Submitted in part fulfillment for the degree of Master of Business Administration

Exploring the management of Creativity and the gap between Education and the Knowledge Industries

by

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Abstract

It has often been cited that for an organization to have continued success it must be creative and innovative. In order for the organization to be creative it must develop a culture of creativity in which the employees potential is dveloped and enhanced. This paper explores whether the education system is a place that enhances or reduces creativity, and whether it produces students that are prepared for the challenges of working in the knowledge industries of PR and new technologies in the twenty first century.

The paper uses a research methodology developed by Theresa Amabile known as the KEYS methodology to test how creativity is managed within organizations. The difference in creativity between the two major types of school in the UK (Independent and Government funded) is measured finding that the independent sector is far more creative than the state funded schools.

The hypothesis that new technology companies are by definition significantly more creative than the other tested industries is found to be inaccurate with no significant difference between the creativity in these organizations and that of the education and PR industries.

It is found within the research that the availability of resources, and the space and encouragement to be creative has the most significant influence over the creative culture of an organization and the practiced creativity of its employees, and it is suggested that teachers are creative workers motivated intrinsically by their work, and therefore are heavily influenced by the organizational environment.

Declaration of Originality

I declare that my work entitled "Exploring the management of Creativity and the gap between Education and the Knowledge Industries" for the degree of Masters of Business Administration, embodies the results of an original research programme and consists of an ordered and critical exposition of existing knowledge in a well-defined field.

I confirm that the submitted work is my own work and that I have clearly identified and fully acknowledged all material that is entitled to be attributed to others (whether published or unpublished) using the referencing system set out in the programme handbook. I agree that the University may submit my work to means of checking this, such as the plagiarism detection service of Turnitin UK. I confirm that I understand that assessed work that is shown to have been plagiarized will be penalized.

Signed: Jonathon Scott

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NB: All Tables and Diagrams are authors own work, unless otherwise stated.

The Importance of Creativity in Education, Business, and Society

Our aim must be to create a nation where the creative talents of all the people are used to build a true enterprise economy for the twenty- first century — where we compete on brains, not brawn.

The Prime Minister, the Rt. Hon Tony Blair MP (1997)

We must change the concept of creativity from being something that is 'added on' to education, skills, training and management and make sure it becomes intrinsic to all of these.

Rt. Hon Chris Smith MP, Secretary of State for Culture, Media and Sport (1997)

It has been suggested that creativity or the ability to create new and innovative ideas is essential to the survival and growth of businesses, and therefore the Economy. (Amabile, 1988; Woodman, Sawyer & Griffen, 1993) This concept is not new and has been around as long as civilization itself. Man created weapons to hunt more efficiently, the wheel to be able to transport himself and his goods more easily, and as progress has moved forward the ability to create and innovate has moved with it. The rate at which new technology is developing is increasing at an exponential rate, as is the rate at which people are entering into Further Education. It is estimated that more people will attend Universities in the next few years than in all of history (Robinson 1998).

As technology moves forward at this exponential rate into the 21st century it is becoming even more essential for creative minds to come together and create new products, new ideas, and new forms, and it is essential that society prepare its workforce for this need.

Education in the industrial age, was created for just that, the industrial age, and thus has become almost as a factory churning out models of educated people based on what is a bygone era, a somewhat rigid 'Academic' structure that prizes certain measures of intelligence over all others, the idea that logic and systematic analysis is a clear divining rod for intelligence, and is far superior to 'emotional' or 'creative/artistic' intelligence is the

predominant philosophy throughout all levels of education and is often carried on into the workplace. (Robinson 1999)

As the work environment changes, particularly in the western world, and moves towards a "Knowledge Economy" it is necessary for the human resources that power that economy to be able to adapt to the new challenges and be flexible enough to adapt to what is increasingly becoming a more uncertain future.

A 1999 study was tasked with examining the UK's education and work policies, to see how well they are equipped to succeed into the next century and beyond. With a particular focus on the culture of creativity, and how it is developed, this report is intending to assess to what extent education and work has embraced his findings and embraced a culture of creativity and idea generation.

The following chapters will examine how creativity is managed in organizations, and whether there is a distinct gap or difference between the practiced creativity in the different organizations and industries. I will be exploring in particular the areas of Education and other knowledge based industries Technology and Pubic Relations, to try to asses whether they are truly creative and whether the education system is in itself creative enough to support them. I will examine the differences between private and State funded schools, surveying the creative cultures of both to see to what extend a culture of creativity is encouraged, how well it is managed, and what motivates the teachers within them and does this differ between the 2 systems.

(*Hypothesis 1: Teachers are intrinsically motivated by their work and therefore organizational and managerial factors will have a more noticeable effect on their creativity.*

(*Hypothesis 2: The perception of creativity within a school setting will be higher in the private sector, encouraged by the enhanced sense of autonomy, and less governmental bureaucracy)*

It is essential to note the assumption in this area is that enhanced creativity will lead to enhanced success and intrinsic motivation (Amabile 1996, Diliello et al 2008) within a school setting and therefore the more creative an organization the better. In a recent paper Terese Amabile discusses whether or not creativity can be 'managed', in interview top executives from companies that rely on creativity such as IDEO, Google, E-Ink suggest that creativity is stilted by management, that it acts almost as a bottleneck at the top. It is

however suggested that rather than managing creativity, companies should be managing '*for*' creativity. Creating an environment where it can flourish. My focus in this area is on the teachers and the management of teachers and how they are encouraged/discouraged from creative risk taking, and whether they have the resources to engage in creative work. There is a substantial body of research that examines how creativity is encouraged within the classroom but relatively little that looks at how Teachers are managed for creative productivity.

It has been examined previously (Amabile 1996, Woodman 1993, Diliello 2008) that behaviors modeled by managers in terms of creativity will have a positive effect on creative productivity of the workforce and thus I suggest that if a teachers environment is encouraged to be creative, they will be more creative, they will model creative behavior and their students will be more creative, a 'strong' creative culture will be developed and that will lead on to success and more creativity in the school. (Deal and Kennedy 1982, Peters and Waterman 1982)

1.1 Knowledge Industries

The second key organizational area that is explored is the new technology arena. I will be examining the perception of creativity from within companies that are essentially based around the creation of new ideas. The assumption is that they must be innately creative organizations, and therefore their employees must have the flexibility and skills to be creative and be managed for that creativity. I will also be examining whether the perception of the education system from within these companies is one that believes the education system prepares students for the challenges of a changing, knowledge based economy, and how they feel their education prepared them for the work environment.

Hypothesis 3: Technology companies will have the highest scores in organizational This whether there is a gap in creativity between technology companies and the PR company that represent them with a specific focus on a growing company Whiteoaks PR. I intend to compare their organizational creativity with other Marketing companies and see if creativity in a company that represents and in essence manages 'creative and innovative' companies is essential. The management within Whiteoaks believes they are lacking in creativity and this could be caused by the rapid growth of the company and the need to establish processes and procedures within the company.

1.2 *The purpose of the research*

Essentially this research intends to assess the the two main organizations in this study (Hurstpierpoint College and Whiteoaks PR) in terms of their overall creativity. It is argued that creativity and innovation is the most important means by which a company can achieve and sustain competitive advantage. (Katz 2003)

It is argued that to have creative ideas and innovation in a company, the internal environment of the organization must be such that creativity is encouraged. This suggests the need for a 'creative culture' within the organization and it could be suggested that this can only really be achieved by employing 'creative' people and management allowing the conditions to evolve that encourage creativity. (Du Gay 1996)

It is presented that the level of creative productivity is directly influenced by management processes and interactions (Amabile 2009, Ogbonna and Wilkinson 2003, Schein 1992), and can therefore be manipulated and controlled consciously to some extent. Opposing this is the idea that an organizations culture is intrinsic to the company and it would take a huge sea change to modify these behaviors. (Smircich 1983, Ackroyd and Crowdy 1990) This would necessarily be influenced by the idea of organizational learning, and the embedding of new ideas and processes into the organization and that a 'creative' organization is essentially a 'Learning Organization', (Senge 1990, Kolb 1984, Agyris 1999) a process that can be described using a model developed by Crossan et al known as the '4i model of Organizational Learning'.

This research focus's on how each of the individual companies manage their employees and whether the environmental factors within these organizations are conducive to creativity and innovation.

1.3 Understanding creativity.

Individual creativity within an organization is essential to the production of new ideas and furthermore the development of those ideas. An organization can be described as the overall sum of its individual parts and acts like in much the same way as an organism (Thompson 1967). There is a clear connection between the idea of the creative/innovation process and that of Organizational Strategic Renewal, and Organizational Learning. (Crossan et al 1999, Kolb 1984)

Creativity and Innovation are often used interchangeably in management terms. However, it is more accurate to say that creativity is a stage in the innovation process. Innovation is the implementation of a new idea, whereas creativity is the creation of that new idea. Opposed to the commonly held view that creativity comes in flashes of inspiration out of nowhere, in fact in real terms it is the linking of otherwise un connected thoughts or forms. Very rarely will "genius" strike and someone with no prior knowledge or background in an area will come up with a new idea. But rather a deep understanding and knowledge in an area, or more often several different areas will lead to connecting separate elements into a new form or idea, divergent thinking, or 'thinking outside the box'. Within an organization or individual it is then the turning of that idea into practice or implementation, that constitutes the innovation process. (Lehrer 2012, Sutton 2000)

1.4 The 4I Model

Crossan Lane and White (1999) Established a framework that outlines the process of Organizational learning, that summarises the creative and innovation process. Referred to as the 4I model. (Illustrated in the model below)

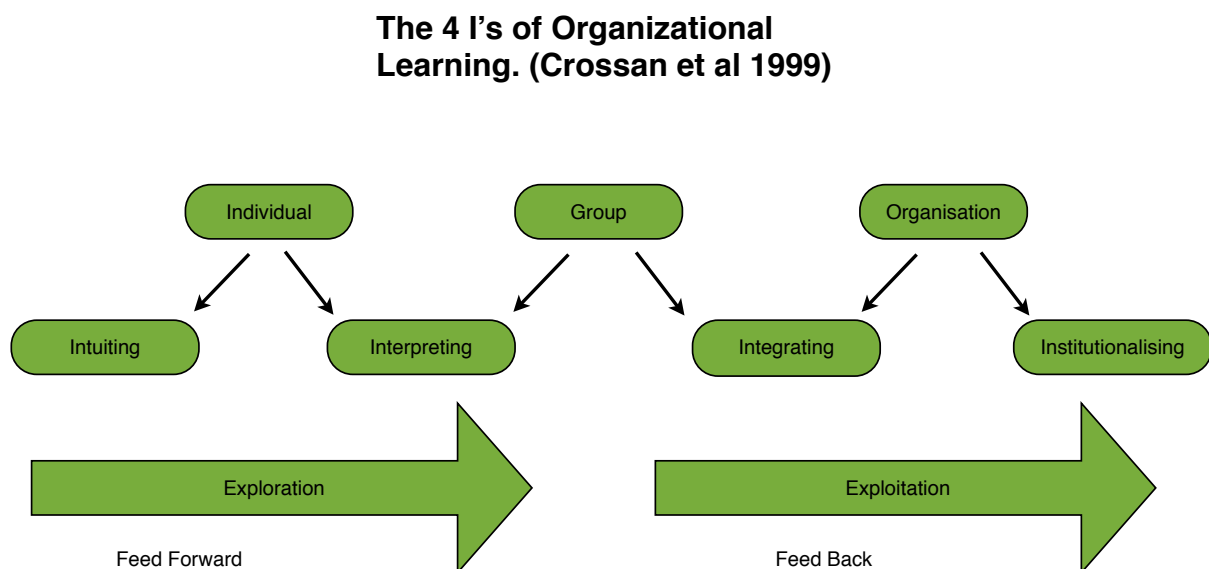**The 4 I's of Organizational Learning. (Crossan et al 1999)**

Fig: 1

Source: Authors Own

Intuition

When an Idea is conceived it remains merely a concept or abstraction in the intuition of an individual, Crossans first i. For this idea to move from being merely a concept towards

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actualization(subconscious to conscious understanding), it must be interpreted and to some extent understood. The second i.

Interpreting

This idea can be interpreted by an individual in many ways, be that through speech, music, pictures, writing, or interpretive dance. Often metaphor is used as a means to create the interpretation of something intangible, an idea, but the key to interpretation is the fact that it must be communicated, or shared with others. This communication of the idea is what moves it from insight or intuition into the interpretation.

This happens within an organization in small groups, and in many ways. Be that face to face interactions, in 2's or small groups in meetings, using modern communication tools or any other "Media" This allows for a shared mental model to be created, an image or shared understanding of a project or idea. It is important however to realize that communicating an idea or making something explicit doesn't necessarily mean that the understanding is shared, we often "*see what we believe rather than believe what we see*".

This 'shared mental model' is then interpreted by each individual within the group in their own way, forming a group understanding. Once the forming of a group understanding is underway and the shared mental models or cognitive maps have been developed the integration of those ideas and understandings begin to form into a shared language, or shared practices, thus beginning the third process or 'i'.

Integrating

Often within and without an organization communities of practice (COP) form with shared language, cognitive maps and practices, it is through the shared experimentation of these new ideas that lead to the shared understanding, this integration of ideas can then filter through to become the general culture of an organization. For this shared understanding to become fully integrated into the "strategic renewal" of an organization it must then become ingrained within the consciousness of the organization and become an *Institutionalized 'Culture'*.

Institutionalizing

This process of formalizing the shared ideas /models/understandings is often the most difficult phase of organizational and individual learning. Encouraging and formalizing new ideas or processes into becoming routine, day to day occurrences. Often manifest in the use of plans that have previously worked, the organization "learning from experience".

One of the main drawbacks of this sense of recording and institutionalizing successful creative ideas is that it can often spell the end of creativity, falling back onto the classic cultural idea of 'the way we do things around here' (Schein 1992).

This is when the learning cycle should start again, the the unfreezing, freezing, refreezing (Lewin 1947) has happened but the reality of the modern world is that change will inevitably have happened and it will be essential for the organization to continue to adapt or innovate. This process has been outlined in the Cycling Worlds or Synectics model below.
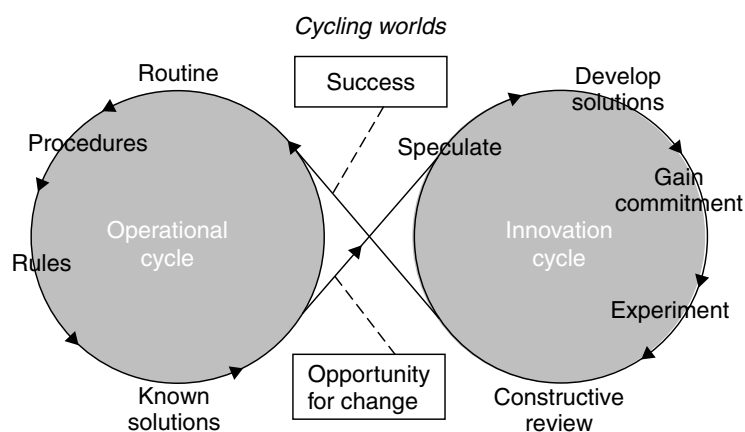

Fig: 2

Source: What Are Creativity , Innovation and design

1.5 Woodman: Interactionalist.

Woodman in 1993 stated that Organizational creativity can be described as:

"*The creation of a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system.*"

Sternberg and Lubart (1999) define creativity as

'the ability to produce work that is both novel (i.e., original, unexpected) and appropriate (i.e., useful, adaptive concerning task constraints)'

The Challenge when looking into a topic such as Organizational Creativity, is the breadth and diversity of material from so many different areas not necessarily directly linked, in particular the research in the areas of individual creativity, cognitive psychology and research into innovation in Organizations. Creativity and Innovation are often put together into the same sentence and process (e.g Luecke 2003) and suggested to be the same thing. Opposing this as stated earlier is that creativity and innovation are stages within the creative process and has been defined in many ways, for example: Levitt

"creativity is thinking up new things whilst innovation is about doing new things"

Or as the department for trade and industry (DTI) would suggest:

"Creativity is the first step in the innovation process"

In 1990 West and Far put forward an argument in favor of bringing the research streams together suggesting that an understanding of organizational creativity has to involve an understanding of:

1. The creative process,
2. The creative product,
3. The creative person,
4. The creative situation and
5. The way each of these elements interact with each other.

This research has been further developed by Amabile et al (Amabile 1983,1991, 2001,2008, 2011, 2012) who has examined the creativity of individuals and groups and the influence of their social setting or environment on these interactions.

It is these interactions or influences of the environment that Amabile et al argue have the heaviest influence on the creativity or productivity of creative ideas from individuals or groups and therefore has the largest effect on an organizations creativity(Amabile and Kramer 2012, Amabile et al 1996, Amabile and Khaire 2008). As opposed to a more

individualistic point of view that suggests it is a persons innate creativity or motivation that influences their creative output (Scott and Bruce 1994). This environmental influence is investigated further in the document and is the foundation of the research that this report covers.

Woodman et al develop these ideas and form what they term an "interactionalist model of organizational creativity" In which they argue that it is the integration of the individuals "traits", cognitive ability/style i.e divergent thinking, biographical variables, and personality factors (locus of control etc…) among others, merged and interacting with the contextual influences such as the physical environment, task, time constraints and social influences such as social rewards, and social facilitation that forms the organizational culture of creativity: illustrated in the model below. (Source: Woodman,Sawyer, and Griffin 1993)
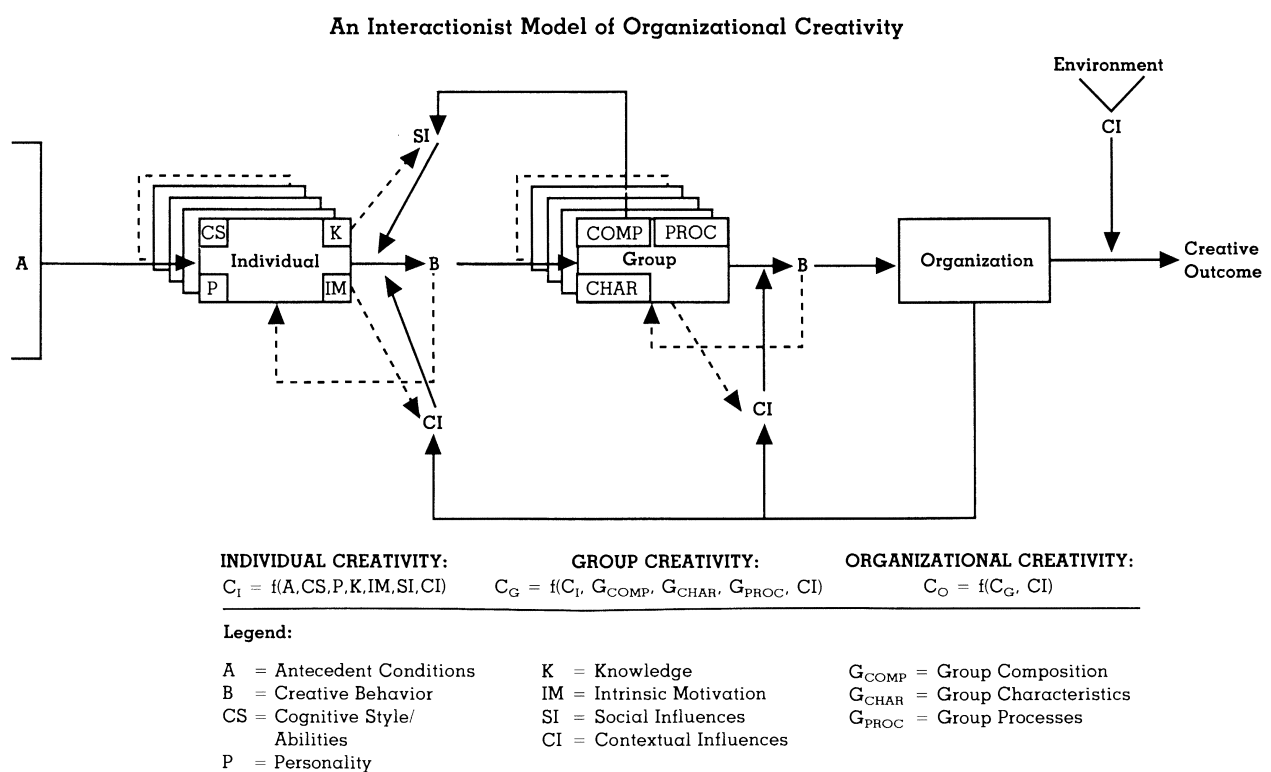
An Interactionist Model of Organizational Creativity

INDIVIDUAL CREATIVITY:	GROUP CREATIVITY:	ORGANIZATIONAL CREATIVITY:
$C_I = f(A, CS, P, K, IM, SI, CI)$	$C_G = f(C_I, G_{COMP}, G_{CHAR}, G_{PROC}, CI)$	$C_O = f(C_G, CI)$

Legend:

A = Antecedent Conditions
B = Creative Behavior
CS = Cognitive Style/ Abilities
P = Personality

K = Knowledge
IM = Intrinsic Motivation
SI = Social Influences
CI = Contextual Influences

G_{COMP} = Group Composition
G_{CHAR} = Group Characteristics
G_{PROC} = Group Processes

Fig: 3

All of these elements interact with the individual and thus moves into the group situations of an organization. The view that the individual has either a creative or non creative thought process or ability (divergent or convergent thinking) is somewhat undermined however when research is taken into account that suggests that training in creativity has a marked positive influence on creative productivity particularly if it is undertaken within

groups (Basadur, Graen, Scandura 1986) as the groups facilitate knowledge transfer and idea sharing. However, an individuals perception of whether they are a creative person or not may well have an influence on their creative productivity (Diliello and Houghton 2008).

