Exploring the Influence of Internet Self-Efficacy, Internet Attitude, and Internet Anxiety on Cognitive Priming

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Abstract

The internet has become a primary transactive memory source in itself. Gone are the days of physically looking up libraries and piles of books to seek answers, mankind is becoming symbiotic to the computer tools, thereby getting used to the interconnected systems. This excessive dependence, has a flip side, an impact of memory, which makes the source of information more potent than the information in itself. The aim of the present study is to test whether internet self-efficacy, internet attitude and internet anxiety are associated with priming of individuals to think of internet/search engines when faced with a gap in their knowledge. The present study included data collected from 30 participants, and the analysis has shown that people tend to have priming of internet related words, when faced with hard knowledge-based questions. The results indicate that processes of human memory are adapting to the advent of new computing and communication technology.

Keywords: Internet, memory, Internet self-efficacy, Internet attitude, Internet anxiety.

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INTRODUCTION:

In the present times, technology and internet are entirely incorporated with every-day life. In today's world, all individuals are continuously using the internet and are connected to it from their smartphones, tablets, and computers. Castells analyzed human use of the internet to search for any information and for communication, the interpersonal social system (Castells, 2007; Castells, Tubella, Sancho, Diaz ed Isla, & Wellman, 2004).

Internet has become an inseparable part of our lives, business and educational process, all are deeply dependent on it. The internet has brought the globe to our fingertips, wherein all knowledge is just a click away. Such accessibility also brings in an aspect of impulsivity, wherein, almost everything that needs to be looked up can be done immediately, without any boundaries or hindrances of time and space. The internet and search engines such as Google, Yahoo, Bing etc. have become an external source of memory that one can access any time. The same questions that would take hours of sifting through physical books in a library, or archives of newspaper, can be answered with the help of Google and Yahoo, with a few inputs drafting a precise question of what one is wanting to know, and the enter key would give, lakhs of responses, in fraction of a minutes. The search would be effortless, yet systematic, search engines looking for information in a hierarchical order. A few decades ago, this search would have been stored as a record on the computer, a notebook and memory, for easy access in future, given the trouble it was to reach it. But today, the ease of accessibility might change how people feel the need to store this very information.

Internet and Cognition

The internet has made a large amount of information accessible to us. Many researches have shown how this accession has influenced how we think (Fisher, Goddu, & Keil, (2015); Sparrow, Liu, & Wegner, 2011). For example, many have argued that the regular exposure and connectivity to the internet makes people more likely to be dependent on surface level interpretation of information and less likely to engage in remembering the content which can be found online (Carr, 2008). Researchers have mentioned that individuals tend to form transactive memory systems with the internet (and computers in general; Fisher et al., 2015; Sparrow et al., 2011; Ward, 2013). That is, they tend to be dependent on the internet for information as they would, for example, a partner relying on the other partner (Wegner, 1986, 1995).

It has become a major concern of the public that a continuous connection with the internet is making people 'dumb'. Computers have reduced attention and consideration as we are frequently switching from computers to mobile in regard to information. There are 60% of e-journal users who view most of three pages of an article and there are 65% of readers who never put an effort to finish the articles. There are some average viewers who only spent 4 minutes on e-books and 8 minutes on e-journal sites. While these habits are unquestionably unlike the information exploration of the past, it does not really respond to the question of whether there is a modification in cognition (Carr, 2008).

Transactive Memory

Transactive memory implies that incoming information is divided between both external and internal storage devices (e.g., Wegner, Giuliano, & Hertel, 1985; Wegner, 1986). Humans may store the information in their own brains, or they may offload the responsibility for the information to external storage devices such as family, friends, books, spouse or— most recently—the internet. The internet—a supernormal stimulus—seems to outperform all other external storage devices, thereby leading people to offload responsibility for the vast majority of information.

Transactive memory systems increase both the amount of data available to individuals and the efficiency with which this data is stored. It is not possible for people to know everything. Therefore, by offloading the responsibility for specific types of information to others, it becomes easier for them to acquire in depth knowledge in a few domains of personal expertise. Transactive memory systems are most relevant if all members of the system are readily available (e.g., Wegner, 1986).

