

Investigating Factors Influencing the Perception of Creativity in Web Design

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Abstract

When a web site needs to project the image of novelty, innovation and artistry, the use of creativity could be beneficial to explore a very broad range of possible web design solutions. Although a small number of research projects have already investigated selected aspects of creativity, a clear identification of factors that may influence people to perceive creative elements within a web design has been virtually unexplored. Using qualitative observational techniques, a simulated multiple case study research approach was adopted to investigate creative processes within a series of laboratory sessions. From the data extracted, a framework of the factors influencing the perception of creativity evident within web development and design processes was established in order to assist web designers to represent these various factors appropriately in their web sites to heighten the viewers' perception of their imaginative design. Consequently, it was concluded that the perception of creativity in web design is influenced by a variety of factors, including the vibrant use of colour, consistent navigation, and the adoption of focus points, to name a few. The notion of 'severity' as an influential factor emerged from this study, along with several 'surprise' factors that appear strongly connected to creativity and its perception by web users.

Keywords: Creativity, Web design, Information Systems development

1. Introduction

To survive and compete in the business world today, organisations need to create their Web presence to make it appealing to their customers and to distinguish themselves from other competitors. This motivates many organisations to search for and adopt creative approaches to producing such Web sites (Glassman 1991). Creative approaches have also been proposed as useful in driving the management decision making as well as establishing the web site's strategic positioning (Erdos and Singer 1993, p.99).

Due to the competitive nature of the web industry, attracting customers is one of the primary objectives when designing web sites, especially considering a vast Internet market of globally distributed users (Morris and Hinrichs 1996, p.xxiii). To attract customers, creativity is often promoted by designers of web site, for example to project the image of novelty, innovation and artistry. More importantly, creativity is strongly needed when the customer of the web designer has a complex set of requirements that need to be addressed in a novel way (Maiden and Gizikis 2001). In general, creativity is regarded as a sheer necessity when developing web designs that exude professionalism and practicality, whilst providing a design "*that is 'new' or 'original' or 'different' from the one that preceded it*" (Fabun 1968, p.4), distinguishing that particular design from those of competitors.

What exactly is “creativity”? Creativity is defined by Barron as “*the ability to bring something new into existence*” (Barron 1969, p.10), thus, coinciding with the notion of creativity as defined by Glassman (1991) as being “*the ability to generate new and useful ideas*” (Glassman 1991, p.1). In many human endeavours and activities, such as visual and written art, creativity is highly acknowledged and commonly perceived through attractiveness, intensity of colours or use of phrases, illustration and layouts of contents, and originality of ideas. It is not clear, however, whether these perception factors play the same role when it comes to Web design for business purposes. Should these or other factors be considered when applying Web technologies to deliver and present commercial information and transactions in a competitive business environment?

Incorporating creativity elements into web design process can help designers to think creatively, whilst encouraging them to “*break out of the box*” (Bollinger 2002, p.91) and produce unique web services and products. Isaksen et al. (1993) distinguish various facets of creativity, which identify aspects of creativity as it relates to people, processes undertaken by them, products built, and the environment providing the context for the creative acts (Isaksen et al, 1993, p.6). Creative processes often used within web design include Idea Generation, Brainstorming, Creative Problem Solving, Opportunistic Behaviour, Left-Brain Writing, and a variety of related techniques. While the techniques utilising the creative processes could help web designers to be more productive or efficient, yet they cannot guarantee a creative outcome (Fabun, 1968). Fabun emphasises the importance of creative products, even to the extent of defining a creative process as that which contributes to the formation and expression of new and original outcomes and patterns (Fabun, 1968, p.5).

While Isaksen et al. (1993) believe that creative results can be facilitated by the environmental and organisational factors, Ewing et al. (2001, p.161) stress the importance of individualism and personal experience in web design. Edwards (1979, p.26) distinguishes a creative person as being “*one who can process in new ways the information directly at hand*”. This means that the concept of being creative involves an individual being able to “*intuitively see possibilities for transforming ordinary data into a new creation, transcendent over the mere raw materials*” (Edwards 1979, p.29). Therefore, is it an individual or a team, the creative spark or an environment, a suite or a single factor that determines the act of creation and the perception of its outcome?

