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To Compare the Impact of Attentional Focus Instructions in Gamers Compared to Non-Gamers

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ABSTRACT

Background and Purpose: The importance of paying attention has long been debated in the field of motor learning. Almost everything we do involves some level of awareness, whether it is done consciously or unconsciously. As a result, when we do actions, attention refers to what we are thinking (or not thinking) about or aware of (or not aware of). An investigation into how gamers' attentional focus differs from non-gamers was the primary goal.

Materials &Methods: Elbows will be slightly bent and pronated, forearms entirely relaxed, while supported by the arm of the chair. The assignment will be completed using a laptop/desktop keyboard situated at a distance of 60cm from the subject on a support put in front of them. Using a plastic cover, just five of the QWERTY keyboard's keys would be visible (F, T, Y, U, and K). Twenty keystrokes must be pressed by all five fingers of a dominant hand, in accordance with the following sequence: Thumb index middle finger Annular little Finger Thumb little Finger Index Annular Thumb Little Finger Little Finger Annular Thumb Thumb little Finger Little Finger Annular little Finger Thumb Each finger was linked with a key and the contact between finger and key must be maintained throughout the assignment. The successive execution of the finger movements would be guided by a metronome. The speed of execution would be determined by the metronome's frequency. The attention sf 36 was adopted as a Quality-of-Life comparison after a thorough review. The collected data will be evaluated using the SPSS 23.0 version Computer programme, as well as the preferences of participants for various focus areas.

Results: The study results show that the gamers have higher Internal Focus of Attention Score and Non-Gamers have External Focus of Attention Score The quality-of-life gamers are seen to be higher as compared with the non-gamers as 94.58±2.82 > 86.82±0.77. The correlation test between the subject Gaming hours and Attention and Quality of life was checked which shows that there was a positive correction in the subjects. This shows that the gaming has shown increased Attention and quality of life in the gamers.

Conclusion: According to the findings of the research, gamers' brain functions and attentiveness are significantly impacted by their participation in gaming. The person also has increased negative consequences from the gaming on their quality of life. When compared to those who don't game, gamers have a greater attention level than those who don't game. The fact that gamers also had a greater quality of life demonstrates that gaming has not decreased but rather boosted the quality of life in today's society.

Keywords: Comparative study, gamers, non-gamers, finger movement, focus of instruction, reaction time, motor skills, QWERTY keyboard

INTRODUCTION

One's attention span refers to how long one can focus on one thing before being distracted. Distractibility happens when a person's attention is drawn away from the task at hand. Training children to pay attention for long periods of time is an important element of education, especially in the manner they are taught to listen and analyses what they are hearing and seeing(1).

Our estimated attention spans are influenced by the context in which we are operating. The terms "transient attention" and "selected sustained attention" are used to describe the differences between short-term and long-term attention(2). Transient attention is a term used to describe how people react when something catches their attention for a brief period of time. The length of the human attention span is a matter of debate among scientists. Selective sustained attention (SST), which is also known as focused attention, refers to the degree of concentration necessary to get consistent results over a prolonged period of time. A healthy teenager or adult's attention span is typically between five and six hours. This is possible because people may choose to focus on the same thing again and over again. The ability to'renew' one's attention enables people to 'pay attention' to long-lasting objects, such as films(3).

People's attention spans tend to be greater when they are engaged in activities that they love or find intrinsically stimulating, which is why the sort of activity employed to assess time on task matters(4). A person's attention is also improved if they are able to accomplish the activity fluently, as opposed to a person who has trouble completing the work or is still learning the skill. Emotional and physical stress take away from the ability to concentrate(5).

Humans' estimated attention spans are modified by the reason for which they are used. Short-term and long-term attention are described by the terms "transient attention" and "selected sustained attention." Transient attention is a term used to describe responses to stimuli that temporarily draw or divert attention. Human attention spans are debated by researchers. SST, or concentrated attention, refers to the degree of concentration needed to get consistent results over a long period of time, and is also known as selective sustained attention. Five to six hours is the typical attention span for healthy adolescents and adults. It's possible because people may choose to keep focusing on the same thing. It is possible for people to "focus" on long-lasting objects, such as movies, since they have the ability to "refresh" their focus at any time(6). A broad spectrum of individuals and historical eras have used various attention span metrics. The inability of persons with ADHD to concentrate for long periods of time is one of the reasons why specific tests are developed to determine how easily the test-taker gets distracted (typically a significant problem in people with ADHD). The DeGangi's Test of Attention in Infants and the Wechsler Intelligence Scale for Infants-IV are often used to screen young children for attention problems (WISC-IV). For example, the Continuous Performance Test and Porteus Maze Test have been challenged by certain experts. It is common for these tests to be criticised for not evaluating attention, for being inapplicable to certain demographics, or for not providing clinically relevant information.

Small modifications in the testing setting may lead to significant differences in test results. Test-takers are more likely to stay focused if the examiner is visible in the room, as opposed to when the examiner is away.

