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Simulated Response Measure (Brain Response Time) in Relation to Certain Factors in Human Computer Interaction

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Abstract

Several thousand observations were collected and the response time for each answer was recorded. There were significant differences in response time across responses. It is suggested that choices made instinctively, that is, on the basis of an emotional response, require less response time than choices that require the use of cognitive reasoning.

In the modern world, as every work that is carried out by human being are proceeded with speedy manner, since the technologies are growing rapidly in every moment. In view of this growth, computer software and hardware technologies find vast improvement in computer professional environment. In this environment, Human Computer Interaction (HCI) has emerged as a design oriented field of research, directed at large towards innovation, design and construction of new kinds of information and interaction technologies. Computer system responds time and display rate are important determinants of user productivity, error rates, working style, and satisfaction. Satisfaction generally increases as the response time decreases, but there may be a danger from stress induced by a rapid pace. As users pick up the pace of the system, they may make more errors, if these errors are detected and corrected easily, then productivity will generally increase. If errors are hard to detect or are excessively costly, then a moderate pace may be most beneficial. Usage levels that increase the way of perception must be clear.

In this case, we propose a model to simulate an analysis of interaction between cognitive response to the brain under different age, Games, genders, education

levels, the few cognitive factors are considered in which it reflects to vibrate the brain signals which may affect the response on proceeding with work. They are development of sensation and perception, memory utilization and changes, thinking, problem solving ability, attention, interest, attitudes, aptitudes, emotions. Hence we believe that, this proposed model may help to improve the ability of human being with the ability of computer technologies.

Keywords: Response time, Age, gender, education level, intelligence, HCI.

I. INTRODUCTION

The world we live in has become suffused with computer technologies. They have created change and continue to create change. It is not only on our desktops and in our hands that this is manifest; it is in virtually all aspects of our lives, in our communities, and in the wider society of which we are a part. Digital technologies will continue to proliferate, enabling ever more ways of changing how we live. But will such developments improve the quality of life, empower us, and make us feel safer, happier and more connected. Or will living with technology make it more tiresome, frustrating, angst ridden, and security-driven. People use technology to pursue healthier and more enjoyable lifestyles, expand their creative skills with digital tools, and instantly gain access to information never before available. On the other, governments become more reliant on computers to control society, criminals become more cunning via digital means, and people worry more about what information is stored about them. Outlines specific suggestions for HCI in terms of how the field needs to change. For those who are new to the field of HCI, time is precious. When externally imposed delays impede progress on a task, many people become frustrated, annoyed, and eventually angry. Length or unexpected system response times and slow display rates produce these reactions in computer user, leading to frequent errors and low satisfaction. Some users accept the situation with shrug of their shoulders, but most users prefer work more quickly than the computer allows.

The computer system's response time is the number of seconds it take from the moment users initiate on activity (usually by pressing an ENTER key or mouse button) until the computer begins to present results on the display or printer. When the response time is completely displayed, users begin formulating the next action. User think time is the number of seconds during which user's think before entering next action. In this simple model, user's initiate, wait for the computer to respond, watch while the results appear, think for a while, and initiate again.

II. LITERATURE REVIEW

A) Impact of Cognitive science:

It is the interdisciplinary study of how information is represented and transformed in the brain. It consists of multiple research disciplines, including psychology, artificial intelligence, philosophy, neuroscience, learning sciences, linguistics, anthropology,

sociology, and education. The earliest entries for the word "*cognitive*" in the OED take it to mean roughly *pertaining "to the action or process of knowing"*. The first entry, from 1586, shows the word was at one time used in the context of discussions of Platonic theories of knowledge. Most in cognitive science, however, presumably do not believe their field is the study of anything as certain as the knowledge sought by Plato.[2]

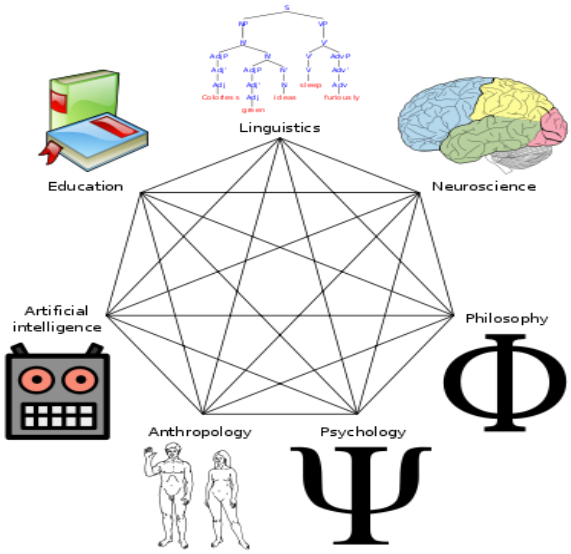


Figure 1. Impact of Cognitive Science

B) Notion of HCI

The user interface is the part of a computer and its software that people can see, hear, touch, talk to, or otherwise understand or direct. The user interface has essentially two components: Input and Output. Input is how a person communicates his or her needs or desires to the computer. Some common input components are the keyboard, mouse, trackball, ones finger (for touch sensitive screens), and ones voice (for spoken instructions). Output is how the computer conveys the results of its computations and requirements to the user [1] these show that how far user has given importance in interacting with high end computer system and various applications level. It initiates the cognitive approach of human mind.