Recent research by Cybulski and his colleagues (Cybulski et al., 2003) offers a comprehensive framework in which creativity in IS is viewed from different aspects: context, outcome and process. The particular focus of this paper, however, is on the perception of creative outcomes, specifically the factors which influence the perception of creative Web sites by Web designers’. A deep understanding of perceptions of creative outcomes would assist organisations aiming at creating web services and products, featuring distinct look, feel and functions, and potentially helping such organisations to gain the sustainable competitive advantage (Downes and Miu 1998, p.10). In addition, a deep understanding of perceptions of creative outcomes would also contribute to traditional understandings of Web site quality and general Web design principles which have largely been addressed but may not serve the same purpose.

2. Research Method

The project reported in this paper was an exploratory study conducted as a series of simulated case studies (Cybulski 2002), followed by Personal Construct Theory (PCT) and Repertory

Grid¹ sessions (Kelly 1955), which all used interviews and observations, and qualitative data analysis. Simulated multiple case studies are used predominantly to support in-depth exploratory investigation of individuals, systems and processes in laboratory situation (Cybulski 2002), where the organisational factors could be simulated or simplified to better focus on the relevant unit of analysis (Yin 1993). The adopted research method was outlined by Graziano and Raulin as supporting the process of “*making extensive observations of a single group or person*” (Graziano and Raulin 2000, p.121).

The laboratory sessions utilised a total of 53 students grouped into thirteen teams of four or five participants. The sessions were run in a familiar tutorial-style environment. Teams were given information sheets explaining their web design projects. The use of non-computer media was encouraged, thus paint and paintbrushes, crayons, coloured markers, pencils, glue, and coloured paper were subsequently used to arrive at several web designs in the form of sketches on cardboard. Students were then asked to present their team’s results and answer several (questionnaire) questions about the process and the outcome of their project. Throughout this study, a video recorder was utilised to acquire information-rich data.

The following interviews with web design experts were used to establish the creativity factors as perceived in the completed student projects. The three experts were selected based on their qualifications, degrees in IT related disciplines, and their considerable experience in developing commercial Web sites, ranging from 7 to 13 years. The interviews were structured into two phases. The first aimed at eliciting the project-related opinions, vocabulary and rich data from each expert. The analysis of this data was strictly qualitative. The second phase used PCT and Repertory Grids interviews, which is commonly claimed to be a quantitative instrument (Kelly 1955). It should be noted, however, that the statistical techniques employed in Repertory Grids, such as the generation of Principle Component grids, are used over the space of personal constructs and not over the population of experts. As such the results obtained from this instrument were also used in a predominantly qualitative manner.

While there are limitations in terms of generalisability inherent with the chosen research approach, still the study generated valuable insights into previously unreported factors about creativity as perceived by practitioners.

3. Observations of Creative Web Design Processes

The laboratory sessions participants attended a web design tutorial where they were allocated into groups of four to five students, seated around a central table and given a task: to create a sketch of a web page design for an assigned topic using different mediums, to produce a ‘creative’ web design. The topic provided for participants to base their web design upon involved creating a website for an ‘e-cobbler’ - an online shoe store. The following sections present a discussion of a small selection of these observations and web designs from selected laboratory session groups. This will be followed by a summary of observations made from 5 selective groups. It should be noted that in our study, the creative process was observed mainly for the purpose of better understanding the resulting web designs, their intended function, and the metaphors used to indicate possible web site interaction.

¹ Personal Construct Theory and its associated tool Repertory Grid were developed by the American clinical psychologist, George Kelly, to explore and analyse individual perceptions, opinions and views. Interested readers are directed to Kelly 1955 and Stewart and Mayes 1999.

3.1 Observation of Web Design Process – Group 4

Reflecting on the group’s participation and design ideas developed within its own session, Group 4 indicated that:

“We all made the design and had an input into the design, then divided up the sections so everyone could participate in the site design”

(Participant J, Session Group 4, September 1st, 2003).