It's called as "gaming disorder" or "online gaming disorder" because of the negative impact it has on an individual's overall well-being over a period of time due to excessive use of video games. One of the most

hotly debated topics in medical study is whether or not there is a link between a person's mental and physical health with their physical health. When a person neglects everyday tasks or hobbies in order to play video games, it may be time to seek professional help for a problem like this. By definition, this disease is characterised by an inability to manage one's gaming habits.

The World Health Organization recognized gaming disorder as a mental condition in its 11th edition of the International Classification of Diseases (ICD). As recently as 2013, the American Psychiatric Association (APA) considered Internet gaming sickness worthy of further study, even though it lacks adequate scientific proof to be included in the DSM(7).

Diagnosis has sparked a debate over whether or not the illness is distinct from other mental conditions. To provide evidence-based recommendations, researchers have tackled the subject from a wide range of perspectives with no widely accepted or recognized definitions(8).

A "condition requiring more research" in the DSM-5 is video game addiction, according to the American Psychiatric Association (APA), which is also known as Internet gaming disorder. A video game addiction disorder is not recognised by the APA. The phrase "gaming addiction" is broad, yet the great majority of gamers are hooked on playing video games on the internet.It's possible that video game addiction may have some of the same symptoms as other psychiatric addictions, according to the APA. It's possible that video game addiction is a kind of compulsive gambling-like impulse control problem. An explanation of why Internet Gaming Disorder has been deemed an official mental illness by the APA is given below:

An Internet gaming illness has been identified in the DSM-5 by the American Psychiatric Association (APA) based on existing evidence as "a disease requiring future research." The American Psychological Association does not consider video game addiction to be a disease. Most gamers are hooked to online gaming, although the phrase "gaming addiction" encompasses many other types of behaviour.

It's not uncommon for some gamers to put more importance on their gaming experiences than their personal lives. Players may neglect their personal cleanliness, gain or lose weight, modify their sleep patterns, play at work, avoid phone calls from friends, or lie about how much time they spend playing video games.

An Internet Gaming Disorder, according to the American Psychological Association, is characterised by the following: PVP (Problem Video Game Playing Questionnaire) is a questionnaire that was developed to quantify the extent of video game addiction without the intent of serving as a diagnostic tool. It has been said that all addictions (pharmacological or behavioural) are essentially about constant rewards and reinforcement, which is supported by the research of Griffiths. The six elements of addiction that he believes are essential for its development are arousal, mood modulation, tolerance, withdrawal, conflict, and relapse. For Internet Gaming Disorder, the American Psychological Association (APA) uses nine diagnostic criteria that were drawn from eight different diagnostic and measuring approaches previously proposed in study. The APA's criteria for Internet Gaming Disorder are an attempt to summarise the scientific evidence.

METHODOLOGY

This research is a comparative study carried out using a convenience sampling method. The project was conducted across multiple locations in Delhi, focusing on a specific age group to ensure the relevance and reliability of the data collected. The total sample comprised 60 participants, divided into two equal groups: 30 gamers and 30 non-gamers. All subjects were sourced from students residing in the Delhi NCR region. The inclusion criteria mandated participants to be between the ages of 18 and 25, of any gender, and for

gamers specifically, a minimum of 4 hours of gaming per day was required. The games played had to fall under either violent (action) or non-violent categories, and all participants needed to be familiar with the QWERTY keyboard layout. Participants with any cognitive, muscular, or neurological impairments (especially those scoring below 24 on the MMSE), vision impairments, or experience as typists or musical instrument players were excluded to maintain uniformity in motor skill background.

The main variables in the study were the gaming mode and finger movement, with the different focus of instruction serving as the dependent variable. The tools and equipment used during the study included a table, chair, laptop or desktop keyboard, a metronome, and the SF-36 form for assessing quality of life. The participants were further divided into two groups: Group A consisted of 30 gamers, specifically those who played on PCs or phones, while Group B included 30 non-gamers.

During the procedure, participants were seated comfortably with elbows slightly bent and pronated, forearms fully relaxed and supported by the chair arms. They were instructed to complete a keystroke task using a laptop or desktop keyboard placed 60 cm in front of them. The keyboard was partially covered with a plastic sheet, exposing only five keys: F, T, Y, U, and K. The task involved performing 20 keystrokes with all five fingers of the dominant hand in a predefined sequence: Thumb, Index, Middle, Ring, Little Finger, and so on, maintaining contact between each finger and the designated key throughout the activity. A metronome controlled the pace of finger movements, ensuring consistent timing across participants. After the task, the SF-36 quality of life questionnaire was administered to compare attention and mental state between groups.

DATA ANALYSIS

The data collected from the study was analyzed using SPSS version 23.0, a statistical software developed by IBM. SPSS (Statistical Package for the Social Sciences) is widely used in fields such as social research, business intelligence, market analysis, and educational and health sciences. It supports complex analytics, data management, and multivariate analysis. IBM acquired the company that originally developed SPSS in 2009, and the software has since been known as IBM SPSS Statistics. The software is a standard tool in academia and professional research, providing functions for case selection, file restructuring, and maintenance of metadata dictionaries. The analysis for this study used both graphical and tabular representations prepared in Microsoft Word 2021 alongside SPSS outputs. The findings were interpreted to understand the effects of gaming on finger movement, reaction time, and quality of life, as measured through participant preferences and responses.