Research on the "Google Effect" suggests that the internet is one of the ways of how people select their own transactive memory partners and is entrusted with encoding, storing, and retrieving information (Sparrow, Liu, & Wegner, 2011). It can also be noted that the internet may be more than just another memory partner; it may be regarded as an informational catch, which greatly decreases the amount of information stored both internally (i.e., in individuals' own memories) and other external sources (e.g., human transactive memory partners). Also collecting and retrieving information stored on the internet is very simple. People need not worry that the internet has gone on holiday or lost a relevant memory.

The transactive memory having been dependent on the internet as an

external memory source is said to be governed by various factors such as internet self efficacy, internet attitude, and internet anxiety.

Internet Self Efficacy

Bandura defined Self-efficacy as "beliefs in one's abilities to organize and execute the courses of action required to produce given attainments". Thus, internet self-efficacy can be identified as "a person's belief in their individual abilities to achieve specific goals with the internet". Bandura suggests that self-efficacy (Bandura, 1982) is both an indirect and direct factor in willingness and ability to use innovative information technologies to their potential. Individuals with higher levels of internet self-efficacy will be more readily using the internet to explore, take chances, and using fast developing internet applications (e.g., search engines like yahoo, google, blogs).

Individuals who regard themselves as highly capable of a given activity, will be more likely to start, strive in and complete a task linked to that area. In terms of comfort with technology, individuals who perceive themselves as lacking abilities resist their internet related behaviors or performance (e.g., being misinterpreted in communication, being influenced by poorly vetted information, being drawn into a dangerous community) might be less willing to use the internet, especially for complex tasks. Bandura (1990) suggests that self-efficacy influences our selection of activity – we do not choose to engage in activities if we believe they will end up in failure; (Levinson, 1999). To add on, the levels of people's self-efficacy are directly linked to previous incidence of positive reinforcement in response to the pro internet behaviors. Self-efficacy tends to build in a virtuous cyclic process, with greater confidence leading to more of such acts, leading to more positive response from the external world. It is perhaps important in explaining our model to go a little in depth into Bandura's theory.

Previous studies have demonstrated that in the area of the internet, the positive relationship between the computer or internet self-efficacy and outcome expectancy and the negative relationship between the computer or internet self-efficacy and anxiety (Compeau & Higgins, 1995; Eastin & LaRose, 2000). Internet self-efficacy or the faith in individual abilities to classify and implement courses of internet actions needed to generate given attainments has become an important factor to use the e-services.

Internet Attitude

The term attitude refers to people's disposition (either unfavorable or favorable) toward any event or object, while perception refers to the way an individual views or interprets features of the event or object.

Do attitudes play a role in impacting what and how people learn and remember? The psychologists have given an effect of congeniality on memory, the tentative statement that that people have better memory for data that supports, and confirms, their attitudes. The interest of whether attitudes have any impact on memory has been put forward since the beginning of research in social psychology. It is as fundamental to the contemporary research on attitudes and social cognition (Eagly, 1992; Eagly & Chaiken, 1993) and it is also believed that attitudes exert impact on all stages of information processing (e.g. Bruner & Goodman, 1947; Fiske & Taylor, 1991; Olson, Roese, & Zanna, 1996).

The internet has become

fundamental to our life since it is a basic source of information as well as a communication tool. Today, every human may have heard of the internet, although commercially, the internet dates back only to 1994 (Information Society Commission, 1998). With the popularization of the internet, attitudes towards the internet have also been changing over time. Most of the studies on cognitive aspects are linked to the information source that has emphasized on the perceptions, essentially the perceived ease of use, perceived information quality, and perceived accessibility, (e.g., Allen, 1977; Auster & Choo, 1993; Culnan, 1985; Davis, 1989).

Studies have shown that positive internet attitudes, especially regarding interest and comfort were somewhere related to greater usage of the internet and more reliance on it. There seems to be possibilities of mutual relationships between our cognitive abilities, internet attitude, and technology such as the search engines and also on the technology usage.