C) Approach of Cognitive model

Attention is the result of cognitive processes that guide the user's focus in a controlled fashion. One cognitive model of attention, the spotlight model, uses an analogy of a beam of light to represent attention. The illumination of the center of the beam is strongest and represents the focus of attention. The spotlight weakens the farther it is from the center. Once an object has been processed, the intentional spotlight can be

shifted from one object to another. Eye movements can be viewed as an index of attention analogous to the spotlight metaphor and facilitate measuring intentional shifts from one location to another. Attention in the presence of eye movements has been labeled overt attention. There are also a number of models of attention based on experiments that use stimuli presented at durations too brief for the execution of an eye movement. Experiments of this sort have identified several important results that together are labeled covert. Covert attention models describe a number of important phenomena, chief among these being the ability to direct attention to different locations in space in the absence of eye movements [7]. This ability would seem to be at odds with the overt attention models that require eye movements in order to focus attention.

The current view, known as the pre-motor theory, reconciles this discrepancy by asserting that both types of attention are controlled by similar mechanisms and that covert attention would normally direct saccadic eye movements to appropriate objects except when task limitations prevent doing so. Support for this view comes from experiments indicating that target detection/discrimination is best when target location coincides with the location of saccades.

These and similar results have led Kramer and McCarley (2003) to conclude that covert attention and spotlight attention are tightly coupled.

There are a number of physical features in the visual world that draw a user's attention. Say for an instance, to draw attention in Web pages, the following phenomenon are consider, these include motion, size, color, text-style, the presence of images, and the position of components on the Web page. Motion is one of the most frequently discussed of these qualities, because the visual system is so highly sensitive to motion as evidenced by velocity detection thresholds as small as 1 to 2 minutes of arc/sec. Motion has also been shown to attract attention away from other stimuli[3]. Like motion, size is also a powerful attractor of. Large images are often fixated before and for longer durations than small ones. Similarly, when given a choice, participants read large text in advertisements before small text. Images (defined here as non textual characters such as icons, photographs, and graphics) have also been found to capture attention. In fact, some studies have indicated that they actually help guide a reader's attention in examining newsprint. Other studies have shown that the presence of an image can make a warning stand out from its surrounding text [4].

Human factors psychologists have long been aware of are the primacy of color in the design of signs and displays. Color "pop-out," where colored objects stand out in an array of non target items is a well known phenomenon [11]. This phenomenon is used in numerous situations where high attention and delectability are desired, for example, the design of warning labels [1].and highway signs [9].

Publishers frequently use text style as a means of capturing attention in printed material by bolding, underlining, or italicizing key words to make them stand out from words in plain text. Similarly, graphic designers know that the saliency of different positions can convey importance. For example, in Western culture the top

left corner of a display is typically looked at first and elements within this area are perceived as more important than those in other areas; whereas the top right corner plays a similar role in Eastern culture [6]

D) Responses to poor design

1 Psychological Factor

Typical psychological responses to poor design are:

a) Confusion

b) Annoyance

c) Frustration

d) Panic or Stress

e) Boredom

These psychological responses diminish user effectiveness because they are severe blocks to concentration. Thoughts irrelevant to the task at hand are forced to the users attention, and necessary concentration is Impossible. The result, in addition to higher error rates, is poor performance, anxiety, and dissatisfaction [12]

2 Physical Factor

Psychological responses frequently lead to, or are accompanied by, the following physical reactions.

a) Abandonment of the system

b) Partial use of the system

c) Indirect use of the system

d) Modification of the task

e) Compensatory activity

f) Misuse of the system

g) Direct programming

These physical responses also greatly diminish user efficiency and effectiveness. They force the user to relay upon other information sources, to fail to use systems complete capabilities, or to perform time consuming "work -around" actions.

E) Response time Approaches

System responsiveness should match the speed and flow of a human thought processes. If continuity of thinking is required and information must be remembered throug**h**out several responses, response time should be less than one or two seconds. If human task closures exist, high levels of concentration are not necessary, and

moderate short term memory requirements are imposed; response times of 2 to 4 seconds are acceptable. If major task closures exist, minimal short term memory requirements are imposed; responses within 4 to 15 seconds are acceptable. When the user is free to do other things and return when convenient, response time can be greater than 15 seconds.

Constant delays are preferable to variable delays.

The optimum response time is dependent upon the task: There is an optimum work pace that depends on the task being performed. Longer or shorter response times then the optimum lead to more errors. In general, response times should be geared to the users shorter memory load and to the way him or her Gamed the activities being performed. Intense shorter memory loads necessitate short response times. While completing chunks of work at task closures, users can withstand longer response delays. The human now, are psychological present, is under 2 to 3 seconds. This is way continuity of thinking requires a response time within this limit. Research indicate that for many creative tasks, response times under 1 second, in the range of four –tenths to nine-tenths of a second, can yield dramatic increases in productivity, even greater in proportion to the decrease in response time. The probable reason is the elimination of restrictions caused by short term memory limitations. For data entry tasks, research has found no advantages for having response times less than 1 second.

a) Satisfaction with response time is a function of expectations.
b) Dissatisfaction with response time is a function of one's uncertainty about delay.
c) People will change work habit to confirm to response time.
d) Constant delays are preferable to variable delays.
e) More experienced people prefer shorter response times.

People work faster as they gain experience, a fact that leads shneiderman(1987) to conclude that it may be useful to let people set their own pace of interaction. He also suggests that in the absence of cost or technical feasibility constraints, people will eventually force response time to well under 1 second. In general the longer people interact with a system, the less delay they will tolerate [12].