Conceptual Links Among Creative Persons, Processes, Situations, and Products

Input	→	Transformation	→	Output
(Creative Persons, Groups, Organization)		(Creative Process, Creative Situation)		(Creative Product)

Individual Characteristics

- Cognitive abilities/style
- Personality
- Intrinsic motivation
- Knowledge

Group Characteristics

- Norms
- Cohesiveness
- Size
- Diversity
- Roles
- Task
- Problem-solving approaches

Organizational Characteristics

- Culture
- Resources
- Rewards
- Strategy
- Structure
- Technology

Creative Behavior

Creative Situation

- Enhancers
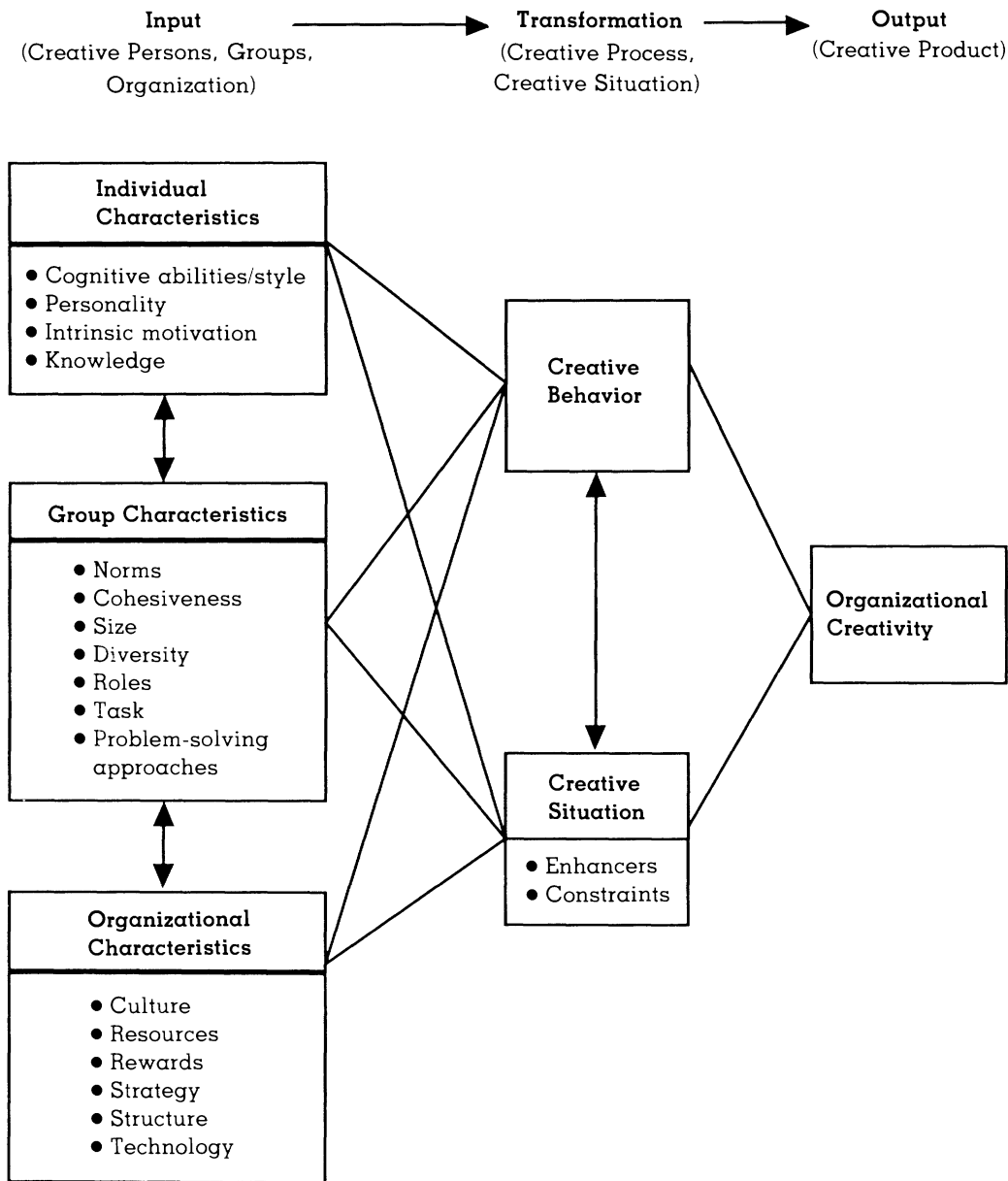- Constraints

Organizational Creativity

Fig: 4

1.6 Perception-action of creativity

In their 2008 study Diliello and Houghton examined the un-tapped creative potential within organizations looking at the influence of organizational and the gap between perceived individual creative potential and actual creative output or action, discovering that organizational support has a high degree of influence over the creative output of individuals. It is the combination of individual creativity, and the influence that the

organizational environment embodied within the management and the culture of the organizations that this paper is concerned with.

To understand and analyze the creativity or at least perceived creativity of an organization it is necessary to understand the effect of organizational environment on individual motivation and creativity, outlined in the following paragraphs.

1.7 Amabile: Influences on creativity and motivation. Managing for creativity.

According to contextual theory of organizational creativity it is the psychological meaning of organizational events that largely influences creative behavior. (Amabile 1988, Woodman et al 1993). Therefore how people perceive their organizational events will have a direct effect on their creative output.

Amabile seminal analysis using the KEYS methodology measured creativity based upon "stimulant scales" and "obstacle scale" i.e elements within an organization that either encourage creativity, or those that detract from creativity.
It is assumed from previous research that the intrinsic principle of creativity is prevalent, people will be most motivated when they are intrinsically motivated by, interest, enjoyment, satisfaction, and the challenge of the work itself. This intrinsic motivation can be undermined by external factors or "extrinsic" motivators. (Amabile 1983, 1988, 1993) Outlined in the model below are the 'extrinsic' organizational factors that directly influence the creativity of individuals within an organization and thus, the organizational creativity as a whole.

The model consists of 5 main environmental factors of influence: Encouragement, Autonomy, Resources, Pressures, Organizational impediments. Each consisting of a variety of elements. Amabile's research found a direct correlation between the levels of each of these elements and the creative output of employees in R and D departments.

Model for examining the Climate for Organizational Creativity (KEYS) Amabile et al 1996)
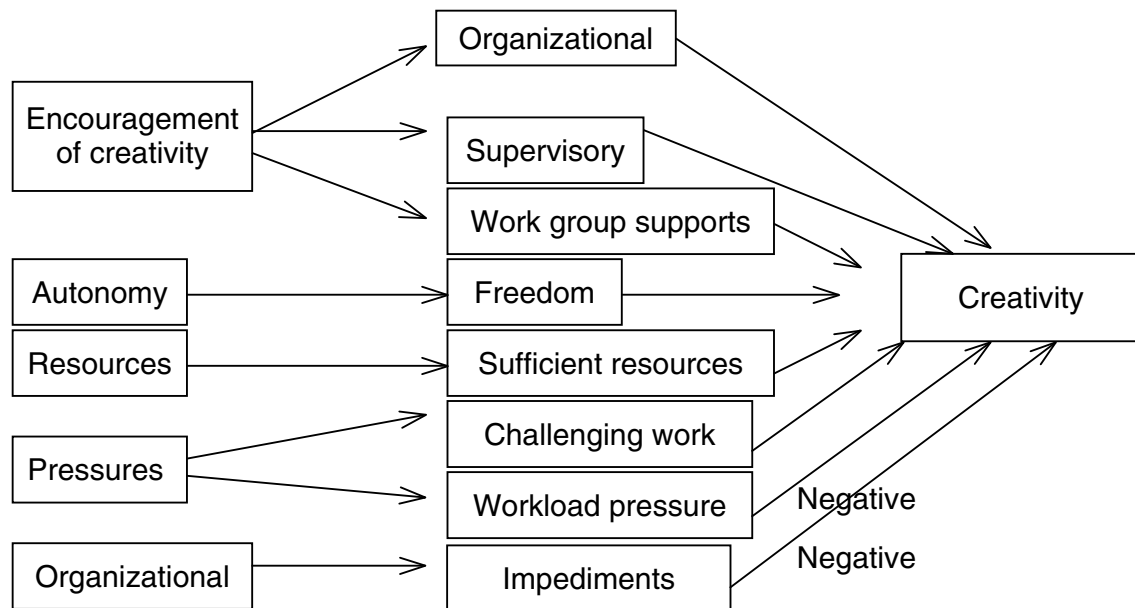

Fig: 5

Source: What Are Creativity , Innovation and design

Encouragement of Creativity.

The most influential element of creative motivators are things that encourage the creation of new ideas. This encouragement can come from many places but in particular from three levels within organizations. (Organizational encouragement, Supervisory Encouragement and work group encouragement)

This idea is supported in the Madjar et al 2002 research that shows a clear relationship between positive mood and improved creativity, and also clearly supports the Amabile findings that co workers and in particular supervisors support has a direct affect on both mood and creativity,(suggesting the potential for training in positive support within an organization to have a positive effect). This is similar to the idea of positive reinforcement in education, asking a student to walk, rather than saying 'don't run'. Celebrating successes, not highlighting failings etc…). This suggests that any elements that can effect people to have a positive mood, will influence their creative potential and productivity. This could simply be a smiling face as a worker enters the building, bright positive colours in the interiors. Jonah Lehrer suggests that room colour can effect mood and focus, blue

influences creativity (suggesting sky, and open thought processes and red influences detail (suggesting danger). If the various rooms/section/areas of the room had predominant colour codes as well as positive supervisors, this could potentially have an effect on both positive mood and creativity.

Vosburg 1997 however found a correlation between negative mood and increased creativity, an opinion that would be supported by the perception of the 'tortured artist'.

Organizational encouragement

Elements that are perceived as operating across the whole of the organisation.

1. Encouragement of risk taking, idea generation and the valuing of innovation at all levels of management. (Kanter 1983, Kimberly & Evanisko, 1981) Research has shown that People are more likely to take risks or create ideas if they are given license to or are actively encouraged to do so.

2. Fair and supportive evaluation of new ideas. (Kanter, 1983) It has been shown that the expectation of criticism or critical evaluation discourages creativity. (Amabile, Goldfarth, and Brackfield 1990) It has also been shown that supportive and encouraging evaluation or feedback can enhance intrinsic motivation, which is the most conducive state for creativity. (Deci and Ryan 1985)

3. Rewards and recognition for creativity. (Abbey and Dickson, 1983) Although working only for the reward can undermine creativity (Amabile 1986). If a "Bonus" is given either in terms of enabling more creativity or development of more ideas and the possibility of more interesting work into the future. Creativity can be enhanced. (Phillips and Collins 1993, Hennessey, Amabile, and Martinage 1989)

4. Collaborative idea flow across an organisation and management participation and decision making. Research has shown that the exposure to new ideas from different areas and levels within an organization is conducive to to more creative ideas generation. (Allen, Lee, & Tushman 1980, Monge, Cozzens, & Contractor, 1992)

Supervisory Encouragement

Studies have shown that the influence of project managers or direct supervisors has a direct effect on creativity, specifically through, goal clarity, open/regular interactions between the supervisor and subordinates, and supervisory support for the teams work and creation of ideas. (Shalley and Gilson 2004, Tierny and Farmer 2002, 2004, Zhou and George, 2003, Amabile et al 1996 and 2004)

Evidence has shown that clear problem definition is critical in the creative process (Getzels & Csikszentmihalyi 1976) and goal clarity is essential. This suggests that open communication within a supervisory role creates less fear of mistakes and encourages clear and fair evaluation and feed back which feeds into the intrinsic motivation. It is clear that supportive management styles and the encouragement of idea creation, rather than stringent procedures and and rules encourage 'out of the box' thinking and creative ideas. (Deci et al 1989)

Work Group Encouragement

It has been demonstrated that diversity within a work group, will positively influence the creation of ideas. Wether this be cultural diversity, level, background or skill. It stimulates the constructive criticism of ideas and generates different points of view, and variety of new ideas. (Albrecht and Hall, 1991; Monge, Cozens and Contractor 1992) It is also argued that similar to supervisory encouragement a positive, supportive work group will also encourage the creation of ideas, and form an atmosphere where risk taking and experimentation become the norm. Enhancing the sense of constructive challenge and shared commitment and thus adding to the intrinsic motivation within the group.

Freedom/Autonomy

Research generally shows that creativity is fostered when teams and individuals have relatively high autonomy in their day to day actions, and work. A sense of ownership is enhanced when they feel that they can make their own choices on how to achieve a task. (Amabile and Gitomer 1984; Carmeli and Walmman 2009;) It is suggested that managers could and perhaps should set clear and defined goals (alluded to earlier) but should give the employee the autonomy and freedom to decide the best way to get there. (Chini 2011)

It is clear that creativity is enhanced when an employee has the freedom to arrange his work in whichever way seems best to them and this autonomy enhances the intrinsic motivation to explore creative and innovative ways to approach problems or situations.

Resources

The allocation of resources to a project has a direct effect on the creativity of that project and individual (Amabile 1996, 2011). Not only because of the obvious limitations that fewer resources create, but rather the psychological element of the perceived importance, or intrinsic value of the task. (Encouragement from organisation) (Payne 1990, Tushman & Nelson 1990). Having access to more resources allows access to training and experimentation which in turn leads to the development of new ways of thinking and creative processes.

Pressure

Research is divided in this area. Some research suggests that excessive pressure undermines creativity, but other research has also stated that time pressure positively influences creativity, as long as it is not excessive.

It is also argued that workload pressure as long as it is derived from the intellectual challenge of the work itself can have a positive influence, once again as long as it is not excessive. (Amabile 1988, Amabile & Gryskewicz 1987) More specifically the amount of stress that is induced form the pressure has a direct influence on creativity. High stress inducing pressure will restrict creativity whereas, pressure that is derived form the task itself through intellectual challenge and certain time pressures linked to this can have a positive effect on creative productivity. (Byron et al 2010)

Therefore pressure can be separated into the two elements of Workload pressure and Pressure of the challenge including time pressures (as long as they are not excessive), with the first perceived to have a negative effect and the second a positive. (Amabile 1996)

Organizational Impediments

It is argued that rigid , formal management, internal conflict, and conservatism will negatively effect creativity. (Kimberly & Evanisko 1981) Perhaps due to the element that these kind of systems may be perceived as controlling. It can be argued that these impediments are part of the growth of an organization and need to managed appropriately to reduce the negative effect on creative output. However there is relatively little research into the area of organization impediments to creativity outside of a couple of critical incident studies (Amabile and Gryskiewicz 1987, Amabile et al 1996) That highlight specific barriers to creativity. It is suggested that the overly formal, and rigid elements within an organization have the opposite effect on intrinsic motivation which is suggested as the key to creativity, than that of freedom and autonomy within an organization.

Summary

In sum then it is suggested that teachers in the same way as creatives are intrinsically motivated to do their work. I suggest then that the same external organizational factors that can have a negative effect on the intrinsic motivation and therefore the creativity of employees in areas such as R and D and Marketing, will have a similar effect upon the motivation of teachers to perform in a productive and creative manor, therefore having a knock on effect to the students that are produced from these organizations. It is essential then for a school or similar organization to enhance its creativity and the management of that creativity to be effective as an organization itself and in the effective creativity of its product. The intention of this study is to capture as large a sample as possible in related industries (Technology,Marketing, Education), assessing the overall creativity of the organizations, and then measuring individual organizations from within that sample using it as a benchmark. It is clear that an organizations creativity is the combination of the creativity of the individuals within the organization enhanced or detracted by the enablers or disabler of the overall organization culture, and its attitude towards creativity.

Perceptions of creativity

It can of course be argued that everybody has creativity, and creative potential, but have either not found it yet (it could be displayed in many ways, maths, architecture, dance, new product design etc) But it can also be argued that from an early age many people develop

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a self image of themselves that is not creative, and conversely others develop the self image that they are. This is often a product of their schooling and what subjects they are encouraged to study, whether they are academic or creative etc...What is perceived as employable skills. Analysis etc. Often this self image will effect a persons intrinsic motivation for creativity as they will begin to become more and more risk averse, avoiding taking creative chances for the fear of failure. Believing that as they are not 'creative' obviously whatever they produce will be substandard. The correlation between how creative people perceive themselves to be and the creativity of their organizations is an important link to make.

Methodology

2.1 Research Philosophy

The Idea of research is to develop new knowledge. It may not necessarily be as profound as a new theory on human motivation or achievement, but it can be answering a simple question in an organization, this is however discovering new knowledge (Saunders et al 2009). In this case specifically The research is asking the question of how creative the education system is and how well this prepares the future workforce for the challenges ahead, suggesting further that Private schools have the opportunity to be more creative than State schools, and more specifically that Hurstpierpoint College could develop its creative management further to enhance the development of the school.

There is much debate over which research methodologies are the most appropriate and effective, pragmatically Tashakkori and Teddie (1998) contend that rather than taking a research philosophy stand you should research what interests you in the ways in which seem most appropriate to you that will bring positive results to your value system.

The objectivist standpoint on research suggests that an organization and/or its managers are controlled by the processes and procedures within the organization, assuming that management is essentially the same in all organizations and it is the structures of the organizations that control them (Heirachy, job descriptions etc…) (Saunders et al 2009)

The opposing view is the subjectivist argument, that it is the perceptions of the managers/employees and the actions that result from the social interactions influenced by these perceptions that essentially form an organization and it is peoples interpretations of these interactions that form meaning and understanding within the organization. It is argued that the organizations culture can be defined in terms of either what a company 'has' in terms of procedures etc… or that which a company 'is' in terms of social interactions, and perceptions. (Smircich 1983)

This research is to some extent intended as a combination of both philosophies, arguing that the procedures, expectations and restrictions that are imposed on management and employees will have a direct effect on how 'creative' and productive they are, but at a more

fundamental level the research is analyzing how people perceive the organization they are a part of and thus the 'culture' in which they exist, and how these perceptions may or may not influence their behavior within the organization.

Furthermore the research asks questions of the subjects that urges them to assess their own perceptions of themselves and their creativity thus placing them as the 'subjects' of their own analysis. They are then asked to asses the management behaviors around them from their own points of view.

The next phase in the research would be to take a more objective point of view to examine how the physical structures of the organization could be manipulated to encourage/ discourage creativity, the physical arrangement of the work environment, the procedures etc..

2.2 Research Approach

My approach to the research topic is or at least should be in line with the critical realist perspective, and interpretivist points of view. It is not looking at what 'is' but rather what are the interpretations of what 'is' or may be.

The research data will not be solid objective information, on objects that exist outside of the mind, i.e number of tables, exam results etc… but using objective data collection methods to record interpretive and perceived information. I believe this approach is most appropriate because I am looking at the highly socially interactive and conceptual areas of organizational behaviors and creativity. Therefore as an idealist I would suggest that these areas are as tangible as objective data, and so can be recorded and analysed in similar ways. That analysis can then be interpreted for meaning and 'subtext' symbolism.

This is a clear example of Axiology: My values and pre-conceptions held and interpreted within my research. It could also be argued (Heron 1996) that the choice of topic 'creativity' and my general standpoint on the subject including my research questions are

influenced by my own values, and the fact that I am suggesting that 'creativity' is essential to the further development of education and business is heavily influenced by my pre conceived ideas and the influences of my background in the 'arts'.

2.3 Research Design

The importance of Research design cannot be overstated. Like an architect both planning and build a new house, the quality of the outcomes will be directly influenced by the quality of the plans and the foundations. (Hakim 2000) My Research project has taken the route of an *exploratory study.*

Although it has been clear from the outset the areas of study that I was focused on 'creativity' the specifics were intended to emerge through the process of study. The broad based literature review exploring 'creativity' through cognitive psychology, organizational behavior, sociology, education, and studying varying previous research methodologies in the areas, was intended to begin a filtering process the emergence of patterns and areas of interest and concern. (Adams and Schanevldt 1991)

This research was supported by various semi-structured interviews that informed and guided the process along the way, allowing the development of a research method and survey to emerge from the process. This approach was chosen and deemed to be appropriate as it reflected the creative process which it was studying. The idea that by exploring a broad base with lots of varying information from different areas would mean that new knowledge or ideas would be formed from a unique combination of more established ideas, in much the same way a William Shakespeare would combine imagery to form mixed metaphor and ideas from old but unrelated imagery to form new understanding, thus, the hope was that new links would be found.

My fundamental overarching question is "How creative is Hurstpierpoint college as an organization?" and secondly "How creative is The Whiteoaks Consultancy as an organization?" finally "How can this be managed and improved?".

2.4 Research Strategy

My Survey strategy has been based on taking a sample cross section of industry and education workers using a well researched and *justified* research methodology (combined Amabile, Diliello creativity surveys).

With a particular focus on New technology and PR industries as this is reflective of the 'Knowledge based' economy for which I imply is the future that schools are preparing students for.

