from Experience. Kolb (1984) suggested that learning is the process whereby knowledge is gained by the transformation of experience and the process that links education, work, and personal development. Rogers (1969) suggested the concept of 'openness to experience' to stress the significance of having both types of experience: the internal type (learn deeply) and the external type (learn broadly).

Such considerations led to the following hypothesis:

H2: The perceived creativity in team outputs (as an important output) is significantly positively associated with the postulated set of key team factors.

Rickards & Moger, (1999a) extending Ekvall & Arvonen's (1994)'s measures of change-centered leadership argued that transformational leadership is a closer construct than transactional leadership to leadership supportive of group creativity. They also proposed a set of supporting team factors. We thus considered:

H3: Team factors supportive of a creative climate will be more strongly associated with transformational leadership than with transactional leadership.

Motivation

Numerous studies have suggested that a primarily intrinsic motivation will be more conducive to creativity than a primarily extrinsic motivation (Amabile 1983, 1996; Barron 1963). Thus, we hypothesized that:

H4: The perceived creativity (as an important output) in team outputs will be more strongly associated with intrinsic motivation than with extrinsic motivation.

Domain-relevant Skills

According to Amabile, (1996), domain-relevant skills are the foundation of all creative work. Her model includes domain, technical skills, and special domain-relevant talents. This leads us to the following hypothesis:

H5: The degree of perceived creativity (as an important output) in team outputs will be significantly positively associated with domain-relevant skills.

Organizational Support

In this research, organizational support was defined as the organizational structuring which encouraged different functional units to generate, evaluate constructively, and develop new ideas. (Amabile *et al.*, 1996; Kimberley & Evanisko, 1981). Employees are more likely to generate creative outputs if they are given permission to do so by the situation, or by explicit instructions (Parnes & Meadow, 1959; Locke & Kirkpatrick, 1995). Thus, we hypothesized that:

H6: The perceived creativity (as an important output) in team outputs will be significantly positively associated with organizational support.

Workload Pressure

Studies of workload pressure have come from two differing perspectives (Hodgkinson & Sparrow, 2002). These are the computational and interpretational perspectives. Earlier work focusing on time pressures (e.g., Bowden, 1985) suggests a curvilinear relationship between time pressures and individual performance. Choo (1986, 1995) found a similar relationship between stress and performance, although Gaertner and Ruhe (1981) did not find any significant differences in determinants of stress among accounting professionals in audit, tax and consulting departments. We are particularly concerned with work pressures and creative performance (Kelly & Karau, 1993). Some workers have suggested that reasonable workload pressure could have a positive impact on creativity if it is perceived as a challenge emerging from the problem itself (Amabile, 1988). Karau and Kelly (1992) suggested a curvilinear relationship between group creativity and time pressure. Kelly and McGrath (1985) found that group creativity is increased during the longer time limit. Although accepting ambiguities in the literature, we hypothesized that:

H7: The perceived creativity (as an important output) in team outputs will be negatively associated with excessive workload pressures.

Structural Constraints

In the creative organization, it is argued that the structure tends to be flexible, with few rules and regulations, loose job descriptions, and high autonomy (Brand 1998; Keller 1978). It was proposed that team-level constraints operate as a barrier to creativity:

H8: The perceived creativity (as an important output) in team outputs will be significantly negatively associated with the structural constraints.

Contextualized Hypothesis (CH)

The two contexts studied, were both highly regulated in contrast with the more open innovative contexts reported in the creativity literature such as R&D (e.g. Witt & Beorkrem,

1989; Amabile & Gryskiewicz, 1987). However, one was considered a more extreme case than the other. This led to the view that both domains would provide relationships predicated on context, with the more regulated domain generally less supportive of creativity and associated factors. The contextual hypothesis (CH) thus examines the implications of the models underpinning the study.

CH: The less regulated context would significantly report higher levels of creativity, and factors supportive of creativity and lower levels of barriers or impediments to creativity than the more regulated context.

Methods

Measures: Reliability and Validity

The questionnaire used in this study consists of sixteen scales. Ten scales are adopted from The Team Factors Inventory (TFI, Rickards & Moger, 1999a; Rickards & Moger, 1999b; Rickards, *et al.* 2001). These scales deal with seven team factors, two leadership sub-factors, and creative performance. These pre-existing scales had already been well-tested for internal reliability (Chen, 2001; Rickards *et al.*, 2001).

Six new scales were developed for the study: intrinsic and extrinsic motivation; domain-relevant skills; organizational support; structural constraints; and workload pressures. Each of the new scales were checked for content and face validity, followed by a preliminary study (a convenience sample of 80 participants working in managerial and computer teams, see Al-Beraidi & Rickards, 2006). Reliability was examined through factor analysis (using principal components analysis) was employed and the findings indicated that the items of the new scales were tapping the intended constructs (e.g. Carmines & Zeller, 1979). In addition, internal reliability alpha (using Cronbach Alpha) was computed for all the scales and the results revealed good internal consistency, ranging from 0.67-0.86. the scale of extrinsic motivation had a lower level of internal consistency (0.60). This level can be acceptable for the purpose of internal reliability (Nunnally, 1978). Test-retest evidence was obtained from a convenience sample (one team of 11 members) in Saudi Arabia (the interval was six weeks). The results showed the new scales had good test-retest external reliability, from 0.66-0.94 (e.g., Carmines & Zeller, 1979). Reliability results are shown in Table 1.

Sample

A total of 900 inventories were distributed within thirty-four accounting offices, including the "Big Five", in

Table 1
Means and Standard Deviation and Correlations and Reliability coefficients of the Scale Factors (n = 296)

