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CREATIVITY VS IMPROVISATION: PSYCHOMETRICS FOR NOVEL TASKS IN WEB DESIGN PROCESS

Our aim here is to investigate whether ‘improvisation’ rather than the old concept of individual ‘creativity’ is more relevant to creation of attractive web designs for the modern rational consumer. Working in design studio formats involves collective group-based aesthetic decisions or ‘team work’ which reduces subjective choices and invites spontaneous improvisation of visual formats – or templates. We investigated two separate groups of apprentice in web design practices to assess creative satisfaction in web design assessments. Our study indicates that improvisation and committed adaptability to collective decisions is more conducive to creative tasks in web design, irrespective when compared to preferences that artists possess on a personal level.

Keywords: creative process, web design, team works.

Introduction: Creativity vs Improvisation

We shall consider relevant methods of creativity employed in visual media, but specifically in order to understand creative practices related to web design. What is the general rule of thumb adopted for problem-solving strategies in construction of web pages? Indeed, demographics for internet and cell phone usage collected from such databases as the Google Search data index for the new internet media indicates towards the ever increasing outreach of web pages; web page visits and responses constitutes the most potentially expanding form of communication and interaction in business and social media [1].

Our aim here is to investigate whether ‘improvisation’ rather than the old concept of individual ‘creativity’ is more relevant to creation of attractive web designs for the modern rational consumer. Collective and convergent design processes may induce greater psychological satisfaction. Hence any designer has to learn to adapt and improvise according to the visual behaviour of audiences exposed to the visual and consumer preferences promoted by a largely corporate controlled design environment. The basic question we intend to explore is whether the collective environments of ‘design studio’ formats of creativity are conducive for modern day artists and designers and whether creative satisfaction is produced from collective web page design assignments. Working in design studio formats involves collective group-based aesthetic decisions or ‘team work’ which reduces subjective choices and invites spontaneous improvisation of visual formats – or templates. *In extenso* such adjustable improvisatory techniques of design begs the question if this is the more viable method of web design for the near future. Collec-

tive improvisatory strategies are already apparent in video, music, film and performance genres in all popular media. In fact, institutions which lack adequate facilities for collective design studio formats, involving collective decision making in the arts, are falling behind those that have them in the more advanced economies [2].

Definitions and Starters for Experiment

Hence we adopted a conceptual approach towards our experiment based on standard shifts in the objectives as well as methods of much of contemporary web design productions. Indeed, in today’s consumerist contexts there can be no universal agreement on the definition of creativity. Web design incorporates a series of both subjective and non-subjective (*i.e.* socially disseminated) experiences *oriented* by processes and products. Creativity has been defined in terms of ends-of-the-process: a product or response is creative if it offers a novel and appropriate solution to an open task [3]. But some researchers also defend the existence of a consensus that considers creativity as a capacity of the person to produce ideas, inventions, artistic objects, restructurings and products, evaluated by experts and by taking into account their high scientific, aesthetic, social or technological value [4; 5].

In order to facilitate a conceptual shift in our approach to creativity, we will consider four components or fields of study discussed in the literature [6]: 1. The creative person. 2. The creative process. 3. The situation or environment. 4. The product or creative result. Urban (2003) defined that the process of creativity has to consider the “4P-E Structure” of creative thinking and acting, which embodies the interactive structure of the factors: problem, person, process, product and environment. These may be re-formulated clearly as 1. The

creative person. 2. The creative process. 3. The situation or environment. 4. The product or creative result [7].

We propose to take into account a fifth element: that is, persuasion or ability to convince others of the value of their work. For our experiment we also consider characteristics of the creative person to include cognitive components, knowledge base, mastery of certain subjects, personality traits, interest and motivation. The processes or operations focus on the strategies that a subject uses to solve a task or problem. We could emphasize on the context in which the creative act takes place and the social factors that can favor creative production. Finally, these results or creative products can be analyzed from indicators such as novelty, elaboration, fluidity, flexibility and usefulness. While defining creativity we may not subscribe to a trajectory of specific cognitive functions, but also consider a complex mix of personal and situational factors.