III. PROPOSED FRAMEWORK PERSPECTIVE ANALYSIS:

From the literature study, it was discussed that, how the cognitive process are instigate to different perspective. Basically the human minds might work based on self concentration, self interest, self attention, self thinking, self initiation and so on. But these factors can be relates with age, gender, education level, intelligence and time constraints of human and utilization.

Based on various age, gender, education level, intelligence factors, the work progress

of human mind (BRT) may vary with response to above mentioned factor. Now-a-days, the high response systems and various application developments existing in the present market may gives exposures to utilize it, in which it makes the human mind of different age, gender, education level, intelligence people feel easy or complex that rely on above factors.

Since from age 5 to old age, the people are using the computer for different purposes in order to serve their needs. But the cognitive thought process may vary on par with the purpose they use different configured system. In these circumstances the following comparatives are made with the development of sensation and perception, memory utilization and changes, thinking, problem solving ability, attention, interest, attitudes, aptitudes, emotions. These factors may applied on different application development and usage of application which directly proportional to the mind growth and development of physical factor of various age, gender, education level, intelligence Game.

A) Participants

To examine the advantages and disadvantages of different size of components forms design in A to P English words. Form1 font size 8, Form2 font size 16, Form3 font size 24, Form4 font size 32, Form5 font size 40 size design was chosen in order to assess effects of the response time to separately each users(Command button vs. Command button between-subjects) (see all the screen), the factor response format was divided into five conditions. 192 persons participated in the experiment. The sample consisted of 96 males (*M* = 194.180 years, *SD* = 21.836) and 96 females (*207.150* years, *SD* = 26.303). The mean of the age distribution was 20-60 years of age and four education level users are participated (primary, secondary, college, professionals with a standard deviation of 10 years the focus thereby was rather on the analysis of differences between response formats than representativeness.

Table 1. Distribution of sample of users selected for the pilot study

Rural		**Urban**		**Total**
Men's	Women's	Men's	Women's	
48	**48**	**48**	**48**	**192**

The below step wise multiple regression analysis equation shows relation between different Score Games(score game1, score game2, score game3, score game4, score game5, and total Game) and variable comparative of responses of Intelligence, different age, different genders, different education levels.

B) Expected approach of RPM Test

Intelligence towards Response Time results from many specific issues related to Response Time like the substantiate that slow system response time leads to dissatisfaction; assess the point at which users may become dissatisfied with system response time; determine a threshold at which dissatisfaction may lead to discontinued use of the application, and determine if experience influences response time tolerance etc.

Bearing the above important dimensions which may contribute to the positive or negative reactions of the users towards the Response Time, as a first step in the development of the response time Productivity, a number of statements of opinions of users about the Response Time were collected from a number of sources as follows:

a) Experiment design: Each subject used the same static application test except for the varied marks obtained. Refer to below diagram of the experiment.

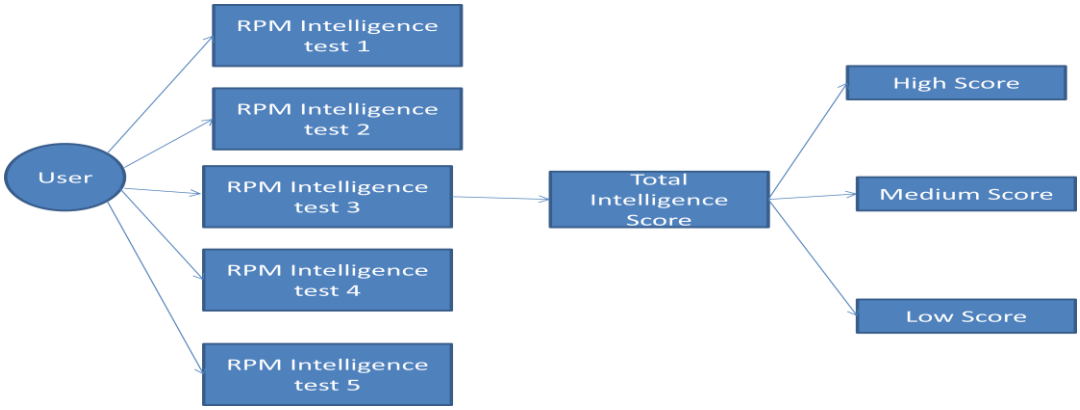


Figure 2. Experiment Design for Intelligence test (RPM test)

The experiment was a "between-subjects" design in that each subject of each Game was used only once during the experiment (Goodwin, 1995). For example, Game 2 was exposed to a three-second response time rate, and Game 2 was not used again in the experiment. This helped to control for learning bias within subjects. The application used in the experiment was a system designed and constructed exclusively for response time determination. The application required the subject to search for brain response time that would meet a given set of criteria: gender, age, education levels, game response time etc. The application is consistent with other internet browser-based systems. The criteria used to develop the application were based on the need to have a computer-human interface that was acceptable (or neutral) to virtually any user.

The RPM test design are a static pages. The user simply read the directions and gives the tick marks. The selection device was a manually by pen. The preliminary Main Menu is shown in above Figure. The user instructions and "keyword" scripts for the system are available upon request to the authors.

1. Hypothesis: There is no significant difference between intelligence and in their game response time for different Games score.