From as broad a base as possible in the three main areas where I will be able to get a sample section to represent a 'bench mark' I will then be able to analyse the specifics for which I am interested. For example, is there a difference between the creativity of independent schools compared to government funded school, is there a discrepancy between creativity in education and creativity in the workplace.

I have also then been able to focus my research further by taking a case study approach to the analysis and comparing two independent organizations to the broader data, to assess the level of creativity within those organizations. The two companies being Hurstpierpoint College, an increasingly successful independent Boarding School in the UK and The Whiteoaks Consultancy, a successful, growing Public relations company in The UK. I have the added benefit of being able to cast the survey net wide by using new technologies and networking tools to receive data from countries across the globe particularly from schools to assess the varying levels of perceived creativity in different countries and compare them to the UK data.

Whilst my research and data collection techniques will be a mixed or multiple method (Curran and Blackburn 2001) It will of necessity be predominately quantitative in its approach, trying to find correlations between the varying industry groups and gaps in practiced and perceived creativity within those groups, and recording and analyzing those results using quantitative methods.

The Survey data is a cross sectional analysis of the organizations.

2.5 Reliability/credibility

In this research it is essential for me to ask the question '*How do I Know?'* (Raimond 1993) with regards to the findings on organizational creativity. This is particularly prevalent in my research as I come with many preconceived ideas and assumptions. Being so close to both the subject area as a creative and an educator, and having a continued closeness to the organizations that I am basing my case studies on.

This closeness or subjectivity could heavily influence the bias of the questions I ask, who I ask, and the interpretations of the data that I am analyzing. That is why it has been so important for me to be able to find a research methodology that has already been tested for its legitimacy that I can apply to my area. My initial choice was to take a qualitative approach to the research as this seemed to be most appropriate to both the subject matter and my own style. However, it became clear to me that it would be easier for me to subconsciously influence the results using this approach, so I decided to take an approach outside of my comfort zone, to approach the question more objectively using quantitative methods that would present the information as cold hard data, that would be more difficult to influence. This could then be used to either support or detract from my assumptions. (Easterby-Smith 2008)

There could be subject bias, particularly with regard to fear of reprisals from the organization. This has been negated by the assurance of Anonymity for the participants, enhanced by the fact that the questionnaires are completed online and no personal data is included other than very basic demographic information.

2.6 Sampling

The opening sample method for the research is a non probability convenience sample for the population of people available on internet networking sites and through contacts within industry. This is intended to give me a general picture from which the more specific, probability sample based on the entire populations of specific organizations. (Time constraints and access.)

My main sampling frame is probability sampling. I have taken both random and organizational samples, from several different areas, but all of which have access to the internet. The Survey is an online questionnaire so each participant must have access to the internet to complete it. The Survey has either been distributed by email or via a link posted on various networking websites.

I have targeted two specific organizations, where I hope to get a high proportion of the population of the whole organization. Each of these organizations has sent out an email link to the whole company with a link to the survey and a request to complete anonymously. I hope to have an approximate response rate go 80% of each of these organizations. Hurstpierpoint College with a population on around 100 means I hope to receive approximately 80 replies. The entire population of Whiteoaks is 30 and therefore hope to receive approximately 24 replies. These should give me a representative sample of the attitudes of the whole organizations. With an acceptable margin of error of 5%

My second approach has been distribution through professional and social networking groups, and various industry contacts. Through Linkedin I have targeted specific teaching and education network groups who have agreed to complete and forward the questionnaire to their own personal organizations, which will give me a further larger sample of teachers and educators across a broad base from various countries. The importance here is not necessarily geographic location but Profession.

A more broad brush convenience sample has been take by distributing to a sample section on 'facebook' where participants from many different industries have take the survey and distributed it to their own organizations. Giving me a cross sectional response from a broader population (Obviously the younger demographic is highlighted here, as they are on a social networking site) This will help to give a benchmark level to compare specific industries and companies to.

Further to this the questionnaire has been distributed to a sample from approximately 25 different schools in the UK and abroad. This will hopefully yield results that will give me a clear picture of the education system as a whole.

The final Sample group that have been targeted are the technology companies. Specifically organizations that have some kind of link to the Whiteoaks Consultancy. These

are a group of UK based and international companies that are based in creating new technologies. The Majority of which are clients of Whiteoaks. The aim of this sample is to gauge 1. How creative they are as organizations, and 2. Are they being served by the education systems appropriately?

The intention with this method of sampling is that it will be large enough to have normally distributed results of creativity as a whole picture. It will then allow me to analyse each independent variable (organization or sample type) to asses whether the results are normally distributed within their own section, and then comparisons and correlation's can be drawn between the sample groups using statistical analysis.

2.7 Measurement Validity

My research data will of course have some limitations. It is by definition a self assessment questionnaire so the responses will inevitably be colored by the participants prejudice and perceptions of themselves. It will also be effected by the way they are feeling at the time when they are completing the survey. It has been shown in research that mood can be effected very easily by interactions in the work place, particularly with interactions with managers, and the positive or negative mood can have either a positive or adverse effect on an employees creative work (Amabile 2011) therefore these moods may have had an effect on the people filling out my survey.

2.8 Observation Research

In the two case study companies I have been able to participate within the organization and have been able to gain insights into the creative work practices as the organizations as a whole and as part of individual teams and work groups. I have been embedded as a *complete participant* and have been party to the day to day task within the companies.

Whiteoaks

Working as part of a team for several weeks I was able to observe the practices within the organization. From a personal point of view it seemed that creativity and innovation was limited within the work groups. This was not due to a lack of enthusiasm or desire to be

creative or innovative from the team members or from the organization as a whole. However there did seem to be a clear fear of failure or of risk taking within the team. Day to day tasks were tackled with processes that remained methodical and somewhat stilted. It became apparent that this was heavily influenced by a particular "manager/director" who was very dictatorial in their approach to staff. The manager gave a sense of continually observing and judging the work as it was happening. The said manager would take credit for any successes of the team and would shift blame for any failings onto the team. It was apparent that the manager was very career focused and had a desire to move up the ladder. It also seemed that there was a lot of measured competition between teams, and each was judged up against each other. Often teams were situated in separate areas of the same room. This you would immediately imagine would encourage communication between the teams and as each team was situated around a large shared work space would encourage communication between the the team itself. However, it seemed to have the opposite effect. There was limited communication within the office, with a sense that sharing ideas with the other team may lead to a failure in the competition. The quietness within the room also meant that rather than lively debate and discussion in teams any messages were passed through email across a desk, which eventually made discussion feel uncomfortable because you were breaking the silence.

Hurstpierpoint College

The main challenge to creativity and innovation at HPPC was not necessarily creativity within the classroom but rather innovative approaches to the structure and approach within the school. The feel was that taking risks was discouraged as each department and staff member was measured against the successful results of each year groups exams. This meant that the risk of trying something new was too high, as it may lead to 'failure' this meant that the majority of any creativity was by doing the same old things in 'new' ways. A safe form of creativity. As the school was growing in size more and more record keeping procedures were added to enable progress tracking and performance management meaning they had less 'free' time in which to develop new ideas.

Administering Questionnaires (Research Method)

I have used two tried and tested survey structures to research the areas of organizational creativity and individual perceived creativity. The former being Amabile (1996) 'KEYS' methodology, and the second Diliello and Houghton (2008) perceived creativity and practiced creativity scales questionnaire. Each construct has been tested for validity and accuracy, and were first used in combination by Chini (2011) to asses the contextual factors that can influence and moderate creative behavior in creative personalities. The Survey consists of 94 questions designed to assess the behaviors and perceptions of creativity within an organizational context. The construct is based on a Ranked (Ordinal) scale with each response being based on a 5 point Likert scale (1932) with answers ranging from strongly disagree through to strongly agree. The questionnaire was constructed in sections as outlined in the KEYS model (Fig: 5) and based on a chronological order with each section titled and descriptive of what was being tested. The purpose of this style was transparency so that each participant could clearly see what they were being assessed on, hopefully building a certain amount of trust. (The full questionnaire and response rates are included in Appendix A)

Perceived Creativity.

The first six questions measure the individuals confidence in their own creativity and problem solving, and their attitude to taking risks in their work environment (Diliello and Houghton 2008). With questions such as "I am good at finding creative ways to solve problems."

Practiced Creativity

The next five questions asses the opportunities that employees perceive they have to be creative in their day to day work. Questions such as "I have the freedom to decide how my job tasks get done" and "I have the opportunity to participate in teams"

Organizational Context.

The remaining questions were based on the KEYS questionnaire developed by Amabile et al (1996) from the catalogue of past research on creativity and a study of 120 research and development scientists and technicians. The questions describe the work environment

of the organization, which are deemed to have a significant influence of creative behaviors.

How is Your Creativity Managed?

Consisting of 11 questions that test to what extent the organization and the supervisors support and encourage creativity. With questions such as "I feel that Top management is enthusiastic about my projects"

How Supportive are your Co workers?

Consisting of 8 questions the extent to which teamwork is practiced and encouraged within the organization. A key element in the development of creativity, measuring trust and supportiveness, with questions such as "There is free and open discussion within my work group"

How Much does your organization encourage creativity?

The next section of questions consists of 15 questions that measure the level of organizational encouragement for creativity, through the constructive assessment of ideas and reward and recognition of new ideas. "Performance evaluation is fair in this organization" being an question example.

Are there impediments to creativity in your Organization?

This section assesses the barriers to creativity that are prevalent within the organization. Whether or not people feel comfortable in the environment to make mistakes and not be overly criticized for them. 12 question such as "Procedures and structures are too formal in this organization" or 'People are critical of new ideas in this organization"

Do you have sufficient resources to complete your work?

6 questions that assess whether employees have the access to "appropriate funds, materials, facilities and information" (Amabile et al 1986) to do their jobs successfully.

How Pressurized is the Work environment?

Measures the level of work that employees have to complete and to what extent they have the time to complete them or whether there are unrealistic expectations within the organization. 5 Questions such as "There are too many distractions from project work in this organization" make up this section.

How creative is your Organization?

This section consists of 6 questions that measure the perceptions of the employee regarding there immediate organization environment and how creative it is. "A great deal of creativity is called for in my daily work" is an example of this.

How productive is you organization?

This is broken into 6 questions that test the efficiency of the environment.

What motivates you to work?

The suggestion that creative workers are intrinsically motivated to work by the work itself and not financial rewards is tested here with 5 questions such as "Job satisfaction is important to me"

Do you have Freedom/Autonomy at work?

4 questions "I feel little pressure to meet someone else's specifications in how I do my work" as an example measure the level of creative freedom within the organization. As the sense of control over ones work is essential for creativity (Amabile et al 1986)

How Challenging is your job?

The final section consists of 5 questions that assess the level of challenge within the work in the organization. Challenge is essential to keep the employee engaged and I interested

in their work. Questions such as "The organization has an urgent need for successful completion of the work I am doing right now".

Demographic and Control Variables.

To enable the research to be analyzed and grouped, I controlled for country of residence, Industry, type of school, and level of education.

Results:

3.1 Initial Analysis.

Of the 235 respondents 67.2% (156) were from the UK, with 23.3% (54) from the USA. 68% (160) were from the education industry, and 12.8% (30) from the PR industry. Of the respondents from the education sector, 61.7% (87) were from government funded schools, and the remaining 38.3% (54) from the independent sector. Of 199 respondents that answered the question 67.8% (135) Held a bachelors degree, 37.2% (74) holding masters degrees. (A summary of all the responses is in Appendix….)

3.2 Overall Organizational Creativity

Having collected the data from the creativity survey and the 235 respondents, initial analysis highlighted some interesting results. Each Section of the questionnaire was grouped into specific areas. Beginning with demographic information and building to 99 individual questions with likert scale responses based on respondents perception of their own and their organizations creativity (Appendix A). Each response was numbered with a score of 1-5, enabling a simple average result for each individual question, and an average overall creativity score, for each demographic or organization was able to be calculated by averaging the results, The higher the number between 1-5 being the higher level of creativity. I was able then to create a benchmark creativity score of all my respondents (3.64) and measure each variable or demographic indicator against that score and each other.

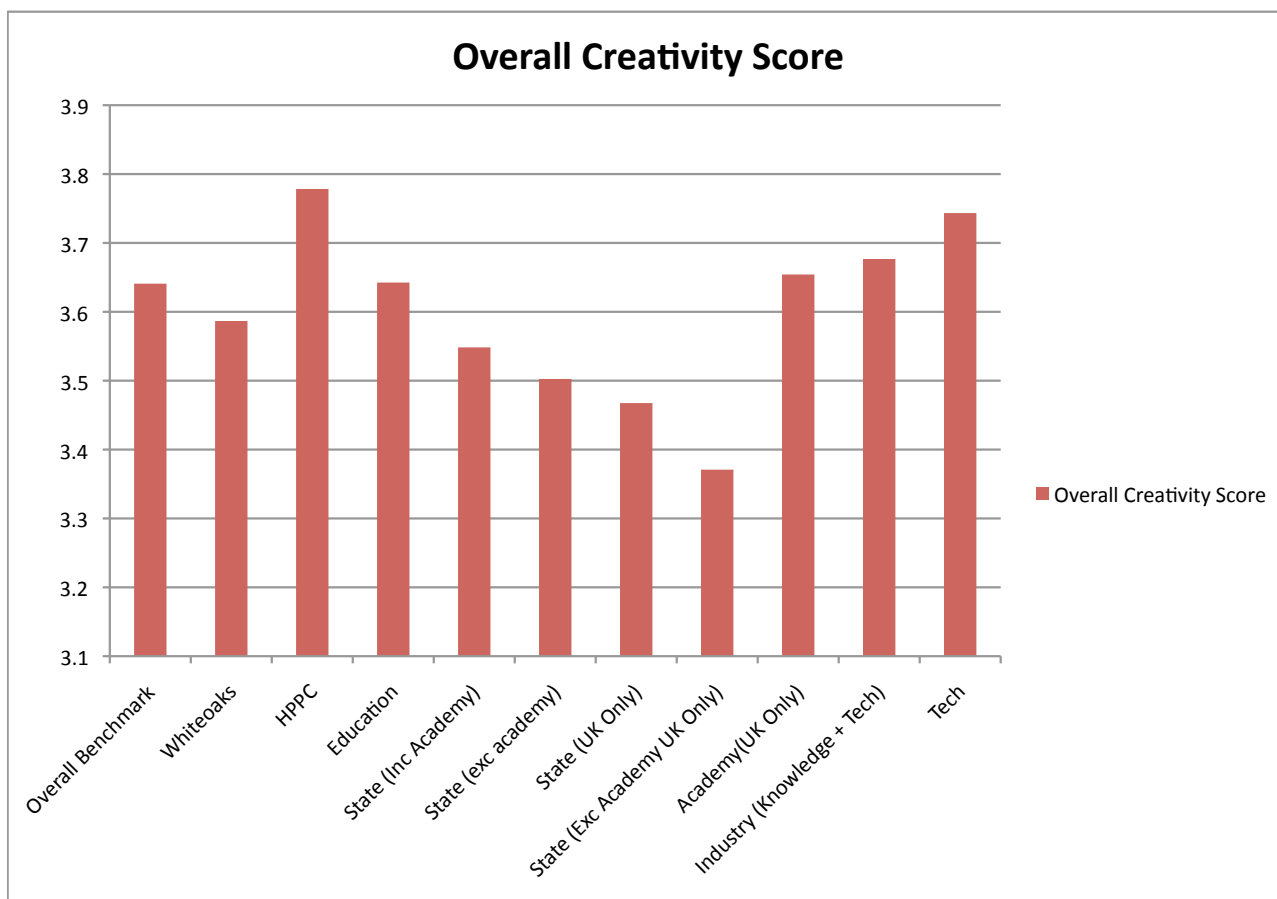The results of initial analysis are shown in the chart below.

Overall Creativity Score

Fig: 6

This initial analysis shows clearly that HPPC outperforms both the benchmark and all other areas in overall creativity scores, Whiteoaks underperforms against the benchmark score, and most of the other sections other than State Education. By far the worst performing sector of the results were the UK Government funded and controlled State schools.

The questions were then grouped into larger single question areas which pinpointed the specific areas of organizational creativity. These amounted to 12 Headline questions.

1. How creative are you?
2. How Creative are you at work?
3. How is your creativity managed?
4. How supportive are your co-workers?
5. How much does your organization encourage creativity?
6. What are the impediments to creativity?
7. Do you have sufficient resources?
8. How pressurized is the work environment?

9. How creative is your organization?

10. How productive is your organization?

11. Do you have Freedom/Autonomy at work?

12. How challenging is your job?

Each of of these key elements have been proven to have a direct influence on creativity within an organizational setting (Amabile, Woodman et al) and all though not all elements need to be evident at all times and in equal measure it is a clear indicator of areas of and overall creativity and areas that can be improved or are performing well.

As with the overall creativity measure, the scores for each section were averaged to give the level of creativity in each area, with the Higher score in the 1-5 range representing more positive creativity. (NB: In the survey the "Impediments to creativity" and 'How pressurized is the work environment" score were given an opposite scaling number meaning that that the results will fit with the higher number being positive)

Key Organization Comparisons

The Radar Diagram below shows how the three key indicators (Overall Industrial Benchmark, Whiteoaks, HPPC) match up against each other.
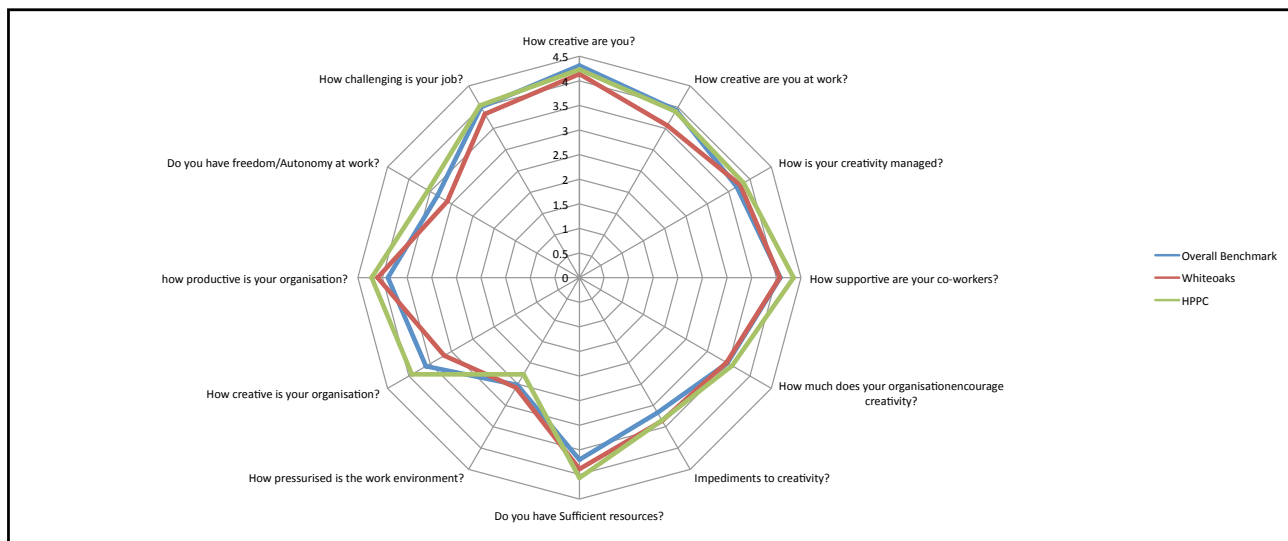
Fig: 7

These initial results show that HPPC outperforms the bench mark in almost every area, apart from one, The level of pressure in the work environment. This initial picture contradicts the predicted correlation that creativity is impeded by too much pressure, and enhanced by the freedom from that pressure. Although, research has indicated that work load pressure is conducive to creativity, as long as it is not 'excessive'(Amabile 1993).

When measured against the benchmark and compared to HPPC, Whiteoaks Underperforms in several areas. How creative are you at work? How creative is your organization? And Freedom/Autonomy at work?

It is interesting to note that Although on the whole the employees of Whiteoaks perceive themselves as creative, their individual creativity and the organizational creativity is low, with a lack of autonomy even though the organization seems to encourage creativity.