1. Could we analyse the factors involved in web design process?

Web design is basically oriented to perform the same functions as that of print media, but it gives readers a better choice in turning a page.

A combination of visual and linguistic signals (and now aural components) combine to produce an aesthetic response on viewers who either engage in responding to stimuli evoked by webpages or interact with visual-semantic components to generate a communications pathway. But where constructions of webpages mostly deviates from the processes of conventional visual design practices is the fact that it is more of a group based activity in which creative outputs depend on collective discussion making, including presence of technology and networking [8; 9].

In this context however we have to consider that in the modern internet age web design and visually attractive advertisement, promotion or propaganda - even when the most formal or elemental visual principles are concerned - that creativity is on the whole a question of *discipline* based activity just as Lowenfeld, Gardner and Winner have pointed out in relation to fundamental visual arts practices.

But how could we study creativity which is now more of teamwork creativity where designs are developed with feedback and contributions from other members in the team [10]. There is no expert *per se* who manages and controls the final product of designs. On the contrary design is achieved with inputs from personnel who manage and work on discrete and disjointed aspects of media. In a web page the writing skills may be developed by a copywriter; visual artists who have knowledge of software's may be developing simply visual aspects of a page. Some other artist may be involved in arranging and editing the material - the layout

and print options. For video inclusive page design the process becomes more complex and involves multi-user platforms.

2. Factors affecting to commercial web design

So far most studies intending to explain how web design affects behaviour has been confined to a study of consumer preferences for market products and their advertisement. One of the basic assumption in such studies is to consider how web design is directly related how design is meant for consumers' web experience - at least that there should be a target audience. Nielssen has gone to the extent of identifying the several principles that are responsible for the success of designs on the web, the chief measure in all cases being the ability to touch or affect the interests of the consumer and therefore to understand how a consumer's behavioural pattern may be used as a yardstick for designing visual templates and making selections and access to links that are manifested therein. There always seems to be a logical pattern of expectations in the manner in which hyperlink access is generated by consumers even if there is no defined objective of search [11].

In such context it might however be feasible to identify the process of creative improvisation involved in collective art forms like that of web design by studying *two* different populations of web designers to see how they take decisions on creative projects and adapt to problems raised by audiences.

A design studio format always presupposes the presence of a target object with individual assignments for groups, or for a kind of distributed conveyor work. Artists, especially web developers are given assignments on which three factors stand out more prominently than others. The first is (a) the model or template that these artists are supposed to follow. This possibly involves a preconceived visual literature, and may or may not include verbal descriptions that Nielsson shows is a determinant of the form of the design product. Second, (b) the creative process requires imagination or improvisation. Since the available media imposes necessary freedom and constraints the artist should be particularly adept as a professional who knows how to handle such media and equipment. Lastly, (c) there is an emotive-affective-valence factor in determination of the satisfaction achieved for the process. These different factors may be measured to assess the design process.

3. Creativity in a digital world

Of course one of the most important part of the creative process is also to select and optimize visual information - Krug's almost cryptic and as much classic study of web design [12; 13] makes a fundamentally

important plea of keeping web design simple, and following Klein’s suggestion - grow out of a rapid decision making process in which the designer selects the most evident options for the user. This is a process in design activity that has been called ‘satisficing’ [14]. But the expert designer already develops much of these skills before being accepted for professional or commercial assignments. Tufte and Krug both support optimization of perception for web design but - in a sense this is also true of much of the tradition of visual representations [15; 16].