Internet Anxiety

The usage of technological systems has unpleasant effects at times, which may include deep, negative emotional feelings that are caused not only during the usage but even before, when the purpose of having to use with the internet starts. This can poorly influence the usage, performance and overall well-being.

There are various related definitions of anxiety: Leso and Peck (1992) explain computer anxiety "as a feeling of being apprehensive and unconfident to use or taking into consideration the utilization of a computer." It is intimately linked to internet anxiety. Evidently, components such as the situation in which a person was primarily initiated to the computer (Brosnan, 1998a, 1998b; Rosen & Weil, 1995) is the cause of anxiety the individual is experiencing.

Howard and Smith (1986) termed computer anxiety "as the predisposition of a person to experience a point of uneasiness over his or her imminent use of a computer." In a study of information systems, anxiety has been used as a personality variable that control system use (Agarwal & Karahanna, 2000).

There is another instance where a student has a belief that while performing an online test, he will experience technological problems. It shows that he is suffering from computer anxiety and as a result of this anxiety, he will be fearful about computer problems while doing this test. What happens is that the belief leads to fear and this anxiety further leads to the behavior of suspicion causing the student to get less focused on doing the test thus leading to his low performance. Igbaria and Parasuraman (1989) relate these theories and describe computer anxiety "as the predisposition of individuals to be anxious, hesitant, and fearful about future use of computers".

There are various studies supporting a direct connection between computer anxiety and computer use (Brosnan, 1999; Chua, Chen, & Wong, 1999; Howard & Mendelow, 1991; Igbaria, Parasuraman, & Baroudi, 1996). A research of computer anxiety shows that an individual possessing higher anxiety to use computers is presumed to be at a major disadvantage as compared to his peer groups. One example is e-learning presented by various advanced learning institutions.

A study in the issue of Computers in Human Behavior investigated the relationship between

internet anxiety and internet use and internet identification. The research reported that most participants in the research did not show anxiety about using the internet, however they did find 8% who demonstrated high "internet anxiety." Those who had anxiety related to computer preferred to stay away from the internet, not surprisingly.

Rationale

The present study aims to understand whether with the advent of technology, does having access to the internet and the search engines, become a primary transactive memory source in itself. It demonstrates whether the internet has become an external system of memory that is primed by the sheer requirement to get information. For instance, on being asked the question if there are any countries with just one color in their flag, do we really think about flags or immediately think of going online to search? This could potentially be influenced by various factors such as how much belief a person has on internet sources; their attitude towards internet search; and their fears when using the internet. Depending on the information stored on the internet and computers follows the overall processes of the transactive memory that encompasses sharing of information in general.

Objective: To test whether internet self efficacy, internet attitude and internet anxiety are associated with priming of individuals to think of internet/search engines when faced with a gap in their knowledge.

Hypotheses

Hypothesis I: There will be a significant difference between the reaction time of individuals with high and low internet self efficacy when presented with a modified Stroop task consisting of internet related words followed by a set of hard questions which they need to answer.

Hypothesis II: There will be a significant difference between the reaction time of individuals with high and low internet attitude when presented with a modified Stroop task consisting of internet related words followed by a set of hard questions which they need to answer.

Hypothesis III: There will be a significant difference between the reaction time of individuals with high and low internet anxiety when presented with a modified Stroop task consisting of internet related words followed by a set of hard questions which they need to answer.

METHODOLOGY:

Sample

The sample for the present study consisted of 30 participants, 20 female participants and 10 male participants. The participants belonged to the age group 18 to 24 years, Mean Age = 21 years. They were tested in a within subjects experiment. Purposive sampling was done where the individuals studying or working in the field of computer science were excluded from the study.

Tools

The present study used the following tools. Internet Attitude Scale, The Internet Self Efficacy Scale, The Internet Anxiety Scale, the Direct RT Software, Direct RT Manual, Block of 16 Easy Questions, Block of 16 Difficult Questions, 16 Generals Brands (internet unrelated words), 8 internet Brands (internet related words), Laptop.