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Platform of Understanding	3.55	.62	1.00	.66***	.63***	.55***	.64***	.51***	.56***	.55***	.31***	.48***	.48***	.54***	.32***	-.31***	.51***	-.11
2. Shared Vision	3.75	.61		1.00	.65***	.66***	.60***	.55***	.53***	.65***	.31***	.50***	.52***	.60***	.42***	-.32***	.52***	-.10
3. Climate	3.83	.53			1.00	.51***	.57***	.54***	.50***	.62***	.29***	.59***	.50***	.59***	.36***	-.36***	.49***	-.10
4. Resilience	3.87	.54				1.00	.54***	.53***	.44***	.58***	.32***	.40***	.50***	.55***	.47***	-.16***	.48***	.03
5. Idea Owners	3.69	.53					1.00	.49***	.52***	.63***	.29***	.61***	.49***	.59***	.24***	-.38***	.59***	-.06
6. Network Activators	3.71	.53						1.00	.43***	.49***	.26***	.52***	.36***	.48***	.30***	-.34***	.46***	.05
7. Learning from Experience	3.84	.52							1.00	.54***	.34***	.51***	.37***	.52***	.28***	-.30***	.43***	-.06
8. Transformational Style	3.70	.71								1.00	.31***	.62***	.44***	.65***	.29***	-.36***	.54***	-.08
9. Transactional Style	3.52	.50									1.00	.33***	.28***	.23***	.29***	-.09	.31***	.16***
10. Creativity	3.43	.55										1.00	.30***	.65***	.12**	-.70***	.65***	-.01
11. Domain Relevant Skills	4.12	.49											1.00	.36***	.38***	-.12**	.33***	-.09
12. Intrinsic Motivation	3.87	.49												1.00	.25***	-.47***	.55***	.02
13. Extrinsic Motivation	3.65	.47													1.00	.11	.20***	.23***
14. Structural Constraints	3.03	.62														1.00	-.49***	.15**
15. Organizational Support	3.55	.63															1.00	-.08
16. Workload Pressures	3.25	.85																1.00
Internal reliability[+]			.68	.81	.78	.69	.78	.88	.79	.81	.74	.85	.83	.70	.60	.71	.86	.67
External reliability[++]			.94	.66	.67	.94	.68	.87	.87	.87	.93	.78	.63	.94	.89	.86	.89	.80

Notes: * p < .05, ** p < .01, ***p < .001

[+] Internal reliability (Cronbach alpha is used), [+] external reliability (six weeks interval)

[++] External reliability (Six weeks interval between the two measures; p < .05 level)

Saudi Arabia (Personally in Riyadh city, and posted, with a prepaid reply envelope, to the offices outside this city. The initial response rate was 25.1% with a total of 226 questionnaires being collected. After a series of follow-ups, the response rate rose to 33% (n = 296, male professionals, since no female professionals working in this profession in SA), which is considered acceptable for such a survey (e.g. Kerlinger 1986). The response rate was 33% in Riyadh and 23% in other cities. This result suggested that there was no serious response bias based on the city. The percentages of responses from the audit, tax & zakat, and consulting functional areas were 70.3%, 15.2%, and 14.5% respectively. The highest proportion in the audit functional area can be attributed mainly to the high proportion of audit professionals' represented in the accounting offices in Saudi Arabia. The response rates were 33.90% and 32.05% in national and international offices respectively. Therefore, there was no substantial bias due to differential sub-groups responses.

Variables

Taking into account the above considerations, this study investigates sixteen variables, which are as follows:

- **Team factors** include seven variables: platform of understanding, shared vision, climate, resilience, idea owners, network activators, and learning from experience.
- **Leadership** includes two variables: transformational and transactional styles of leadership.
- **Motivation** includes two variables: intrinsic and extrinsic types of motivation.
- **Professional competence** includes one variable: domain-relevant skills.
- **Creative opportunities and barriers** include three variables**:** organizational support, workload pressures and structural constraints.
- **Team outputs** include one variable: creativity.

Each of the variables was processed and measured by a five-point Likert scale (strongly agree = 1, neutrally = 3, strongly disagree = 1) comprising three items, using average scores of the responses. Table 2 presents the TFI scales and a sample of its items. The questionnaire was translated into the Arabic language and the Arabic and English versions were put together to avoid semantic problems, i.e., translation problems and the kind that can result from misunderstandings.

Results

We will report the literature-derived hypotheses through correlation

Table 2
TFI Scales

Scale Names	Number of items	Sample Item
Team Factors		
Platform of Understanding	3	Team members have a good understanding of their personal differences
Shared Vision	3	Team members have a shared vision of the team's future achievements
Climate	3	Team members trust one another
Resilience	3	Team members pull together to deal with unexpected problems
Idea Owners	3	Team members care for the success of new ideas
Network Activators	3	Team members use personal contacts to help the team in various ways
Learning from Experience	3	The team is good at learning from its mistakes
Team Leadership		
Transformational Style	3	Team leadership tends to be inspirational
Transactional Style	3	Team leadership tends to be results oriented
Team Motivation		
Intrinsic Motivation	3	The team is driven by a deep interest in its work
Extrinsic Motivation	3	The team works intensively because of external request
Professional competence (Domain Relevant Skills)	3	The team members show high professional skills required for effectiveness
Creative opportunities and barriers		
Organizational Support	3	The organization supports efforts to come up with good ideas
Structural Constraints	3	The structure of the work inhibits team members from expressing their creativity
Workload Pressures	3	Workload pressures prevent your team from producing worthwhile ideas
Team Output Scale (Creativity)	3	The team often comes up with good ideas

and regression analyses then the contextualized hypothesis through the T-test results. Correlation coefficients (Pearson's r) were computed for all the questionnaire scales (see Table 1). As noted above, the correlations among the scales are moderately high and this could raise the question of

independence and structural integrity of these scales. Thus, factor analysis were computed and results are satisfactory, since the results suggested that the items of the new scales were tapping the intended constructs (see the Appendix). The results of correlations permits initial examination of the research hypotheses proposed. Correlation analysis supported all the literature-derived hypotheses (*H1, H2, H3, H4, H5, H6, H8*) except *H7* (the impact of excessive workload pressure on creativity). Further support for some hypotheses was gained from the results of the regression analysis.

Regression Analysis

The stepwise approach is the most advisable approach in exploratory research, such as our study, mainly because it is based upon mathematical criteria rather theoretical criteria (e.g., Wright, 1997). Multiple regression analysis (with the stepwise method) was carried out to predict creativity from all the questionnaire scales as well as the type of functional area (dummy variables were used less regulated functional area was coded 1, and more regulated functional area was coded 0). The T statistic was used to test the significance of the slope. Collinearity was diagnosed by examining the tolerance statistic, which is used to determine how much the independent variables are linearly related to one another. The tolerance statistic ranged between 0.34-0.83 for creativity. Thus, it can be concluded that there is no collinearity in the model. Linearity and homoscidasticity were also tested for, and no serious problems found. The assumption of independent errors (autocorrelation of residuals) was checked by the values of Durbin-Watson which vary from 0 to 4. It is argued that the closer to 2 that the value is, the better, and some argue that values less than 1 or greater than 3 cause a problem (Field, 2000). The values of Durbin-Watson were 1.61 for creativity. Thus, it can be concluded that there was no serious problem of autocorrelation for creativity. Table 3 shows the final fit model of predictors of creativity.