4. Evaluating individual creative process vs team work applied to web design

4.1 Methodology adopted for the experiment

How are such parameters of creativity seen to operate in a creative design involving digital media? If we were to select one important operational factor in assessing creation of novelty of impressions we could study how web designers in real commercial task assignments were actually oriented towards their work. Second, and more important we could give them a novel task assignment and quantify how they actually engaged in order to modify or create a new visual experience on the web page. The aim of this brief research is to assess the correlation between aesthetic preferences and the satisfactions generated for a web design assignment based on standard web design trajectories discussed above – namely that both individual and adaptations or spontaneity couple with collective targets and audience or consumer preferences to generate the final satisfaction for such endeavours.

4.2 Developing questionnaire and sample task for experiment

For this purpose in the first part of the test we developed a statistical questionnaire for assessment of impetus in web based design tasks. We evaluate the aptitude on a bipolar scale and measure artistic or creative propensity on a temporal line: first before a particular test task is assigned. The devised questionnaire intended to quantify attitude or orientation beliefs of web design students based on scales similar to psychometric scales used in the PANAS [17], SSI questionnaire [18]. This test should be delivered at a time prior to task execution examination. Following a PANAS, SSI a third questionnaire of visual creative index should be developed. This remains the basic proposition of our research project.

In the questionnaire we developed bipolar answers in which answers for category A) correspond to individualistic creativity and answers for category B) reflect

preference for team work and collective design (see tabl. 1).

Table 1

Questionnaire: preconceived ideas about web design creativity

Questions	Answers
1. What do you like more	A. Innovation B. Follow good standards
2. Do you prefer the art of	A. Geniuses B. Perfectionists
3 What is your idea of creativity?	A. It is creating absolutely new B. It is improvisation
4 Do you like	A. More aesthetically satisfying webpages B. More functional useful webpages
5 Do you like the templates of the webpage given to you?	A. Yes B. No / Somewhat
6 Do you prefer	A. To prepare a webpage based on your expectations B. To prepare a webpage based on your experience
7 If you find the web page that you looking at well done you feel:	A. Surprised B. Feel Appreciation for the design executed
8 Do you prefer to work	A. Individually B. In group

Two independent groups of students were used for this set of studies. Results of this part of test show simple majority preference for team work (53% answers B vs 47% answers A). In a fig. 1 we can observe quite equilibrated answers from two test groups (40 students).

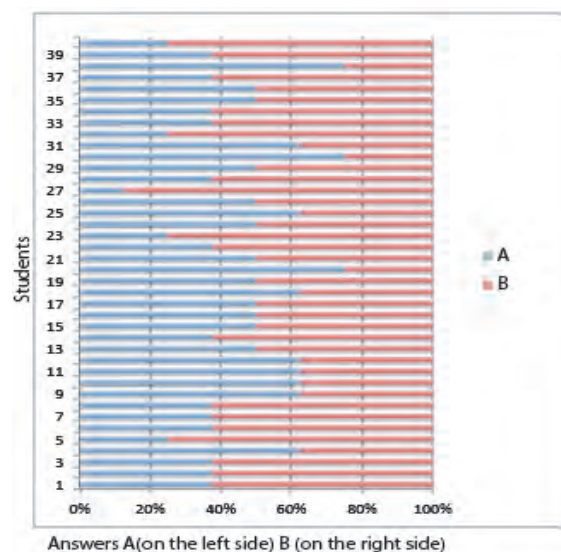


Fig. 1. Preconceived ideas about web design creativity for each student

We used the collected data from the questionnaire (tabl. 1) for generating a null hypothesis which could be tested against data obtained from the second part of the experiment. The objective here is to test if there is a similar preference for either individual creativity or for improvisation and teamwork, depending on the responses obtained from participant designers who are asked to engage in a given web development assignment for a certain duration of time.

4.3 Team vs individual web design process

Then we gave practical task to a group of the students that has experience in web design and asked re-design web page of Digital arts based on one of the typical templates with given structure: header, menu, slider, main content, news, footer (see fig. 2). This first group of 20 students worked individually.