The organization is seen to be above average in terms of productivity. Suggesting that perhaps there is a link between the lack of autonomy, with high levels of productivity but low creativity. Conceivably this could be due to a focus on results, and performance measurements. (NB. In discussion with the managing director of Whiteoaks, it was

suggested that the terms creativity and innovation were bandied around quite a lot in the industry and clients, but most of it was hyperbole rather than practice.
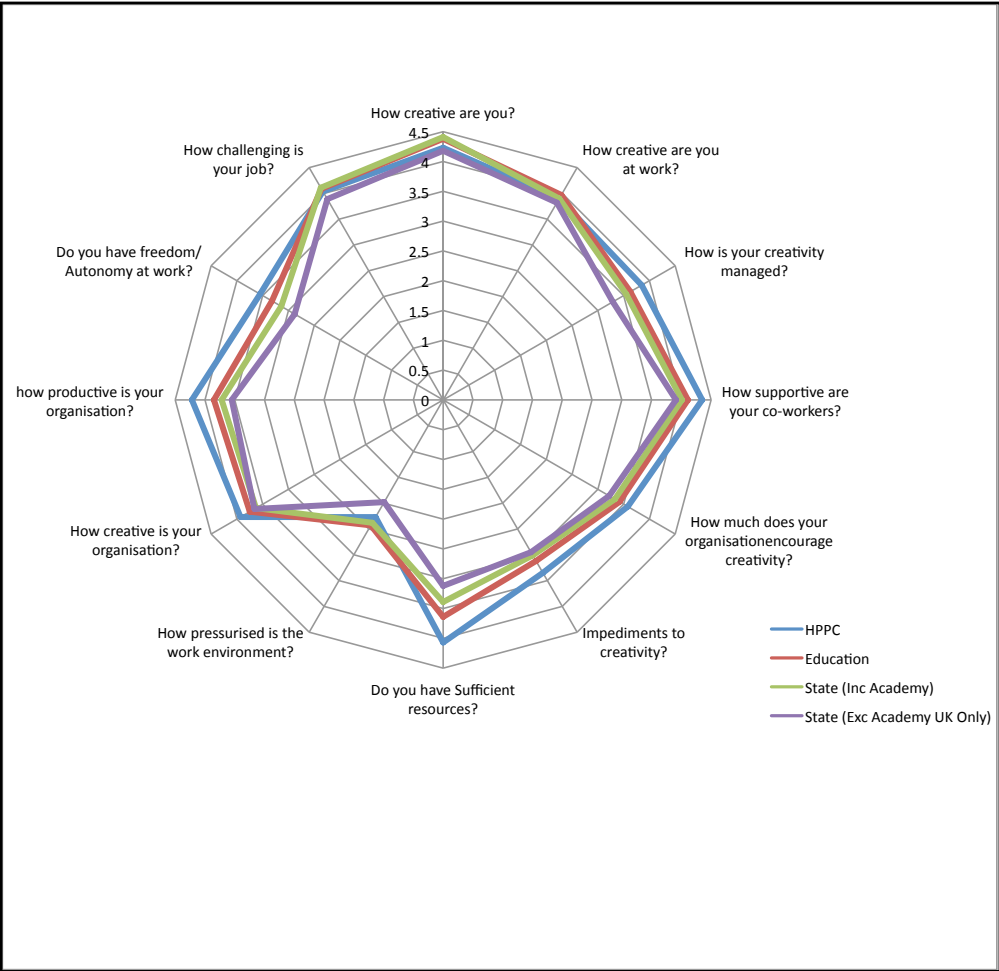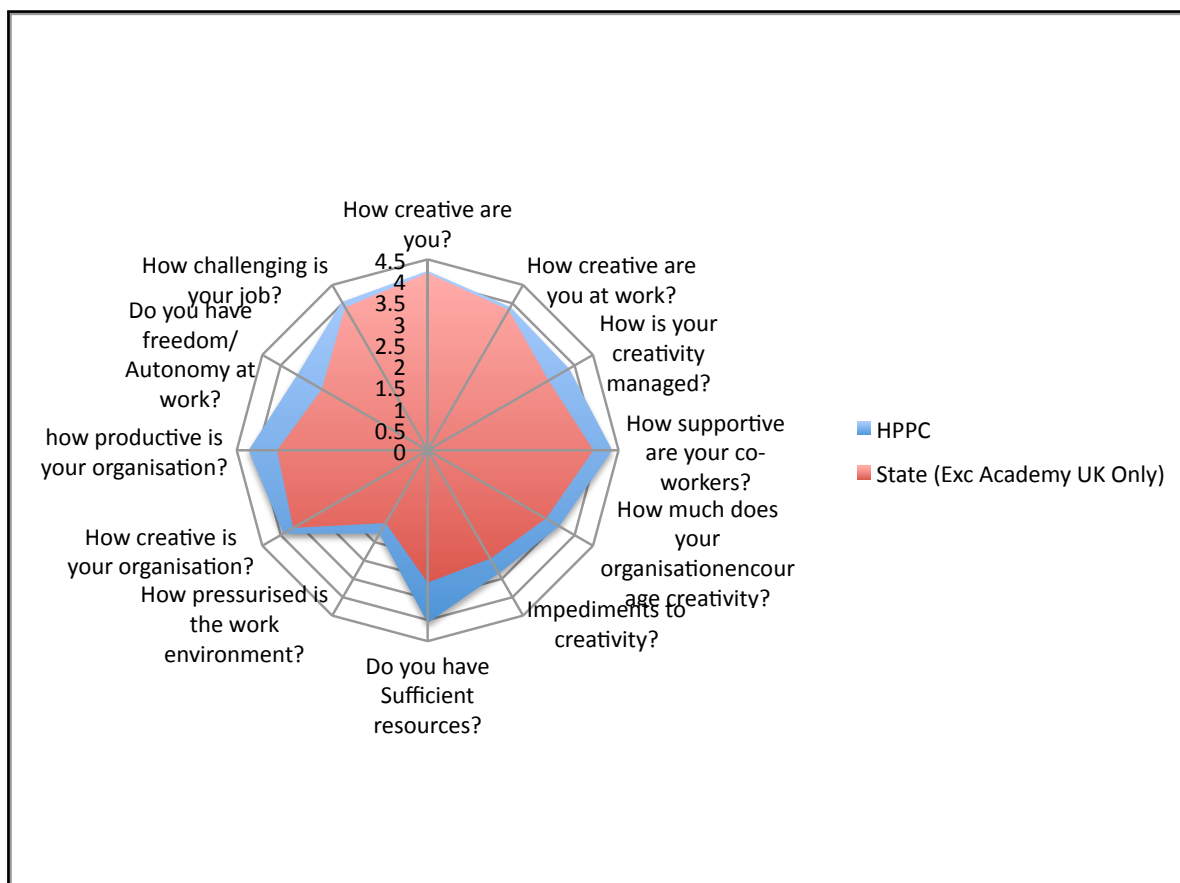
Education Sectors

Fig: 8

Fig: 9

Looking at these diagrams comparing various education sectors (Fig 8&9) and more specifically the best and worst performers (HPPC and The UK government controlled state schools) (Fig: 9) it is clear that although on the most part the respondents all perceive themselves as highly creative and try to use that creativity on a day to day basis at work, there is a marked gap in how the organizations manage that creativity and how creative the organizations are. The largest apparent difference being between the access to sufficient resources and freedom and autonomy at work. Once again, There could well be a link between the amount of bureaucracy and procedures in the large publicly funded organizations that are making creativity and flexibility difficult.

The Chart Below Shows a comparison between Industry sectors, and how Whiteoaks stacks up as a company against other knowledge based industries:
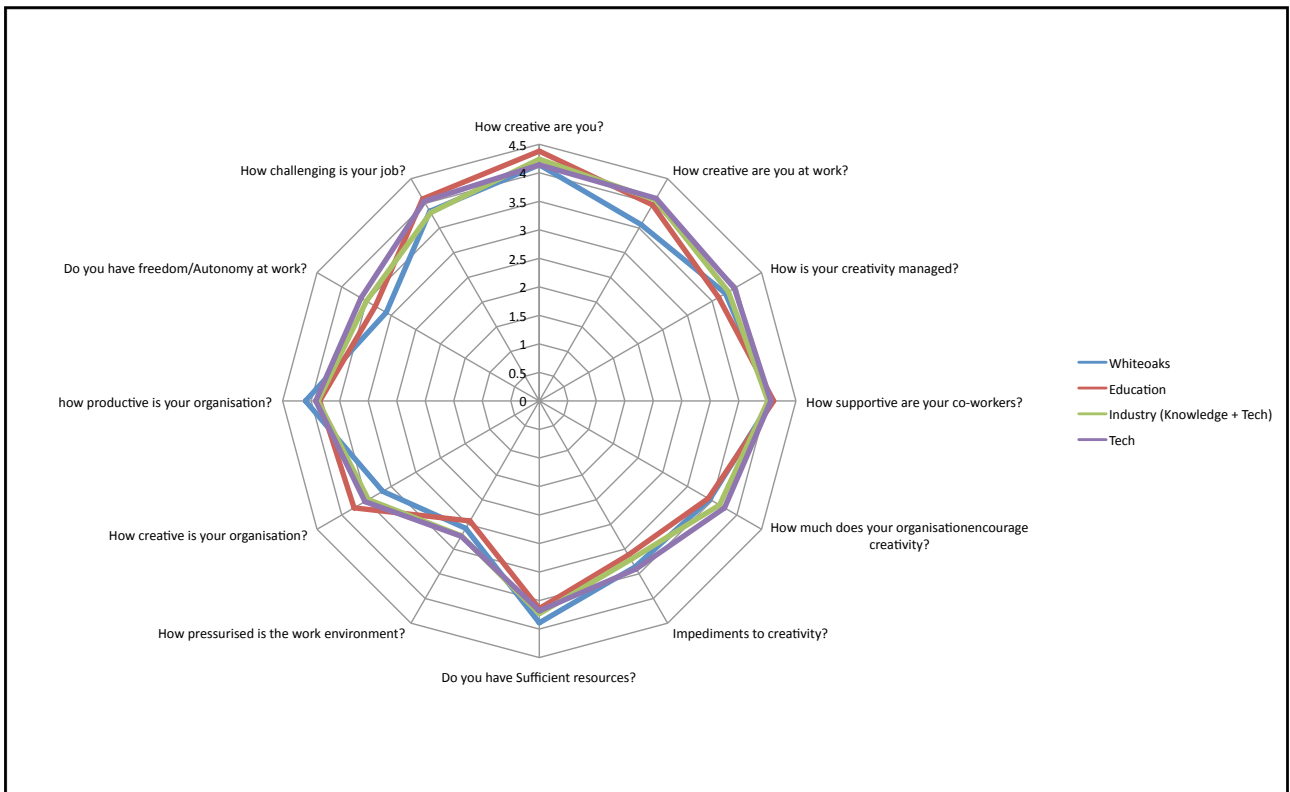
Fig: 10

The Diagram once again shows that Whiteoaks performs very well in comparison in terms of productivity and the access to resources which suggests the company is efficient and successful. However it is clear that it falls well behind in terms of creativity, and is well below that of the technology industry that it serves. As could be expected The technology industry comes out well in terms of creativity.
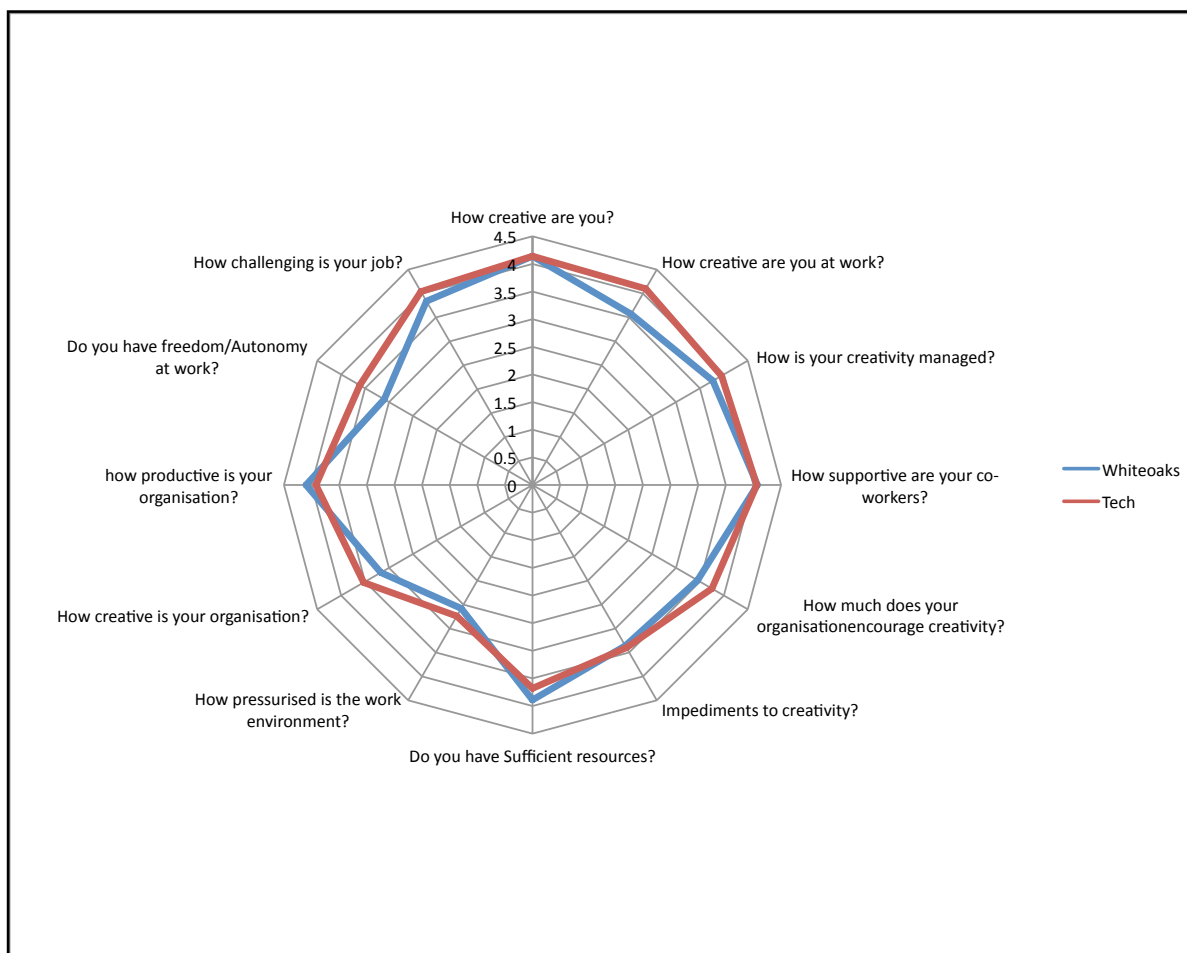
Fig: 11

Below the chart represents the comparison between the education sector and industry as a whole,
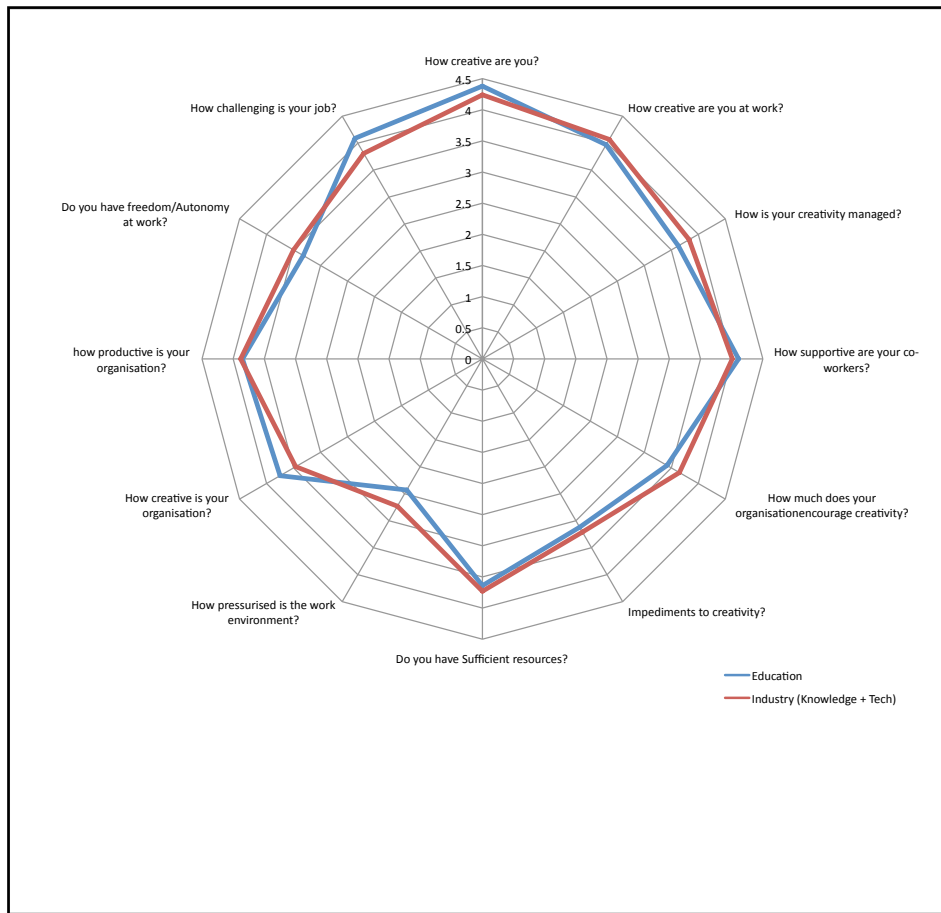
Fig: 12

However what is more interesting is how well the various types of educational establishment compare to and therefore serve industry, Demonstrated below.
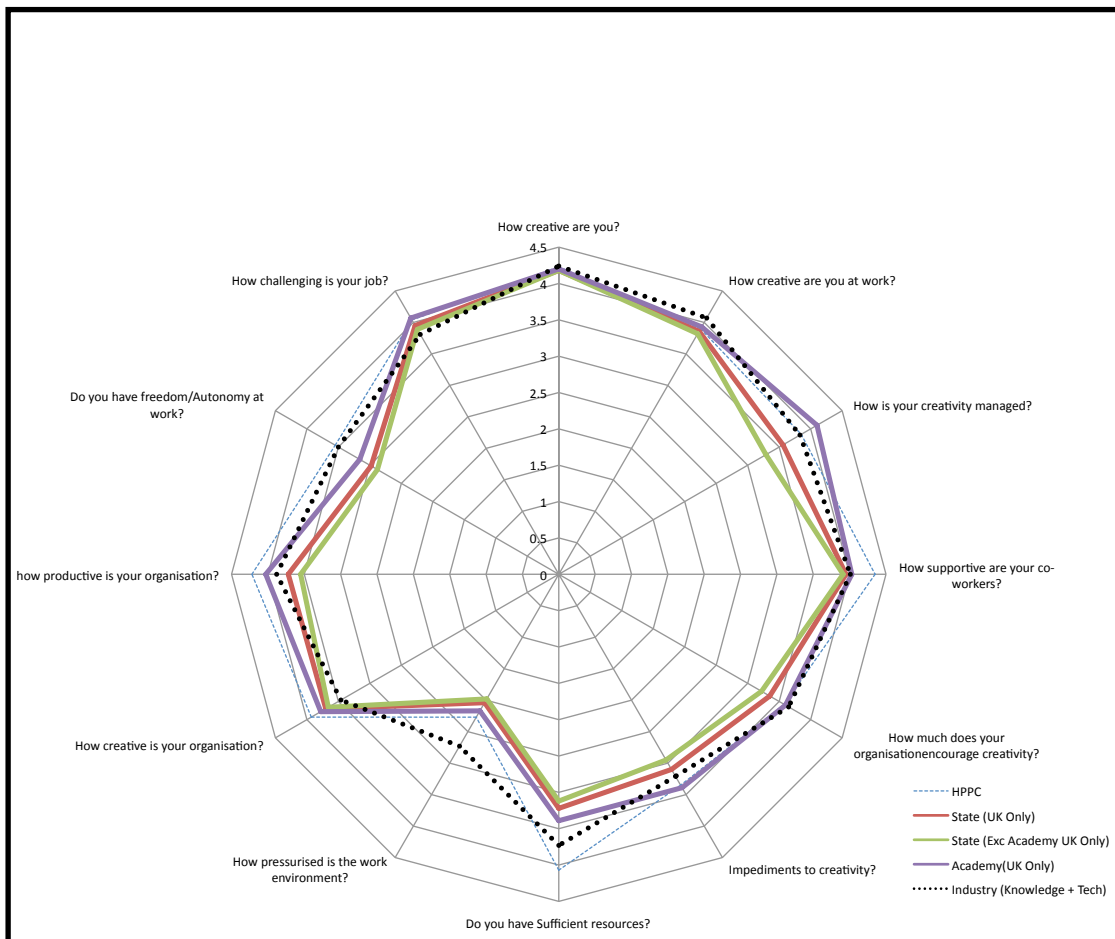
Fig: 13

Interestingly in this chart. It demonstrates that industry as a whole seems to work in a less pressurized environment than education. But clearly the government run education sector is underperforming in terms of creativity and it could be suggested that it is not serving the needs of new knowledge based economy sufficiently.

3.3 Detailed Analysis:

I will now look at the results in more detail, assessing whether there are true statistical correlations between the results. I will look deeper into specific elements within the questions and ask specifically which elements of creativity are performing well and which are underperforming. Enabling those areas to be addressed by the organizations in question.

SPSS Analysis

Assumptions:

1. Normally distributed: (population/Data) I need to test to see if my data is normally distributed so that I can perform statistically reliable parametric tests.

2. Homogeneity of Variance:
3. Interval Data: My data is measured in a forced 5 point likert scale, with 3 being neutral. It is assumed that the intervals between each score in each question is the same.
4. The independence of the data and participants. Each of the participants completed the survey independently and confidentially. Each participant completed the test only once and on line.

Frequency Distribution (Testing for normality)

Having Collected the results and running an analysis of each of the 99 individual questions for frequency and normal distribution of results (See appendix A) It was clear that the results seemed to be normally distributed although in general a little skewed toward the higher end of the spectrum.