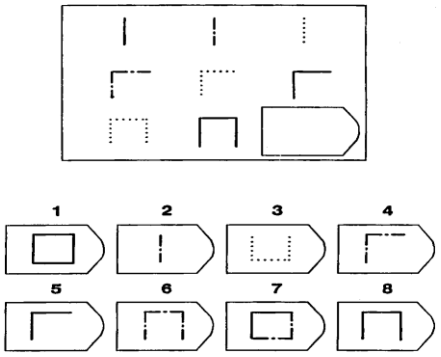


Figure 3. Illustrative Progressive Matrices item. Respondents are asked to identify the piece required to complete the design from the options below. (The item shown here is not from the current range of tests.)

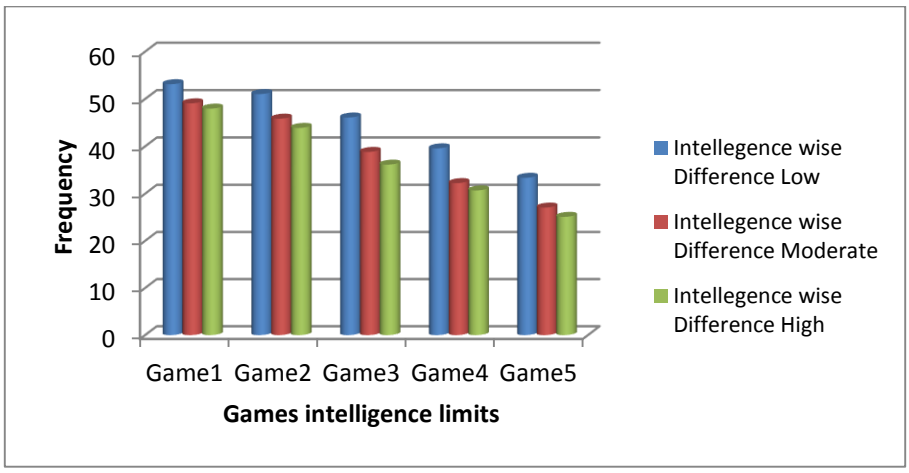
Table 2. Summary of ANOVA for the Intelligence Concerns about the Inclusion of subjects with Game response time and Intelligence wise difference.

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Game 1	Between Games	912.750	2	456.375	18.872	0.000
	Within Games	4570.453	189	24.182		
	Total	5483.203	191			
Game 2	Between Games	1669.057	2	834.528	52.067	0.000
	Within Games	3029.313	189	16.028		
	Total	4698.370	191			
Game 3	Between Games	3240.338	2	1620.169	94.411	0.000
	Within Games	3243.407	189	17.161		
	Total	6483.745	191			
Game 4	Between Games	2816.665	2	1408.332	70.109	0.000
	Within Games	3796.580	189	20.088		
	Total	6613.245	191			
Game 5	Between Games	2303.860	2	1151.930	61.775	0.000
	Within Games	3524.343	189	18.647		
	Total	5828.203	191			
Total	Between Games	52380.285	2	26190.143	74.193	0.000
	Within Games	66716.709	189	352.998		
	Total	119096.995	191			

(@ Not Significant at 0.05 level)

G1,G2,G3,G4,G5,total score it is clearly observed from the table that the calculated 'F' values is less than the table value at 0.05 level for 2 & 189 df. It is not significant at 0.05 levels.

Hence the null hypothesis the accepted. It is concluded that there is no significant difference between intelligence and in their game response time for Game1, Game2, Game3, Game4, Game5, and total score.



Intelligence wise differences

Figure 4. Mean Concerns three categories of Intelligence wise differences

C) Performance Game Approach:

1 Variables studied

The variables considered in the present study are as follows:

a) Dependent variable: The dependent variable is the study are 1) Response time of the user.

b) Independent variables: The independent variables which are considered is the study are as follows, Sex, Age, Qualification, Intelligence

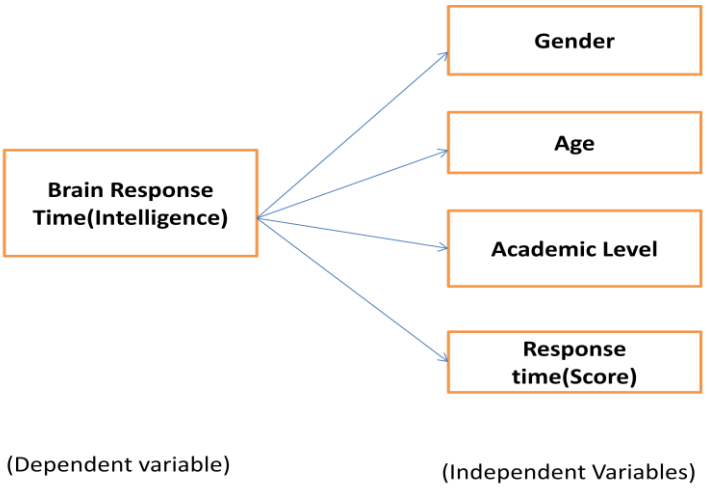


Figure 5. Research model for variables.

D) About IQ

What is intelligence? The definition I like is that intelligence is the ability to learn or understand or to deal with new or trying situations ... also: the skilled use of reason [9] I have heard some people misuse the word smart to mean knowledgeable. That is like confusing velocity with distance. That one can lead to the other does not mean that they are the same thing.