RESULTS

The study results show that the gamers have higher Internal Focus of Attention Score and Non-Gamers have External Focus of Attention Score The quality-of-life gamers are seen to be higher as compared with the non-gamers as $94.58 \pm 2.82 > 86.82 \pm 0.77$. The correlation test between the subject Gaming hours and Attention and Quality of life was checked which shows that there was a positive correction in the subjects. This shows that the gaming has shown increased Attention and quality of life in the gamers.

LIST OF TABLES:

TABLE NO 1 DEMOGRAPHIC DESCRIPTIVE STATISTICS (WEIGHT, HEIGHT, BMI)

	AGE	WEIGHT(KG)	HIGHT IN METER	BMI
Mean	21.83	76.93	1.7183	23.833
N	60	60	60	60
Std. Deviation	0.830	0.839	0.736	4.838

TABLE NO 2 PLAYING DURATION

GAMING HOURS A DAY	6.839±0.737

TABLE NO 3 EXTERNAL FOCUS OF ATTENTION AND INTERNAL FOCUS OF ATTENTION SCORE SCORES OF GAMERS AND NON-GAMERS.

	VARAIABLE	**N**	**Mean**
INTERNAL FOCUS OF ATTENTION SCORE	GAMERS	30	17.2174
	NON-GAMERS	30	16.7500
	Total	60	16.5111
EXTERNAL FOCUS OF ATTENTION. SCORE	GAMERS	30	16.5909
	NON-GAMERS	30	16.9310
	Total	60	16.5778

TABLE NO 4 SF 36 (quality of life) PAIRED T TEST

	MEAN±SD	T TEST	P VALUE
GROUP A	94.58±2.82	5.728	P<0.05
GROUP B	86.82±0.77		

TABLE NO 5 CORRELATION OF GAMING HOURS, C V ANGLE AND PAIN

CORRELATION	IFA/EFA	quality of life
GAMING HOURS	0.892	0.378

DISCUSSION

This study is conducted to compare the impact of Attentional Focus Instructions in Gamers compared to non-Gamers. The study results show that the gamers have higher Internal Focus of Attention Score and Non-Gamers have External Focus of Attention Score The quality-of-life gamers are seen to be higher as compared with the non-gamers as 94.58±2.82 > 86.82±0.77. The correlation test between the subject Gaming hours and Attention and Quality of life was checked which shows that there was a positive correction in the subjects. This shows that the gaming has shown increased Attention and quality of life in the gamers.

Michael F. Young et al 2012 Do video games used in K-12 classrooms improve academic achievement. We found over 300 publications about video games and academic accomplishments during our literature search. We discovered evidence supporting the educational usefulness of video games in language, history, and physical education (particularly exergames), but not in science or arithmetic. These tendencies are summarized and recommendations are made for the embryonic discipline of video game research. Many educational games exist, but their impact on student achievement is unknown. We advocate distinguishing simulations from games to refocus the discussion on the situated character of game-player-context interactions. (26) Zeljka Mihajlovic et al 2017 Acute and chronic neck discomfort are frequent medical disorders that are treated with regular workouts. Insufficient desire to stick to the specified workout plan may postpone healing. So, in this study, we present a system that engages users in a serious exergame in virtual reality (VR). The device evaluates users' neck motions using static and dynamic kinematic testing, as well as an unique VR serious game. The game is meant to make users complete rehabilitative neck exercises while playing. The analysis of VR data gives information into neck flexibility during head motions and overall neck kinematics, which is useful for assessing pain-related stiffness and tracking improvement. In user research employing the suggested system and the Oculus Rift DK2 VR headset, we found that adding aesthetically rich VR settings made users more motivated to exercise. (16) Yanfei Xie et al 2016 Research on musculoskeletal issues has been conducted using mobile and portable technologies. Other databases were also examined, such as CINAHL and Embase. The studies' methodological quality was analysed.. Risk factor evidence was evaluated based on study designs, methodological quality, and consistency of findings. Peer-reviewed publications ranged from five stars to two stars on a scale of one to ten. There is a wide range in the prevalence of musculoskeletal complaints among mobile device users, with neck difficulties accounting for 17.3 to 67.8 percent of the total. Additionally, this research demonstrated a correlation between neck flexion, phone conversations, texting, and gaming and musculoskeletal problems among smartphone users. Inconsistent or little research has been done on other potential risk factors, including as frequency of use and how people interact with the gadget.(19)

CONCLUSION

According to the findings of the research, gamers' brain functions and attentiveness are significantly impacted by their participation in gaming. The person also has increased negative consequences from the gaming on their quality of life. When compared to those who don't game, gamers have a greater attention level than those who don't game. The fact that gamers also had a greater quality of life demonstrates that gaming has not decreased but rather boosted the quality of life in today's society.

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