This observation reflected the unusual, and seemingly ineffective, web design technique and the process adopted by the group. Throughout the session, it was evident that the process could potentially have resulted in a series of disjointed, mismatching pages considering each page had a varying background, colour, font and heading. However towards the completion of the session, Group 4 had regrouped each of the individually designed web pages, each distinctly different in layout and content, and incorporated a thematic navigation structure to provide consistency. Participant K further extended the group’s initial ideas with the suggestion that the web site audience would need to be identified and then used to provide the focus in the web site design. He said:

“We [Group 4] used the games page to attract children audience’s so that the kids can get interested. We have used the kid’s page as a theme for the whole website [and] continued [using] footsteps as links throughout every web page so that people could navigate on every site, this is important”

(Participant K, Group 4, August 28th, 2003).

3.2 Web Design 4

Group 4 applied the use of coloured paper, crayons and markers throughout their development of their web site design, entitled “*Big Shoes for Big Adventures*” (See Figure 1). The initial welcome page that Group 4 developed, greets visitors with a large heading and an image of a large shoe with the brand’s cartoon mascot, followed by a selection of images that constitute the navigation bar to the bottom centre of the web page. The remaining pages developed by Group 4 included those titled “*Products*”, “*Games*” and “*Order/ Contact*”, with the navigation bar and heading fonts consistent throughout these designs.



Figure 1. Web Design 4 - Introduction Page

The Products page, is separated by a column running down the centre of the design, dividing the “*Boys Shoes*” section from the “*Girls Shoes*” and depicting each design with a series of small 3-D images alongside text-based descriptions of the products listed on the page. Accompanying the two section headings are cartoon caricatures representing the boys and girls products, which correlates with the welcome page cartoon figures to create a theme-based web design aimed towards child audiences.

Corresponding with this theme is the “*Games*” page, designed to use Macromedia Flash animation to display 3 games for children to participate in on the web. One of these games displays over the entire web page, depicting two cartoon caricatures racing from start to finish on a track representative of a typical road. The navigation bar presents a highly product-oriented idea, using a series of footprint images to represent each of the links in the horizontally structured navigation bar. Web design 4 has been evaluated by three expert Web designers, and Section 4 further discusses the perceptions of these experts in relation to creativity.

3.3 Observation of Web Design Process – Group 7

Initially, Group 7 appeared to be highly enthusiastic about the design task, whilst remaining highly confident in applying creative processes and ideas to the process of web design by involving each group member in a brainstorming session at the commencement of the session. Adopting Bollinger’s (2002, p.91) “*out of the box*” creative thinking technique to their web design process throughout their Preparation stage (Fabun 1968) in the creative process, Group 7 effectively worked together as a co-operative group.

Participant D indicated Group 7’s penchant for “*throwing ideas around to see what ‘fits’*” (Participant D, Session Group 7, August 28th, 2003) and this became evident during their brainstorming stage when each group member wrote an idea and sketched the concept on a piece of paper and passed them around to share with each group member. Such an approach in general is perceived to be a particularly effective group technique by Hanks and Parry (1983). Participant E suggested that the web site design should be innovative and to allow customisation by “*calculating the customers shoe size when they enter foot measurements online*” (Participant E, Session Group 7, September 28th, 2003). Participant F then suggested to Group 7 that their web design could even perhaps allow web site viewers to transpose their footprint onto the web site “*even trace around the screen or scroll up the site to find out what size fitted the customer*”. Although the majority of Group 7’s ideas were not brought to fruition, the purpose of brainstorming was to extract new ideas, which is crucial within web design in order to “*understand the needs of [web] users... and elicit those needs*” (Leffingwell and Widrig 2000, p.19). The brainstorming undertaken by Group 7 achieved equal task allocation amongst participants, ensuring each group member an opportunity to have input into the web design. This notion extends to commercial web design where it is necessary to consult the client throughout the entire requirements engineering process (Leffingwell and Widrig, 2000).

3.4 Web Design 7

Group 7 used coloured paper, pencils, crayons, glue, scissors, paint and paintbrushes to create the web design pictured in Figure 2, demonstrating evidence of an ‘Introduction’ page developed using Flash technologies, consisting of links to the second tier of the parent/ child structured design. This group also developed another design for their ‘Colour’ page, which was designed to be fully customisable to the visitor and consisted of a large Macromedia Flash-based document divided into many smaller images and a series of links.