Three of the key team factors, transformational and transactional leadership, intrinsic motivation, organizational support, workload pressure were significant positive predictors for creativity. The three key team factors that were significant predictors for creativity were 'climate', 'idea owners', and 'learning from experience'. The scale of structural constraints was found to be a very significant negative predictor for creativity. Most importantly, the regression analysis suggested the less regulated domain, i.e. consulting domain (through the use of dummy

Table 3
Multiple Linear Regression: The Scales as Predictors of Creativity (n = 296)

	Predictors of Creativity		
	B	**ß**	**t**
Constant	.82		
Team Factors Scales			
Platform of Understanding	+		
Shared Vision	+		
Climate	.16	.14	3.14**
Resilience	+		
Idea Owners	.13	.11	2.45**
Network Activators	+		
Learning from Experience	.12	.09	2.54**
Team Leadership Scales			
Transformational Style	.14	.14	2.93**
Transactional Style	.13	.09	2.93**
Team Motivation Scales			
Intrinsic Motivation	.10	.09	1.87*
Extrinsic Motivation	+		
Domain Relevant Skills	+		
Organizational Support	.15	.15	3.70***
Structural Constraints	-.32	-.34	-8.69***
Workload pressure	.05	.07	2.11*
Domains			
The highly regulated domain #	+		
The less regulated domain #	.32	.15	4.73***
R^2	.77		
Adjusted R^2	.76		
F	58.57****		

Notes:
Stepwise method was applied as variable section.
B represents unstandardized beta coefficients. ß represents standardized beta coefficients.
represent dummy variables (the highly regulated units were coded 0 and the less regulated units 1)
* p < .05,, ** p < .01, *** p < .001, + non-significant predictor.

variables), to be a very significant positive predictor for creativity. The R^2 for the final model is 0.77 (F = 58.57, p < .001). thus, it could be stated that the regression analysis confirm *H1*, *H4*, *H6* and *H8* as well as *HC*, disconfirming *H7 (H2, H3, H5* were not tested by the regression analysis since they were not applicable in its model*)*.

The Consequences of Regulation (contextualizing hypothesis)

T-tests (shown in Table 4) were administered to the data to test for the consequences of regulation. Significant differences were found between the means score of the more regulated and less regulated groupings on five of the seven key team factors, on transformational leadership, intrinsic and extrinsic motivation, structural constraints, organizational support, and on reported creative outputs.

Table 4
Means and Standard Deviation for the More highly, and the Less highly regulated domains [a](n = 296)

Scales	The less regulated groups#		The more regulated groups#		Differences between the highly and less domains (T Test)
	N = 43		N = 253		
	M	SD	M	SD	
Team Factors					
Platform of Understanding	3.61	.60	3.49	.63	n.s.
Shared Vision	3.86	.58	3.63	.64	*
Climate	3.99	.49	3.66	.57	***
Resilience	3.94	.53	3.80	.54	n.s.
Idea Owners	3.86	.48	3.51	.58	***
Network Activators	3.95	.46	3.46	.59	***
Learning from Experience	3.96	.43	3.72	.61	**
Team Leadership Scales					
Transformational Style	3.88	.75	3.51	.67	***
Transactional Style	3.58	.48	3.46	.52	n.s.
Team Motivation					
Intrinsic Motivation	4.12	.39	3.61	.59	***
Extrinsic Motivation	3.53	.43	3.76	.51	**
Domain Relevant Skills	4.13	.44	4.10	.55	n.s.
Organizational Support	3.75	.56	3.34	.70	***
Structural Constraints	2.61	.54	3.45	.70	***
Workload Pressures	3.26	.89	3.23	.81	n.s.
Team Output					
Creativity	3.89	.45	2.97	.65	***

Notes:
The highly regulated domain is the accounting functional areas (including audit and tax departments), and the less regulated domain is the consulting functional area.
The newly developed scales were prepared for this study
* $p < .05$,, ** $p < .01$, *** $p < .001$, n.s. Non-significant.

Discussion and Conclusions

The study confirmed broad predictions derived from the literature, while revealing the profound effect of contextual regulation. The eight hypotheses were significantly supported with only one exception, namely the relationship between creativity and workload pressure. The results provide a well-authenticated benchmark for further investigations within and beyond the financial sector. The one disconfirmed hypothesis (regarding work pressures) calls for further investigation. It should be pointed out that the scale items developed for this study may be in need of further refinement (for example, in distinguishing time pressures and work overload). Such a study should also consider the possibility that workload pressures require a more sophisticated examination, allowing for the possibility of an inverted-U relationship (e.g. Karau and Kelly, 1992). The cultural differences must be considered as a possible source of such finding, in terms of the meanings and the amount of workload pressures.

The specific focus of the research is the influence of regulatory structures on creativity within a domain sometimes assumed to be impervious to deliberate efforts by leaders to come up with creative ideas even highly regulated environments are open to (admittedly restricted levels of) transformational leadership, intrinsic motivation, and creative outputs.

The contextualizing hypothesis (CH) further explored the proposed view that systematic differences would be found between the two highly structured contexts. The results (shown in Tables 3 and 4) provide strong support for the hypothesis, and thus for the robustness of extrapolation of current theory beyond the domains in which they had previously been tested. They point to a profound effect of contextual regulation.

Structurally imposed regulation appears to be acting as a widely ranging attenuating factor. Whereas the results do not give direct evidence of its causality, we see the most likely process to be one in which the regulatory context has a restricting effect on leadership, on previously identified factors enabling team effectiveness, on motivation, and (perhaps less directly) on creative outputs. Previous empirical findings (Al-Beraidi & Rickards, 2003; Hood & Koberg, 1991) have suggested that such differences could not be explained by personal education/ aptitude variations, and rather are a consequence of more support for creative behaviours, a significantly different form of transformational leadership, and also weaker structural constraints on creativity (Table 4).

