ERGONOMIC INTERVENTION PROGRAM OF COMPUTER WORKSTATION FOR SCHOOL COMMUNITY DURING COVID-19 PANDEMIC

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ABSTRACT

During the pandemic, there have been multiple reports from the education sector that home schooling is not practical. This is worrying because the pandemic is expected not to end within a short of period of time. Thus, this study was undertaken to observe the ergonomics of teachers' and students' home computer workstations while home schooling and tutoring. By doing a threepart survey questionnaire on ergonomics practices on home computer workstation was sent toward respondents through social media platform. The respondents involved employees from education sector and also students ranging from primary to secondary schools, who were forced to adapt into home schooling session due to the COVID-19 pandemic. The data is collected in the form of musculoskeletal disease symptoms and also computer vision syndrome symptoms. From there, it is then analyzed to identify incorrect postures and discomfort level faced by the subjects. An ergonomic intervention program is introduced as a part of the questionnaire and subjects are required to give their opinion on the program. The results obtained showed that there is indeed a symptom such as back aches and dry eyes which may develop into musculoskeletal disease and computer vision syndrome. The ergonomic intervention introduced received a good review from the subjects.

Keywords: Ergonomics, computer workstation, online learning, musculoskeletal disease, computer vision syndrome

[PROGRAM INTERVENSI ERGONOMIK STESEN KERJA KOMPUTER UNTUK KOMUNITI SEKOLAH SEMASA PANDEMIK COVID-19]

ABSTRAK

Semasa pandemik, terdapat banyak laporan daripada sektor pendidikan bahawa persekolahan di rumah tidak praktikal. Ini membimbangkan kerana wabak itu dijangka tidak akan berakhir dalam tempoh yang singkat. Oleh itu, kajian ini dijalankan untuk melihat ergonomik stesen kerja komputer di rumah guru dan pelajar semasa persekolahan di rumah dan tunjuk ajar. Dengan melakukan soal selidik tinjauan tiga bahagian mengenai amalan ergonomik di stesen kerja komputer rumah telah dihantar kepada responden melalui platform media sosial. Responden melibatkan pekerja dari sektor pendidikan dan juga pelajar dari sekolah rendah hingga menengah, yang terpaksa menyesuaikan diri ke sesi persekolahan di rumah kerana pandemik COVID-19. Data dikumpul dalam bentuk simptom penyakit muskuloskeletal dan juga simptom sindrom penglihatan komputer. Dari situ, ia kemudiannya dianalisis untuk mengenal pasti postur yang salah dan tahap ketidakselesaan yang dihadapi oleh subjek. Program intervensi ergonomik diperkenalkan sebagai sebahagian daripada soal selidik dan subjek dikehendaki memberikan pendapat mereka tentang program tersebut. Keputusan yang diperolehi menunjukkan memang terdapat simptom seperti sakit belakang dan mata kering yang boleh berkembang menjadi penyakit muskuloskeletal dan sindrom penglihatan komputer. Intervensi ergonomik yang diperkenalkan mendapat ulasan yang baik daripada subjek.

Kata kunci: Ergonomik, stesen kerja komputer, pembelajaran dalam talian, penyakit muskuloskeletal. sindrom penglihatan komputer

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LIST OF SYMBOLS AND ABBREVIATIONS

COVID-19	:	Coronavirus Disease
MSD	:	Musculoskeletal Disease / Disorder
CVS	:	Computer Vision Syndrome
SNBMQ	:	Standardized Nordic Body Map Questionnaire
PLS-SEM	:	Partial Least Square Structural Equation Modeling
EU-OSHA	:	European Union information agency for occupational safety and health (OSH)
VDT	:	Video Display Terminals

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University

CHAPTER 1: INTRODUCTION

The transition to an online distribution modality has piqued the interest of many professors and students throughout the world. Faculty have already started planning lesson plans for their pupils to get online instruction. Any university's online instruction is not a new way of delivery. Many professors are trained to use online learning platforms as the sole medium of delivery or as a supplement to face-to-face instruction. However, there is always the possibility that some professors who are not technologically knowledgeable will be unable to cope with this mode. The faculty's ability to deal with present technology has been questioned as a result of the switch to online mode. Furthermore, parents, children, and other relatives who work from home are in high demand for computers and IT equipment at home. As a result, working from home will be a difficult challenge for the professors. Furthermore, many colleges lack the necessary infrastructure and resources to begin offering online courses immediately. What about pupils who do not have access to laptop computers or internet connectivity at home? Is it possible to deliver practical and lab courses, as well as music and art classes, via the internet? What will happen to students whose classes aren't available online? The quality of online education is a major concern that requires immediate attention (Sahu, 2020).

The COVID-19 pandemic that has hit our country has not yet subsided and has left educational institutions closed and unable to perform face-to-face learning. Therefore, all students need to learn from home and the most widely used learning method is the online learning method. This method has now become a new norm for students, including teachers. However, there are many challenges that need to be overcome to ensure that teaching and learning from home sessions run smoothly and easily. Therefore, an ergonomic intervention program approach needs to be made in this study where it focuses on the implementation of online learning specifically for the school community. This ergonomic intervention study included many factors such as learning place station preparation, safe learning environment and psychological wellbeing.

