Application for Evaluation of Nervous System Recognizes and Commands

Natthawat Yimpray, Worawat Sa-Ngiamvibool

Abstract: This research article is presented the designing process of new application development on smart phone with android-based operating system for the process of evaluating responsiveness and command parts of human's nervous system. The purposes of the research were ; (1) For studying development and design applications. Evaluating the nervous system recognize and command. (2) Comparing for the assessment of nervous system between men and women before and after Alcohol with application for evaluating nervous system and commandment and (3) to study the cooperation between alcohol intake and nervous system perception and commandment with application for evaluating nervous system and commandment. The result of the research are: (1) Comparative assessment of perception and commandment of males and females before drinking alcohol. Males and females averaging were 22.70 and 25.18 millisecond, respectively, (2) Comparison of perceived and directed sensory evaluation of males and females after drinking. Males and females averaging were 32.22 and 35.11 milliseconds, respectively and (3) The cooperation between alcohol intake and time in the assessment of nervous system perception and commandment of 1-51 mg% 51-100 mg% 101-150 mg% and 151-200 mg% had an average alcohol content of 42.93 mg% 80.24 mg% 121.50 mg% and 164.82 mg% respectively. The average test time was 26.40 milliseconds 32.16 milliseconds 37.12 milliseconds and 40.98 milliseconds respectively.

Index Terms: Application; nervous system; recognizes and commands

I. INTRODUCTION

Responding to the stimulants surrounding us plays an important factor in human's everyday life activities. Some certain activities do rely on the process of visualization and giving response such as riding on a motorcycle where the commuters (riders) needs to have good frontal vision in order to control the vehicle. Whenever the traffic lights are on or the road signs are present, they do immediately affect the decision making process; same thing goes to the subsequent action of pressing brakes whenever the red lights are visible. The spontaneous reaction by commuters can reduce the amount of accidents taking place on the road [1].

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Physical fitness test is capable of determining the completion and capacity of our bodies' physical health [2] through measuring the reaction performed against the outside stimulants, the perception and awareness of outside stimulants made by our nervous system, and how well-functioned our nervous system gives direct command to other organs in response to the arousing factors. The measurement of reactions can be determined in the form of specific time result with the deployment of time measuring equipment whereas the person taking the test is the one pressing the start and stop button. The test can also be achieved by the standardized equipment through the same method of measuring time for giving back reaction [3].

From the past research, there has been a designation and invention of time measuring equipment/kit for testing the movement reaction as well as the equipment used for stimulating or expediting the reaction with high-definition results, including hearing and feeling. Having stated that, the time measuring machine for testing reaction is still highly costly in the market and is not suitable for portable quality [4]. Not long after, there has been a development of testing system for our physical reaction which is also in the portable and mobile form as we know well today as "smart phone". It relies on the receptors, acceleration, and sound in processing the final result. The problem found with a smart phone is the receptors using sound where it is highly sensitive and may result in the final result's error for there are a lot of outside disturbing noises in the ambience [5]. There was also the development of system which keeps recommendation for doing exercise through smart phone with android based operating system, which keeps advice and the team determine the final result how many values required. However the application of a smart phone is too complicated for the user to fill up the needed database. For the first time user of this my phone, they may find it too complicated to access the application for participating in exercise program [6].

In the present time, technology has been devil up so rapidly that smart phone is one of the equipment bitch is improved and enhanced with so many functions for doing a number of activities compared to the past. Smart phone can bring a lot of convenience to our everyday life in so many aspects such as communication or traveling to the destination by the use of application named Google maps. The popularity of smart phone therefore rises instantaneously across the big-city society in a very short span of time [7].

Retrieval Number: K20090981119/2019©BEIESP
DOI: 10.35940/ijitee.K2009.1081219
Journal Website: www.ijitee.org

2581

Published By:
Blue Eyes Intelligence Engineering
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Smart phone plays a substantially important role in living today's lives and a lot of developments by implying technology to smart phone can increase the capability and functionality of the phone. In some models, smart phones can be used with comparison to small computer which is portable (i.e. laptop) and providing so much convenience for the user. There has also been a development of functioning system which there are numerous patterns to choose from nowadays for users to make their own selection [6].

However, there is no presence of smart phone which is capable of measuring the reception and monitoring of the nervous system, especially prior to and after the consumption of alcohol.