Internet Self efficacy Scale

The present study used the

Internet Self efficacy Scale developed by Yunhwan Kim and Michael Glassman (2013). It originally consisted of 17 items across a 7-point Likert scale ranging from 1 (not at all confident) to 7 (very confident). There were 5 categories, namely, Reactive-generative self efficacy (6 items), Differentiation self efficacy (4 items), Organization self efficacy (3 items), Communication self efficacy (2 items), and Search self efficacy (2 items). The current measure was modified for use within the current study by adding 4 items from another scale developed by G. Torkzadeh, T.P. Van Dyke (2001) where 2 were added to the Communication category and 2 items from the same scale were added to the Search category. Therefore the present study used the Internet Self efficacy scale which consisted of 21 items across a 5 point Likert scale ranging from 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, and 5=strongly agree. The scale basically assesses participant's levels of confidence in successfully completing a wide range of internet activities.

Internet Attitude Scale

Internet Attitude Scale (IAS) was modified from the Computer Attitude Scale, developed and validated by Nickell and Pinto (1986). In the IAS, which was used to measure attitudes toward the internet, the word "computer" was replaced with "the internet" throughout the scale. The IAS is a 20-item self-report inventory, rated across a five point Likert type scale ranging from 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, and 5=strongly agree. Total scores on IAS ranged from 20, indicating an extremely negative attitude toward the internet, to a score of 100, which would imply an extremely positive attitude towards the internet. Out of the 20 items, few items followed the regular pattern of scoring while few items followed the reverse scoring.

The Internet Anxiety Scale

The present study used the Internet Anxiety Scale developed by Spielberger, Vagg, Barker, Donham, & Westberry (1980). The Internet Anxiety Scale consists of 20 items. The participants were asked to report how they feel about each statement of the inventory on a 4- point scale; not at all (1), somewhat (2), moderate (3), and very much so (4). Out of the 20 items, few items followed the regular pattern of scoring while few items followed the reverse scoring.

The Direct RT Software

The present study uses the Direct RT Software (Direct RT Research Software, Version 2008) to design a program wherein blocks of 16 easy questions, and 16 difficult questions were made, where each question was presented for 6 seconds each. The software was used to design another program to present the modified stroop task to the participants, aimed at studying the priming effect. The modified stroop consisted of 8 internet related words (e.g., Google, Yahoo, screen, browser, modem, keys, internet, computer), and 16 non internet related words (e.g., Target, Nike, Coca Cola, Yoplait, table, telephone, book, piano, pencil, hammer. nails, chair, paper, eraser, laser, television) to be presented in either Blue or Red inks. The words were presented on the screen until the participant pressed the right key (which is the participants were instructed to press the Enter key for words presented in blue ink and press the Space key for words presented in Red ink.) This is how the reaction time of the participants for each word (both internet related and unrelated words) were recorded.

Results

The aim of the present study is to test whether internet self efficacy, internet attitude and internet anxiety are associated with priming of individuals to think of internet/search engines when faced with a gap in their knowledge. The participants belonged to the age group 18 to 24 years. The data collected was subjected to analysis, the mean, SD and median scores of the participants on each of the variables studied, are given in Table 1.

Table 1: Descriptive statistics of the participants on each of the variables of study

	Mean ± SD	Median
Internet Self Efficacy	79.67 ± 19.06	89
Internet Anxiety	37.8 ± 13.34	33
Internet Attitude	64.57 ± 24.53	79

Further, on the basis of the median calculated, the participants were categorized as having high or low internet self efficacy, internet anxiety, internet attitude. Table 2 shows the distribution of participants into low and high scorers on each of these variables of study.

Table 2: Frequency of high and low scorers on the aspect of Internet Self-efficacy, Internet attitude and Internet anxiety

Internet Self Efficacy (N=30)		Internet Attitude (N=30)		Internet Anxiety (N=30)	
High Scores	Low Scores	High Scores	Low Scores	High Scores	Low Scores
20	10	18	12	14	16

The above table presents the frequency of the participants scoring either high or low of the three variables, based on the median, where it was seen that most of them scored high internet self efficacy, internet attitude and low internet anxiety.

