

# Effect of non-work related Internet usage on stimulating employee organizational creativity

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## ABSTRACT

Creativity in organizational success has no alternatives in future and according to Internet which is an integral part of any organization and usage of the organizational Internet resources for non-work purpose by employee is current; This study intends to use stimulating creativity factors that has been extracted from earlier research for investigate organizational creativity through non-work related Internet usage by using factors. Target population are automotive manufacturer employees in their central offices and potential stimulating creativity factors are: intrinsic motivation, independent thinking, information accessibility, curiosity and exploration, break down technical barriers and collaboration. Data gathering is done by questionnaire and answers are designed by Likert Scale. Sampling technique are cluster and random together. Statistical Software SPSS 22.0 is used for Pearson correlation and investigate hypothesis. The method is library and field study. Findings are shown these defined independent variables have positive and meaningful relationship to creativity but intrinsic motivation and information accessibility have positive and reverse; curiosity and exploration and independent thinking have positive and straight relationship through non-work related Internet usage.

**Keywords:** creativity, Internet, non-work related Internet usage, stimulating creativity

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## I. INTRODUCTION

The information revolution reforms ICT (Information Communication Technology) in all around the all around the world [1], so human can gain information as soon as possible with extraordinary growth and rapid advances through communication media such as internet technology [2]. The findings of 2013 shows that more than 7.2 billion people or 39% of the world's population are using the Internet every day [3]; therefore there is a rising trend of employees' engagement in non-work related Internet usage (NWRIU) and Internet is becoming a commodity in organizations with an increase in accessibility by professional from their own work desks [4].

As access to the Internet has become more common for employee, so has their tendency to use Internet for non-work purposes on the job. Thus the use of Internet for non-work purposes has become almost inevitable at workplace [5].

Many researchers stated that NWRIU has positive effects; such as stress relief, creativity stimulation and job satisfaction [6, 7, 8, 9, 10, 11]; but some researchers announced that NWRIU has negative effects; such as productivity loss and risks of damaging lawsuits [12, 4, 13, 14].

Despite the unique characteristics of the Internet and new technologies for stimulating creativity, but organizations concerned inevitably about employees' NWRIU [11]. According to researchers findings; necessary base and

condition for implementing resistive economic and dynamism of industrial companies for gaining technical knowledge and sustainable production technology is creativity. The only solution for today's complex markets and having high capacity producing and new services with unique and competitive features is creativity [15].

By removing the barriers to creative thinking, organization effectiveness and efficiency will increase. As a result, organization moves to more survival and vanguard in market. Without creating a proper environment for the flourishing of creativity, creativity is not possible. Neither of these two important factors that could move apart from each other and both of them must be aligned [16]. Many successful organizations are trying to navigate their goals, attitudes and interests for using creativity because there are increasing complexity of organizations imbalance and organization can not to predict and cope with the changes and complexities [17].

Today managers have to change their management styles in their organizations. Organizations must adopt specific management techniques for creating motivation in human resources and providing necessary training for Fostering creativity and new ideas, because third millennium has special features such as: increasing technology development, Rapid changes in the economic, political, social and cultural systems, using external resources for internal processes, Merging companies, speed of technological change, Reducing product life cycle and boundless competitive market. The organization activities

carried out under conditions of instability and dynamics, only little hesitation and delay will lead to eliminate them from the competition. So, creativity is very important because it is an only way for creating, keeping and maintaining competitive advantages [18].

Sustainable Development is today slogan that is based on knowledge and creativity and the only competitive advantage in the Digital Age [19]. So in current situation, creativity is not necessity but also it is necessary for survival [20, 21, 22, 23]. If there is proper conditions for training ideas; organizations are ready for using creative staff ideas. Understanding effect factors on organizations staff creativity and innovation can help organizations to support them and preparing proper conditions for organizational excellence [24].

One of the organization resources for creativity is information technology [25] and there is positive relationship between Internet components and user's ability level and creativity [26]. So this study intends to use stimulating creativity factors that has been extracted from earlier research for investigate organizational creativity through NWRIU.

The main objectives of this research are as follows:

- 1- Determining the effect of Accessibility to Information, Collaboration, Curiosity and Exploration, Independent Thinking, Intrinsic Motivation, Breaking down Technical Barriers (stimulating factors) on creativity.
- 2- Determining the effect of Accessibility to Information, Collaboration, Curiosity and Exploration, Independent Thinking, Intrinsic Motivation, Breaking down Technical Barriers (stimulating factors) on organizational creativity through NWRIU.