It was important then to combine each group of questions into their 11. sub sections or major influencer groupings to ensure that each sections responses were also normally distributed. For each case in the survey the responses for each section were averaged and recorded as a score between 1 and 5. 1 representing a minimal level of creativity and 5 the maximum level of creativity. These results are shown below.
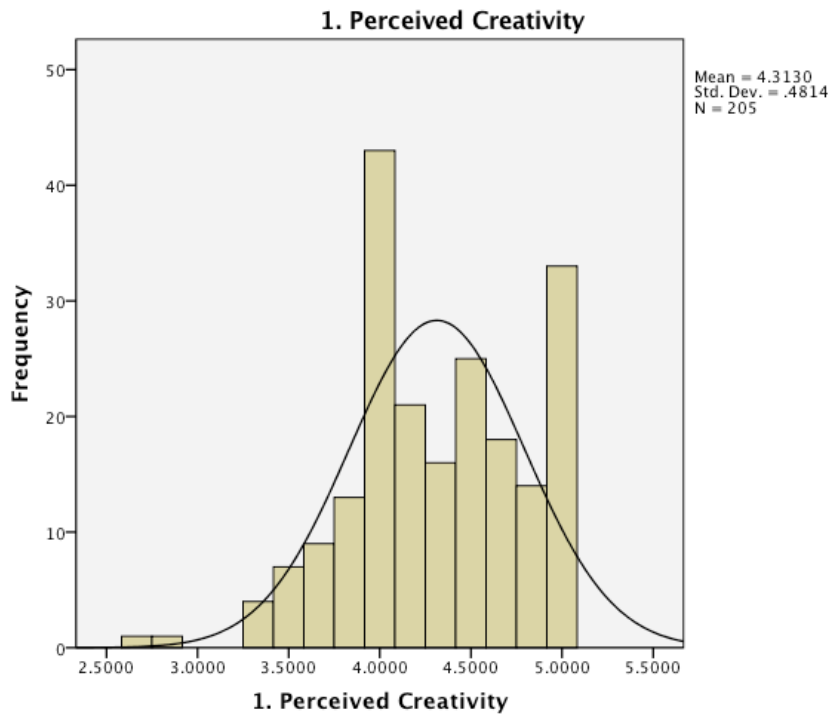
1. Perceived Creativity

Mean = 4.3130
Std. Dev. = .4814
N = 205

Fig: 14

There Are Clearly 2 Peaks and a slight negative skew of the data In this Chart and it will be interesting to see how this may become more normally distributed as each group is analysed separately.
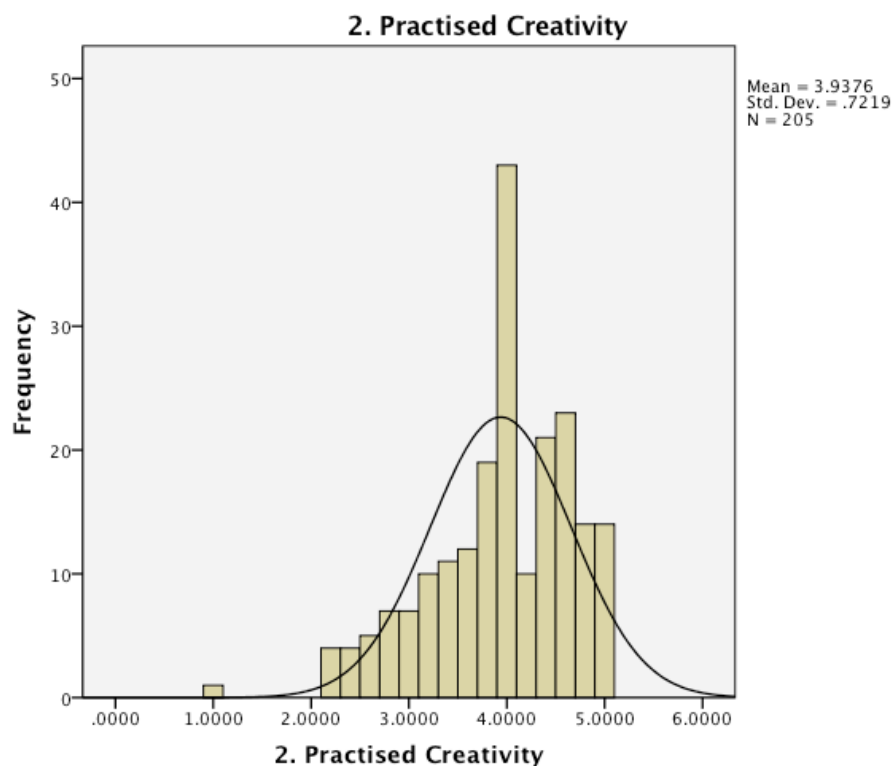

2. Practised Creativity

Mean = 3.9376
Std. Dev. = .7219
N = 205

Fig: 15

There is what seems to be a negative skew in the distribution of this data, but it could well be caused by the spike in the 4.0 area. Once again the separation into specific groupings may explain this skewing.
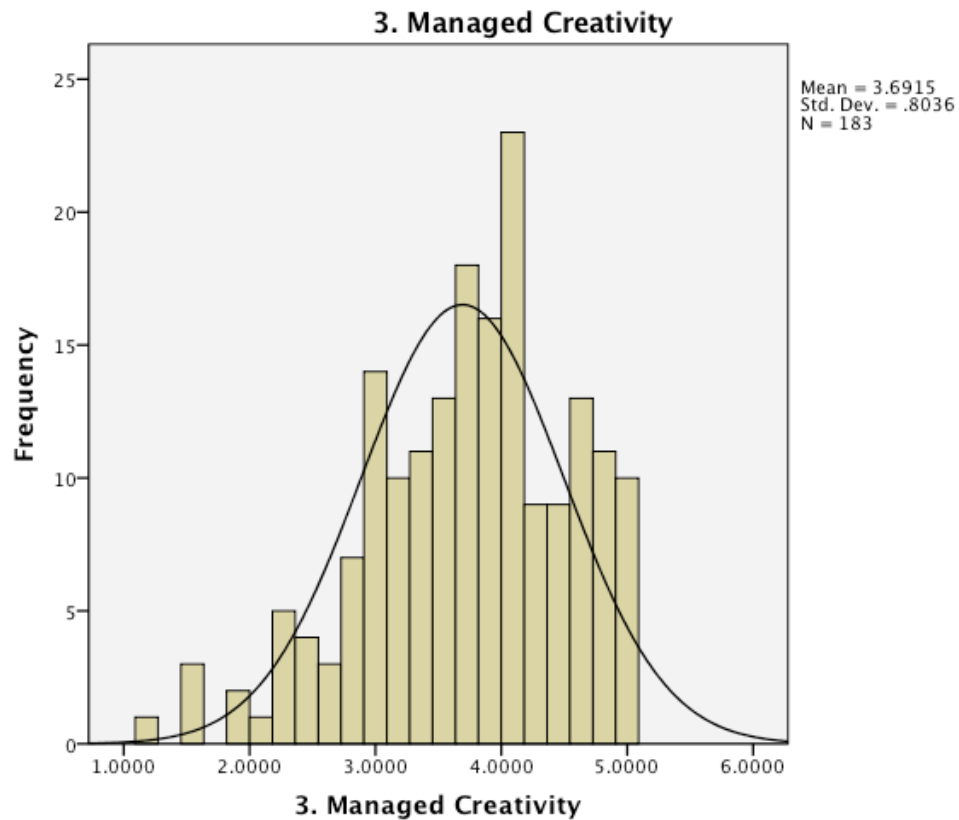
Fig: 16

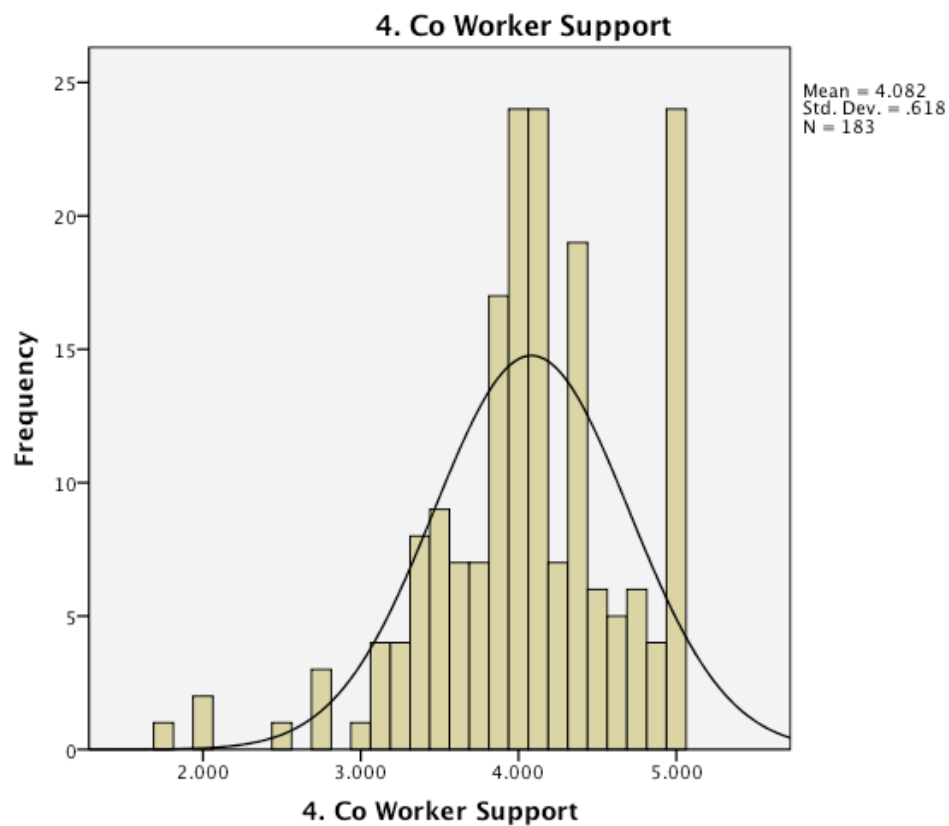Once again a slight negative skew leaning toward the high end of the scale.

Fig: 17

In co worker support there are some clear spikes in the positive response and support from co workers.
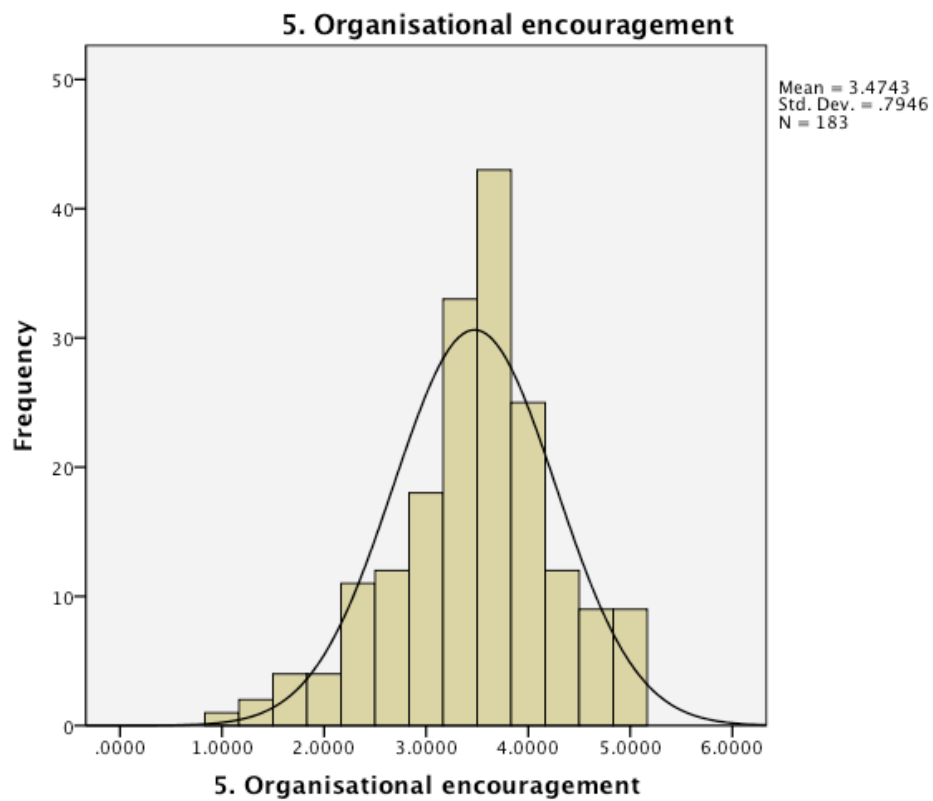
5. Organisational encouragement

Mean = 3.4743
Std. Dev. = .7946
N = 183

Fig: 18

Normally Distributed results.

6. Organisational impediments

Mean = 3.1703
Std. Dev. = .8488
N = 181

Fig: 19

7. Resources

Mean = 3.6926
Std. Dev. = .7916
N = 180

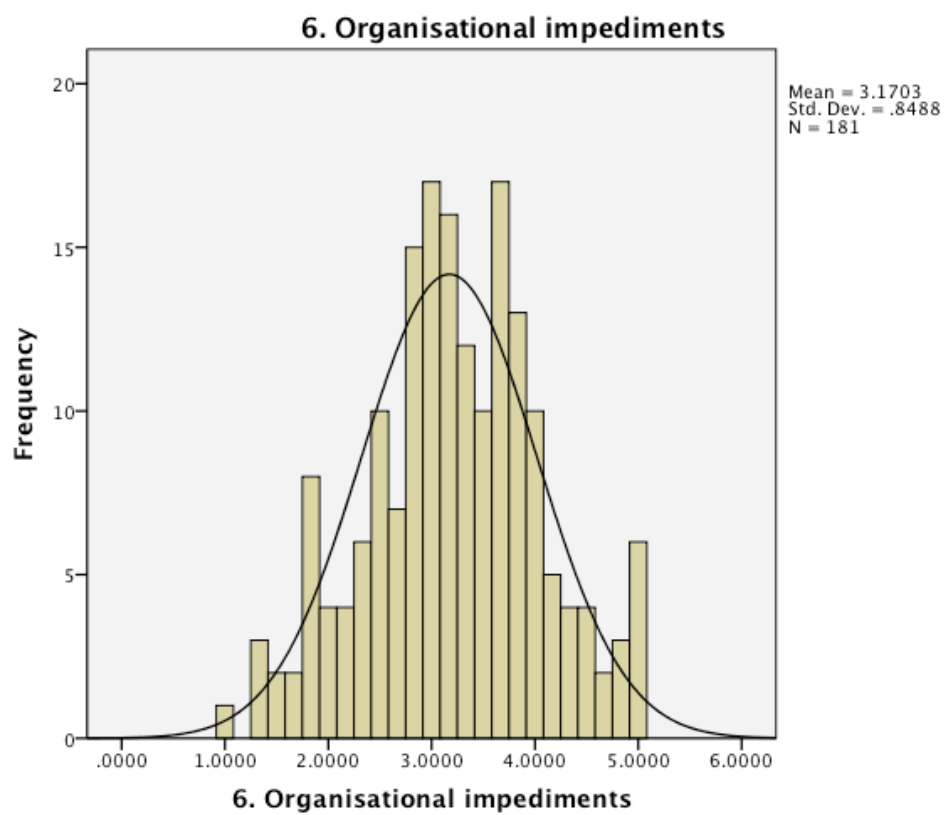**Fig: 20**
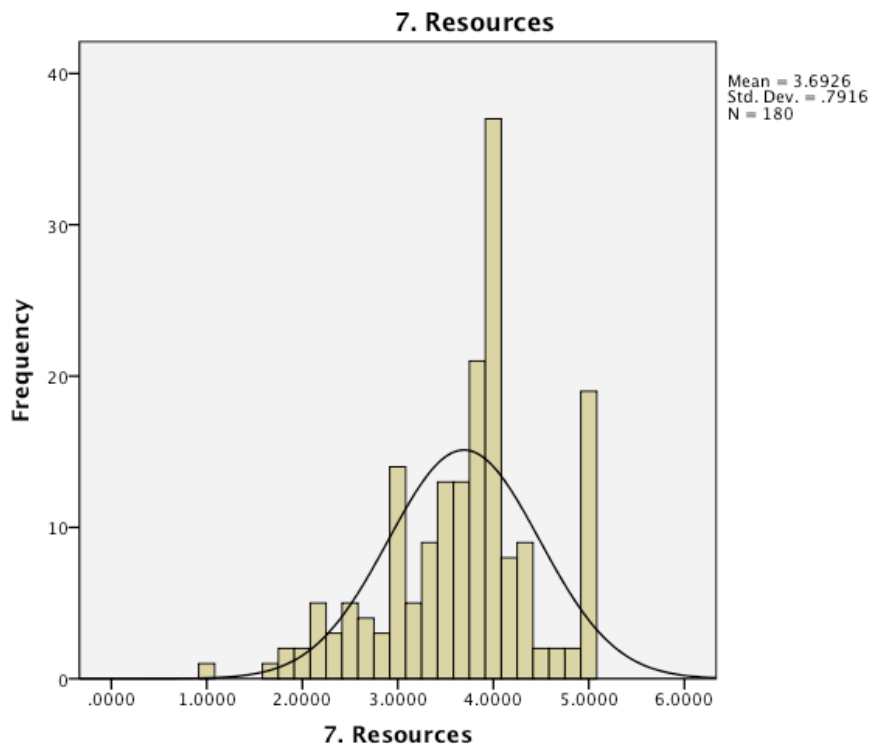
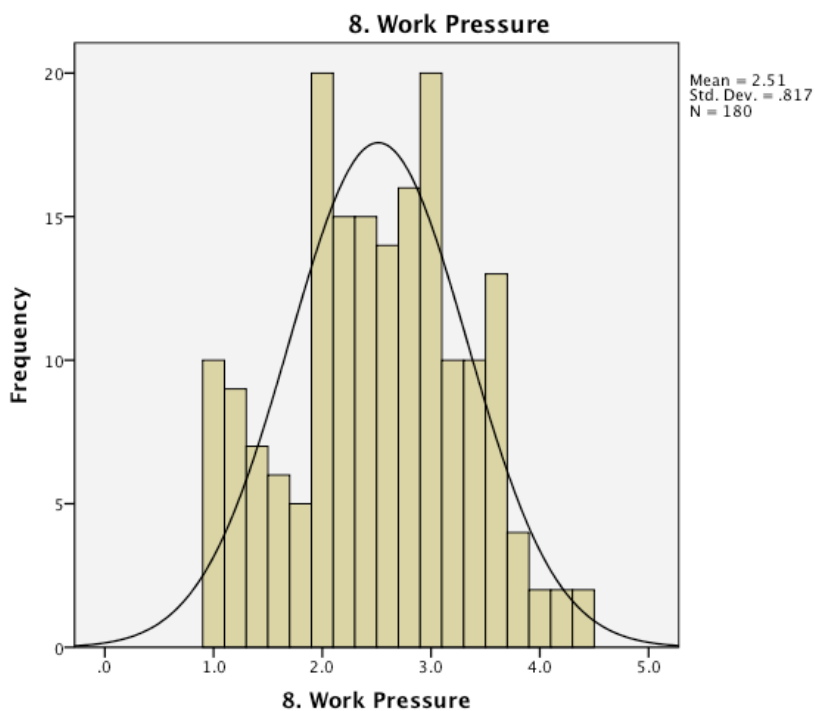**8. Work Pressure**

Mean = 2.51
Std. Dev. = .817
N = 180

Fig: 21

Interestingly this distribution demonstrates a negative leaning, suggesting that most people feel under pressure in the work environment. This in contrast to the majority of the other answers that suggest positive influences. The 2 peaks suggest that people either feel very much under pressure or moderately under pressure, and it will be interesting to see in which areas the effects are most prevalent.
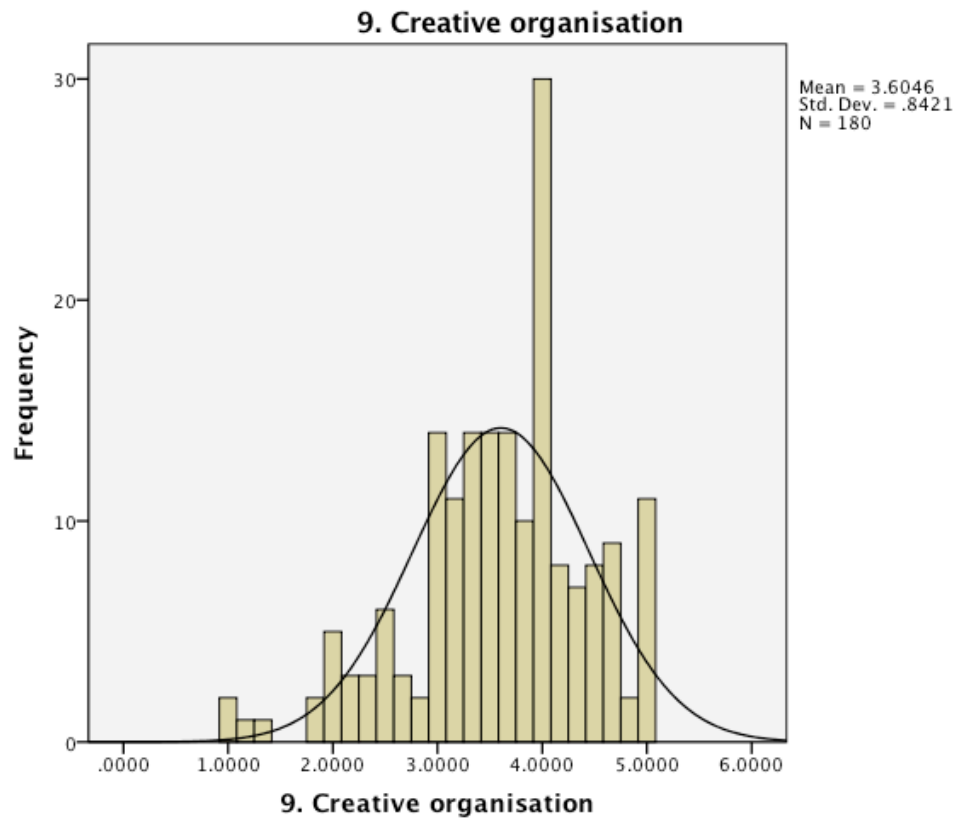
9. Creative organisation

Mean = 3.6046
Std. Dev. = .8421
N = 180

9. Creative organisation

Once again the the general leaning is toward the positive side of how creative an organization is seen as from the inside. The peak at 4. May well have an effect on the rest of the measurement results.