The navigation evident within Group 7's design indicates a hierarchical structure, whereby visitors move along the menu items available and proceed further down the hierarchy to more descriptive pages. It is apparent from Figure 2 (when reproduced in colour) that this design is rich in colour, using blocks of vibrant colour to create the navigation bar, and subtle hints of colour to create borders or depict an object. Group 7's web design includes a large number of active links that visitors can 'hover' over or click to invoke a change within the web site, and the group has also used the 'shopping trolley' metaphor to refer to online e-commerce capabilities. Three expert Web designers have evaluated Web design 7 and their perception of creativity within this web design is discussed in Section 4.



Figure 1. Web Design 7: Customisable Colour

3.5 Summary of Observations

For brevity, Table 1 summarises our observations of 5 selective groups. According to our observations, co-operative group work was commonly adopted and was applied differently in different groups, ranging from work individually at time and regroup at the end to working collectively throughout the entire design process. Design foci range from providing appealing presentation to supporting on-line ecommerce transactions. Interestingly, creative factors in their outcome design share a number of similarities though embedded in different objects with shapes and forms. For example, effective use of colours and navigation principles is commonly perceived as highly important across different designs. Another observation could be made to the high importance of the commercial value of Web sites, for example strong corporate presence, targeting specific audience, providing product catalogue and shopping trolley, and on-line payment services.

Group	Design strategies	Design focus	Outcome creative features
Group 4	Regroup individual work	Marketing appeal Target young audience	Consistent styles, themes and corporate images Use of cartoons Use of Macromedia Flash to provide interactivity "Game Page"
Group 5	Unusual group method through a haphazard process of task allocation and putting ideas back together	Appearance through colours and colour schemes	3-dimensional heading design Use of different textures and colours
Group 7	Collective group brainstorming Throw ideas to see what 'fits'	Extensive customisation to different levels of audience Appealing and providing business functionality such as product modification, on-line payments	Hierarchical structure of menu Descriptive pages Vibrant colours for navigation links and objects Use of Macromedia Flash to customise the use of web site
Group 8	Collective group brainstorming Group consensus guides the design process	Appealing to sport-oriented audience	Graphically enhanced Web site (use 3-dimensional pictures) Sport theme
Group 10	Collective comments on previous Web sites Collective development session Effective time management Adaptation to existing work	Appealing through bright colours and animations	Use of various mediums and textures Effective use of animation, Colour papers and movable objects Corporate slogan

Table 1. Observations of selective groups

4. Perceptions of Creative Web Designs

The explorations of creative outcomes and analysis have revealed a series of creativity perceptions through interviews conducted with three expert web designers. Steven Smith, Jason Johnson, and Scott Citizen (names changed to protect participant's anonymity) were invited as "oracles" to evaluate the previously constructed web designs. They were asked to assess the Web designs created by the student groups and describe similarities and differences between these designs from the creativity perspective. Personal Construct Theory was adopted to capture their opinions, judgements, comments and preferences regarding the designs, which were later analysed and represented, in the form of Repertory Grids (Tan. and Hunter 2002).

4.1 Analysis

Steven Smith was one of three participants selected as a Web Design industry expert to be interviewed. A creative factor revealed in Smith's Personal Construct session was the "*bright use of colour*" as an essential factor that enhances the perception of creativity within a web site. He urges web designers to understand that "*the graphics and creativeness is very important, but only to convey the valuable information that is there*". Smith states that a creative factor within web design is effective and consistent navigation, considering the web site "*has to be something that is easy for a person to navigate their way*". It is also evident throughout Smith's development of Personal Constructs that he holds preference to Web Design 3 and 10 (not discussed here in detail), indicating that these designs are highly creative in their nature.

Jason Johnson was one of three participants selected as a Web Design industry expert to be interviewed. Johnson stated that a factor of creativity in web design is the use of interactive and dynamic web site components, postulating that “static websites ... they’re completely irrelevant now I would suggest, it has to be a dynamic website to survive long term” and also suggesting that dynamic web sites hold a significant competitive advantage over static, unchanging web designs. This notion coincides with both Smith and Citizen’s opinions (see below), providing a general consensus amongst the web design experts that interactive and dynamic concepts influence the use of creativity in web site design, and these factors can assist in the development of a creative outcome.

