

THE IMPACT OF ONLINE CLASSES ON PHYSICAL HEALTH

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Abstract: A sedentary lifestyle is sufficient to cause muscle loss, insulin resistance, decreased aerobic capacity, and fat deposition. Regular physical activity and a proper diet are highly recommended for maintaining muscle strength, preventing nerve damage, lowering insulin resistance, and improving your quality of lifestyle. When you are inactive, there are changes in your body's ability to regulate hormones and blood sugar levels. Participants came from worldwide to participate in the 12-week course of online lectures taught by a U.S.-based mentor. This paper uses the case study or field experience methodology. The course was modeled after a 12-week SAT prep course taught by an American professor to students in the United States, Tunisia, Hungary, India, Pakistan, Nepal, and Malaysia. This paper explores the factors that issue the students of the online learning experience. This is a case study in which the success factors are analyzed from both the instructor's and the student's perspectives. Student feedback on sitting posture, prolonged screen time, and mental effects has been evaluated to investigate the factors affecting student experience. At the same time, the success factors that contribute to the instructor's experience have been assessed based on the effectiveness of the teaching platform, the extent of facilitation by the platform to personalize education to cater to individual student needs, and their comfort. While previous research has relied heavily on the specific issue between student satisfaction and their involvement, this study generates insights into all the health-related elements contributing to online learning success. The preliminary findings indicate what could be considered non-mainstream factors for success, such as the importance of posture, knowledge of ergonomics, break between the class, regulation of water intake, and spending time with family. This study also recognizes that further broader studies will be required to assess the external existence of the result and shows that individuals are not aware of prolonged screen time and the importance of taking a break. There is need of more research to improve it.

Keywords: online classes, pandemic, posture, physical health

Introduction

Recently, there has been a significant increase in the number of online courses offered at international universities, with several focusing more on increasing accessibility to online education. The rapid growth of online learning includes various factors, including but not limited to making education more accessible, making communication technologies advance, an increase in student demand for online courses, the importance of maintaining a competitive education offering for all students and increased institutional profits. Online learning has been recommended as an alternative to in-person learning in instances of crises, such as the current global pandemic (Wang, Zhang, Zhao, Zhang & Jiang, 2020). Remote imaging systems sometimes distance learning, offer two-way interaction between the classroom

and online environments. It is also advantageous in this digital age for people to learn in an environment that enables two-way contact, such as video-based remote education, to accommodate classroom engagement, learning, class achievement, and satisfaction levels compared to traditional classrooms (Stacey *, Smith & Barty, 2004). Some observers argue that this online-based distance education kind has the most resemblance to face-to-face courses. Existing, however, is unlike those classroom-based online courses that follow a step-by-step pattern design of the system. This alternative teaching style is called "distant emergency teaching," immediately responding to a crisis (Woods, Hassan & Breslin, 2017). An online learning process should accommodate various things to consider, including overall pace, student-teacher ratio, pedagogy, online student-teacher, online communication, synchronization, feedback, online assessment, and the importance of online assessment sources. In other words, for the time being, it may be considered a workable solution for short-term emergency teaching.

As a result of the COVID-19 pandemic, considerable morbidity impacts health care systems, interrupting economies and reducing the number of school districts; this study aims to raise awareness about the long-term impact of the pandemic COVID-19 on children's health because of the physical shutdown of schools, which has the potential to target vulnerable health and cultural segments, such as enhancing the childhood obesity epidemic and contributing to socioeconomic gaps in obesity risk (Jiménez-Pavón, Carbonell-Baeza & Lavie, 2020). For example, it is generally recognized that those who are overweight and obese are at an elevated risk of cardiovascular disease (CVD). Still, evidence shows that physical activity levels are linked to a lower risk of CVD. Despite physical activity potentially countering the dangers of overweight and obesity, the actual amount to which it does so is uncertain (Koolhaas et al., 2017). This study evaluates the effect of different health issues associated with students' and mentors' unconscious online class routines. These include wrong posture, poor sitting habits, prolonged screen time, mental exhaustion, and social isolation student's face. This study evaluated this issue by taking statements of 5 students involved in the class and questioning them