10. Productivity

Mean = 3.8907
Std. Dev. = .6574
N = 180
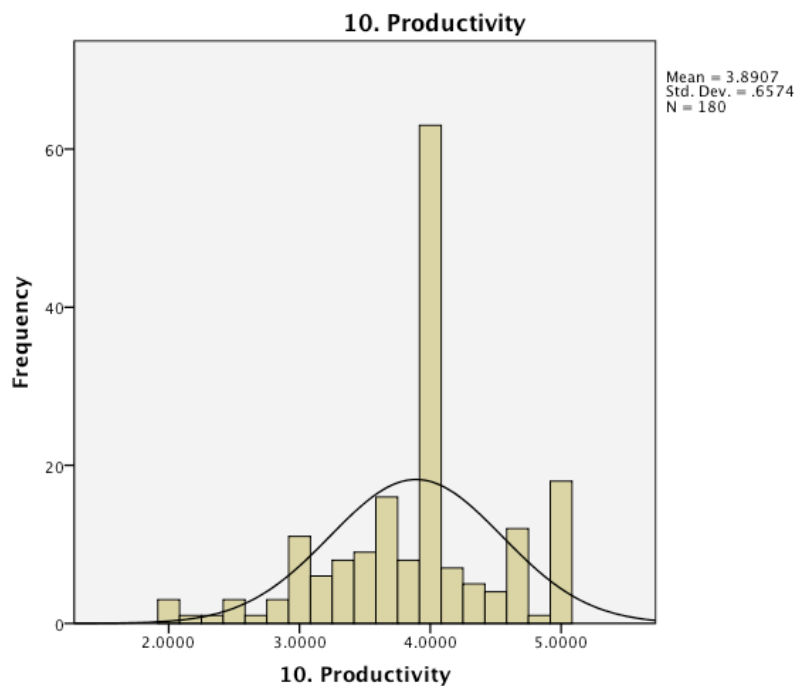
10. Productivity

The kurtosis in terms of productivity is clearly negative with a large peak at 4.

11.. Autonomy

Mean = 3.33
Std. Dev. = .829
N = 179

Fig: 24

12. Challenge

Mean = 3.5637
Std. Dev. = .5952
N = 179

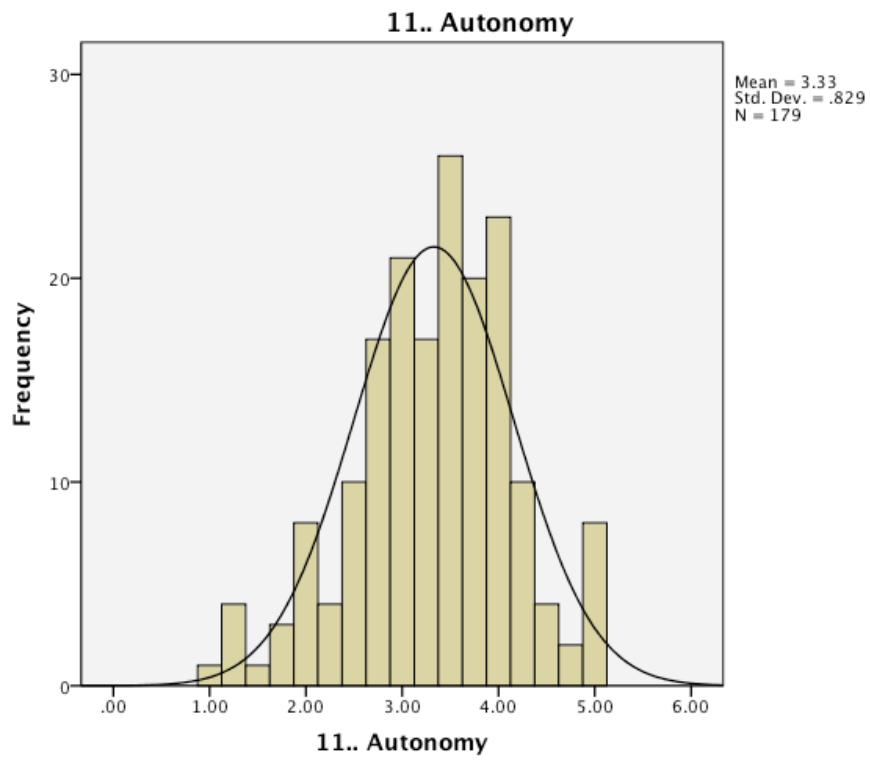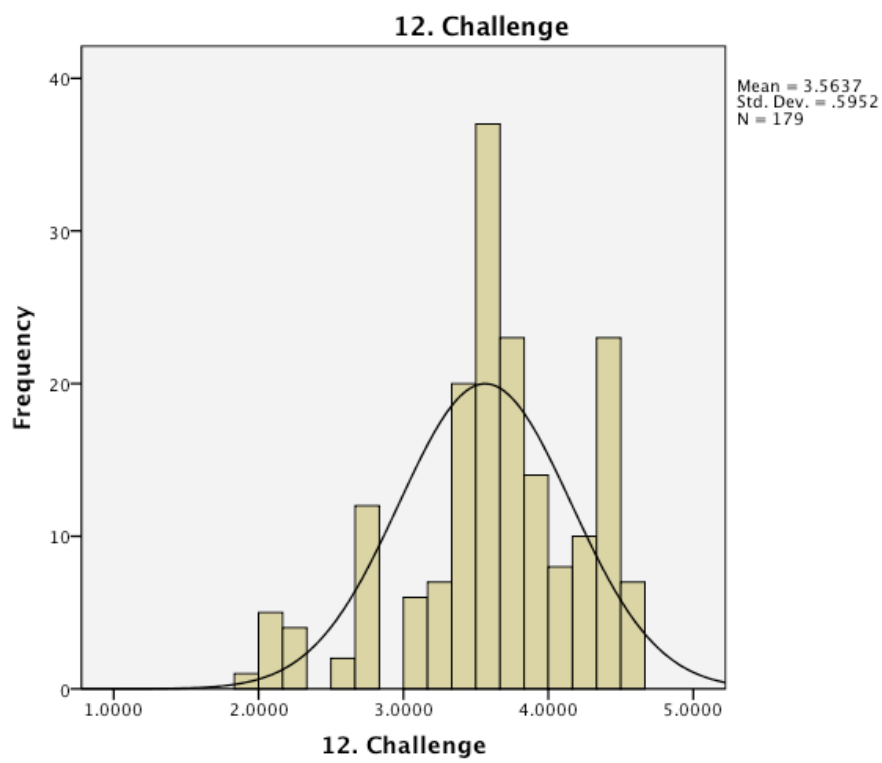**Fig: 25**

Overall Creativity Scores.

Having assessed the influencer groupings for normal distribution. I Then decided to analyse the overall creativity scores for each case and assess for normal distribution. The overall creativity score for each case was found by averaging the totals of each of the influencer groupings. Once again giving a score between 1 and 5. With the higher number representing a higher level of creativity. The results demonstrate a clearly normally distributed curve (Shown below)

Fig: 26

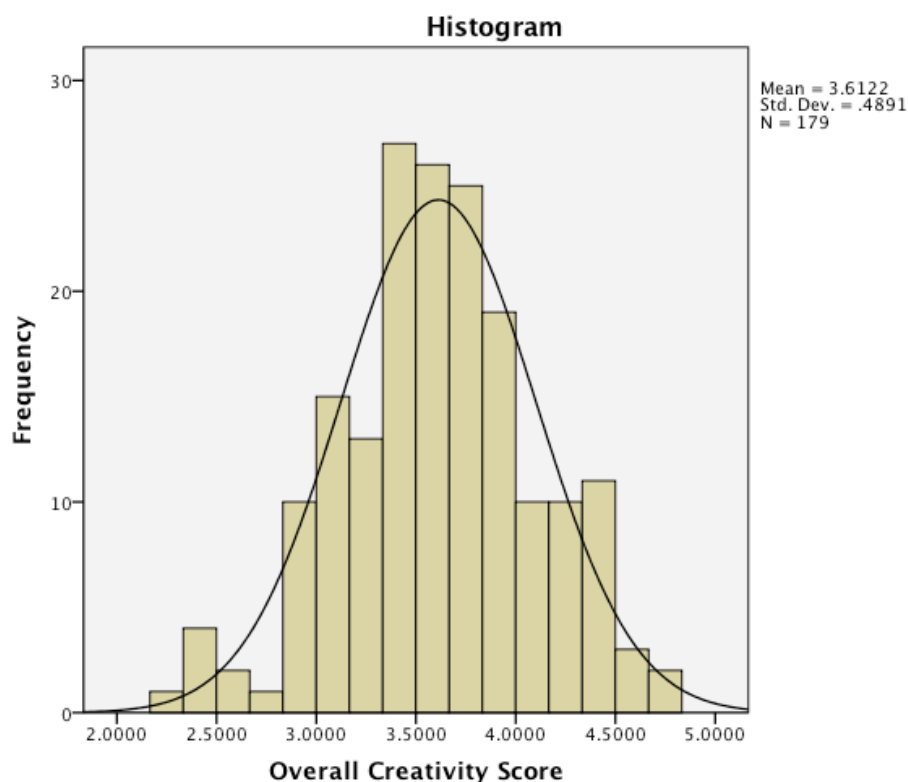There is a slight bias to the higher end of the scale, showing that on the whole the organizations surveyed were quite creative, with a mean score of 3.61.

Testing The normal Distribution of Overall creativity data.

Kolmogorov-Smirnov test. (K-S) and Shapiro-Wilk test. (S-W)

The results of the significance tests on overall creativity have given p>0.05 meaning that the results are normally distributed.

K-S=C(179)= 0.04,p=>0.2 making it non significant. sig 0.200

S-W=C(179)= 0.99,p=>0.32 making it non significant. Sig 0.325
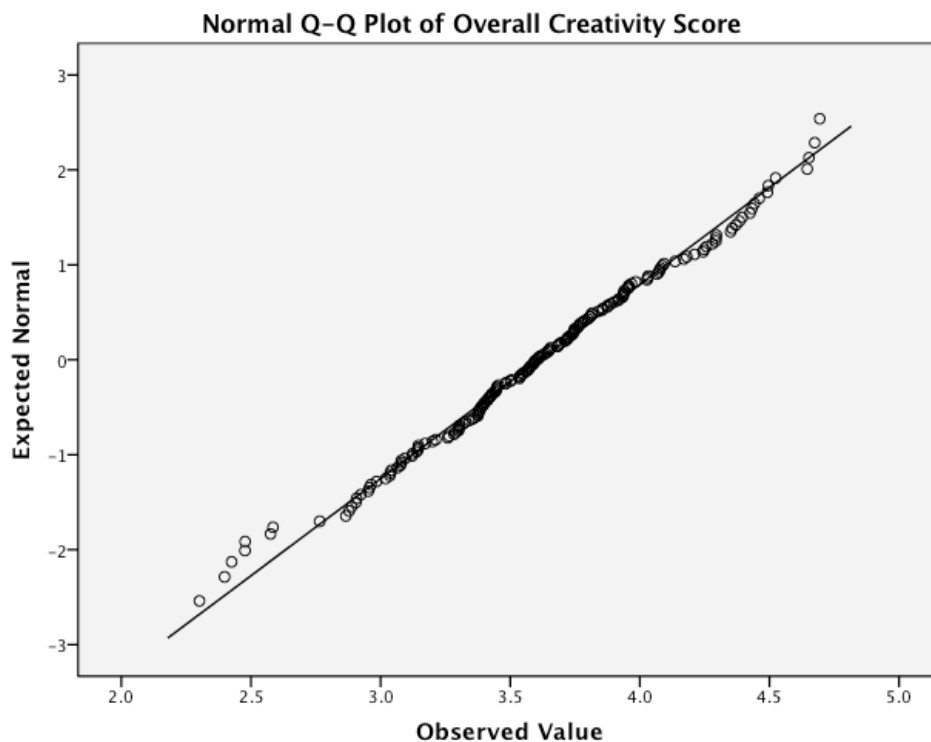
Fig: 27

Thus enabling parametric testing of Hypothesis.

Correlation and Hypothesis Testing

(Pearson Correlation coefficient) This parametric testing is acceptable due to the normal distribution of the results.

Each Element of the Creativity test was measured against the overall level of organizational creativity to establish whether there was a positive relationship between the the elements.

The initial scatter graphs show that there is clearly a general trend that correlates between positive scores in each individual element and overall creativity. With the exception of individual perceived creativity, Which seems from initial analysis to bear no real link with organizational creativity. The general view from the results suggest that most people perceive themselves as creative but that doesn't necessarily mean they work in creative

organizations. These results are consistent with the findings of (Amabile 1993, 1988, Woodman 1993, and Chini 2011) in their individual studies of creativity.
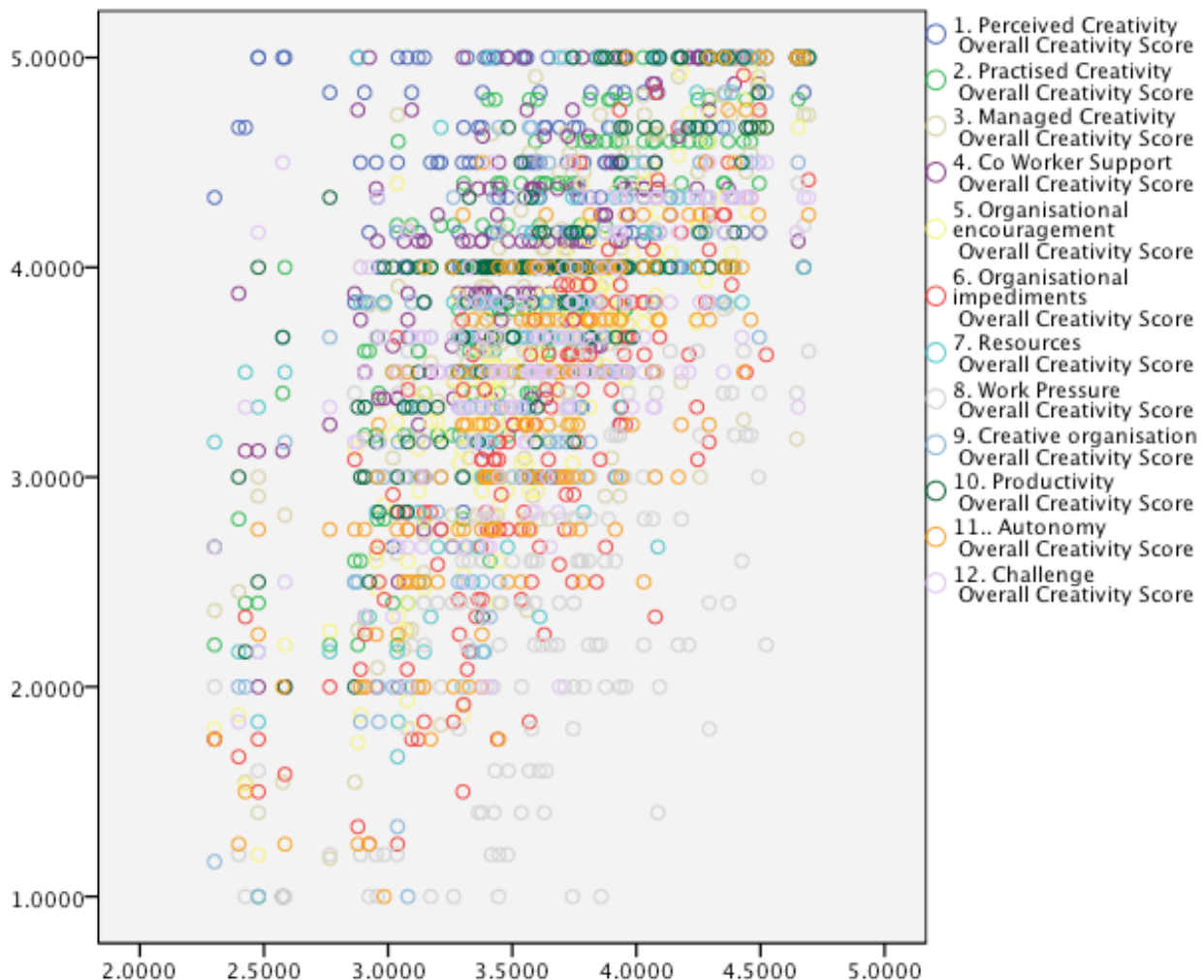

Fig: 28

Correlation Analysis

The Pearson Correlation analysis clearly demonstrates a strong positive correlation between all elements and overall creativity (13.TC)all scores being above ($r>0.50$) the majority being ($r>0.7$)with significance ($p<0.001$) showing a strong correlation the

strongest being (12.TC) and (5.OE) Total creativity and Organizational Encouragement with a near perfect correlation of (r=0.872) (Unsurprisingly perhaps suggesting that the higher the level of organizational encouragement for creativity, the higher the overall organizational creativity). The exception to this correlation is perceived individual creativity (1.PC) which showed no significant correlation.

	Mean	Std. DEV	1. PC	2. PrC	3. MC	4. CW	5. OE	6. OI	7. Rs	8. WP	9. OC	10. P	11. AU	12. CH	12. TC
1. PC	4.310	0.480	1.000												
2. PrC	3.940	0.720	0.275**	1.000											
3. MC	3.690	0.800	0.007	0.532**	1.000										
4. CW	4.080	0.620	0.090	0.413**	0.356**	1.000									
5. OE	3.470	0.790	-0.069	0.633**	0.639**	0.47**	1.000								
6. OI	3.170	0.850	-0.108	0.509**	0.457**	0.394**	0.792**	1.000							
7. Rs	3.690	0.790	-0.034	0.345**	0.431**	0.402**	0.517**	0.486**	1.000						
8. WP	2.510	0.810	-0.116	0.243**	0.285**	0.238**	0.436**	0.509**	0.354**	1.000					
9. OC	3.600	0.840	0.248**	0.713**	0.366**	0.484**	0.611**	0.485**	0.339**	0.119	1.000				
10. P	3.890	0.660	-0.010	0.382**	0.509**	0.492**	0.626**	0.547**	0.597**	0.232**	0.519**	1.000			
11. Au	3.320	0.830	0.030	0.519**	0.397**	0.4**	0.602**	0.585**	0.426**	0.46**	0.427**	0.438**	1.000		
12. CH	3.560	0.595	0.204**	0.421**	0.259**	0.391**	0.401**	0.279**	0.235**	-0.035	0.531**	0.412**	0.279**	1.000	
13. TC	3.610	0.489	0.121	0.756**	0.677**	0.639**	0.872**	0.789**	0.66**	0.514**	0.737**	0.729**	0.731**	0.529**	1.000

**. Correlation is significant at the 0.01 level (1-tailed)

Fig: 29

Relative to each other element of creativity within the test there is significant correlation between all elements with a medium effect (r=>0.3), suggesting

Source: Authors Own

that as one element of creativity is increased or decreased the other aspects of creativity will similarly increase or decrease. This is true in all cases with the exception of Individual perceived creativity (1.PC) with constructs (3.MC),(4.CW),(5.OE),(6.OI),(7.Rs),(8.WP), (10.P),(11.AU),(13.TC) and interestingly Work Pressure (8.WP) and Perceived organizational creativity (9.OC) which does not show any significant correlation. (1.PC) Perceived Individual creativity does have a significant correlation with (2.Pr) Practiced Creativity (r=0.275)a small to medium effect and (9.OC) Perceived organizational creativity (r=0.248) a small to medium effect.

Perhaps the best test of creativity within an organization is the relationship between each element and Practiced Creativity (2.Pr). The Test shows a clear correlation between each of these elements.

Key to answering Hypothesis 2 is the relationship between levels of autonomy and Total organizational creativity or (2.Pr) Practiced creativity. The Pearson correlation test clearly shows a highly significant correlation (r=0.731) and (r=0.519) respectively. The comparison between independent and state schools will be an interesting one. This Will be explored using T-Testing.

Hypothesis 1: Teachers are intrinsically motivated by their work and therefore external organizational factors will have a negative effect on the (practiced) perception of creativity (Amabile: Creative people are intrinsically motivated by their work and therefore are more influenced by the factors of the organizational environment.)