First reason for doing this research is fantastic view of NWRIU and the second is positive and negative view gap for this organizational Internet using. This research is expected to prepare a comprehensive understanding on the interaction between NWRIU and employee creativity. If the result is positive, management can foster the creativity within more suitable manners of promoting Internet technology and if the result is negative, management will be decided to change NWRIU efficiently

## II. THEORETICAL CONCEPT AND LITERATURE REVIEW

Creativity was defined as a developing process for novel and imaginative view about different situation [27]. Luthans (organizational behavior professor) states that creativity is combining ideas and individual and group approaches in a new way [17].

Torrance defines creativity as process consisting sensitivity about problems, shortages, pressures and lack of harmonies. After this sensitivity; finding for new solutions for problems and presenting hypotheses will be started and then all hypotheses will be tested and moderated until final result will be obtained [28].

However there are many individual and organizational barrier to creativity such as lack of mental focus,

limitation, evaluation, pressure, competition, lack of motivation, skill and experiences [15], lack of flexibility, external motivation and social skills [29], time pressure, Cumbersome rules [18], lack of confidence and knowledge, inability to tolerate ambiguity and conflict [30]

According to Internet characteristics and new technologies for stimulating creativity [11], extensive and disruptive NWRIU can potentially lead to negative effect; some researcher findings such as Bock and Ling Ho (2009) study shows that managers may encourage traditional non-work related activities for employees to re-energize themselves rather than non-work related computing which may result in negative interruption and distraction from work [4].

Increasing NWRIU in organization, employees spend more time for it for example: instant messaging, accessing online personal e-mails, online gaming, blogging, reading Internet news, downloading software for personal use, participating in online forum, maintaining personal websites, random Internet surfing for personal interest, Internet shopping, listening to music or movie and so on [31].

The similarity between the features of the Internet and those characterizing creative individuals has encouraged Shoshani and Hazi (2007) to look for a theory that justified the use of the Internet environment for enhancing creativity. The Internet technology integrates different type of media and tools. Thus it provides better opportunities to minimize technical barriers through increased exposure to varied set of technical aspects and breaking through barriers is a necessary condition for exploiting the multifaceted opportunities of Internet [32]. Csikzentmihalyi (2009) states that if firms want to be creative, the first step is to make the information contained in respective domains accessible to everyone in the company and availability and accessibility of information are important systemic properties for encouraging organizational creativity [33]. Also Amabile (1997) states accessibility and availability of information are important component for employee's creativity on their respective domains of work [6].

Handzic and Chaimungkalanont (2004) state that informal socialization had a stronger positive effect on creativity than organized socialization. Although this research was not limited to online socialization but their findings could be applied in socialization concept thorough NWRIU exactly [34]. Erikson and Beauvais (2000) announced by increasing levels of diversity among team members, decision making creativity and problem solving creativity will be increased [35]. Also there some researchers who discussed the importance of collaboration and creative interactions for increasing creativity [36, 37, 38, 39, 40, 41].

Saunders (2009) recognized that curiosity is a motivation to explore possibilities to relieve the uncertainty that accompany an incomplete understanding of the conceptual space [42]. Csikzentmihalyi have the same idea and states if too few opportunities for curiosity is available and if too many obstacles are placed in the way of risk and

exploration, the motivation to engage in creative behavior is easily extinguished [9]. Curiosity and exploration displays a strong relationship with serendipity, where curiosity and exploration may lead to serendipity. Further curiosity and exploration would also encourage risk taking behavior which is useful for creativity stimulation [43]. Boden (1993) confirms that exploring conditions and their restriction are famous way to creativity [8].

In Asgari and Vakili (2012) study, the independent thinking is recognized as factor for creativity stimulation as Cohen and Oden (1974), Raina (1980), Maslow (1992), Neller (1990), Heasacker (1981), Osborn (1996), Simonton (1998), Chavin (1996), Naiman (2006) and Gary (2003) [44, 33].

Vidal (2007) states that activities such as online games can potentially enhance independent thinking and ultimately stimulate creativity. He explains that a natural medium for creative expression is play [45]. Playing has a positive effect on creativity stimulation [22, 46, 47, 48, 49]

Creative play provides an opportunities to: develop the imagination, think independently, cooperate and communicate and experience freedom of choices [45]. Also in Stephen (2004) study, independent thinking is determined as a creativity stimulating factor on children but it can be applied to adult creativity stimulation in an online environment as well [50].

Adams (2005) states that motivation as a creativity source has key role and important component in creativity stimulation and organizational support can reinforce it. But intrinsic motivation is more effective than extrinsic one [51]. In Amabile study (1997), there is abundant evidence that people will be most creative when they are primarily intrinsically motivated, rather than extrinsically motivated by expected evaluation, competition with peers, surveillance or promise of reward, because intrinsic motivation indicates that the reasons for doing things come from within – from passion and pleasure, not as a result of external demands or pressure [6].

According to Morris (2005) study, when creativity is supported, valued and recognized, employees put far more value on a work environment and if there is organizational encouragement for creativity, employees intrinsic motivation will be developed [52].