I.Q. = Intelligence Quotient

Originally, "IQ" tests were created to be able to identify children who might need special education due to their retarded mental development [10]. Binet's test included varied questions and tasks. The tasks even included unwrapping a piece of candy and comparing the weights of different objects [7]. To relate the mental development of a child to the child's chronological age the IQ was invented. IQ = (MA/CA) * 100. The intelligence quotient was equal to 100 times the Mental Age divided by the Chronological Age. For example, if a certain child started reading, etc., at the age of 3 (CA) and average children start reading, etc., at the age of 6 (MA), the child would get an IQ score of 200. (Such a score is very, very rare). Since people wanted to also use IQs for adults, that formula was not very useful since raw scores start to level off around the age of 16 [2]. Thus the deviation IQ replaced the ratio IQ. It compares people of the same age or age category and assumes that IQ is normally distributed, that the average (mean) is 100 and that the standard deviation is something like 15 (IQ tests sometimes differ in their standard deviations).

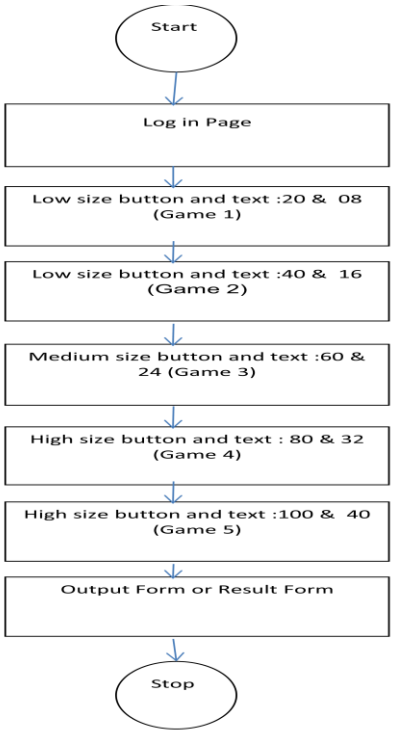


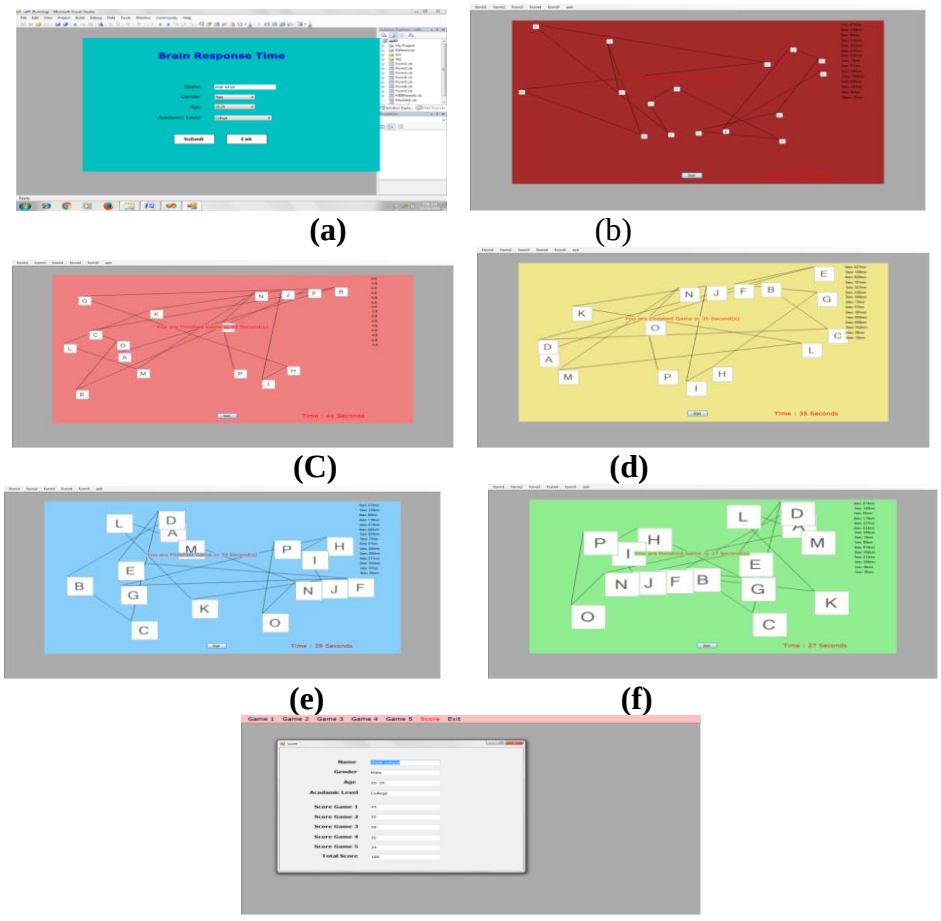
Figure 6. Flow chart Experiment setup for Game of five forms design

E) Sequence Screenshots

1. Graphical User Interface Components

The main objective of this thesis is to study the effect of different size of graphical user interface components on user responses. The following sections explain in detail the different size of components display and navigation components used in this study. Screen shots of some of the components are also included.

This section lists all the screenshots of the scenario described in the flow chart of Figure 6. Screen shots of the GRT (Game Response Time)



(a) Screen shot of the introductory page. Each subject was presented with this page at the start of the experiment
(b) Introductory and Home page. (c) Buttons font size of 8 with order link of A to P. (d) Buttons font size of 16 .(e) Buttons font size of 24. (f) Buttons font size of 32, (g) Buttons font size of 40 with order link of A to P and all single page submission with completion time with seconds. (h) Screen shot of output form,

Figure 7. Game Response time of Screen shots

2. Hypothesis: There is no significant difference between men and women in their game response time for Game Statistics score.