This research article is thus presented in order to study the designing process of new application development on smart phone with android-based operating system for the process of evaluating responsiveness and command parts of human's nervous system. The comparison is drawn between reception and command parts as functioned by our nerve system. The same comparison is also made between samples groups of male and female, before and after the consumption of alcohol and the correlation between the amount of alcohol being consumed and the nervous system's effectiveness in terms of giving responsiveness and command through the application for the purpose of determining the nervous system's functionality but randomly showing visuals of green lights, yellow lights and brake lights in arbitrary order. For example, seeing red lights leads to the responsiveness, which is coupled with the order by the nervous system, results in pressing the on screen button to pause the smart phone's running time; the amount of time taken for the completion of the process to determine the effectiveness the recognition and commanding orders of each individual. This same approach can also be applied for the testing of readiness and the running of everyday-life activities of each individual such as riding my motorcycle, driving a car through different traffic lights on the road. In such instance, any delay in reaction to stimulants by the nervous system's responsiveness and commanding will ultimately affect the immediate stop of the car which, as a consequence, can result in accidents taking place to the commuters from riding such vehicle.

II. EXPERIMENTAL AND METHODOLOGY

Research boundaries;

1. Research demographic is the group of personnel working for the college of North Eastern technology, Udon Thani province.

2. Sampled groups for this research are the personnel working for the college of North Eastern technology, Udon Thani province, males and females, total of 80 people.

3. Variables used for this research are the period of time taken for the evaluation of the nervous system's responsiveness and command of each individual. The utilization of application in performing the evaluation test on smart phone with android operating system.

Apparatus used for this research

Device being employed for this research comprises the portable machine used for measuring the alcohol through human's breathing and smartphone, model A57, OPPO.

Data collection

Through the use of equipment for collecting the research database as well as the total time taken for completing the test, the time interval is measure before and after the consumption of alcohol of each person taking a test, done repeatedly over 5 times and finally finding the average value.

The analysis of information

The calculation of basic statistics, mean value, mean deviation, percentage and t-test.

III. EXPERIMENTAL RESULTS AND ANALYSIS

A. The comparative result of nervous system's response and commands

The comparative result of nervous system's response and commands between males and females, before and after consuming alcohol, through the application for processing the evaluation of nervous system's response and commands on smart phone with android operating system. The evaluation is being done on personnel working for North Eastern technology, Udon Thani province, aged between 20-59 years old, total of 80 people; male 40 peoples and female 40 peoples with the final analysis result shown in mean value and deviation value as provided here in Figure 1- 6 and time Table 1-2.

Fig. 1: Evaluation result of nervous system's response and commands between males and females before alcohol consumption
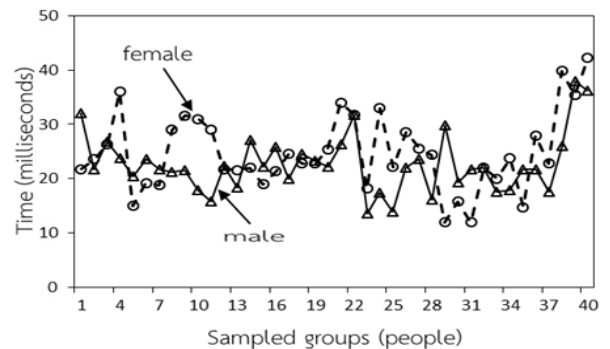

Fig. 2: Evaluation result of nervous system's response and commands between males and females before alcohol consumption

From Figure 2 the finding suggests that 40 males has the mean time taken for nervous system's response and commands before consumption of alcohol is equivalent to 22.7 milliseconds, the highest amount of time being 38 milliseconds and lowest equals 13.60 milliseconds.

At the same time, the finding suggests that 40 females has the mean time taken for nervous system's response and commands before consumption of alcohol is equivalent to 25.18 milliseconds, the highest amount of time being 49.60 milliseconds and lowest equals 12 milliseconds.

Table 1: Comparison and analysis result for nervous system's response and commands between males and females before alcohol consumption through the application for processing the evaluation on smart phone with android operating system

Test before alcohol consumption	N	X	S.D.	t	df	Sig
Males before consuming	40	22.70	5.40	-1.894	39	0.066
Females before consuming	40	25.18	8.05			

From Table 1 findings suggest that test result for nervous system's response and commands between males and females before alcohol consumption through the application for processing the evaluation on smart phone with android operating system are not different.