The participants were shown a set of 16 Easy Questions generated with the help of the direct RT software, to which they were to respond either ‘yes’ or ‘no’, the slides of which were presented one by one for 6 seconds. It was followed by a modified stroop task which contained 8 target words related to computers and search engines and 16 unrelated words. This way their reaction time was recorded for the stroop tasks, for the internet words as well as general words. The data collected was subjected to independent sample t test to study whether there was a significant difference between the reaction time of the high scorers and low scorers on internet self efficacy, internet attitude and internet anxiety on the 2 types of modified stroop test consisting of non-internet, and internet words. The results of the same have been given in Table 3.

Table 3: Results of the Independent Sample t-test conducted across the high scorers and low scores of each of the variables of study, from Condition 1 to 4 of the experiment.

		Mean ± SD	t-test	
			t-score	Significance (2 tailed)
Condition 1: Easy Questions followed by Non-Internet (general) Word Stroop test				
Internet Self Efficacy	High	469.83 ± 66.06	-1.037	0.31
	Low	499.87 ± 90.52		
Internet Attitude	High	461.84 ± 46.97	-1.66	0.11
	Low	506.85 ± 100.27		
Internet Anxiety	High	503.40 ± 92.63	1.66	0.11
	Low	459.23 ± 49.38		
Condition 2: Easy Questions followed by Internet Word Stroop test				
Internet Self Efficacy	High	517.72 ± 102.54	0.938	0.36
	Low	481.54 ± 92.95		
Internet Attitude	High	495.41 ± 71.77	-0.686	0.498
	Low	521.04 ± 132.79		
Internet Anxiety	High	495.75 ± 109.72	-0.505	0.62
	Low	514.33 ± 92.08		
Condition 3: Hard Questions followed by Non-Internet (General) Word Stroop test				
Internet Self Efficacy	High	467.02 ± 53.74	-0.185	0.86
	Low	471.01 ± 60.05		
Internet Attitude	High	464.36 ± 57.61	-0.48	0.63
	Low	474.33 ± 52.48		
Internet Anxiety	High	477.90 ± 49.29	0.888	0.38
	Low	459.99 ± 59.70		
Condition 4: Hard Questions followed by Internet Word Stroop test				
Internet Self Efficacy	High	534.95 ± 91.65	2.417	0.02*
	Low	461.29 ± 39.21		
Internet Attitude	High	533.89 ± 89.35	1.941	0.06
	Low			

		475.14 ± 66.77		
Internet Anxiety	High	490.52 ± 62.53	-1.207	0.24
	Low	527.78 ± 99.47		

The results indicate that a significant difference was observed in the case of high and low scorers of internet self-efficacy in the condition 4, wherein the internet words modified stroop was conducted following the set of hard questions presented to the participants. The t value of 2.417 was observed to be significant at 0.05 level of significance, indicating a significant difference in the reaction time taken for answering the modified stroop task (internet word condition) between individuals with high and low self-efficacy, when present with hard questions, leading to a knowledge gap.

Thus it can be said that when the participants were faced with a gap in their knowledge, through the priming of the hard questions, they were more in search of the search engines, hence the mean of the reaction time, for high internet self-efficacy for hard-internet condition is the greatest at 534.95. This implies that when the participants were faced with a gap in their knowledge, they were slow to react to the internet related words, the internet words caused more interference in clicking the corresponding color key for the modified stroop task.

However, no other significant differences were observed in the reaction time of high scorers and low scorers of internet self-efficacy, internet attitude and internet anxiety, respectively, on the modified stroop task, consisting of either internet or non-internet (general) words presented following the set of easy as well as hard questions. Indicating that the reaction times on the modified stroop task (Non-internet/ general words) observed were irrespective of their high or low comfort with the internet, computers and technology, as studied through their being high or low on the aspect of internet self efficacy, internet attitude and internet anxiety. Implying that having a high or low internet attitude and anxiety does not incur any effect on the speed of response to non internet or internet related modified stroop tasks after both the easy and hard questions were shown to the participants.