Johnson stated an essential creativity factor as being “user-friendly, consistent navigation”. His results illustrated that Johnson considers Web Designs 2, 4, 7 and 8 to be user friendly and embody effective navigation, which correlates to the Web Designs 1, 2, 3, 5, 8, and 10 indicated by another web design expert, Steven Smith. For brevity, only Web Designs 4 and 7 are elaborated in this paper.

The presence of a corporate image is a factor that Johnson identified as an important factor influencing web designers to instil creativity into the outcome, specifying that Web Design 4 was the only design projecting an effective corporate image, which correlates to the aforementioned use of a targeted audience. Johnson also articulated “there is no reason why you can’t take components of your web site and develop different websites to target a specific audience”.

Scott Citizen emphasises a client-oriented approach as facilitating creativity in web design. He indicated that “the needs of the client ultimately drive us to how creative we can be, or can’t be, as in outside the box creativity”.

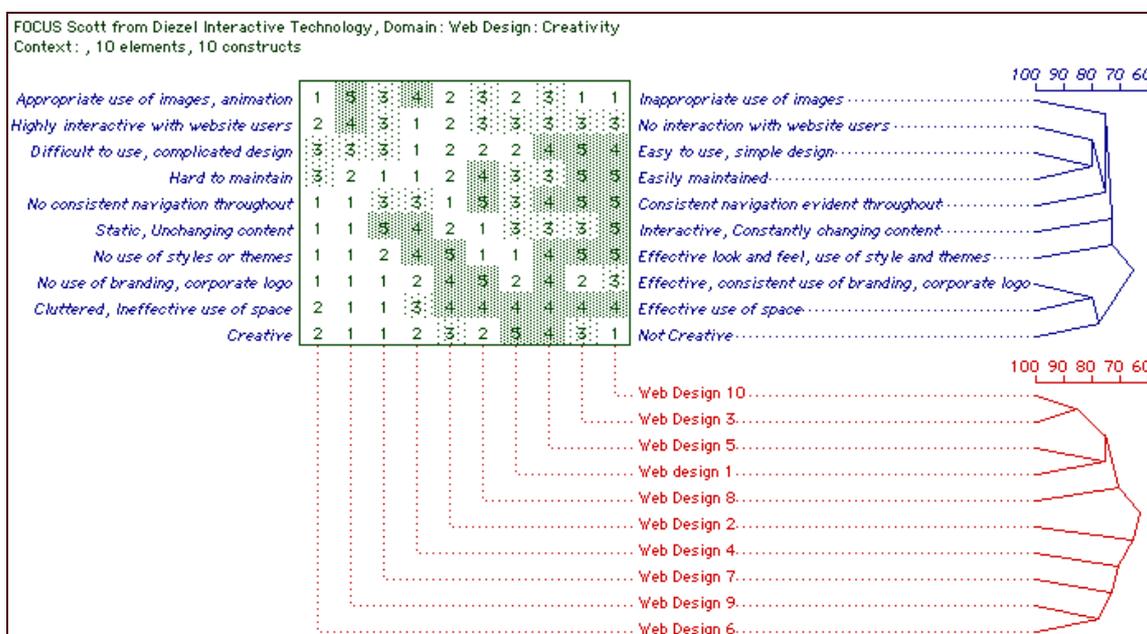


Figure 2. FOCUS Cluster Analysis of Web Grid from Expert Scott Citizen

Furthermore, Citizen identifies consistency in navigation as being an essential factor within creative web designs, and states “that there’s a trade off between creativity and practicality”.

Speaking from his experience in the web design industry, he distinguishes that he is inclined to use “*image based menus, not text, purely because it looks better*” along with using image “*rollovers just to give a bit of visual effect*”. He states that the “*appropriate use of images*” is acceptable, provided that these images remain “*small and practical*”. He also remarks that Web Designs 6, 7 and 10 are superb examples of appropriate use of images and animation, and further criticises Web Design 9 for using large, inappropriate images that would potentially consume bandwidth unnecessarily.