Fig. 3: Measurement of alcohol consumption from the alcohol measuring machine before and after consuming alcohol among males and females

Fig. 4: Testing of valuation for the nervous system's response and command system after the consumption of alcohol, males and females
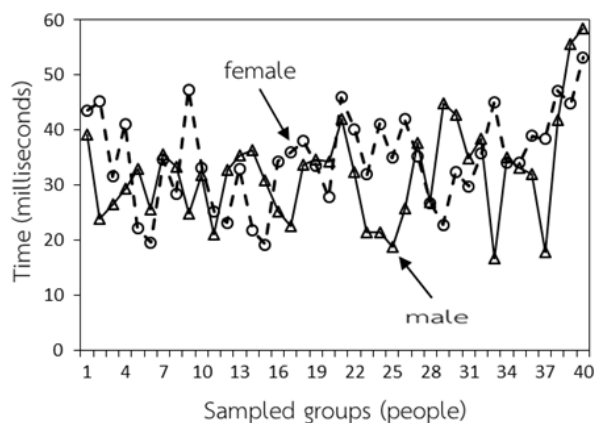

Fig. 5: Time consumed for the evaluation of nervous system's response and commands between males and females after alcohol consumption

From Figure 5 the finding suggests that 40 males has the mean time taken for nervous system's response and commands after consumption of alcohol is equivalent to 32.22 milliseconds, the highest amount of time being 58.4 milliseconds and lowest equals 16.80 milliseconds.

At the same time, the finding suggests that 40 females has the mean time taken for nervous system's response and commands after consumption of alcohol is equivalent to 35.11 milliseconds, the highest amount of time being 57.4 milliseconds and lowest equals 19.20 milliseconds.

Table 2: Comparison and analysis result for nervous system's response and commands between males and females after alcohol consumption through the application for processing the evaluation on smart phone with android operating system

Test after alcohol consumption	N	X	S.D.	t	df	Sig
Males after consuming	40	32.22	9.17	-1.540	39	0.132
Females after consuming	40	35.11	8.92			

From Table 2 findings suggest that test result for nervous system's response and commands between males and females after alcohol consumption through the application for processing the evaluation on smart phone with android operating system are not different.

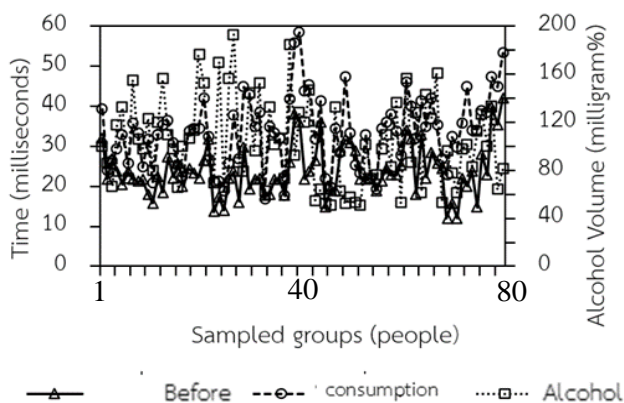| Variables	Alcohol Volume	Time taken for response after alcohol consumption
Alcohol Volume	1.000	0.316**
After consuming alcohol	0.316**	1.000

Fig. 6: Time consumed for the evaluation of nervous system's response and commands between males and females before and after alcohol consumption

From Figure 6 the finding suggests that, from the sampled group of 80 participants, the graph has the mean time taken for nervous system's response and commands before consumption of alcohol equal to 23.94 milliseconds, the highest amount of time being 49.60 milliseconds and lowest being 12 milliseconds. After consumption of alcohol, the mean time equals 33.66 milliseconds, the highest amount of time being 58.40 milliseconds and lowest is equal to 16.80 milliseconds.

The average value of alcohol consumption come by between males and females is equivalent to 102.49 mg%. The highest amount of alcohol consumption equals 193 mg%. The lowest amount of alcohol consumption is equal to 51 mg%.