We argue that there are creative possibilities in the more regulated domain (i.e. the accounting profession in this investigation), albeit of an incremental kind. In this regard, we would suggest a new approach to Kirton's Model (1977, 1994) in which accounting professionals can be adaptively creative 'within the task' and innovatively creative 'around the task', as this is theoretically feasible and empirically could be proved. Although the professionals in such domains taken as a whole would seem to be more inclined to adaptive creativity within the task, establishing a climate which also allows for innovative outputs around the task is feasible in principle and has the potential to yield considerable benefits in practice. With regard to what extent an outcome can be counted as innovative, the notion of big C and little c (e.g., Stein, 1987) has to be taken into consideration. Examples of feasible innovative ideas around the task include finding new procedures to accomplish tasks, designing software facilitating the whole set of work procedures, finding new services, and providing services for new customers.

In addition, these findings gain further importance if it is interpreted as a way in which professionals in a highly regulated environment accommodate changes within their functional areas. Senge (1990) highlights the importance of a culture of 'learning organizations' in order to achieve a competitive advantage. According to this model, Senge distinguishes between two forms of learning: 'adaptive learning' and 'generative learning'. The first form of learning aims at coping with changes necessary to meet the current needs of current customers, while the second aims at creating something novel and useful through a proactively flexible approach, thereby fulfilling the requirements of 'latent need', i.e. what customers might truly value but have never experienced or would never think to ask for.

The parallels between the respective models of Kirton (1994) and Senge (1990) are now clear. Kirton's 'adaptive creativity' is a concept closely related to Senge's 'adaptive learning', while 'innovative creativity' is closely linked to 'generative learning'. This can be seen as a new paradigm in the highly regulated environment and could be viewed as appropriate means of change i.e. to adapt successfully to the turbulent environments in which they operate. In such in a paradigm, 'adaptive' professionals approach the problem within an established framework of rules and procedures (i.e. professional standards) in order to generate new and useful ideas that generally reinforce the given paradigm of the problem, while 'innovative' and

'generative' professionals tend to be more flexible to reframe the problem in order to generate new ideas which have more frame-breaking outcomes. This paradigm leads us to state that professionals in the more regulated environments can be 'professional' and 'adaptive learner' "within the task" and 'creative' and 'generative learner' "around the task". Further work exploring sense made of such constructs by actors in different domains is a priority for the future.

Specific features of the findings are also of note. The leadership style in the less regulated domain is perceived as significantly more transformational. However, there is no significant difference between the levels of perceived transactional leadership across the two domains. This adds to the growing body of research suggesting that a transformational leadership style is an important contributor to creative outputs of work groups (e.g., Jung, 2001; Sosik *et al*., 1998). Furthermore, the more regulatory domain also showed less intrinsic motivation, and more extrinsic motivation.

Although, the confirmation of hypotheses across research into creativity, leadership, team factors, and organizational structures, the researchers emphasize that the concepts (and the chosen instrumentation) must be translated from their primarily North American and European origins with caution because of the *cultural factor (e.g.* Raina, 1999; Al-Beraidi, 2005). Further research should be done to explore this issue more deeply and cover its aspects.

The exploratory nature of the research in the accounting profession and in a Non-Western country, i.e. Saudi Arabia, may or may not prove to be a limitation, in that we cannot assert with confidence the extent to which the research findings could be generalised. Only further research can determine the extent of this potential limitation.

The research findings have implications for training and development of the highly regulated cultures under increasingly turbulent environments, and this will continue to have particular importance. This requires practical efforts to develop creative insights into real or realistic professional issues, and to incorporate these into developmental or tailored training programmes (e.g., Ragsdell, 2001; Rickards & De Cock, 1994a; Kanter, 1985). Further studies are essential to raise awareness in professional bodies, especially those governing industries of a highly regulated nature, of the importance of the issues of creativity, motivation, and leadership. Case evidence from 'best-practice' would help challenge assumptions that such actions are impossible.

Appendix: Results of Factor Analysis on Six New Scales (N = 80)

Results of Factor Analysis on Motivation Scales

Items	Component	
	1	2
Extrinsic motivation-1	**.723**	-.080
Extrinsic motivation-3	**.690**	.208
Extrinsic motivation-2	**.677**	-.204
Intrinsic motivation -1	-.133	**.787**
Intrinsic motivation -3	.145	**.763**
Intrinsic motivation -2	.076	**.489**
Eigenvalue	2.43	1.00
Percent of cumulative variance explained	40.62	56.90

Results of Factor Analysis on Four new Scales

Items	Factor Loadings			
	1	2	3	4
Organizational support-2	**.879**	.216	-.087	.014
Organizational support-1	**.863**	.177	-.019	-.038
Organizational support-3	**.851**	-.010	.024	.080
Domain-relevant skills- 3	.020	**.846**	.089	-.015
Domain-relevant skills-2	.119	**.823**	.273	.059
Domain-relevant skills-1	.243	**.755**	.123	-.170
Workload pressure-1	.040	.154	**.854**	.112
Workload pressure-2	.010	.165	**.823**	.086
Workload pressure-3	-.333	.148	**.477**	.128
Structural constraints-2	-.106	-.602	.108	**.787**
Structural constraints -3	.040	-.226	.297	**.732**
Structural constraints -1	.102	.127	-.162	**.727**
Eigenvalue	3.00	2.40	1.876	1.00
Percent of cumulative variance explained	25.03	45.03	60.51	68.81

Note:
- Each scale has three items
- Extraction Method: Principal Component Analysis.
- Orthogonal Rotation Method (Varimax).
- The number in bold fashion indicated the salient loadings.

English copy نسخة أخرى باللغة العربية	Another Copy in Arabic نسخة

Please put a circle around the appropriate number. Type of Team: 1. Auditing 2. Tax and Zakat 3.Consulting Professional title in the office: 1. Accountant 2. Auditor 3. ŒSenior 4. Supervisor 5. Manger 6. Partner Academic Career: 1. Diploma 2. Bachelor 3. Master 4. PhD 5. Other: ..... Place of Graduatio: ..... Professional Career: 1. CPA 2. CMA 3. Other: ..... Racial category: 1. Arabic (Saudi) 2 .Arabic (Non Saudi) 3. African 4. European 5. Asian 6. Other: ..... Years of experience in the profession:	فضلاً ضع دائرة حول الرقم المناسب. نوع الفريق: ١. مراجعة ٢. ضرائب وزكاة ٣. استشارات الدرجة المهنية في المكتب: ١. محاسب ٢. مراجع ٣. كبير مراجعين ٤. مشرف ٥. مدير ٦. شريك المؤهل العلمي: ١. دبلوم ٢. بكالوريوس ٣. ماجستير ٤. دكتوراه ٥. أخرى: ..... مكان الحصول على المؤهل: ..... المؤهل المهني: ١. محاسب قانوني .2 CPA محاسب إداري CMA ٣. أخرى: ..... السلالة العرقية: ١. عربي (سعودي) ٢. عربي (غير سعودي) ٣. أفريقي ٤. أوربي ٥. آسيوي ٦. أخرى: ..... سنوات الخبرة في المهنة: .....