Literature Review

Passive behaviour, including sitting, increases the probability of poor hearing. Despite this uncertainty, a few studies have linked prolonged sitting to work-related lower limb musculoskeletal symptoms. Lower back discomfort and buttock soreness look related. In addition to physical dangers, sedentary behaviour may influence office workers' cognition and performance. The evidence for a link between the neck and upper limb symptoms in office workers is mixed (Althoff, Jindal & Leskovec, 2017). Academic activities carried out over long periods, such as sitting at desks that are inappropriately designed, may cause musculoskeletal overload. It also highlights the absence of physical movement, practical learning, and extracurricular, generally considered health-enhancing activities. Electronic devices pose potential posture and other health issues whenever they are used. Injurious postures are capable of causing tissue damage and abnormalities in the musculoskeletal system, especially in the upper extremities of the human spine. It is a troubling environment because students are exposed to potentially hazardous circumstances. Musculoskeletal discomfort and its symptoms can harm a learner's health and quality of life (Baker, Coenen, Howie, Williamson & Straker, 2018). Exercise is critical for maintaining the health of the neuromuscular system; numerous investigations have shown that resistive exercise has several positive benefits. Allowing our dynamic and loading training for the musculoskeletal system to take place almost daily in a non-intimidating environment is essential (Biolo et al., 2005). Weight gain throughout children's growth is a significant problem because numerous

studies have shown that childhood obesity is to obesity in adulthood (Koolhaas et al., 2017). Posing with a sense of power can help you with performance anxiety. While working in one-on-one settings, those who practice power posing can better face their stage fright and get the job done swiftly and efficiently (Tsekoura, Billis, Matzaroglou, Tsepis & Gliatis, 2021). The increased time spent using digital technology on the part of children naturally causes growth in parents, teachers, and others who care about children's health and well-being to become increasingly concerned (Maugeri et al., 2020). One study suggests that obese and physically active people had a similar risk of cardiovascular disease (CVD) to sedentary normal-weight participants (Lee, Hsu, Bair, Toberman & Chien, 2018). People who are inactive and lead a sedentary lifestyle are at a higher risk for chronic disease (Lesser & Nienhuis, 2020). To a great extent, dynamic influences play a role in shaping physical activity behaviour, and constraints in public health are bound to influence physical activity behaviour (Jiménez-Pavón, Carbonell-Baeza & Lavie, 2020). It is difficult to estimate the social networks' influence because users cannot be observed under the "what if" scenario when they do not join the web (Dumford & Miller, 2018). Anxiety and panic have all been mitigated when individuals exercise regularly. In simpler words, personal health is at stake in fights with the immune system, contributing to the onset or worsening of diseases already in place when people don't move, which harms their health (Hall, Laddu, Phillips, Lavie & Arena, 2021). The following features influence student engagement, both directly and indirectly: learning experiences, including contacts with students, instructors, and other staff, and a general impression of being cared for (Fehm & Schmidt, 2006). Patients who have lost muscle mass and strength due to sarcopenia could also suffer (10). Prolonged times in the classroom are associated with increased physical inactivity, which promotes the accumulation of intra-abdominal fat, which is a massive concern for posture and balance control in our preschool-age population (Narici et al., 2020). Most chronic diseases directly affect mental and physical health, and physical activity and exercise are highly effective treatments (Mohammed, 2017). Cervical flexion postures increase the gravitational load moment on the cervical spine, increasing the work requirement of the neck extensors and possibly causing muscle tension in the neck (Rundle, Park, Herbstman, Kinsey & Wang, 2020). The origins of musculoskeletal pain in the neck and shoulder may include physical and demographic influences (Leirós-Rodríguez et al., 2020). Scientific evidence proves that we might expect significant muscular atrophy due to our complete inactivity caused by rest periods. The other common phenomenon is muscular atrophy, detected after only two days of inactivity (Dumas et al., 2009).

Hypothesis Building

It is hypothesized that there is an effect on physical health due to the ongoing online classes with poor posture.