B. The analysis result for the correlation

The analysis result for the correlation between the amounts of alcohol consumed and nervous system's response and commands, between males and females, before alcohol consumption through the application for processing the evaluation on smart phone with android operating system is drawn for conclusion. The evaluation is being done on personnel working for North Eastern technology, Udon Thani province, aged between 20-59 years old, total of 80 people; male 40 people and female 40 people with the analysis result of before and after consuming alcohol as determining factors through the Pearson Product Moment Correlation Method, with the value of coefficient of correlation presented in Table 3-4

Table 3: Coefficient of correlation between amounts of alcohol consumed and nervous system's response and commands, between males and females, before alcohol consumption through the application for processing the evaluation

Remark ** has significance in term of statistic at level of 0.01

Level of consumed alcohol(mg%)	Testing Time (Milliseconds)			
	Highest	Lowest	Mean	SD.
1-50	47.40	16.80	26.40	9.07
51-100	53.20	18.80	32.16	8.22
101-150	56.40	29.40	37.12	6.26
151-200	58.80	35.20	40.98	7.04

From Table 3 it can be concluded that the coefficient values between variables with significant statistic at level of 0.01 are level of consumed alcohol and time taken after the

consumption of alcohol. Findings suggest that the relation between the two variables is directly proportional, meaning that when the amount of consumed alcohol increases, so does the amount of time taken for the nervous system's response and command.

Table 4: Medium values of time taken for the nervous system's response and command for each level of alcohol being consumed

From medium value in Table 4 it can explained that for the time taken to complete test for the nervous system's response and command during alcohol range of 1-50 mg%, the mean testing time is 26.40 milliseconds, the highest time taken to complete the test is 47.40 milliseconds, the lowest time is 16.80 milliseconds with the standard deviation equal to 9.07. For alcohol range from 51-100 mg%, the mean testing time is 32.16 milliseconds, the highest time taken to complete the test is 53.20 milliseconds, the lowest time is 18.80 milliseconds with the standard deviation equal to 8.22. For alcohol range from 101-150 mg%, the mean testing time is 37.12 milliseconds, the highest time taken to complete the test is 56.40 milliseconds, the lowest time is 29.40 milliseconds with the standard deviation equal to 6.26 and For alcohol range from 151-200 mg%, the mean testing time is 40.98 milliseconds, the highest time taken to complete the test is 58.80 milliseconds, the lowest time is 35.20 milliseconds with the standard deviation equal to 7.04.

From the analysis and summarization of research results, the fighting can be concluded as follows;

Comparison test result for nervous system's response and commands between males and females before alcohol consumption through the application is found to be not different but average value of males and females' age has different time needed for response because age has the direct effect on a person's responding to press stop button. When eyes see the red light stopping, the action of stop button pushing follows. Familiarity and past experience in using smart phone also plays an important key in pushing stop button as well.

Comparison test result for nervous system's response and commands between males and females after alcohol consumption through the application is found to be not different. This shows that level of alcohol consumption has direct effect on nervous system's response and commands for pressing stop button. Once seeing the red lights become paused, the pushing of stop button takes place for both males and females.

Correlation between the amount of alcohol being consumed and the time taken for testers from means of evaluating the nervous system's reception and command of each individual between males and females after the consumption of alcohol through application; alcohol ranging interval 1-50 mg%, 51-100 mg%, 101-150 mg% and 151-200 mg%, suggests that when testers consume the amount of alcohol in the range of different intervals, they are affected in term of the ability for nervous system's response and command evaluation. The time taken to complete the test evaluation increases after the consumption of alcohol,

which is in accordance with [8] with the findings suggest that the amount alcohol in the blood of the victim from the accidents on the road mostly lies between 151 to 300 mg percent which is considered as being intoxicated in moderate level. This degree of alcohol deteriorates the reception nervous system, results in the non-corporation of muscle functionality, strutting in an improper fashion, swollen tongue, unclear vision and longer the amount of time taken to make a decision. Comparatively, the amount of alcohol in blood levels ranging from 50-150 mg percent is considered as slightly intoxicated, affecting the function of brain with control duties to be suppressed. Visualization and the corporation among body muscles also deteriorate.

IV. CONCLUSION

In the present time, technology has been devil up so rapidly that smart phone is one of the equipment bitch is improved and enhanced with so many functions for doing a number of activities compared to the past. Smart phone can bring a lot of convenience to our everyday life in so many aspects such as communication or traveling to the destination by the use of application named Google maps. But, there is no presence of smart phone which is capable of measuring the reception and monitoring of the nervous system, especially prior to and after the consumption of alcohol. This research article is thus presented the designing process of new application development on smart phone with android-based operating system for the process of evaluating responsiveness and command parts of human's nervous system.
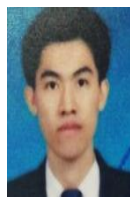
ACKNOWLEDGMENT

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Retrieval Number: K20090981119/2019©BEIESP
DOI: 10.35940/ijitee.K2009.1081219
Journal Website: www.ijitee.org

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