Instructions to fill in the questionnaire: Please indicate accurately your agreement with each statement by circling the appropriate number code. There is no wrong or right answer, but rather an opinion. Please note that: 5 = totally agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = totally disagree. The Organization mentioned is your office. The team mentioned is the team you are working with in your department to perform different professional tasks.	**تعليمات ملأ الاستبيان:** الرجاء التكرم بالإشارة إلى مدى موافقتك بكل دقة على كل عبارة بوضع دائرة حول الرقم المناسب ليس هناك إجابات صحيحة أو خاطئة و إنما وجهات نظر. الرجاء الملاحظة بأن: ٥= موافق جدا، ٤= موافق، ٣= محايد، ٢= معارض، ١= معارض جدا المقصود بالمكتب هو مكتب المحاسبة الذي تعمل الآن به. المقصود بالفريق هو الفريق الذي تعمل معه في قسمك لأداء الأعمال المهنية المختلفة.

١	٢	٣	٤	٥
معارض جداً	معارض	محايد	موافق	موافق جداً
Totally Disagree	Disagree	Neutral	Agree	Totally Agree

1	Team members trust one another	5 4 3 2 1	يثق أعضاء الفريق بعضهم ببعض	1
2	Team members care for the success of new ideas	5 4 3 2 1	يهتم أعضاء الفريق بنجاح الأفكار الجديدة	2
3	The team members show high relevant task experience required for effectiveness	5 4 3 2 1	يتمتع أعضاء الفريق بخبرات عالية ملائمة لأداء العمل بكفاءة	3
4	Team members have a good understanding of their personal differences	5 4 3 2 1	يدرك أعضاء الفريق جيدا الفروق الفردية بينهم	4
5	Team members enrich the team performance through outside contact	5 4 3 2 1	يدعم أعضاء الفريق الأداء من خلال الاتصال بالجهات الخارجية ذات الصلة	5
6	The team works intensively without external direction	5 4 3 2 1	يعمل الفريق بشكل كبير دون توجيه خارجي	6
7	Team members have a shared vision of the teams future achievements	5 4 3 2 1	يمتلك أعضاء الفريق رؤية مشتركة حول الإنجازات المستقبلية للفريق	7
8	The team is good at learning by discussing its behaviours	5 4 3 2 1	يتعلم الفريق بشكل جيد عن طريق مناقشة سلوكياته	8
9	The team works intensively because of external Request	5 4 3 2 1	يعمل الفريق بشكل كبير بسبب الطلبات (الأوامر) الواردة من خارج الفريق	9
10	The structure of the work inhibits team members from expressing their creativity	5 4 3 2 1	تركيبة العمل تمنع أعضاء الفريق من إظهار إبداعهم	10
11	Team leadership tends to be motivating	5 4 3 2 1	تميل قيادة الفريق لأن تكون محفّزة لأعضاء الفريق	11
12	The team is productive	5 4 3 2 1	يُعتبر الفريق منتجا	12
13	Team members pull together to deal with unexpected problems	5 4 3 2 1	يتعاون أعضاء الفريق للتعامل مع المشكلات غير المتوقعة	13
14	Team leadership concentrates on correcting errors	5 4 3 2 1	تركز قيادة الفريق على تصحيح الأخطاء	14
15	The organization evaluates new ideas Supportively and fairly	5 4 3 2 1	يقيّم المكتب الأفكار الجديدة بشكل مشجع وعادل	15
16	Team members are willing to take responsibility for making new ideas work	5 4 3 2 1	يرغب أعضاء الفريق في تحمل مسئولية تحويل الأفكار الجديدة إلى واقع	16
17	The team often comes up with good ideas	5 4 3 2 1	ينتج الفريق غالبا أفكارا جيدة	17

18	Your team has too much work to do in too little time	5 4 3 2 1	لدى فريقك عمل كثير جداً لإنجازه في وقت قليل جداً	18
19	Team members support one another	5 4 3 2 1	يساند أعضاء الفريق بعضهم البعض	19
20	Team members use personal contacts to help the team in various ways	5 4 3 2 1	يستخدم أعضاء الفريق الاتصالات الشخصية لمساعدة الفريق بمختلف الطرق	20
21	The team members show high relevant task knowledge required for effectiveness	5 4 3 2 1	يتمتع أعضاء الفريق بمعرفة عميقة ملائمة لأداء العمل بكفاءة	21
22	Team members have a good understanding of each others personal needs	5 4 3 2 1	يدرك أعضاء الفريق الحاجات الشخصية لكل عضو	22
23	The team is good at learning from its mistakes	5 4 3 2 1	يتعلم الفريق من أخطائه بصورة جيدة	23
24	The team shows a strong sense of challenge in its work	5 4 3 2 1	يظهر أعضاء الفريق حسا قويا للتحدي (الشعور الإيجابي تجاه الصعوبات) أثناء أداء العمل	24
25	Team members have a clear sense of shared purpose	5 4 3 2 1	يمتلك أعضاء الفريق هدفا مشتركا واضحا	25
25	Team leadership tends to be inspirational	5 4 3 2 1	تميل قيادة الفريق لأن تكون ملهمة للفريق	26
27	The team displays strong competitive attitudes among its members	5 4 3 2 1	يظهر الفريق مواقف تنافسية عالية بين أعضائه	27
28	The structure of the work is not open to modifications through team involvement	5 4 3 2 1	تركيبة العمل لا تساعد على إدخال تعديلات أثناء عمل الفريق	28
29	Team leadership tends to be results oriented	5 4 3 2 1	تميل قيادة الفريق إلى التركيز على النتائج	29
30	The team produces good quality of product or service for its customers	5 4 3 2 1	ينتج الفريق منتجات وخدمات عالية الجودة لعملائه	30
31	The team recovers well from disappointments	5 4 3 2 1	ينهض الفريق جيدا بعد الاخفاقات	31
32	The team is creative	5 4 3 2 1	يُعتبر الفريق مبدعا	32
33	Ideas flow smoothly between levels and units in the organization	5 4 3 2 1	تتدفق الأفكار بسهولة بين المستويات والوحدات في المكتب	33
34	Team members are committed to make new ideas work	5 4 3 2 1	أعضاء الفريق ملتزمون بتحويل الأفكار الجديدة إلى واقع	34