Two very closely related concepts, illustrated in the Scott Citizen’s Repertory Grid (See Figure 3) are the “*ease of use, simple design*” and “*easily maintained*” factors elicited by Citizen and through comparisons of these two factors, a clear preference for Web Design 3 is exposed. In addition to this, Web Design 10 is clearly similar in the cluster analysis presented in Figure 9, and the Web Grid form as this design is rated highly against both these factors. Citizen advocates further factors as being the “*use of branding*” corporate logos and the establishment of an online corporate identity regarding the use of creativity in web design, as illustrated in Figure 3. The Repertory Grid reveals Citizen’s preference for Web Designs 2, 5, and 8 with regard to the effective development of a corporate identity online, since each of these web designs share commonalities such as the use of logos and slogans. A close relationship of this factor with the ‘effective use of space’ creativity factor is evident within the Repertory Grid (See Figure 3), and this can be appreciated when considering that both these concepts make valuable use of existing elements, and furthermore both these concepts can influence the use of creative ideas by web designers.

4.2 Discussion

This section presents a cross-expert comparison of the factors elicited from experts in the previous section, identifying commonalities and distinguishing differences evident within the results. The observed common and differing factors are then presented in Repertory Grid format to contrast against the designs and Web Grids depicting the notion of creativity (see Figure 4).

With regard to the ‘creativity’ factors extracted from each Personal Construct Theory session with experts, it is evident that each expert maintained some distinct differences and similarities amongst their preferences. These are illustrated through a repertory grid ‘Principle Component Analysis’, which is used to “*represent the number of relationships between the independent variables*” (Stewart 2004) within the matrix. Principal Component grids are used to represent the data elicited from the expert interviews as “*relationships between elements [are] presented in a way which makes visual inspection easy*” (Stewart 2004).

One of the similarities between the expert’s opinions was their general preference for web site designs that did not appear to be creative by their own judgments as highlighted in Figures 1 and 2, a unanimous decision was made by all experts that that Web Design 1 (not presented here) was ‘Not-Creative’, although Johnson perceived this web design higher in his evaluation than the other experts. Although this revelation is less interesting to this study, considering that each expert holds his or her own personal constructs which have been developed from personal experience and their own individual judgement, yet the results and judgements made upon this design are comparable.

In addition to this commonality, another correlation of results has emerged through the Principle Component repertory grid. It is evident from Figure 4 that Web Designs 4 and 7, as

previously discussed, appear to be rated highly upon the ‘creativity’ factor by the experts in comparison to the other designs in the repertory grids. This reveals a preference towards these designs and indicates that the student web designers have most effectively utilised the creativity factors. Smith stated that Web Design 4 had created a balance of these factors and effectively used: Appropriate use of images; Bright use of colour; Dynamics and interactivity; and Consistent Navigation. However, Johnson’s constructs revealed that Web Design 4 had: directly targeted audiences; been easily updated; kept information simple; and maintained a strong corporate presence. It was also revealed within the constructs elicited that Web design 4 was effective due to its highly interactive nature, constantly changing, updated content, and its use of themes.

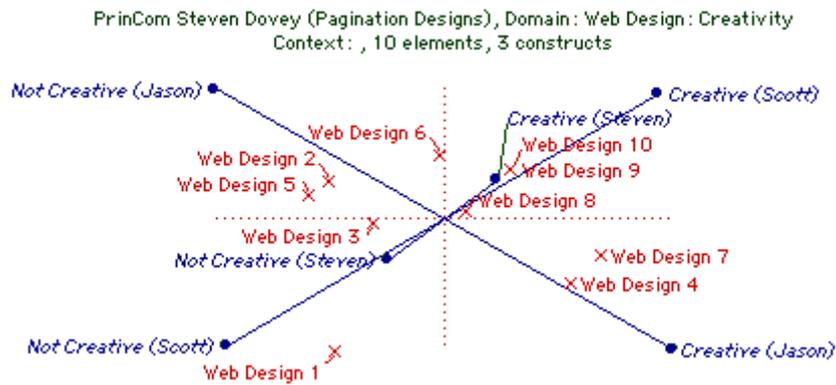


Figure 4. Principle Component Grid for 'Creativity' factor, Smith, Johnson and Citizen

Through these findings, it has been discovered that it is a careful combination of the important creativity factors (as revealed in cluster charts, such as shown in Figure 3) that results in the artefact (the end product web design) being perceived as creative. This highlights a new factor that refers to the ‘severity’ placed upon the distinct creative factors in a web site, which indicates that the use of these factors should correlate with the end result priorities set by the client for the web design and should not impose upon the use of other factors.