Levels of Intrinsic Motivation in knowledge based Industry
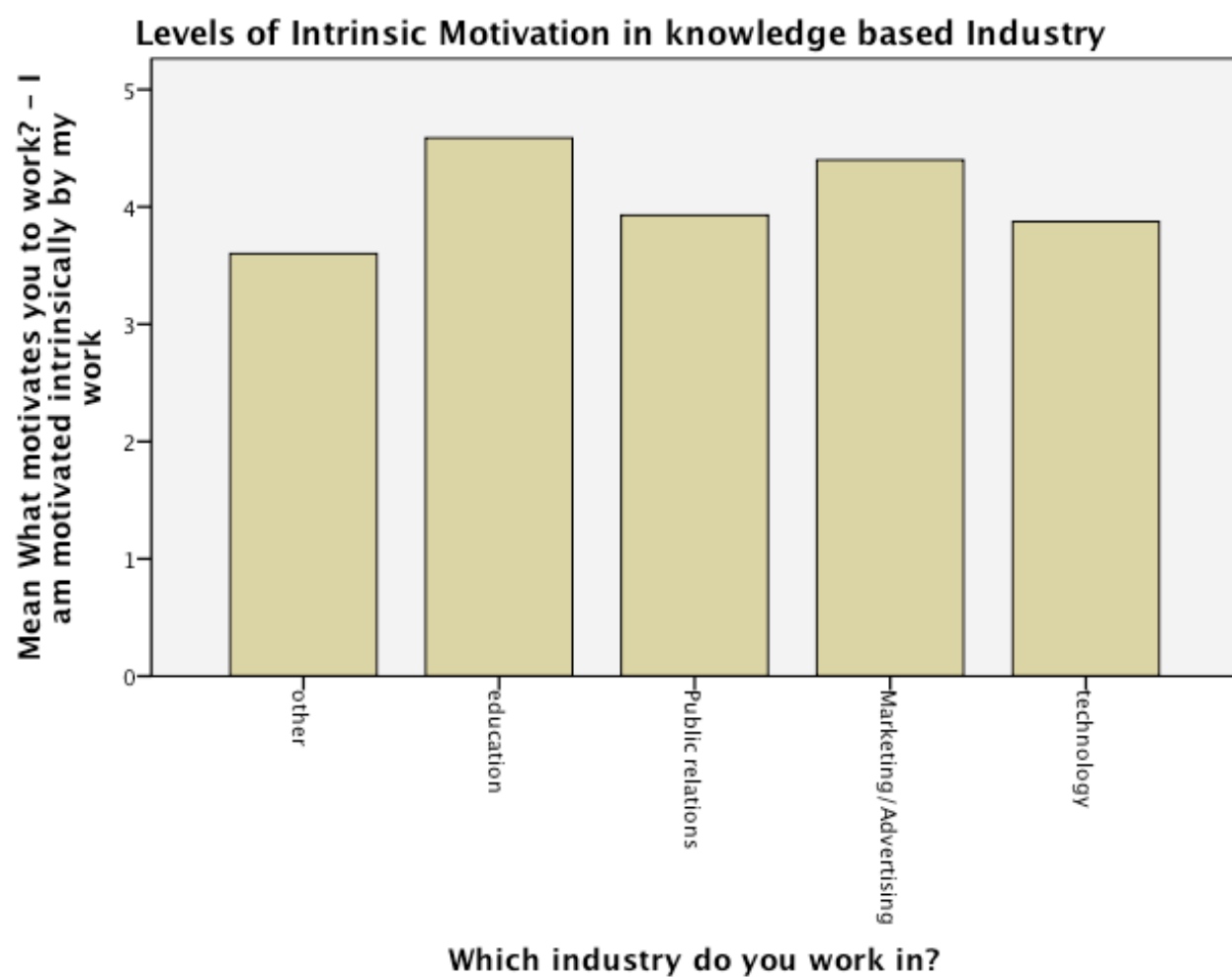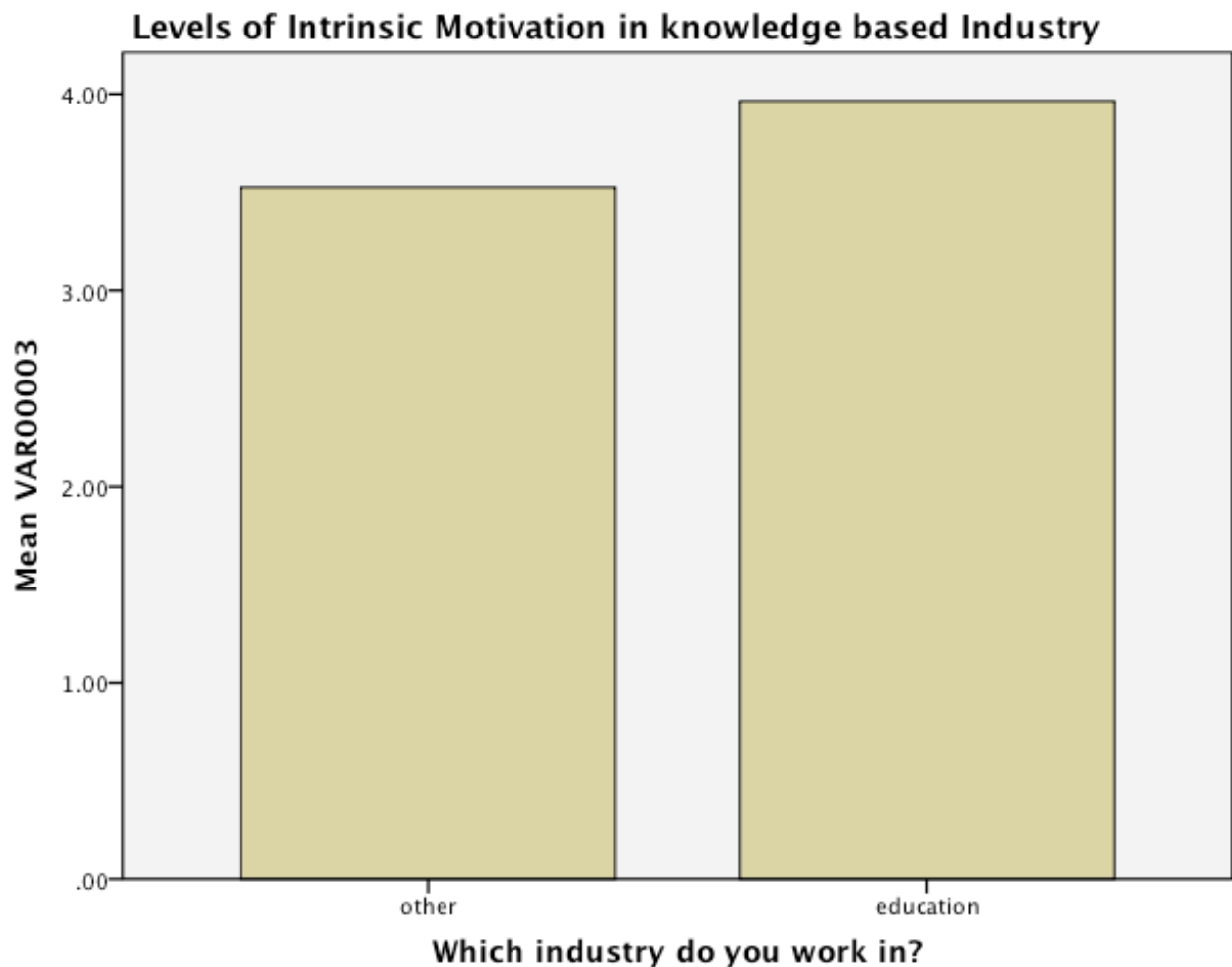
Fig: 30

Fig: 31

The charts above shows the mean response to the question based around intrinsic motivation for work. It clearly shows in Chart (Fig 30) that Education professionals score higher than the other industries in this area. The Second Chart (Fig 31) is Education measured up against the average motivation score for combination of all the other results combined, to even out the sample numbers. Independent T testing will be used to establish whether their is a significant difference.

With the assumptions of homogeneity of variance being met with a Levene's test of $p > 0.05$, $p = 0.587$. The results of the T-Test show a significant difference between the intrinsic motivation of Teachers and People who work in other industries. The Education sector showed results of mean=3.964, SE=0.041 and the 'other industries showed results of mean=3.52, SE=0.63 showing a clear significant difference of $t(178) = 6.071$, $p < 0.05$. Supporting the Hypothesis that teachers are more intrinsically motivated by their work than other industries and thus will be more effected by the organizational influences over creativity than others. If the assertion from Amabile and Kramer(2012) is correct that

Creative people are intrinsically motivated by the work itself rather than the extrinsic benefits associated with it.

3.4 Hypothesis 2

Having established the fact that Teachers are intrinsically motivated by their work and are significantly influenced by organizational environmental factors, I will explore to what extent different types of school/educational establishments foster creativity within their workforce, and whether the independent and state sector schools vary.

3.5 T-Test Creativity of Independent schools

The First test is to test The Hypothesis 2 that Schools in the independent sector display a higher level of creativity than those in the state (government funded) sector.

Table Fig 32 Shows the results of the comparison between the sectors and their overall creativity scores.

Group Statistics

	What type of school do you work in?	N	Mean	Std. Deviation	Std. Error Mean
Overall Creativity Score	government funded (state)	55	3.476428	.5099680	.0687641
	Independent	44	3.768272	.3890962	.0586585

Independent Samples Test

		Levene's Test for Equality of Variances	
		F	Sig.
Overall Creativity Score	Equal variances assumed	3.631	.060
	Equal variances not assumed		

Independent Samples Test

		t-test for Equality of Means				
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Overall Creativity Score	Equal variances assumed	-3.135	97	.002	-.2918443	.0931041
	Equal variances not assumed	-3.229	96.808	.002	-.2918443	.0903843

Independent Samples Test

		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
Overall Creativity Score	Equal variances assumed	-.4766301	-.1070585
	Equal variances not assumed	-.4712365	-.1124521

Fig: 32

Levene's Test shows a significance score of p=0.06 meaning that it is non-significant which establishes that the assumption of homogeneity of variances is met.

Analysis of the T-Test shows that there is a significant (2 tailed) difference between the Overall Creativity of Independent schools and State Schools (p=.002) which is less than the tolerance of 0.05. The inference that Independent schools are significantly more creative than state schools as in Hypothesis 2 can be confirmed using a 1 tailed significance test (p=(0.002/2)=0.001.

Therefore. On average independent schools scored higher in creativity tests (mean=3.76, standard error=0.0587) than state schools (mean=3.47, standard error=0.688) with a significant difference of t(97)=3.135, p<0.05 with a medium effect (r=0.32).

T-Testing.

To establish in more detail what elements specifically influence the levels of creativity within the education sectors, a independent T-Test was performed on each area of creativity to see where the most significant differences are between the independent and state sectors.

The results are shown in the table below.

|	State Mean	Independent Mean	Sig (1 tailed)	Mean Difference
1. Perceived Creativity	4.43	4.31	0.07	0.125
2. Practiced Creativity	3.88	4.09	0.041	-0.213
3. Managed Creativity	3.45	3.76	0.029	-0.303
4. Co-worker Support	3.99	4.28	0.01	-0.294
5. Organizational Encouragement	3.20	3.65	0.00	-0.458
6. Organizational Impediments	2.93	3.30	0.017	-0.369
7. Resources	3.34	4.04	0.00	-0.699
8. Work Pressure	2.40	2.5	0.25	-0.177
9. Creative Organization	3.56	3.94	0.002	-0.13
10. Productivity	3.61	4.05	0.00	-0.125
11. Autonomy	3.12	3.63	0.002	0.168
12. Challenge	3.64	3.60	0.36	0.113

Fig: 33
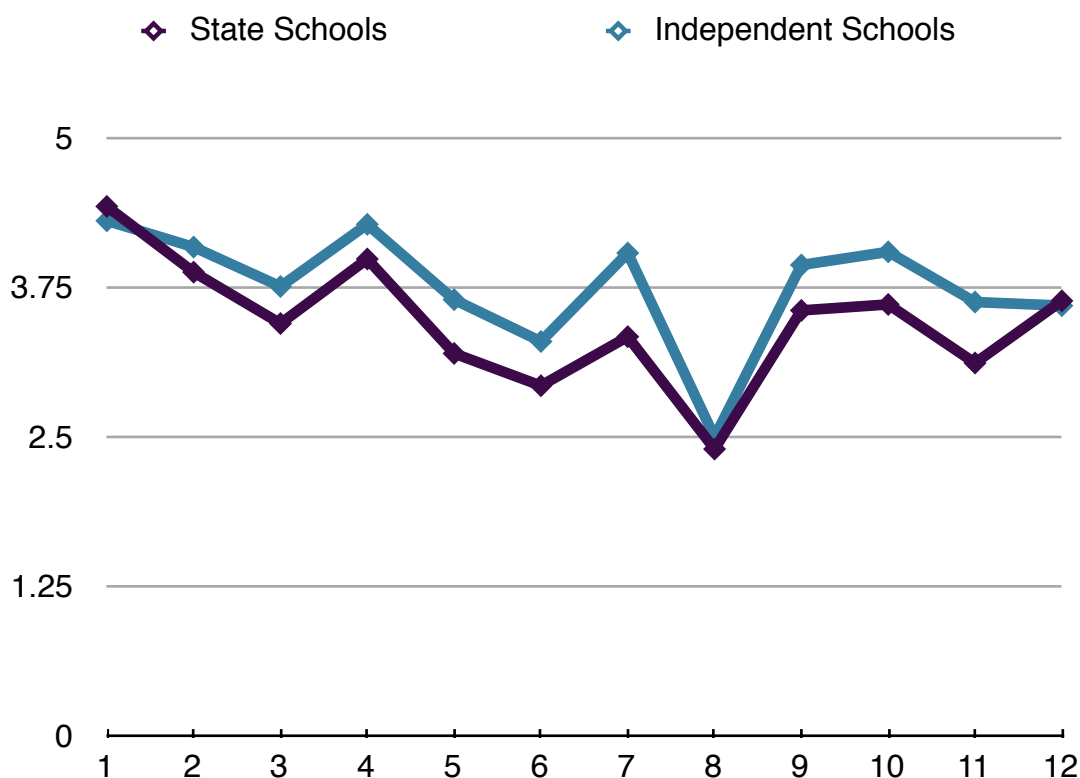
Fig: 34

Hypothesis 2(b)

The Table and graph show that Independent schools score significantly higher in most areas of creativity testing except for 1. Individual Perceived Creativity, 8. Workload Pressure, and 12. Level of Challenge in Work, where no significant differences were found between the two groups. For 1. Individual Perceived Creativity The state sector scored m=4.43, SE=0.057 and the independent schools m=4.31, SE=0.058, This difference was not significant t(112)=1.1521, p>0.05. 8. Workload Pressure was also not significantly different t(98)=-0.677, p=>0.05 with state sector m=2.3898, SE=0.116 and the Independent Sector m=2.509, SE=0.134. Finally 12. Challenge also showed results that were not statistically different between the groups t(97)=0.357, p>0.05, State Schools with a challenge m=3.64, SE=0.724 and Independent Schools m=3.60, SE=0.874.

In all other tests of creativity State Schools Results were significantly lower than Independent Schools. 2. Practiced Creativity: State m=3.875, SE=0.898, Independent m=4.088, SE=0.747, with t(112)=-1.757, p<0.05. 3. Managed Creativity; State m=3.45, SE=0.115; Independent m=4.088, SE=0.109, with t(100)=-1869,p<0.05. 4. Co-Worker Support; State m=3.987, SE=0.878, Independent m=4.28, SE=0.114 with t(100)=-2.435,

p<0.05. 5. Organizational Encouragement; State m=3.195, SE=0.114, Independent m=3.65, SE=0.1 with t(100)=-2.9, p<0.05. 6. Organizational Impediments; State m=2.927, SE=0.118, independent m=3.295, SE=0.118 with t(99)=-2.161, p<0.05. 7. Resources; State m=3.34, SE 0.115, independent m=4.04, SE=0.109 with t(98)=-4.319, p<0.05. 9. Creative Organization; state m=3.557, SE=0.094, Independent m=3.943, SE 0.084 with t(98)=-2.977, p<0.05. 10. Productivity; State m=3.613, SE=0.879, Independent m=4.05, SE=0.08 with t(98)=-3.523, p<0.05. 11. Autonomy; State m=3.11, SE=0.12, Independent m=3.625, SE=0.107 with t(97)=-3.007, p<0.05.

Suggesting that on average teachers perceive themselves as highly creative as individuals , no matter what type of school they work in but, the organizational climate and managerial culture has a significant effect on their practiced creativity. Obviously the challenges in the different type of schools are different but the level of challenge is similar and the sense of a heavy workload is equally prevalent in both types of school. Both Types find they have too much work to do in too little time. With, perhaps unsurprisingly, the availability of resources being the most significantly different result, closely followed by Organizational encouragement and Lack of Organizational impediments (Bureaucracy in other words.)

Autonomy and type of school.

On average independent schools have a higher level of autonomy (m=3.62, SE=0.107) than state schools (m=3.118, SE=0.124) with a significant difference of t(97)=3.008,p<0.05 with a medium effect (r=0.29).

3.6 ANOVA Testing For levels of creativity.

Hypothesis 3: Technology Companies will have significantly higher scores in creativity testing.

Overall Creativity Score

	Minimum	Maximum
other	2.3011	4.4420
education	2.3983	4.6939
Public relations	2.4771	4.4953
Marketing/Advertising	3.2872	4.2111
technology	2.8656	4.6745
Total	2.3011	4.6939

Using the Levenes Test of Homogeneity of Variance it is clear that their are no significance between variances for the results and therefore the assumptions of the ANOVA test are viable. (sig=>0.05, sig=0.555)

Overall Creativity Score

Levene Statistic	df1	df2	Sig.
.757	4	174	.555

Oneway ANOVA Testing.

There was no significant effect of Industry on Level of creativity using a significance tolerance level of p<0.05. Each the weighted contrast tests exceeded this tolerance. F(4,174)=0.326,p>0.05. (Table Fig 36)

ANOVA

Overall Creativity Score

			Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)		.317	4	.079	.326	.860
	Linear Term	Unweighted	.189	1	.189	.780	.378
		Weighted	.083	1	.083	.340	.561
		Deviation	.234	3	.078	.321	.810
	Quadratic Term	Unweighted	.001	1	.001	.004	.948
		Weighted	.016	1	.016	.065	.799
		Deviation	.218	2	.109	.449	.639
	Cubic Term	Unweighted	.022	1	.022	.089	.766
		Weighted	.046	1	.046	.188	.666
		Deviation	.173	1	.173	.711	.400
	4th-order Term	Unweighted	.173	1	.173	.711	.400
		Weighted	.173	1	.173	.711	.400
Within Groups			42.260	174	.243		
Total			42.577	178			

The Planned Contrast suggesting Technology companies would score higher on creativity tests than the other industries revealed that there is no significant difference in levels of creativity between the surveyed industries:

Contrast 1(Technology companies mean creativity score compared to The mean of all the other companies creativity scores): t(174)=0.453, p>0.01(1 tailed).

Contrast Tests

		Contrast	Value of Contrast	Std. Error	t
Overall Creativity Score	Assume equal variances	1	-.255383	.5642940	-.453
		2	-.513100	.6812875	-.753
		3	.079209	.2302174	.344
		4	-.052198	.1352909	-.386
	Does not assume equal variances	1	-.255383	.5766923	-.443
		2	-.513100	.5409268	-.949
		3	.079209	.2262330	.350
		4	-.052198	.1606822	-.325

Contrast Tests

		Contrast	df	Sig. (2-tailed)
Overall Creativity Score	Assume equal variances	1	174	.651
		2	174	.452
		3	174	.731
		4	174	.700
	Does not assume equal variances	1	21.417	.662
		2	5.036	.386
		3	40.950	.728
		4	16.605	.749

Fig: 35

Thus making Hypothesis 3 a null Hypothesis. Technology companies are not significantly more creative than other knowledge based companies.

Discussion and Conclusions

This research has explored the gap in creativity between knowledge industries and education, finding that in fact perhaps contrary to received logic, Schools and Educational establishments are creative and innovative organizations, with no statistically significant difference in levels of creativity between traditionally creative and innovative industries such as Technology, Public Relations and Marketing or Schools.

It has been possible in this research to take a snapshot of the perceived levels of creativity from within a variety of organizations and to some extent diagnose the levers that have an influence over the creativity.

It is clear from the research that although as a whole Schools seem to be creative places, and therefore are a good preparation ground for the future workforce to learn the necessary skills for successful careers in a rapidly changing world, this overview does somewhat disguise the challenges that are prevalent in the system.

There is a significant disparity between the creativity and innovation of state or government funded schools when compared to schools from within the Independent sector. This disparity can be explained in many way's from the suggestion that there is better more creative teaching in the independent sector; the results of this research prove differently though, suggesting that the levels of creativity within the individual are very similar no matter what type of school, and the teachers themselves are highly motivated by the intrinsic value of their work to be passionate and creative. This intrinsic motivation for creativity and value within the work environment means however that teachers are somewhat more significantly influenced by their organizations environment and therefore if that environment is not conducive and supportive of creativity they will be heavily influenced by it. Therefore Schools and Educational establishment must be very careful in developing or influencing the culture and environment of their organization.