To test this hypothesis't' test is employed and the results are presented in below table

Table 3. Means, Standard Deviation and 't' value 'p' value for the Score Game1,2,3,4,5 Concerns about the Inclusion of gender(male, female) Impaired subjects in Game's statistics.

Game	Gen	N	Mean	Std. Deviation	Std. Error Mean	t-value	p value	sig
Game 1	M	96	49.240	5.399	0.551	2.358	0.019	*
	F	96	51.040	5.189	0.530			
Game 2	M	96	45.540	4.287	0.438	4.437	0.000	**
	F	96	48.570	5.142	0.525			
Game 3	M	96	39.670	5.526	0.564	2.087	0.038	*
	F	96	41.410	6.015	0.614			
Game 4	M	96	32.670	5.265	0.537	3.958	0.000	**
	F	96	35.910	6.049	0.617			
Game 5	M	96	27.060	4.775	0.487	4.121	0.000	**
	F	96	30.220	5.790	0.591			
Total	M	96	194.180	21.836	2.229	3.717	0.000	**
	F	96	207.150	26.303	2.685			

(@ Not Significant at 0.05 level)

Game1 the mean score of male is 49.24 and SD is 5.399. The mean score of female is 51.040 and SD is 5.189. The males are having fast response time then females. The calculated't' value is 2.358. Game2 the mean score Game2 of male is 45.540 and SD is 4.287. The mean score of female is 48.570 and SD is 5.142. The males are having fast response time then females. The calculated't' value is 4.437. The mean score Game3 of male is 39.670 and SD is 5.526. The mean score of female is 41.410 and SD is 6.015. The males are having fast response time then females. The calculated't' value is 2.087. The mean score Game4 of male is 32.670 and SD is 5.265. The mean score of female is 35.910 and SD is 6.049. The males are having fast response time then females. The calculated't' value is 3.958. The mean score Game5 of male is 27.060 and SD is 4.775. The mean score of female is 30.220 and SD is 5.790. The males are having fast response time then females. The calculated't' value is 4.121. The mean score Game total of male is 194.180 and SD is 21.836. The mean score of female is 207.150 and SD is 26.303. The males are having fast response time then females. The calculated't' value is 3.717

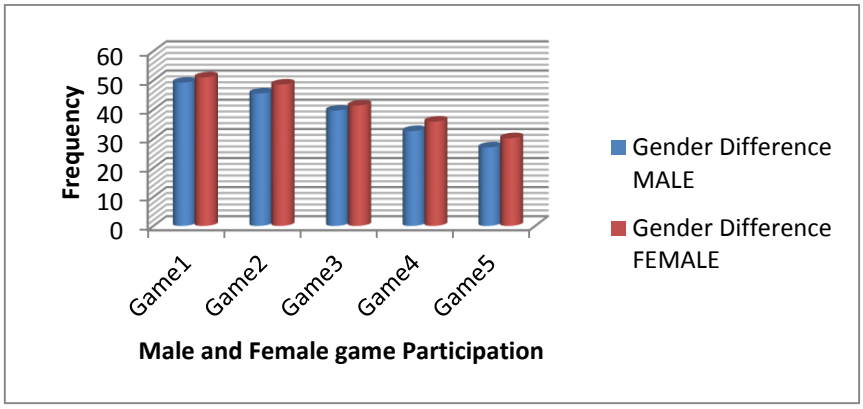


Figure 8. Mean Concerns two categories of Gender difference male female predicted all Games Descriptive values

3. Hypothesis: There is no significant difference between age and in their game response time for different Game score.

Table 4. Summary of ANOVA for the significant difference between age and in their game response time for different Game score

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Game 1	Between Game s	995.141	3	331.714	13.895	0.000
	Within Game s	4488.062	188	23.873		
	Total	5483.203	191			
Game 2	Between Game s	2644.224	3	881.408	80.668	0.000
	Within Game s	2054.146	188	10.926		
	Total	4698.370	191			
Game 3	Between Game s	4802.766	3	1600.922	179.046	0.000
	Within Game s	1680.979	188	8.941		
	Total	6483.745	191			
Game 4	Between Game s	3310.516	3	1103.505	62.814	0.000
	Within Game s	3302.729	188	17.568		
	Total	6613.245	191			

Game 5	Between Game s	3152.766	3	1050.922	73.847	0.000
	Within Game s	2675.438	188	14.231		
	Total	5828.203	191			
Total	Between Game s	70210.516	3	23403.505	90.002	0.000
	Within Game s	48886.479	188	260.034		
	Total	119096.995	191			

G1,G2,G3,G4,G5,total ANOVA score it is clearly observed from the table that the calculated 'F' value is less than the table value at 0.05 level for 3 & 188 df. It is not significant at 0.05 levels.

Hence the null hypothesis the accepted. It is concluded that there is no significant difference between age and in their game response time for G1,G2,G3,G4,G5,total score.