This ‘severity’ factor is best defined as the extent to which an emphasis is placed upon any individual creative factor, or the severity to which a creative factor is applied to a web site. Johnson used a metaphor for this factor, suggesting that a web designer may believe that using “*high intensity graphics*” on a web design is perceived as being creative, however referring to this notion of severity, the information shown on a web site should be displayed effectively first, and the use of these graphics should not oversee the other factors such as corporate presence.

It must be noted, “*each factor can provide reasons influence whether or not the client or visitor will return to the site*” (Eskdale 2003, p.1) and it is for this reason that the factor of severity is important considering that over-use of one factor, such as a strong corporate presence, could discourage people from returning to the site due to their over emphasis on the one factor. A difference highlighted within Figure 4 is the consensus of web design experts in relation to the creativity factor “*use of colour*” considering that Smith indicated this factor to be critical to the creative perception of a web design whilst Johnson suggested that content had a more significant ‘severity’ as a factor, stating that this factor depends upon the client (See Figure 4).

Interestingly, although some the above discussed factors might not have been perceived or recognised as being related to creativity by general audience, all of them are strongly grounded in and emerge from the interviews with three Web design professionals.

5. Factors Influencing the Perception of Creativity in Web Design

The following conceptual framework effectively demonstrates how each creativity factor relates to, and draws upon each other creative factor evident within web design, in relation to both the creative process and outcome. Note that shaded areas indicate contrasting opinions, extracted from the comparison of experts' interview responses. This indicates that these concepts need to be refined to suit the nature of the organisation adopting this creative factor into their web designs.

List of Factors	Steven Smith	Jason Johnson	Scott Citizen	Literature
Consistent navigation	"It has to be ... easy for a person to navigate their way... a logical, simple flow through"	"User friendly navigation and structure" is an important factor	"Consistency in navigation is an important factor most definitely"	"Visitors should not have to hunt for your navigation or wonder where to find it" (Kiley 2003a, p.1)
Vibrant use of colour	"Bright use of colour" is a creative factor	"You can spend too much time worrying about colour, layout... look and feel"	I ask clients "do they have corporate style guides as in fonts, and colours"	Designers must consider "the important aspect of colour schemes" (Eskdale 2003).
Dynamic and Interactive	"Dynamic, Personalised, Interactivity and Changability- all factors"	"It has to be a dynamic website to survive long term"	"We promote constantly changing websites" "nothing static on our websites"	"Be creative and think through ... interactivity on the Web" (Archibold 1996, p.1)
Strong Corporate Presence	"A site either uses its corporate presence or it doesn't"	"Corporate image" and logos "really play a big role"	Emphasise "corporate identity" and use existing "style guides"	"Balance to present a unified corporate image" (Horwitt 1997)
Focus Points	"Have a broad focus... attract a very varied audience"	"Overuse of focus points is as bad as lack of focus points, use them wisely"	"Being creative can get clouded ...you lose focus"	
Ease of Maintenance	Needs to be "economical to update"	"The update costs are a factor for clients"	"All of our content is produced on the fly"	
Strategic use of images	"The graphics and creativeness is very important, but only to convey ... information"	The use of graphics depends upon "what kind of image they want to present" to consumers	"Try and limit the use of images... purely because of download time"	"A good image is a small image" (Siegel 1996,p.63)
Streamlined information presentation	"People are going there [to the web site] to get specific information" and this is important	"It's more important how the information is transferred, stored"	Web users "want to use somebody's website to find information quickly"	"One of the most important parts of web design is choosing a site layout." (Eskdale 2003, p.1)
Ease of use	"Essential."	"Keep it simple to use"	"Use a clean look and feel"	The "visually pleasing is easy to use" (Kiley 2003b)
Thematic / Use of style	Use style to "apply good design and aesthetics"	"Each page needs to adopt the same style"	You should "enter a web page at any page" and know you're at the website	
Directly targeted audience	Firstly "gather all of the information that's going be presented on the web" then aim the site at potential visitors.	"A creative web design would benefit from targeting your specific audience...develop your ideas based around that"	"You've got to brand your website". Use "company brochures, logos".	"A critical part of developing a web presence is understanding the audience" (Archibold 1996, p.1).
Break-away from design norms	"The primary aim is to get information effectively, economically onto the web"	"A creative website breaks away from the normal mould"	"Industry based sites tend to have the same look and feel", this is not beneficial.	To "break out of the box" (Bollinger 2002, p.91).
Effective use of web space	"Well designed uncluttered links and information" is what constitutes this factor	"Try and avoid an information overload"	Critical "because you're trying to cram as much information onto a page"	