Methods

Design of the online classes

Concepts from the study of the scientific and educational theory known as 'Constructivism' are critical to understanding a teaching method that is expected to serve as an instructional adjunct for online students' time distribution (also known as peer-to-peer learning) constant internet interaction with a teacher. We place much of our focus on the portfolio evaluation of work. That is to say; students are given the following alternatives:

- Podcasts, they are delivered on the Internet as lecture recordings. Lecturers with an eye chart and interactive projection screen or screencast (pitch) giving in weekly drills are still one of the most enjoyable parts of the class for me.
- Series of lectures with similar focus relationship concepts, such as 'entry concepts' and 'basic' and 'elite' (or 'essential') understanding incremental, innovative applications differentiate between knowledge and expertise.
- The exercises had imposed deadlines so students could complete them on time and without delays. They wouldn't fall behind on novel options for independent reading assignments, learn the fundamentals and the minimums, and explore the outer limits of communicating ideas by showing concrete examples.
- Establish the habit of asking questions. All directions, step-by-step instructions, and other worksheets should allow for customization. They were tailored to benefit interpersonal relationships and faculty-student interdisciplinary activity (i.e., peer-to-peer learning). Collaboration of peers was a vital component of the course design because of two critical factors: collaborative learning for millennia. Priority was being given to enhancing the educational opportunities for students with the second, which made it necessary to focus on their desires. A negative side effect of "belonging to a class" is any potentially self-isolating (and possibly insular) posture they were attending the lectures.

Objectives of the study

The main aim of this study is:

- (a) How do they keep their posture while working/studying?
- (b) Blink time or break time after working on a prolonged screen
- (c) Retention power from online learning.

Participants

Five students enrolled for the exam Graduation record examinations (GRE) in the academic year 2020/21. As part of their GRE coursework, these students participated in the research, and non-participation in the analysis did not affect their course study. No one refused to take part. Students came from various academic and geographical backgrounds (including physicians, therapists, and lawyers from different parts of the world) (including the United States, Tunisia, Hungary, India, Pakistan, Nepal, and Malaysia). The students participating were representative of the participants of the undertaking exam GRE.

Ethical consideration

The team created and assuaged that there was a well-defined purpose behind it before conducting a focus group session. It refers to their participation (or non-participation) in the party contributions that will be appreciated. Any contribution to the target would be irrelevant to the course study if they agreed to have their signature required on a written disclaimer of consent if they decided to participate and

were told they had nothing to fear. Members have the option to walk away at any point during the discussions. All five students agreed to participate in this, and they did throughout the debate.

Results

Consequences of online learning

March 7th, 2021, was set aside for the first group discussion to understand how participants felt about online learning. At the beginning of a project, it's best to avoid participants who are learning and limiting the group's way of thinking. Students are asked to complete the three-quadrant grid with the initial thoughts that struck their minds when they assumed online learning. It was done one at a time by an individual working alone, with no input from the class or anyone else. Discussing things with peers can facilitate learning and critical thinking. This exercise would include the impacts of the online positive and negative attributes linked with online education in the general view shown in table-1, which indicates that completing online courses best offers a solid and dominant connection with self-sufficiency and an understanding of personal responsibility. Other notable ideas include their importance to their body position and attitudes. However, most participants placed the grids into the applicable sectors and widened their attention from that point. The last cooperation includes the issues which they can commonly face.

Understanding of online learning

Students' involvement in the course was through a group discussion after completing the system. It discovered a wide range of thoughts about online learning among students. The thematic analysis of the group discussion and the five principles has been found: issues with the body position, prolonged screen time, mental effects, extended sitting during the lecture, and social isolation.

According to students, Differences in posture styles harm posture faster than in classroom studies. They expressed their view that sitting for a prolonged time gives immense pain in the neck and back, and due to the ongoing classes, they cannot focus on their physical health. They suggest teachers provide more time for personal reflection in-class discussions in their online courses. One student stated his concern: I felt like I was going through immense pain in my neck due to the continuous sitting position that I had been in the classroom. The pain started slowly, and I think the pressure of regular attendance didn't allow me to rest, which made me suffer from lots of pain. He was horrified when he discovered that the pain was terrible and unbearable. I think the real classroom is more relaxed, which will prevent me from this pain.

Prolonged screen time, Some students struggled with the solitary dependence on online screens to read passages, pdfs, and documents. Those students show how the radiation affects their eyes. The following quote tells about this emotion "Reading passages documents were helpful, but I do not get much time to get off from the screen since I prefer to keep myself away from prolonged time on screen. My eyes would not be affected when I attend offline classes."

Students reported that the screen's blue light harmed their mental health, disrupting their routine and circadian rhythm, causing mood disorders due to the lack of brain plasticity and blocking the function of melatonin. They expressed in the following quotations: For our mental well-being and the

maintenance of our regular day-night cycle, we require a break between classes and negotiation from attendance.