Discussion

The aim of the present study was to test whether internet self efficacy, internet attitude and internet anxiety are associated with priming individuals to think of internet/search engines when faced with a gap in their knowledge. 30 individuals in the age group 18 to 24 years participated in the study. The participants were shown a set of 16 Easy Questions, to which they were to respond either ‘yes’ or ‘no’, it was followed by a modified stroop task, which contained 8 target words related to computers and search engines and 16 unrelated presented in random order in either red or blue ink, whereby they were instructed to press the enter key for words in blue ink and space key for word in red ink. Similarly they were presented another set of 16 difficult questions, followed by a modified stroop task. This way, the participant’s reaction time was recorded for both the stroop tasks, for the internet words as well as general words. The scoring was done quantitatively, for the three independent variables, namely internet self efficacy, internet attitude, and internet anxiety.

On the basis of the median calculated, the participants were

categorized as having high or low internet self efficacy, internet anxiety, internet attitude. Most participants were observed to be positively inclined towards using the internet and are likely to use them, often. Further it was also seen that the majority of those who have scored high in internet self efficacy have also scored high in internet attitude while low on internet anxiety.

The data collected was subjected to analysis, as per the experimental design, there were 4 conditions. Since the study followed a within subjects design, all participating individuals participated in all 4 of these conditions.

The results of the participants have been discussed condition wise here.

In the first condition that is, EASY-Non-Internet Word condition, wherein the participants were subjected to the modified stroop test consisting of non-internet or general words in different colors was followed by a set of 16 easy questions. Within this condition, no significant differences were found between the reaction time of individuals across the high and low internet self-efficacy groups. Indicating the amount of internet self efficacy that individuals had did not have an impact on their performance on the modified stroop task with non-internet or general words. Similar results were also observed for Internet attitude and internal anxiety, wherein, no significant differences were observed in the observed reaction time of modified stroop task with non-internet or general words. Implying that the amount of internet attitude or internet anxiety had no impact on the performance on the modified stroop task, consisting of non-internet/general words. The observed result could be understood in light of the fact since the condition utilized easy questions, the answer of which were known to all participants, there's a sense of mental completion and satisfaction for the participating individuals as they were able to seamlessly answer the easy questions, without any difficulty within the stipulated time. Implying that they were able to approach the modified stroop task, following a sense of completion, which may have limited their cognitive load.

The second condition, namely the 'EASY- Internet related word condition' wherein the participants were subjected to the modified stroop test consisting of internet related words like Google, Yahoo, screen, browser, modem, keys, internet, and computer, in different colors was followed by a set of 16 easy questions. Within this condition, no significant differences were found between the reaction time of individuals across the high and low internet self-efficacy , internet attitude and internet anxiety groups. Indicating the amount of internet self efficacy, internet attitude and internet anxiety which the individuals had did not have an impact on their performance on the modified stroop task with internet related words. Yet again, the easy question ensure that most participants are able to answer the questions shown without much difficulty such that they approach the lined up modified stroop task, without any cognitive load or residual thought.

The third condition, namely the 'Hard- non-Internet/ general word condition' wherein the participants were subjected to the modified stroop test consisting of non- internet related words in different colors was followed by a set of 16 hard questions. Within this condition, no significant differences were found between the reaction time of individuals across the high and low internet self-efficacy ,

internet attitude and internet anxiety groups. Indicating that the amount of internet self efficacy, internet attitude and internet anxiety which an individual possessed did not have an impact on their performance on the modified stroop task with non-internet related words. Since this condition imposed hard questions, there was a high likelihood that participating individuals were unable to answer these questions, due to their high difficulty index, and the persistent knowledge gap. However, the lack of significant difference in the reaction time to the modified stroop test with non-internet related or general words indicates that participants irrespective of their comfort with technology and internet took, about the same time to respond to the stroop task. It is notable that the use of general words like Target, Nike, Coca Cola, Yoplait, table, telephone, book, piano, pencil, hammer. nails, chair, paper, eraser, laser, television, did not have a potent relationship with the process of closing up the knowledge gap that the participants may have experienced in the hard questions condition. Since the words were generic, the participants may have taken up the following task of the modified stroop task, without any/much interference from the persisting knowledge gap or the lack of comfort resulting due to inability to answer the difficult or hard questions, as in the Zeigarnik effect (Zeigarnik, 1927).