### III. THEORETICAL FRAMEWORK

In this study, six independent variables that have been extracted from earlier studies are intrinsic motivation, independent thinking, information accessibility, curiosity and exploration, break down technical barriers and collaboration and dependent variable is employee creativity stimulation. "Figure 1" displays the research variables and the related dimensions considered theoretical framework.



Figure 1: Research's Theoretical Framework

### IV. RESEARCH METHODOLOGY

The independent variable NWRIU was considered to have a relationship with each of creativity stimulation dimensions. Based on theoretical framework the following set hypotheses was developed for this research:

- H1: There is a positive relationship between NWRIU and intrinsic motivation
- H2: There is a positive relationship between NWRIU and independent thinking
- H3: There is a positive relationship between NWRIU and information accessibility
- H4: There is a positive relationship between NWRIU and curiosity and exploration
- H5: There is a positive relationship between NWRIU and break down technical barriers
- H6: There is a positive relationship between NWRIU and collaboration.

A questionnaire was developed based on the theoretical framework, designed to be answered on a Likert scale and with a few open ended questions which were introduced to gather additional descriptive data, Sampling technique are clustered and random simultaneously and according to unlimited target population and Cochran formula; it was distributed among a sample of 384 respondents, drawn from 5 automotive manufacturers in Iran. At a confidence level of 90% and a confidence interval of 10%.

Kolmogorov-Smirnov test for normality of variables measurement was used, according to  $\text{sig} < 0.05$ ; Non-normal distribution of the sample were identified. Therefore Spearman correlation coefficient to measure correlation for non-parametric statistics were used.

### V. DATA ANALYSIS AND FINDINGS

Data analysis was carried out using SPSS version22. The gender composition of the sample consisted of 38% female and 62% male. Most of the respondents belonged to the age group of 25-30; major portion of the respondents included employees having Bachelor's degree; most of the survey respondents had either 5-7 years of work experience; most of the respondents belonged to financial department and lowest of them belonged to public relations department. Respondents were asked to determine NWRIU percentage; Most of respondents spent less than an hour for NWRIU. The results are shown in "table 1". Most respondents who had perceived creativity as important factor (table1) and belonged to engineering

and marketing departments and lowest of them belonged to administration department.

**Table 1:** Respondents Frequency distribution

Items	Percent of Respondents			
	Most		Least	
Age Range	25-30	33%	20-25	7%
Education	Bachelor's degree	71%	Diploma	1%
Years of Experience	5-7	37%	0-2	7%
Dept.	Financial	23%	Public Relation	4%
The importance of creativity	Important	33%	Unimportant	7%
Time spent on NWRIU	less than 1 hour	40%	More than 3 hours	7%

So, it is interesting to know the Respondents NWRIU Percentages (table2)

**Table 2:** Respondents NWRIU Percentages

Activities	Always	Never	Rarely	Occasionally	Frequently
Blogging	2	24	33	33	8
Instant Messaging	17	6	27	39	11
Social Networking	3	31	39	23	4
Online Gaming	1	81	16	2	0
Download Software	2	66	26	6	0
Random surfing	7	5	28	41	19
Online Trading/ Shopping	4	12	37	38	9
Online News Viewing	15.5	6	26	35	17.5
Building Websites	0	97	2	1	0
Personal Emailing	33	1	16	28	22
Online Video/Music Entertainment	2	60	30	7	1
Online Viewing of Journal/ Book	1	67	26	6	0
Participation in Technical Forums	1	60	36	3	0
Participation in Non-Technical Forums	0	62	35	3	0
Online Sport Entertainment	3	44	28	23	2
Online Professional Training	1	52	35	12	0
Online Stock Trading	3	22	40	32	3
Online Gambling	0	100	0	0	0

Respondents (women & men) were asked to determine their stimulating creativity factors and Internet usage for

personal purposes. The fantastic results are shown in "table 3".

**Table 3:** Stimulating Creativity Factors

Stimulating Creativity Factors	Percentage of respondents	Priority	
		Female	Male
Intrinsic Motivation	16.2%	10	1
Information Accessibility	16.1%	9	10
Organizational stimulation	13.2%	8	9
Curiosity and Exploration	10.2%	6	8
Collaboration	9%	7	5
Independent Thinking	8.3%	5	2
Access to audiovisual media	7%	3	7
Break Down Technical Barriers	7%	4	6
Exposure to Multiculturalism	7%	2	3
Serendipity	6%	1	4

**Table 4:** Respondents NWRIU Percentages (Based on gender and departments)

Activities	Male/ Female	Dept.	
		first	second
Blogging	M	Sale	Engineering
Instant Messaging	M	Sale	Engineering
Social Networking	M&F	Marketing	Sale
Online Gaming	F	No difference	
Download Software	F		
Random surfing	F	Sale	Commercial
Online Trading/ Shopping	F	Financial	Sale
Online News Viewing	F	Sale	Engineering
Building Websites	No difference		
Personal Emailing	F	Financial	Sale
Online Video/Music Entertainment	F	No difference	
Online Viewing of Journal/ Book	M&F		
Participation in Technical Forums	M		
Participation in Non-Technical Forums	M		
Online Sport Entertainment	M		
Online Professional Training	F		
Online Stock Trading	F	Financial	Engineering
Online Gambling	-	No difference	

Finally, after data entry and Spearman correlation test; the results are shown in "table 5".