List of Factors	Steven Smith	Jason Johnson	Scott Citizen	Literature
Balance of creativity and practicality – ‘severity’	“Creativity is really the way that we can present the information in an attractive form ...as economic as possible within ...barriers”	“Creativity is basically anything that gets around...limitations”	“There’s a trade off between creativity and practicality”	A “good balance between form and function” is vital (Keohi Web Design 2003, p.1)

Table 2. Creativity factors as perceived by web design experts

Navigation is considered by web site design authors to be significant suggesting, “*the most important aspect of a Web site is its navigation scheme. Unfortunately, that may also be the most commonly neglected design consideration.*” (Mickiewicz 1999). This correlates with the results elicited from web design experts, who each consider the element of “*consistent navigation*” to be an essential consideration regarding the perception of a web site as being creative (See Table 2). Also experts mentioned that navigation allows designers to inject creativity into the overall web design by developing a “*clean look and feel*”, focussing on using creative ideas to develop “*an obvious thread for them [users] to follow*”.

The framework, depicted in Table 2 also considers the use of creativity to overcome barriers within web design. This supports the notion that a website can be perceived as creative if the balance of creativity and practicality factor is implemented from the list of factors presented in Table 2. Throughout an analysis of the Web design artefacts and expert judgement, this factor is most effectively achieved by combining the use of thematic elements and integrating this theme into the web site’s marketing component by directing the theme towards a specific audience. Within the framework depicted in Table 2, there are some elements that overlap with factors identified within the creativity and web design literature, such as consistent navigation, and these are depicted in the ‘Literature’ column.

Surprisingly, some of the above creative factors have been often referred to rather as good design principles by other authors, for example, Nielsen (2000). In this study, they are revealed to be creative factors by three Web professionals.

6. Summary and Conclusions

This research has been conducted with an objective to determine the factors, which influence the perception of creativity in web design. The conducted empirical study identified many factors which have not been previously covered extensively in the IS literature. The findings have been summarised and presented in Table 2.

The literature review and our study have consequently confirmed several known design qualities that influence the perception of creativity in general. However, our study has also identified important new factors which relate specifically to the design of web sites. These include web site focus points and the severity of multiple creativity factors as present in a web design.

We found it quite astonishing that simple “good design” principles in web sites (Nielsen 2000) were considered by experts as being very strongly connected with “creativity” and its perception by web users. This extends the theory advanced by Selye (1962) who suggests that creative products must have element of “surprise” in their function or form, and not their mere usability and functionality.

The range of creative factors as revealed in our study and their link to both visual and design dimensions reflect the dual purpose of Web site of presentation of business contents and the delivery of business functional requirements.

In conclusion, this research is significant to both research and practice. In research, this study aligns two bodies of research into creativity and IS development. Furthermore, the perceptions of creative outcome (see Table 2) will contribute to further developing the creativity framework proposed by Cybulski et al. (2003). These creativity perceptions will be integrated in this framework to develop a deep understanding of assessing and accepting creative outcome. This will then be incorporated within the creative Web design process, which takes place in an organisational setting. In practice, the findings of this research, when applied by a web development organisation, may assist in developing creative Web site and in improving the communication between organisational staff and customers, while fostering “*the sharing of creative ideas*” (Carlitz and Zinga 1998, p.69). Commercial web designers can effectively adopt these factors into their existing web designs in order to increase the web site’s perception as a creative design, whilst academics can utilise the method adopted to conduct this research and extend upon these results in future.

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