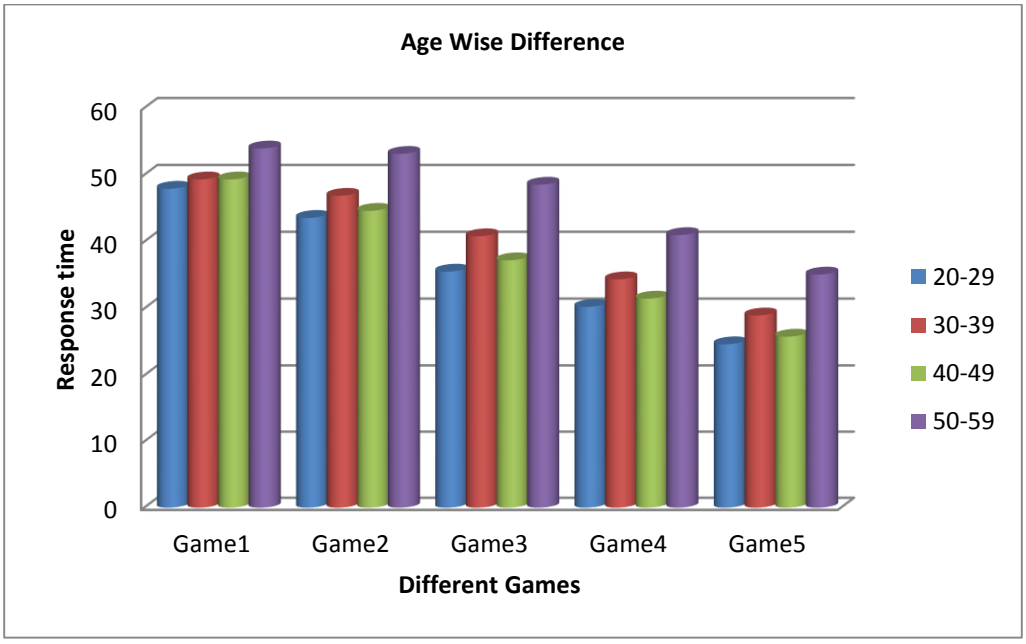


Figure 9. Mean Concerns of significant difference between age and in their game response time for different Game score

4. Hypothesis: There is no significant difference between educational level and in their game response time for Different Games score.

Table 5. Summary of ANOVA for the significant difference between educational level and in their game response time for Different Games score.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Score Game 1	Between Games	392.307	3	130.769	4.829	0.003
	Within Games	5090.896	188	27.079		
	Total	5483.203	191			
Score Game 2	Between Games	632.599	3	210.866	9.750	0.000
	Within Games	4065.771	188	21.626		
	Total	4698.370	191			
Score Game 3	Between Games	1744.432	3	581.477	23.066	0.000
	Within Games	4739.313	188	25.209		
	Total	6483.745	191			
Score Game 4	Between Games	1971.516	3	657.172	26.617	0.000
	Within Games	4641.729	188	24.690		
	Total	6613.245	191			
Score Game 5	Between Games	1445.891	3	481.964	20.676	0.000
	Within Games	4382.313	188	23.310		
	Total	5828.203	191			
Total Score	Between Games	27377.849	3	9125.950	18.706	0.000
	Within Games	91719.146	188	487.868		
	Total	119096.995	191			

G1, G2, G3, G4, G5, total **ANOVA** score it is clearly observed from the table that the calculated 'F' value is less than the table value at 0.05 level for 3 & 188 df. It is not significant at 0.05 level.

Hence the null hypothesis the accepted. It is concluded that there is no significant difference between age and in their game response time for G1, G2, G3, G4, G5, total score.

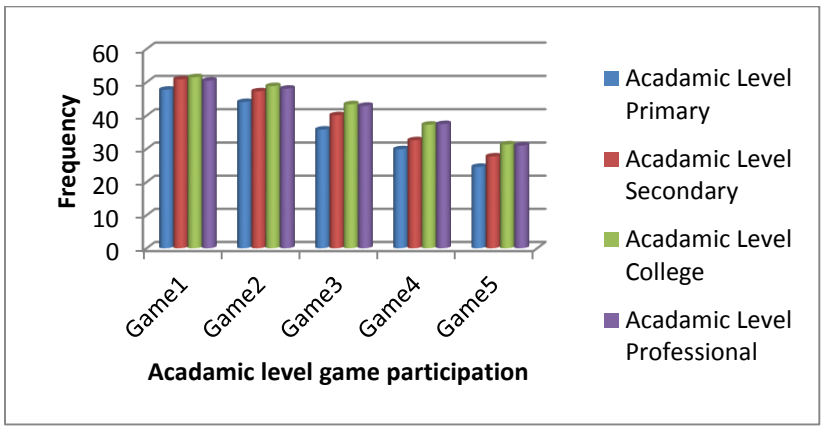


Figure 10. Mean Concerns of significant difference between educational level and in their game response time for Different Games score.

F) Descriptive Table of all Games

Table 6. Summary of ANOVA for the Predicted all G1, G2, G3, G4, G5, total Games Descriptive values.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Games	60387.433	4	15096.858	495.332	0.000
Within Games	29106.766	955	30.478		
Total	89494.199	959			

(@ Not Significant at 0.05 level)

It is clearly evident from the above table the mean score of Game1 is 50.140 and SD is 5.358. The mean score of Game2 is 47.060 and SD is 4.960. The mean score of Game3 is 40.540and SD is 5.826. The mean score of Game4 is 34.290 and SD is 5.884. The mean score of Game5 is 28.640 and SD is 5.524. The mean score of Game total is 40.130 and SD is 9.660.

The Game5 are having fast response time then all next Game4 next Game3 next Game2 and finally Game1, because of size of components visibility background font size is the important determinants. We concluded that there exists a significant difference between different Games in their game response time.

It is clearly observed from the table that the calculated 'F' value is less than the table value at 0.05 levels for 4 & 995 df. It is not significant at 0.05 levels. Hence the null hypothesis accepted. It is concluded that there is no significant difference between Games and in their game response time.