As the above quote clarifies, students ask for a break between the classes for relief in mental health and posture in which they sit for a prolonged time. The consolation could mitigate the students' sense of pain when learning online. Students felt pain when they attended the classes without any break, but they were more comfortable with the learning when reassured they could be free from attendance. Finally, students studied the course content and their comprehension to determine whether or not it was necessary to signal the time in the class. With the length of the system, the students could showcase their portfolios. For this debate, the students agreed that portfolios are better than papers. Nevertheless, the students decided that they should lower the course's overall workload.

Further, they proposed to reduce the reading list and grant additional time for realistic learning programs. Students devised a way to allocate their time to assignments based on their needs by utilizing a navigational/signaling device. Students found that they spent too much time on simple activities and too little time on difficult ones. I did not want to do this because of a lack of time. Students thought they should have specific instructions for the activities in all classes. Besides supervising the assigned tasks, students would also like to provide an approximate time frame for each activity they are helping to accomplish. Also proposed is a "star ranking system for each activity" to help students recognize that more challenging exercises are on the horizon.

Mental effects

If this course had been run as an 'in-person' course, it might have been better for my mental health and my learning style as well" we will lose direction and miss something if we do not get enough input from the tutor in discussion type sessions and that affects our state of mind."

Prolonged sitting during the lecture

There were a handful of the professors who spoke rapidly, and it is important to focus on a sitting posture in a way that approximates traditional classroom lecturing. I think the instructor who relied solely on slides compared to the rest of the competition, videos and slides went rapidly through them and writing through slides faster is more devastating." "Beginning weeks has more time to read and meditate on the material." After those two weeks, we had only a brief amount of time. We are not prepared for that."

Social –isolation: "The duration of a class is so long. We don't get time to spend time with family or friends and deal with the class work and homework. It itself made us isolated."

Analysis

The fundamental problems students face is social isolation, a sedentary lifestyle, no physical activity, prolonged screen time, and lack of awareness of posture. These problems exist due to continuous online classes and students' inability to take breaks. It will deteriorate their health and lead to significant issues like spondylolisthesis. Responsibility is for mentors and students who organize an online class and later one who asks because they must collaborate and discuss and give them a break between the classes.

Discussion and Conclusion

They are aware of the consequences of today's faceless internet pedagogical practices. A profile study of five students from different parts of the world has been completed. The student will spend the month of March 2021 studying for the Graduate Record Examination (GRE) online. The impact of online instruction on students' well-being has been studied through three organized discussion sessions held throughout the semester. According to the findings, there is a robust relationship between a sense of personal responsibility and the ability to grasp course material. Chronic fatigue can result from a compromised capacity to respond to novelty. Devices with small screen sizes, such as iPads and smart phones, are used in digital education. However, combining small fonts, narrow row spacing, and low display brightness necessitates frequent eye adjustment and radial movement. Overuse of visual display terminals has been associated with ocular diseases and a generalized perception of pain and pains.

You can learn yoga positions in the comfort of your home, whether reclining on the floor or sitting in any random chair. Many people prefer to read in close quarters while quarantined at home. Reading at too close of a distance or in an inconvenient position can aggravate myopia and cause eye fatigue. Myopia is a cause of spending more time on screen.

In addition, students are better able to use available resources because of the mobility and autonomy afforded by online teaching approaches. It helps broaden one's perspective and cut down on unnecessary mental processing. On the downside, it may affect the attendees' physical and psychological health and their desire to interact with others. The eyes, the mood, and the mind all suffer from too much time in front of a blue screen. In conclusion, the new online mode benefits organization and flexibility but also adversely affects postural, mental, and eye-related health. Identifying, addressing, and mitigating these possible difficulties impacting student health is vital for improving the efficacy of online learning and should be considered by teaching institutions and instructors.

Conclusion

This research has analyzed the factors which deteriorate a person's physical body, like posture, eyesight, and mental health, due to prolonged screen and has also given a detailed analysis of severity. This research aims to make others aware of the factors they can use in their future and steps to prevent them before reaching seriousness.

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Declaration of Interest Statement

The authors declare that they have no conflict of interest.

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Appendix

Suggestions

There is a massive scope of looking into the factors that affect our health due to prolonged online work, which must be avoided and prevented. Otherwise, it would lead to severe damage to an individual's health.

Limitation

Single case study,

Multiple analysis technique

No follow-up