It can also be suggested that the availability of resources and the amount of money spent within the schools has a significant effect on the levels of creativity and therefore success; a claim that can be supported by the results.

The most enlightening results however seem to be in the levels of organizational encouragement supported by the reduction in barriers to creativity. This could be explained by the size difference between the different types of organization, Government funded schools are by definition part of an extremely large organization, consisting of thousands of schools and hundreds of thousands students hindered by the inevitable bureaucracy and politicalization that goes along with it, whereas independent schools are much smaller, able to be flexible, move to take measures, and innovate when and as the need arises. Even if you compare the size of individual government funded schools against independent schools, they will often be three or more times larger. This research has shown that the newer governmental moves towards State funded independent Academies has created the freedom and autonomy for for these organizations to be more creative. In a report in 2002 however Bradley and Taylor found with regression analysis that exam results increased as the size of school increased up to a point (Approximately 1000) until this improvement begins to recede.

The research suggest that in order to stay creative and innovative it is important even within the Independent sector and schools like HPPC that as they grow, they need to diverge into smaller, independent, flexible units with enough autonomy and the encouragement to be responsible for their own innovation and creativity.

Results relating to the specific case studies.

The results have shown that Hurstpierpoint College as an Organization is perceived as a highly creative and Innovative Organization. It Performs very well in all areas of the management of creativity, except for Workload Pressure, although even in this area it outperforms The government funded Sector. The suggestion is that the atmosphere within the organization is a supportive one with an encouraging focus on creativity and innovation. Resources are readily available to make creative work and new ideas possible, and the workforce have a certain amount of freedom and autonomy to engage in creative activity. However, if the School were wanting to improve further, management could consider finding ways to ease the workload pressure on the Teachers, and give over some time in the working week encouraging them to take time to work together or individually on new ideas and initiatives that cold be taken forward to the future. Perhaps working in a

similar way to the famous Google or 3M strategies of giving over time in the work week for individual projects and experimentation.

Whiteoaks, on the other hand as an organization underperformed in terms of Creativity in comparison to the benchmark and other industries. Practiced creativity in day to day activity was low, along with The level of Workload Pressure, Freedom and Autonomy, and how the organization is perceived in terms of Creativity. The recommendations of this report would be somewhat similar as those for Hurstpierpoint College, but they would perhaps be a little more important. It is the opinion of the Author that by giving over a percentage of the work week or day for employees to explore their own ideas and innovation either as individuals or in work groups, it would address the three major shortcomings of creativity in the organization. It would relieve some of the time pressures (perhaps creative ways to address this may be explored) and would allow more freedom and autonomy, leading to the perception that the company was being more creative.

Armed with this research it is important to bridge what Sutton and Pfeiffer (2000) call the 'Knowing Doing Gap'. The problem has been analyzed and diagnosed but for it to have any real value, this knowledge must now be put into action. Managers within the aforementioned companies and organizations in general must form strategies to address the issues, and follow them through. Essentially as Amabile eludes to (2012) for these organizations to be truly creative management must be willing to facilitate the creativity of others, enabling the workforce to create and innovate, and these managers must be willing to step out of the limelight and revel in the success of others. The ability to encourage experimentation and failure within the workplace is essential, and thus the managers must be willing to accept the responsibility for the mistakes of its teams, without the teams fearing reprisal.

It is clear from this research that ensuring the workforce have the sufficient resources to experiment and innovate is essential to continued creative success, as is the space and time in which to use it.

It is suggested that the availability of these resources is prevalent in the independent sector of education, and affords the teachers within this sector fulfill to the most part their creative potential. It is not just the availability of these resources that makes creativity

possible in the independent sector, but more the message of support that it sends to the employee.

These resources have been made available to me, therefore my work must be valued and the organization approves of my creative approach.

These subconscious influences are further magnified by the suggestion from the research that teachers are heavily influenced by the organizational environment.

Fortunately the opportunity for further exploration and research in this area has been presented, and I will try to further this research by analyzing whether their is a link between the encouragement and culture of creativity and academic success within a school.

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Appendices

Appendix A:

Organisation Creativity

SurveyMonkey

1. Location

		Response Percent	Response Count
UK		**67.2%**	156
Mainland Europe		0.9%	2
USA		23.3%	54
Asia		3.0%	7
Australasia		4.7%	11
Africa		0.9%	2
		answered question	232
		skipped question	3

2. Which industry do you work in?

		Response Percent	Response Count
Education		**68.1%**	160
Public Relations		12.8%	30
Marketing/Advertising		2.6%	6
Technology		8.1%	19
Other (please specify)		8.5%	20
		answered question	235
		skipped question	0

3. If you are a teacher what age range do you teach? (specify the highest)

		Response Percent	Response Count
Lower School (4-11)		19.6%	22
Middle School (12-16)		26.8%	30
Senior (16-18)		**42.9%**	**48**
Higher (18+)		10.7%	12
		answered question	112
		skipped question	123

4. What type of school do you work in?

		Response Percent	Response Count
Government Funded		**47.5%**	**67**
Independent Government funded (i.e academy/charter school)		14.2%	20
Independent Fee Paying (Private)		38.3%	54
		answered question	141
		skipped question	94

5. What Is your position in the school?

		Response Percent	Response Count
Teacher		**30.2%**	**42**
Head Of Department		14.4%	20
Head of Faculty/Subject Group/Director		8.6%	12
Senior Management team		12.2%	17
Headmaster		10.1%	14
Other		24.5%	34
		answered question	139
		skipped question	96

6. Do you work at HPPC?

		Response Percent	Response Count
Yes		24.8%	35
No		**75.2%**	**106**
	If answered NO please specify if you wish		18
		answered question	141
		skipped question	94

7. Do you work at Whiteoaks?

	81	Response Percent	Response Count
Yes		90.0%	27
No		10.0%	3
If answered NO please specify if you wish			1
		answered question	30
		skipped question	205

8. What is your position in the organisation?

		Response Percent	Response Count
Entry level		48.1%	13
Manager		18.5%	5
Senior Manager		11.1%	3
Director/Executive		14.8%	4
Owner/CEO		7.4%	2
		answered question	27
		skipped question	208

9. What level are you in your organisation?

		Response Percent	Response Count
Entry Level		17.4%	8
Manager (Head of Department)		**50.0%**	**23**
Senior Manager		8.7%	4
Executive/Director		13.0%	6
Owner/CEO/Headmaster		10.9%	5
		answered question	46
		skipped question	189

10. What educational awards do you hold? (More than 1 option can be selected)

		Response Percent	Response Count
High School		45.7%	91
Bachelors Degree		**67.8%**	**135**
Formal Teaching Qualification		36.7%	73
Masters Degree		37.2%	74
PHD		7.5%	15
Other (please specify)			24
		answered question	199
		skipped question	36

11. How creative are you?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Rating Average	Response Count
I feel that I am good at generating novel ideas	0.0% (0)	2.9% (6)	8.8% (18)	**53.7% (110)**	34.6% (71)	4.20	205
I have confidence in my ability to solve problems creatively	0.0% (0)	1.0% (2)	6.3% (13)	**54.1% (111)**	38.5% (79)	4.30	205
I have a knack for further developing the ideas of others	0.0% (0)	0.0% (0)	9.3% (19)	**56.6% (116)**	34.1% (70)	4.25	205
I am good at finding creative ways to solve problems	0.0% (0)	1.5% (3)	7.8% (16)	**55.6% (114)**	35.1% (72)	4.24	205
I have the talent and skills to do well in my work	0.0% (0)	0.0% (0)	2.9% (6)	**50.7% (104)**	46.3% (95)	4.43	205
I feel comfortable trying out new ideas	0.0% (0)	0.0% (0)	4.9% (10)	45.4% (93)	**49.8% (102)**	4.45	205
					answered question		205
					skipped question		30

12. How creative are you at work?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Rating Average	Response Count
I have opportunities to use my creative skills and abilities at work	1.0% (2)	4.9% (10)	10.2% (21)	**50.7% (104)**	33.2% (68)	4.10	205
I am invited to submit ideas for improvements in the workplace	2.9% (6)	12.2% (25)	12.2% (25)	**40.0% (82)**	32.7% (67)	3.87	205
I have the opportunity to participate on teams	0.5% (1)	1.5% (3)	9.3% (19)	**47.8% (98)**	41.0% (84)	4.27	205
I have the freedom to decide how my job tasks get done	1.5% (3)	4.9% (10)	13.7% (28)	**50.7% (104)**	29.3% (60)	4.01	205
my creative abilities are used to my full potential at work	7.3% (15)	14.1% (29)	21.0% (43)	**43.9% (90)**	13.7% (28)	3.42	205
					answered question		205
					skipped question		30

13. How is your creativity managed?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Rating Average	Response Count
My Boss's expectations for my project (s) are clear	0.5% (1)	10.4% (19)	21.9% (40)	**49.2% (90)**	18.0% (33)	3.74	183
My Boss plans well	4.9% (9)	12.0% (22)	30.1% (55)	**39.9% (73)**	13.1% (24)	3.44	183
My Boss clearly sets overall goals for me	3.3% (6)	10.4% (19)	30.6% (56)	**40.4% (74)**	15.3% (28)	3.54	183
My Boss communicates well with our work group	3.3% (6)	13.1% (24)	26.8% (49)	**41.5% (76)**	15.3% (28)	3.52	183
My Boss has good interpersonal skills	3.8% (7)	11.5% (21)	21.9% (40)	**40.4% (74)**	22.4% (41)	3.66	183
My Boss shows confidence in our work group	1.6% (3)	6.0% (11)	19.1% (35)	**48.1% (88)**	25.1% (46)	3.89	183
My Boss values individual contributions to projects	3.3% (6)	6.6% (12)	21.9% (40)	**45.4% (83)**	23.0% (42)	3.78	183
My Boss serves as a good work model	4.9% (9)	11.5% (21)	23.5% (43)	**33.9% (62)**	26.2% (48)	3.65	183
My Boss is open to new ideas	3.3% (6)	5.5% (10)	23.0% (42)	**41.5% (76)**	26.8% (49)	3.83	183
My Boss supports my work group within the organisation	2.2% (4)	5.5% (10)	18.6% (34)	**45.4% (83)**	28.4% (52)	3.92	183
I get constructive feedback about my work	3.8% (7)	13.7% (25)	20.8% (38)	**39.9% (73)**	21.9% (40)	3.62	183
					answered question		183
					skipped question		52

14. How supportive are your co workers?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Rating Average	Response Count
My co workers and I make a good team	0.0% (0)	2.2% (4)	9.8% (18)	**55.2% (101)**	32.8% (60)	4.19	183
There is a feeling of trust among the people I work with most closely	1.6% (3)	2.7% (5)	12.0% (22)	**48.6% (89)**	35.0% (64)	4.13	183
Within my work group we challenge each others ideas in a constructive way	1.6% (3)	3.8% (7)	18.0% (33)	**53.6% (98)**	23.0% (42)	3.92	183
People in my work group are open to new ideas	1.1% (2)	3.8% (7)	18.0% (33)	**55.2% (101)**	21.9% (40)	3.93	183
In my work group people are willing to help each other	0.5% (1)	1.1% (2)	10.9% (20)	**53.0% (97)**	34.4% (63)	4.20	183
There is a good blend of skills in my work group	0.0% (0)	2.2% (4)	9.3% (17)	**57.9% (106)**	30.6% (56)	4.17	183
The people in my work group are committed to our work	1.1% (2)	2.2% (4)	9.8% (18)	**53.0% (97)**	33.9% (62)	4.16	183
There is free and open communication within my work group	1.1% (2)	5.5% (10)	14.8% (27)	**53.6% (98)**	25.1% (46)	3.96	183
					answered question		183
					skipped question		52

15. How much does your organisation encourage creativity?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Rating Average	Response Count
People are encouraged to solve problems creatively in this organisation	1.1% (2)	7.7% (14)	18.6% (34)	**53.6% (98)**	19.1% (35)	3.82	183
New ideas are encouraged in this organisation	2.7% (5)	7.1% (13)	18.0% (33)	**53.0% (97)**	19.1% (35)	3.79	183
This organisation has a good mechanism for encouraging and developing creative ideas	3.8% (7)	17.5% (32)	29.5% (54)	**35.5% (65)**	13.7% (25)	3.38	183
People are encouraged to take risks in this organisation	8.2% (15)	19.7% (36)	**32.8% (60)**	28.4% (52)	10.9% (20)	3.14	183
In this organisation top management expect that people will do creative work	3.8% (7)	12.0% (22)	21.9% (40)	**48.1% (88)**	14.2% (26)	3.57	183
I feel that top management is enthusiastic about my projects	4.4% (8)	10.9% (20)	28.4% (52)	**43.7% (80)**	12.6% (23)	3.49	183
Ideas are judged fairly in this organisation	4.4% (8)	14.8% (27)	23.5% (43)	**47.0% (86)**	10.4% (19)	3.44	183
People in this organisation can express unusual ideas without the fear of being called stupid	1.6% (3)	12.0% (22)	19.7% (36)	**49.7% (91)**	16.9% (31)	3.68	183
Failure is acceptable in this organisation if the effort on the project was good	9.8% (18)	22.4% (41)	**32.2% (59)**	29.5% (54)	6.0% (11)	2.99	183
Performance evaluation in this organisation is fair	6.6% (12)	8.2% (15)	33.3% (61)	**42.1% (77)**	9.8% (18)	3.40	183
People are recognised for creative work in this organisation	3.8% (7)	10.9% (20)	26.8% (49)	**45.4% (83)**	13.1% (24)	3.53	183
People are rewarded for creative work in this organisation	4.9% (9)	15.8% (29)	**37.2% (68)**	32.2% (59)	9.8% (18)	3.26	183
There is an open atmosphere in this organisation	4.9% (9)	14.2% (26)	26.8% (49)	**39.3% (72)**	14.8% (27)	3.45	183
In this organisation there is a lively and active flow of ideas	2.7% (5)	15.8% (29)	23.0% (42)	**46.4% (85)**	12.0% (22)	3.49	183
Overall the people in this							

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Rating Average	Response Count
organisation have a shared vision of where we are going and what we are trying to do	2.7% (5)	10.9% (20)	19.7% (36)	**49.7% (91)**	16.9% (31)	3.67	183
					answered question		183
					skipped question		52

16. Are there impediments to creativity in your organisation?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Rating Average	Response Count
There are many political problems in this organisation	7.7% (14)	25.4% (46)	27.1% (49)	**30.4% (55)**	9.4% (17)	2.92	181
There is a lot of destructive competition in this organisation	11.0% (20)	**45.3% (82)**	23.8% (43)	12.7% (23)	7.2% (13)	3.40	181
People in this organisation are very concerned about protecting their territory	7.2% (13)	18.8% (34)	30.4% (55)	**32.6% (59)**	11.0% (20)	2.78	181
Other areas in this organisation hinder my projects	9.4% (17)	**35.9% (65)**	26.5% (48)	22.7% (41)	5.5% (10)	3.21	181
Destructive criticism is a problem in this organisation	14.4% (26)	**43.1% (78)**	23.8% (43)	13.8% (25)	5.0% (9)	3.48	181
People are critical of new ideas in this organisation	13.3% (24)	**42.5% (77)**	26.5% (48)	13.3% (24)	4.4% (8)	3.47	181
People are concerned about negative criticism of their work in this organisation	7.7% (14)	27.1% (49)	21.5% (39)	**37.6% (68)**	6.1% (11)	2.93	181
People in this organisation feel pressure to produce anything acceptable even if quality is lacking	12.2% (22)	**32.6% (59)**	23.2% (42)	22.7% (41)	9.4% (17)	3.15	181
Top management is not willing to take risks in this organisation	12.7% (23)	**40.9% (74)**	24.9% (45)	14.4% (26)	7.2% (13)	3.38	181
There is high emphasis in this organisation on doing things the way we have always done them	16.6% (30)	**35.9% (65)**	19.9% (36)	18.8% (34)	8.8% (16)	3.33	181
Procedures and structures are too formal in this organisation	14.9% (27)	**29.8% (54)**	28.2% (51)	18.2% (33)	8.8% (16)	3.24	181
This organisation is strictly controlled by upper management	9.4% (17)	23.8% (43)	21.0% (38)	**24.9% (45)**	21.0% (38)	2.76	181

91

	answered question	181
	skipped question	54

17. Do yo have sufficient resources to complete your work?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Rating Average	Response Count
The facilities I need for my work are readily available to me	2.2% (4)	14.4% (26)	14.4% (26)	**51.1% (92)**	17.8% (32)	3.68	180
Generally, I can get the resources I need for my work	1.1% (2)	8.9% (16)	13.3% (24)	**59.4% (107)**	17.2% (31)	3.83	180
The budget for my project (s) is generally adequate	6.1% (11)	14.4% (26)	21.7% (39)	**45.0% (81)**	12.8% (23)	3.44	180
I can get the data I need to carry out my projects successfully	0.6% (1)	11.1% (20)	20.0% (36)	**48.9% (88)**	19.4% (35)	3.76	180
I am able to easily get the materials I need to do my work	1.7% (3)	11.1% (20)	17.2% (31)	**55.6% (100)**	14.4% (26)	3.70	180
The information I need for my work is easily obtainable	0.6% (1)	9.4% (17)	21.1% (38)	**51.7% (93)**	17.2% (31)	3.76	180
					answered question		180
					skipped question		55

18. How pressurised is the work environment?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Rating Average	Response Count
I have too much work to do in too little time	0.6% (1)	13.3% (24)	23.9% (43)	**37.2% (67)**	25.0% (45)	2.27	180
I have insufficient time to do my project (s)	0.6% (1)	18.9% (34)	27.8% (50)	**34.4% (62)**	18.3% (33)	2.49	180
There are too many distractions from project work in this organisation	2.2% (4)	22.8% (41)	**35.6% (64)**	28.3% (51)	11.1% (20)	2.77	180
There are unrealistic expectations for what people can achieve in this organisation	4.4% (8)	**29.4% (53)**	28.9% (52)	23.9% (43)	13.3% (24)	2.88	180
I feel a sense of time pressure on my work	1.1% (2)	8.3% (15)	19.4% (35)	**48.3% (87)**	22.8% (41)	2.17	180
					answered question		**180**
					skipped question		**55**

19. How creative is your organisation?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Rating Average	Response Count
My area of this organisation is innovative	3.9% (7)	7.2% (13)	22.8% (41)	**46.1% (83)**	20.0% (36)	3.71	180
My area of this organisation is Creative	4.4% (8)	5.6% (10)	24.4% (44)	**45.6% (82)**	20.0% (36)	3.71	180
Overall my current work environment is conducive to my own creativity	5.6% (10)	8.9% (16)	22.8% (41)	**47.8% (86)**	15.0% (27)	3.58	180
A great deal of creativity is called for in my daily work	3.9% (7)	11.1% (20)	26.7% (48)	**37.8% (68)**	20.6% (37)	3.60	180
Overall my current work environment is conducive to the creativity of my work group	3.9% (7)	14.4% (26)	26.1% (47)	**44.4% (80)**	11.1% (20)	3.44	180
I believe that I am currently very creative in my work	3.3% (6)	10.6% (19)	27.8% (50)	**41.1% (74)**	17.2% (31)	3.58	180
						answered question	180
						skipped question	55

20. How productive is your organisation?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Rating Average	Response Count
Overall this organisation is effective	2.2% (4)	7.8% (14)	13.3% (24)	**57.2% (103)**	19.4% (35)	3.84	180
My area of this organisation is productive	0.6% (1)	2.8% (5)	7.8% (14)	**66.7% (120)**	22.2% (40)	4.07	180
My area of this organisation is effective	0.0% (0)	3.9% (7)	9.4% (17)	**65.6% (118)**	21.1% (38)	4.04	180
Overall this organisation is productive	0.6% (1)	9.4% (17)	14.4% (26)	**57.8% (104)**	17.8% (32)	3.83	180
Overall this organisation is efficient	2.2% (4)	10.6% (19)	22.2% (40)	**51.1% (92)**	13.9% (25)	3.64	180
My area of this organisation is efficient	0.0% (0)	4.4% (8)	15.0% (27)	**63.9% (115)**	16.7% (30)	3.93	180
					answered question		180
					skipped question		55

21. What motivates you to work?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Rating Average	Response Count
The quality of the outcomes I produce is the most important thing to me	0.6% (1)	0.0% (0)	6.1% (11)	45.0% (81)	**48.3% (87)**	4.41	180
Financial rewards for my work are important to me	3.3% (6)	17.8% (32)	25.0% (45)	**41.7% (75)**	12.2% (22)	3.42	180
I would work harder for more pay	11.1% (20)	**31.7% (57)**	23.9% (43)	20.0% (36)	13.3% (24)	2.93	180
Job satisfaction is important to me	0.0% (0)	0.0% (0)	2.2% (4)	35.0% (63)	**62.8% (113)**	4.61	180
I am motivated intrinsically by my work	0.6% (1)	2.2% (4)	8.9% (16)	40.0% (72)	**48.3% (87)**	4.33	180
					answered question		180
					skipped question		55

24. Do you feel your own schooling prepared you well for the modern work place?

	97	Response Percent	Response Count
Yes		60.7%	108
No		39.3%	70
	Please comment		53
		answered question	178
		skipped question	57