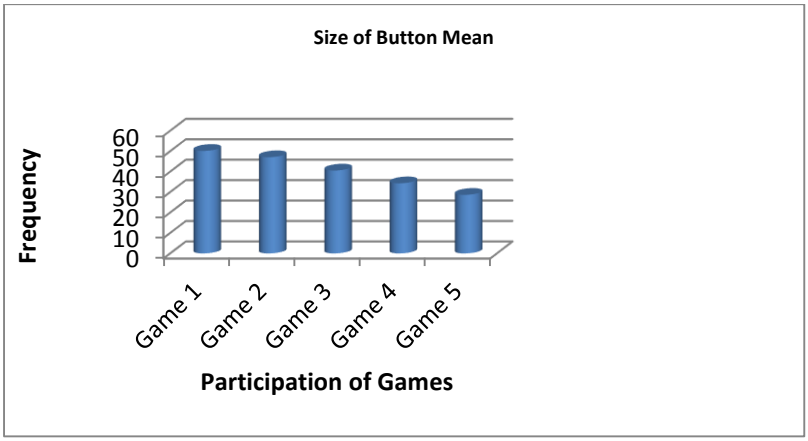


Figure 11. Mean Concerns three categories of Predicted all Games Descriptive values

IV. RESULTS

Table 7. Final Hypothesis Description Results

Hypothesis	Description	Results
H1	Intelligence(RPM) :satisfaction decrease as response time increase	Significant
H2	Gender (GRT): disappointment leads to discontinue use, Male give better performance than Females, Experience play vital role..	Significant
H3	Age (GRT):ease of use decreases as satisfaction decreases, younger's give good response then elders. Usability gives better results.	Significant
H4	Education (GRT): experienced users more tolerant of slower response times, Professionals give better response time, characteristics (size, visibility) is importance.	Significant

Game response Time(GRT),Raven Progressive Matrices(RPM)

A. REGRESSION ANALYSIS OF Game1, Game2, Game3, Game4, Game5, Total

The predicted values of Work Intelligence (RPM), Age (GRT), Education (GRT), Gender (GRT), from the above regression equation as follows, considering R-Square % of the creation of variable, Dependent variable measured outcome = Coefficient constant test can be account for by model.

Table 8. Dependent Variables: Game1, Game2, Game3, Game4, Game5, Total, Independent Variables: Intelligence, Gender, Education, Age

variables	Game1	Game2	Game3	Game4	Game5	Total
Intelligence (RPM)	r^2 22.7% β -0.762	r^2 45.3% β -0.514	r^2 56.2% β -0.624	r^2 41.2% β -0.453	r^2 44.5% β -0.489	r^2 50.3% β – 2.521
Gender (GRT)		r^2 52.1% β 2.592	r^2 58.4% β 1.207	r^2 46.6% β 2.853	r^2 50.3% β 2.739	r^2 54.9% β 10.815
Education (GRT)			r^2 57.4% β .677	r^2 52.2% β 1.441	r^2 52.7% β 0.884	r^2 55.8% β 2.504
Age (GRT)	r^2 25.6% β -2.173					

R-Square variance was accounted for Dependent and Independent Variables r^2

Predicted Score for Coefficients variables β

The below regression equation shows relation between dependent variables Game1,Game2,Game3, Game4, Game5, Total and Independent variables, Intelligence, Gender, Education, Age. It Compensation Simulated response measure (Brain response time) in relation to certain factors in human computer interaction and usability Benefits, response time important across different responses.

According to the perceptions of the 192 users there is a strong relationship Between Intelligence (RPM), Age (GRT), Education (GRT), Gender (GRT) is to improve Response time is important across different responses. Response time is not same for different users; depend on age, gender, educational level change the response time.

Response time is are important determinants of user productivity, error rates, working style and user satisfaction

V. SUMMARY

The two experiments presented here show that, response time, there is considerably less difference between RPM and GRT subjects in processing speed than has been supposed in prior research. The main reason RPM subjects are slower than GRT and have wider distributions of response times across conditions is that the RPM subjects set more conservative response criteria than GRT subjects, and RPM subjects have longer non decisional components of response time than GRT subjects. Of course, it is likely that in other rapid. Two choice decision tasks, there is degradation in the quality of the information that enters the decision process for RPM versus GRT subjects. For example, there might be decrements in extraction of perceptual information from difficult to see low usability low size of components stimuli or decrements in information extracted from long term memory, short term memory

along with these decrements, however, our data suggest that much of the slow down observed in response time for RPM subjects will come from conservative response criteria.

VI. CONCLUSION

Response time is the one of the vital role factor in which human mindset with different Game response intelligence, education, gender, age factors in Human Computer Interaction. As the development of the User Interface are rapidly changing from the invention of computer to till today, likewise the similar age, gender, education, intelligence of people are put up in different user interface environment and intelligence have to enhance the working ability as per the dynamic changes. Since, once the people stick on to different user interface as to understand the nature of the user interface and make faster response time.

Because the response time initiate the user interface application and make further success in developing effective user interface hence psychological issues of Expected study on intelligence and Performance study on GRT different Simulated response measure in relation to certain factors in human computer interaction.

Measurable things but not exact because of various factors involves in cognitive measurement. From the perspective of physical growth, few may be weak but they excel with high talent in utilizing higher end system and software. Hence it is concluded that the cognitive factors may coincide with usage of different configured systems which can be measured and varies with person to person.

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