**Table 5:** Spss Report

H	Sig	correlation	Acceptance
H1	0.1	-0.84	true
H2	0.1	-0.83	true
H3	0.8	-0.89	true
H4	0.26	0.11	true
H5	0.36	0.04	false
H6	0.49	0.03	false

## VI. CONCLUSIONS

Spearman correlation models were used for the hypothesis testing and according to results (table 4), intrinsic motivation and independent thinking information accessibility have positive and reverse; curiosity and exploration has positive and straight relationship through NWRIU for employee creativity stimulation and break down technical barriers and collaboration have no positive relationship.

According to information obtained through the questionnaire: most NWRIU related to online news review, random searching, online shopping, e-mail checking but based in political and cultural organization rules, online gaming, software downloading, listening to music or movie, reading books or journal were reported rarely.

Although many researchers such as Handzic and Chaimungkalanont (2004) and Erikson and Beauvais (2000), Gunawardena and Jayasena (2011) and Robinson and Stern (1997) confirmed positive relationship between any type of collaborations and creativity but there was no positive relationship in this study through NWRIU.

Csikszentmihalyi (2009) and Amabile (1997) stated that by increasing accessibility to information, creativity will increase, but in this research if employees are faced with limited information, they will be more creative employee.

According to the results announced by researchers such as Asgari and Vakili (2012), Vidal (2007), Cohen and Oden (1974), Raina (1980), Maslow (1992), Neller (1990), Heasacker (1981), Osborn (1996), Simonton (1998), Chavin (1996), Naiman (2006) and Gary (2003); also in this research, there is a positive and meaningful relationship between independent thinking and creativity stimulation.

The results of this research consistent with Gunawardena and Jayasena (2011), Csikszentmihalyi (1996) and Boden (1993) studies; curiosity and exploration had a positive effect on creativity stimulation. Although Shoshani and Hazi (2007) and Gunawardena and Jayasena (2011) stated there is a positive relationship between break down technical barriers and creativity stimulation but in this research this hypothesis was rejected and there was no positive relationship between them.

Morris (2005), Adams (2005) and Amabile (1997) found the positive relationship between intrinsic motivation and creativity stimulation, this research confirmed it but there is a positive and reverse relationship between intrinsic motivation and creativity stimulation. One of the best solution is creating internal motivation through external motivation by organizational policy.

There are many fantastic results that can be effective on organizational decisions for NWRIU: women used internet for personal purposes a little more than men. Young employee had minimal internet using for personal purposes among others. More spending time for non-work related Internet using belonged to employee who are over 40 years old and undergraduate degree. Men interpreted creativity is very important for their daily activities than women slightly. Intrinsic motivation for creativity stimulation for women is a first motivator and for men is last motivator.

According to above results; organizations should use these strengths and potential opportunities and combine it with NWRIU to achieve the desired goal because it is obvious that there is relationship between organizational creativity stimulation and NWRIU. Based on these information and results, organizations must choose best policy and determine each employee accessibility to Internet according to their daily activities nature or their department's duties. In this case organization can be reform abnormal NWRIU limitation. Organization must review their NWRIU policies for considering and checking their reasons. NWRIU is harmful for organizational goals or reduce productivity? Maybe assigning special place and time for employee can reduce many related problems. Online entertainment is one the best recommendation.

## VII. LIMITATIONS AND FUTURE RESEARCH

There are many limitations in this research for example: organizations disagreed with questionnaires distribution and employees had no tendency for fulfilling it. It is possible to clear how they use the internet for their personal purposes and organization may increase more control on Internet usage. Finally researcher could distribute and collected questionnaires after convincing organizations and employees because their names will not be disclosed. Not only organizations but also employees weren't familiar with creativity concept exactly.

According to results there are many opportunities for future studies. As effective factors such as organization culture and policy can consider on NWRIU. It is better to consider NWRIU on special department in organization or comparing it between two or more department simultaneously.

Recognizing more effective creativity stimulation factors can increase creativity can be run via the Internet from previous studies. Considering the effect of particular usage of non-work related Internet can be the one the interesting topic for future studies for example checking personal e-mail, online gaming or any kind of downloading.

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### Biographies and Photographs



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