35	The team members show high professional skills required for effectiveness	5 4 3 2 1	يتمتع أعضاء الفريق بمهارات مهنية عالية ملائمة لأداء العمل بكفاءة	35
36	Workload pressures do not operate in a positive way that enhances performance	5 4 3 2 1	لا يؤدي ضغط العمل إلى تعزيز الأداء بصورة إيجابية	36
37	The team atmosphere is warm	5 4 3 2 1	يتسم جو الفريق بالدفء	37
38	Team members have contacts outside the team that are helpful	5 4 3 2 1	لأعضاء الفريق اتصالات خارج الفريق متى كان ذلك مفيدا	38
39	The team is driven by a deep interest in its work	5 4 3 2 1	يستمتع الفريق جدا في أداء عمله	39
40	Team members have a good understanding of each others beliefs and assumptions	5 4 3 2 1	يدرك أعضاء الفريق جيدا اعتقادات وافتراضات بعضهم البعض	40
41	Team members talk things over constructively when things go wrong	5 4 3 2 1	يناقش الفريق الأشياء بشكل بناء عندما تسير بشكل خاطئ	41
42	The team is driven by a need for recognition	5 4 3 2 1	يشعر أعضاء الفريق بالحاجة إلى الاعتراف بخدماتهم وتقديرها	42
43	Team members have a clear vision of where the team is going	5 4 3 2 1	يمتلك أعضاء الفريق رؤية واضحة حول اتجاه الفريق المستقبلي	43
44	Team leadership tends to be creative	5 4 3 2 1	تميل قيادة الفريق لأن تكون إبداعية	44
45	The team is successful in achieving its performance standards	5 4 3 2 1	يُعتبر الفريق ناجحا في تحقيق معدلات الأداء المحددة	45
46	The structure of the work minimizes imaginative initiatives within it	5 4 3 2 1	تركيبة العمل تقلل المبادرات الخلّاقة (الجديدة) داخل العمل	46
47	Team leadership concentrates on monitoring progress	5 4 3 2 1	تركز قيادة الفريق على مراقبة التقدم في العمل	47
48	The organization supports efforts to come up with good ideas	5 4 3 2 1	يدعم المكتب الجهود لإنتاج أفكار جيدة	48
49	The team is a resilient one	5 4 3 2 1	يتسم الفريق بالمرونة	49
50	The team is imaginative at work	5 4 3 2 1	يتميز الفريق بالقدرة على توليد أفكار خلاقة (جديدة) أثناء العمل	50
51	Workload pressures prevent your team from producing worthwhile ideas	5 4 3 2 1	ضغط العمل يمنع فريقكم من توليد أفكار متميزة	51

References

Abbey, A. and Dickson, J. 1983. R & D Work Climate and Innovation in Semiconductors, *Academy of Man-Agement Journal*, 26(2): 362-368.

Adams, J. 1980. *Conceptual blockbusting: A Guide to Better Ideas, Reading*, MA: Addison-Wesley.

Al-Beraidi, A. 2005. The Problem of Weak Creative Achievements of Arab Academics in their Disciplines: Causes and Symptoms, the Conference of Development of Arab Academics in Higher Education Institutes, King Saud University, Riyadh (Arabic Reference).

Al-Beraidi, A. and Rickards, T. 2003. Creative Team Climate in an International Accounting Office: An Exploratory Study in Saudi Arabia. *Managerial Auditing Journal*, 18: 7-18.

Al-Beraidi, A. and Rickards, T. 2006. Rethinking Creativity in the Accounting Profession: to be Professional and Creative, *Journal of Accounting & Organizational Change*, 2 (1): 25-41.

Aldrich H. and Herker, D. 1977. Boundary Spanning Roles and Organizational Structure, *Academy of Management Review*, 2: 217-230.

Amabile, T. 1983. *The Social Psychology of Creativity*, NY: Springer-Verlag,.

Amabile, T. 1988. A Model of Creativity and Innovation in Organizations. In Staw, B. and Cummings, L. (eds.), *Research in Organizational Behavior*, vol. 10, Greenwich, CT: JAI Press: 123-167.

Amabile, T. 1996. *Creativity in Context*, Boulder, Co.: Westview.

Amabile, T., Conti, R., Coon, H., Lazenby, J. and Herron, M. 1996. Assessing the Work Environment for Creativity, *Academy of Management Journal*, 39(5): 1154-1184.

Barron, F. and Harrington, D. 1981. Creativity, Intelligence, and Personality, *Annual Review of Psychology*, 32: 439-476.

Basadur, M., Graen, G. and Green, S., 1982. Training in Creative Problem Solving: Effects on Ideation and Problem Finding and Solving in An industrial Research Organization, *Organizational Behaviour and Human Performance*, 30: 41-70.

Bass, B. 1990. *Bass and Stogdill's Handbook of Leadership: Theory, Research and Managerial Applications*, 3rd ed. NY: Free Press.

Bass, B. and Avolio, B. 1993. Transformation Leadership: A Response to Critiques, In Chemers, M. and Ayman, R. (eds.), *Leadership Theory and Research: Perspectives and Directions*, San Diego, CA: Academic Press.

Bowden, E. 1985. Accessing Relevant Information During Problem Solving: Time Constraints in the Problem Space, *Memory & Cognition*, 13: 280-286.

Brand, A. 1998. Knowledge Management and Innovation at 3M, *Journal of Knowledge Management*, 2(1): 17-22.

Burns, J. 1978. *Leadership*, NY: Harper & Row.

Carmines, E. and Zeller, R. 1979. *Reliability and Validity Assessment*, London: Sage.

Carrol, J. 1985. *Domains of Cognitive ability*, Los Angels: American Association for the Advancement of Science.

Chen, M. 2001. Investigation of a New Model of Team Development Through the Development and Testing of a Self-report Inventory, *Unpublished PhD Thesis*, Manchester Business School, UK.

Choo, F. 1986. Job Stress, Job Performance and Auditor Personality Characteristics, *Auditing: A Journal of Practice and Theory*, Spring: 17-34.