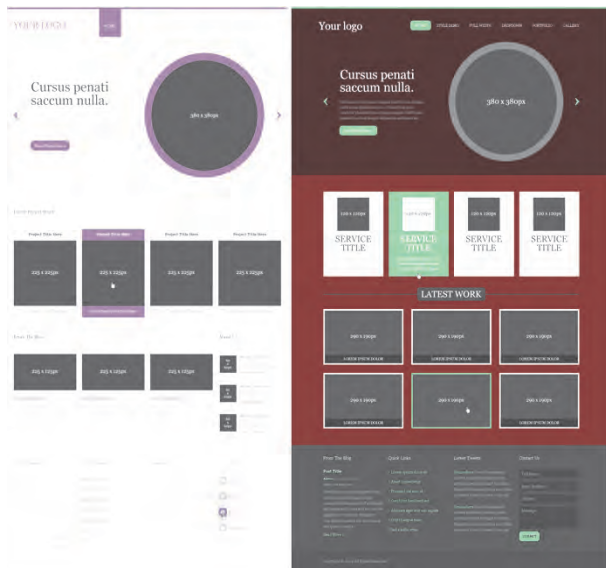


Fig. 2. Templates of web pages

The working student had to identify virtues and aesthetic factors in the pattern of major lineaments and curvatures on image in the given task. The student designers were now asked to make a new design or change the existing template to create a new webpage by making selections, modifications, elimination or adaptive improvisation for a certain new or novel webpage. Compared to a media value of the arrangement of such lineations on the image we could compare the new or novel formation devised by the student artist. The information was quantified on the basis of a semantic questionnaire on the proto-Likert scale. To measure satisfaction and auto evaluate own proposal we gave another questionnaire asking for:

1. Were you satisfied with the basic **organization information, structure, alignment** on the webpage that you designed?
2. Do you like the **color schemes** of the webpage that you designed?

3. Do your web page looks **professional** (you constantly repeating same design elements for headlines, sections, navigation, styling photos)?

4. Do you like the **Typography** on your webpage?

Then, we repeated the same test but with another group of 20 students and this time they were working in team of 5 person. We measured the level of satisfaction in a process of improvisation (+2 correspond for total satisfaction and -2 correspond extreme dissatisfaction).

Results of satisfaction test are presented on fig. 3.

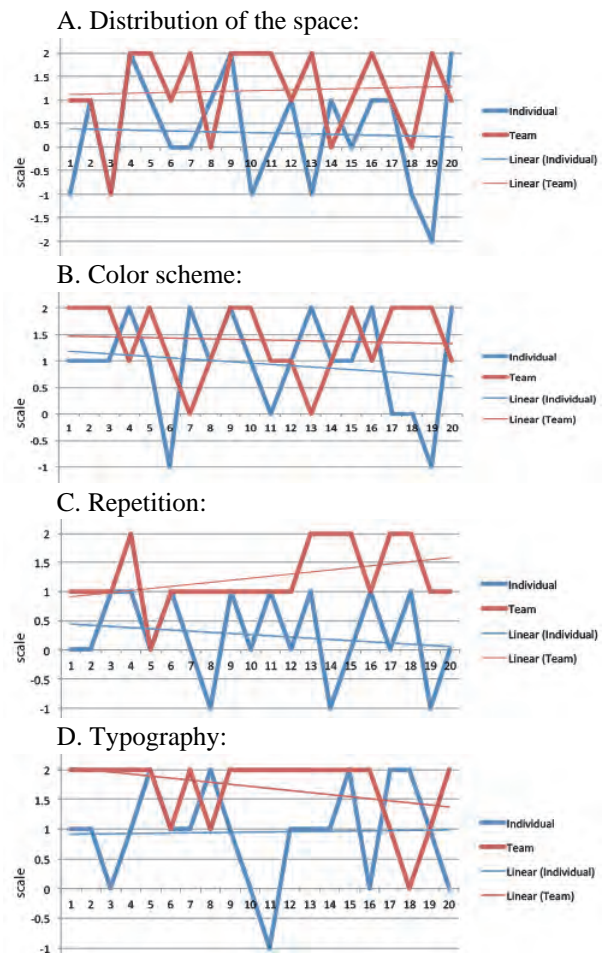


Fig. 3. Results of auto evaluation level of satisfaction individual vs team work

Average satisfaction coefficients for each parameter (see tabl. 2) show us that working in team significantly increases productivity of the individuals.