The fourth and the final condition, namely the 'Hard- Internet word condition' wherein the participants were subjected to the modified stroop test consisting of internet related words in different colors was followed by a set of 16 hard questions. Within this condition, there was a significant difference observed between the reaction time of individuals with high and low internet self efficacy as they participated in the modified stroop test containing internet related words, after being subjected to a series of hard questions, which caused a knowledge gap. It was observed that within this condition when participants were faced with a series of questions to which they do not know the answers, the participants with high internet self efficacy were slow in reacting to the internet related words, within the modified stroop task. The increase in reaction time to respond to the modified stroop task in this condition can be understood as the resultant of the knowledge gap that individuals experienced, which interfered with the visual stimuli of the modified stroop task, in the case of internet-related words. This increased reaction time observed within the hard questions-internet related words condition could be a result of the interference that is experienced by the individual when they are faced with internet related words within the modified stroop task. Individuals use the internet for 2 major reasons, communication and searching information (Castells, 2007), which makes it likely that individuals are prone to think about the internet and search engine related words, whenever they face a knowledge gap. This implies that when the participants were faced with a gap in their knowledge, they were slow to react to the internet related words, the internet words caused more interference in clicking the corresponding color key for the modified stroop task. Moreover, the difference in self efficacy having this impact on the reaction time, can also be supported through another research which has found that individuals with higher levels of Internet self-efficacy will be more readily using the internet to explore, take chances, and using fast developing Internet applications (e.g., search engines like yahoo, google, blogs) as compared to low internet self efficacy (Bandura, 1982). Thus

individuals with higher self efficacy are likely to experience greater interference when witnessing internet related words in the modified stroop task, as compared to those with lesser inter self efficacy.

It is notable that in the fourth condition, no significant differences were observed between individuals with high and low internet anxiety and internet attitude, in the reaction time for the modified stroop test with internet related words.

Though there have not been any significant differences found between internet anxiety and internet attitude in any of the four conditions. There still exists some relation between internet self efficacy and internet attitude and internet anxiety, since most of the thirty participants scored better for all three variables. Researches have also revealed that components as self efficacy and attitudes towards computer usage are causes that are found to be influencing the computer anxiety (Ayersman & Reed, 1995; Reed, Ayersman, & Liu, 1996).

Implications

The results of the present study have implications for the procedure of teaching and learning which have transformed with the unification of wide range of instructional, technological and pedagogical developments (Bonk & King, 1998; Marina, 2001). A survey conducted by first-year students by Sax, Astin, Korn, Mahoney (1998) and Sax shows that the usage of computer network has become a mode of life for most of the students. However, such promotion should be proposed with caution, because when we integrate the internet into one's transactive memory system one may undergo few negative implications for how people remember and retain the information. These effects may cause hindrance with people's motivation and in the ability to form new memories and process the incoming data.

The people who depend on the internet feel that they know everything that the internet knows. As a consequence, they may fail to develop correct insight into what they do and do not know (Nelson & Narens, 1990). Offloading responsibility for information to the internet may also reduce future memory formation by preventing the creation of schema necessary for encoding new memories. Overconfidence in one's own knowledge, as a result of habitual internet use, may reduce motivation to seek out new information—and possibly even motivate people to avoid information. People often seek out knowledge in order to reduce unsurety (Alba & Hutchinson, 2000). Thus it can be seen that our human capacities are being affected, therefore alternative methods in teaching pedagogy can be implemented where the individuals will be encouraged to look out for the information rather than the source.

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