Choo, F. 1995. Auditor's Judgement Performance Under Stress: A Test of the Predicted Relationship by Three Theoretical Models, *Journal of Accounting, Auditing and Finance*, Summer: 611-641.

Cronbach, L. 1951. Coefficient Alpha and the Internal Structure of Tests, *Psychomterika*, 16: 197-334.

Csikszentmihalyi, M. 1988. Society, Culture, Person: A Systems View of Creativity', In Sternberg, R. (ed.), *The Nature of creativity*, NY: Cambridge University Press: 325-339.

Danzig, E. and Nevis, E. 1970. *Blocks to Creativity: A Training Workshop Package*, USA: Danzig-Nevis International.

De Bono, E. 1971. *Lateral Thinking for Management*, NY: American Management Association.

De Bono, E. 1992. *Serious Creativity*, London: Harper.

Ekvall, G. 1983. Climate, Structure and Innovativeness of Organizations: A Theoretical Framework and an Experiment, Stockholm: Faradet- The Swedish Council for Management and Work Life Issues, report 1.

Ekvall, G. 1991. The Organizational Culture of Idea Management: A Creative Climate for the Management of Ideas, In Henry, J. and Walker, D. (eds.), *Managing Innovation*, London: Sage: 73-9.

Ekvall, G. and Arvonen, J. 1994. Leadership Profiles, Situation and Effectiveness, Creativity and Innovation Management, 3: 139-161.

Field, A. 2000. *Discovering Statistics using SPSS for Window*, London: Sage.

Gaertner, J. and Ruhe, J. 1981. Job-related Stress in Public Accounting, *Journal of Accountancy*, June: 68-74.

Guilford, J. 1975. Creativity Research: A Quarter Century of Progress, In Irving, A. and Getzels, J. (eds.), *Perspectives in Creativity*, NY: Aldine Publishing Company.

Hodgkinson, G.P. & Sparrow, P.R. 2002. The Competent Organization: A Psychological Analysis of the Strategic Management Process, Buckingham, UK: OU Press.

Hohn, H. 1999. *Playing, Leadership, and Team Development in Innovative Teams*, Delft, NL: University of Technology (Doctoral Thesis).

Howell, J. and Avolio, B. 1993. Transformational Leadership, Transactional Leadership, Locus of Control, and Support for Innovation: Key Predictors of Consolidated-Business-Unit Performance, *Journal of Applied Psychology*, 78(6): 891-902.

Isaksen, S. (ed.). 1987. *Frontiers of Creativity Research: Beyond the Basics*, Buffalo, NY: Bearly.

Jung, D. 2001. Transformational and Transactional Leadership and their Effects on Creativity in Proups, *Creativity Research Journal*, 13: 185-197.

Kanter, R. 1988. When a Thousand Flowers Bloom: Structure, Collective, and Social Conditions for Innovation in Organizations. In Staw, B. and Cummings, L. (eds.), *Research in Organizational Behavioural*, 10: 169-211.

Karau, S. and Kelly, J. 1992. The Effects of Time Scarcity and Time Abundance on Group Performance and Interaction, *Journal of Experimental Social Psychology*, 28: 542-571.

Keller, R. 1978. Dimensions of Management Systems and Performance in Continuous Process Organizations, *Human Relations*, 31: 119-129.

Kelly, J. and Karau, S. 1993. Entrainment of Creativity in Small Groups, *Small Group Research*, 24(2): 179-200.

Kelly, J. and McGrath, J. 1985. Effects of Time Limits and Task Types on Task Performance and Interaction of four Person Groups, *Journal of Personality and Social Psychology,* 49: 395-407.

Kimberley, J. and Evanisko, M. 1981. Organizational Innovation: The Influence on Individual, Organizational and Contextual Factors and Hospital Adoption of Techniques of Technological and Administrative Innovations, *Academy of Management Journal*, 24: 689-713.

Kirton, M.J. 1994. Adaptors & Innovators: Styles of Creativity and Innovation *(2nd Ed)*, London: Routledge.

Kolb, D. 1984. *Experiential Learning: Experience as the Source of Learning and Development*, NJ: Prentice-Hill.

Locke, E. and Kirkpatric, S. 1995. Promoting Creativity in Organizations, In Ford, C. and Gioia, D. (eds.), *Creative Actions in Organizations: ivory Tower Visions and Real World Voices*, Thousand Oaks, Co.: Sage.

MacKinnon, D. 1978. *In Search of Human Effectiveness and Developing Creativity*, Buffalo, NY: Creative Education Foundation.

Magyari-Beck, I. 1993. Creatology: A Personal Paradigm for an Emerging Discipline, In Isaksen, M., Murdoch, R., Firestien, R. and Treffinger, D. (eds.), *Understanding and Recognizing Creativity: The Emergence of a Discipline*, Norwood, NJ: Ablex: 48-82.

Merritt, D. and Baile T. 1998. The Standards-Setting Process in Accounting: Lessons for Education and Workplace Reform, Institute on Education and the Economy Teachers College, Columbia University.

Mitchell, T. Hopper, H. Daniels, D., George-Falvy, J. and James, L. 1994. Predicting Self-Efficacy and Performance During Skill Acquisition, *Journal of Applied Psychology*, 79: 506-517.

Mumford, M. 2000. Managing the Creative Group: Strategies and Tactics for Innovation, *Human Resource Management Review*, 10: 1-29.

Mumford, M. and Connelly, S. 1999. Leadership, In Runco, M. & Pritsker, S. (eds.), *Encyclopedia of Creativity*, San Diego: Academic Press, 2: 139-145.

Mumford, M., Scott, G., Gaddis, B. and Strange, J. 2002. Leading Creative Group: Orchestrating Expertise and Relationships, *Leadership Quarterly*, 13: 705-750.

Nunnally, J. 1978. *Psychometric Theory*, NY: McGraw-Hill.

Nystrom, H. 1990. Organizational Innovation, In West, M. and Farr J. (eds.), *Innovation and Creativity at Work*, Chichester: Wiley: 143-161.

Oldham, G. and Cummings, A. 1996. Employee Creativity: Personal and Contextual Factors at Work, *Academy of Management Journal,* 39(3): 607-34.

Osborn, A. 1963. *Applied Imagination, Principles and Procedures of Creative Problem-Solving*, NY: Charles Scribner & Sons,.

Parnes, S. and Meadow, A. 1959. Effects of Brainstorming Instructions on Creative Problem Solving of Trained and Untrained Subjects, *Journal of Education Psychology*, 50: 171-176.