Table 2

Percentage of satisfaction per parameter

Parameter	Average level of satisfaction in %	
	Individual	Team
1. Distribution of the space	15	60
2. Color scheme	47	70
3. Repetition	12	62
4. Typography	47	85

The same opinion made experts that evaluated all designs taking into account four elements that forming composition. Team proposals received higher qualifications. In fig. 4 we can see example of individual proposal a) vs. team b). We are focusing only on an aesthetic part of web design process; functionality could be investigated in a future work.



Fig. 4, a. Individual proposal



Fig. 4, b. Team proposal

Results of test (in a part of auto evaluation and evaluation by the experts) show more satisfaction with team work. Also students demonstrated more thoughtful decisions in color aspects and optimal distribution of the space comparing with individual proposal (see fig 4, a and b). A significant challenge for education is preparing students and practitioners for the changing dynamics of webdesign practice.

Conclusions

A creative satisfaction test statistics on creation of a novel web page image was compared to the psychological orientations for student artists who work collective in area of web design. On the whole a collection of statistical data from the performances of several artists working in design studio formats or collective commercial or marketing enterprises may be an appropriate forum for assessing how web design tendencies could be assessed and used for successful commercial as well as aesthetic platforms.

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ТВОРЧИЙ ПРОЦЕС І ІМПРОВІЗАЦІЯ В ПРОЦЕСІ СТВОРЕННЯ ВЕБ-САЙТУ: ПСИХОМЕТРИЧНИЙ ТЕСТ

Tirtha Prasad Mukhopadhyay, Н.С. Гур'єва

Наша мета полягає в дослідженні концепції колективної «імпровізації» і індивідуального «творчості» стосовно веб-дизайну. Робота в форматах студій дизайну передбачає прийняття колективних рішень групою або «колективну роботу», яка змінює суб'єктивний вибір і пропонує спонтанну імпровізацію візуальних рішень. Ми досліджували дві окремі групи студентів, які мають досвід в області веб-дизайну, щоб оцінити творче задоволення від процесу створення сторінки. Наше дослідження показує, що імпровізація і цілеспрямована адаптивність до колективних рішень в більшій мірі сприяють творчим завданням в веб-дизайні, незалежно від особистих переваг дизайнерів.

Ключові слова: творчий процес, веб-дизайн, командні роботи.

ТВОРЧЕСКИЙ ПРОЦЕСС И ИМПРОВИЗАЦИЯ В ПРОЦЕССЕ СОЗДАНИЯ ВЕБ-САЙТА: ПСИХОМЕТРИЧЕСКИЙ ТЕСТ

Tirtha Prasad Mukhopadhyay, Н.С. Гурьева

Наша цель заключается в исследовании концепции коллективной «импровизации» и индивидуального «творчества» применительно к веб-дизайну. Работа в форматах студий дизайна предполагает принятие коллективных решений группой или «коллективную работу», которая уменьшает субъективный выбор и предлагает спонтанную импровизацию визуальных решений. Мы исследовали две отдельные группы студентов, имеющих опыт в области веб-дизайна, чтобы оценить творческое удовлетворение от процесса создания страницы. Наше исследование показывает, что импровизация и целенаправленная адаптивность к коллективным решениям в большей степени способствуют творческим задачам в веб-дизайне, независимо от личных предпочтений дизайнеров.

Ключевые слова: творческий процесс, веб-дизайн, командные работы.