Parnes, S., Noller, R. and Biondi, A. 1977. *Guide to Creative Action*, NY: Scribner and Sons.

Pritchard, R. 1992. Organizational Productivity, In Dunnette, M. and Hough, L. (eds.), *Handbook of Industrial/Organizational Psychology*, Palo Alto, CA: Consulting Psychologists Press.

Raina, M. 1999. Cross-Cultural Differences, In Runco, M. and Pritsker, S. (eds.), *Encyclopedia of Creativity*, vol. 1, San Diego: Academic Press: 453 - 464.

Rickards, T. & Jones, L. 1991. Towards the Identification of Situational Barriers to Creative Behaviors: the Development of a Self Report Inventory, *Creativity Research Journal*, 4(4): 303-315.

Rickards, T. & Moger, S. 1999a. The Development of Benign Structures: Towards a Framework for Understanding Exceptional Performance in Project Teams, *The International Journal of New Product Development & Innovation Management*, 1(2): 141-154.

Rickards, T. 1999. *Creativity and the Management of Change*, UK: Blackwell.

Rickards, T. and Moger, S. 1999b. *Handbook for Creative Team Leadership*, Aldershot: Gower Press.

Rickards, T. and Moger, S. 2000. Creative Leadership Processes in Project Team Development: an Alternative to Tuckman's Stage Model, *British Journal of Management*, 11: 273-283.

Rickards, T., Moger, S. and Chen, M. 2001. Development of a Self-Report Instrument for Exploring Team Factors, Leadership and Performance Relationships, *British Journal of Management*, 12: 243-250.

Rogers, C. 1969. *Freedom to Learn*, OH: Charles E. Merril Publishing Co.

Rogers, E. Shoemaker, F. 1971. *Communication of Innovation: A Cross-Cultural Approach*, NY: The Free Press.

Senge, P. 1990. The Fifth Discipline: the art and Practice of the Learning Organization, NY: Doubleday.

Simonton, D. 1999. The Creative Society: Genius Vis a Vis the Zeitgeist, In Montouri, A. and Purser, R. (eds.), Social Creativity, vol. 1, Creskill, NY: Hampton Press: 265-286.

Sosik, J., Kahai, S. and Avolio, B. 1998. Transformational Leadership and Dimensions of Creativity: Motivating Idea Generation in Computer Mediated Groups, *Creativity Research Journal*, 11: 111-122.

Sparrow, P. and Gaston, K., 1996. Generic Climate Maps: A Strategic Ap-Plication of Climate Survey Data?, *Journal of Organizational Behaviour*, 17: 679-698.

Stein, M. 1987. Creativity Research at the Crossroads: A 1985 Perspective, In Isaksen, S. (ed.), *Frontiers of Creativity Research: Beyond the Basics*, Buffalo, NY: Bearly: 417-27.

Sternberg, R. and Lubart, T. 1996. Investing in Creativity, *American Psychologists*, 51: 677-688.

Tushman, M. 1977. Special Boundary Roles in the Innovation Process, *Administrative Science Quarterly*, 22: 587-605.

West, M. 1990. The Social Psychology of Innovation in Groups, In West, M.and Farr, J. (eds.), *Innovation and Creativity at Work,* Chichester: John Wiley & Sons: 4-36.

Witt, I. And Beorkrem, M. 1989. Climate for Creative Productivity as a Predictor of Research Usefulness and Organizational Effectiveness in an R&D Organization, *Creativity Research Journal*, 2: 30-40.

Woodman, R., Sawyer, J., and Griffin, R. 1993. Toward a Theory of Organizational Creativity, *Academy of Management Review*, 18: 293-321.

الملخص

إبداع فرق العمل في البيئات شديدة التقنين: دراسة كمية في مكاتب المحاسبة في السعودية

عبدالله البريدي — جامعة القصيم
تيودر ريكاردز — جامعة مانشستر

يدرس هذا البحث الكمي الإبداع لدى فرق العمل في مجموعتين مهنيتين تعملان في بيئات تختلف من حيث التقنين والضبط من خلال المعايير المهنية التي تحكمها. وقد تم تنفيذ ذلك البحث في مجالي "المحاسبة" و"الاستشارات" في قطاع الخدمات المالية في المملكة العربية السعودية. وتفيد نتائج البحث بأن المهنيين في المجال الأقل تقنيناً (مجال الاستشارات) قد أظهروا معدلات أعلى في كل من: الدافعية الداخلية، والسلوك الإبداعي والقيادة التحويلية، وبعض العوامل المشجعة لفرق العمل.

والنتيجة التي خلص إليه البحث لا يمكن عزوها إلى وجود اختلافات في الاستعدادات أو نوعية التعليم لدى المهنيين في قسمي المحاسبة والاستشارات، بل لوجود دعم أكبر في قسم الاستشارات للسلوك الإبداعي، من خلال تبني القيادة التحويلية وقيود هيكلية أقل بخصوص ممارسة ذلك النوع من السلوك. وتشير نتائج هذا البحث إلى وجود تأثير للتقنين العالي على السلوك الإبداعي، وتوصلت النتائج إلى وجود روابط بين نموذج كيرتون (١٩٩٤م) ونموذج سنج (١٩٩٠م) وذلك بالربط بين "التفكير التجويدي" و"التعلم التجويدي"، و"التفكير التجديدي" و"التعلم التوليدي"، وهذا يقودنا إلى القول بأنه يمكن للمهنيين في المجال الأكثر تقنيناً أن يحققوا "المهنية" و"التعلم التجويدي" "داخل المهام المهنية" – التي تُحكم بالمعايير المهنية –، وأن يكونوا في الوقت نفسه "مبدعين" و"متعلمين بشكل توليدي" "حول المهام المهنية"؛ أي تلك التي لا تحكم بالمعايير المهنية.

Abdullah Al-Beraidi (Ph.D. from Manchester University, 2003). He is Currently an Associate Professor of Management and Organizational Behaviour at Qassim University. His Research Interest Includes: Creativity, Leadership, Organizational Culture, and Change and Development Management.

Tudor Rickards (Ph.D. from Wales University, 1966). He is Currently a Professor of Creativity and Organizational Change at Manchester Business School. His Research Interest Includes: Creativity, Innovation, Leadership, and Organizational Change. He is a Founder of The European Association for Creativity and Innovation, and of the Journal Creativity and Innovation Management