CHAPTER 2: AIM AND OBJECTIVES

With the outbreak of the COVID-19 pandemic, mandatory online learning has developed as a way for contemporary teaching and learning in private colleges and schools. Without any particular limitations, our children are increasingly spending the majority of their time (8–12 hours per day) in front of a computer or mobile screen, taking online classes (Bhattacharya, Saleem, & Singh, 2020).

The goal of this study is to assess an interventional ergonomic education program aimed at school communities consisting of teachers and students by reducing the risk of musculoskeletal and computer vision issues by correcting bad sitting position, adjusting positioning from devices and recommending an ergonomics program.

The objectives are:

- to identify incorrect posture and discomfort level related to musculoskeletal diseases
 (MSD) and Computer Vision Syndrome (CVS) from online learning while using a device;
- (2) to associate between incorrect posture / discomfort level with their symptoms;
- (3) to develop an ergonomic intervention program focused towards school teachers and student online learning.

CHAPTER 3: LITERATURE REVIEW

The Covid-19 pandemic has been ongoing for almost 2 years, and educational sectors have been forced to run through other means such as online learning. There have been reports that students are suffering from MSD. This condition may have developed due to risks from continuous online learning in front of a device, to catch up the learning syllabus left behind.

In addition, other researchers also relied on Standardized Nordic Body Map Questionnaire (SNBMQ) to conceive education-based ergonomic interventions, highlighting again that SNBMQ is a highly reliable instrument in detecting musculoskeletal pain.

A cross-sectional design was adopted in one investigation. A simple random sample strategy was used to recruit 999 undergraduate students from six universities in Yogyakarta for this investigation. This study's questionnaire was created using kobotoolbox, an online survey tool. Chi-square was utilized in the statistical analysis. A moderate level of academic stress was experienced by nearly 73 percent of students. The bivariate test outcomes for teacher background, student level, gender, age, and student level with academic stress were p = 0.008, 0.486, 0.000, and 0.134, respectively. Gender and faculty background had a strong link with academic stress, whereas age and student level had no relationship with academic stress (Murdhiono, Fadlilah, & Vidayanti, 2021).

A study by Thanasi-Boçe intends to investigate how engagement, motivation, and teaching affect how students perceive and feel about online learning. Based on information gathered from 446 graduate and undergraduate students who took online courses during the first COVID-19 lockdown, it suggests a structural model. The data analysis was conducted using partial least square structural equation modeling (PLS-SEM). The results highlighted interaction as a facilitator of how instructors motivate their students, reinforcing the relevance of interaction and instructors in boosting students' motivation (Thanasi-Boçe, 2021).

Students and professionals in Human Factors and Ergonomics participated in a workshop to discover aspects/factors that could influence online learning. Following that, a survey consisted of two questionnaires (one for students and one for teachers) was prepared and distributed among Italian university students and professors based on workshop output and literature research. The most significant changes as a result of the new eLearning approach have been studied and discussed. The findings could be used as a starting point for further research and optimization of the dependencies and correlations between identified parameters and product/interaction/environment aspects during eLearning courses (Naddeo, Califano, & Fiorillo, 2021).

3.1 ERGONOMICS INTERVENTIONS STUDIES

Rest periods and physical activity during online learning sessions may be included in ergonomic interventions directed at computer workstations. Another alternative is to modify the workstation in accordance with each subject's anthropometrics in an effort to enhance comfort and body posture as well as prevent musculoskeletal pain. To educate subjects on the hazards and safeguards, such interventions could also involve a learning component.

Sellschop and Myezwa also supported the claim where ergonomic intervention is effective in reducing MSD. An intervention group showed a change in behavior in terms of positioning and body mechanics, implying that the 45-minute participatory ergonomic intervention program was beneficial. An ergonomic intervention program in a school setting can help students improve their posture, and the effects can last for up to six months (Sellschop, Myezwa, Mudzi, & Musenge, 2018).

ErgoKita, a case study by EU-OSHA introduces an ergonomic intervention in the education sector, and the results were satisfying. By determining the effects of influencing factors and structural parameters (such as the teacher-to-child ratio and the available facilities), suitable prevention measures were to be identified and evaluated. The project duration was 4 years (2011-2014), with a follow-up evaluation 2 years later in 2016 (Angelika Hauke, 2020).

Shikdar and Khadem show how ergonomics intervention is an effective strategy for reducing MSD in the workplace. A checklist was created for the evaluation, and the results revealed a significant reduction in health complaints such backache, headaches, shoulders, and neck pain in groups that received an ergonomics intervention (Shikdar, Khadem, & Al-Harthy, 2008).

3.2 MUSCULOSKELETAL DISORDERS BASED FROM WORKSTATIONS

Over the past few years, there has been an increase in computer and internet use, which has been associated with a number of musculoskeletal problems. The usage of contemporary technology is widespread across all age groups at work and at home because to its low cost, and this trend will only continue in the future. It has been noted that video display terminals (VDTs) are also proliferating in offices around the world, posing health risks to those utilizing them. Another significant contributing factor to the development of both musculoskeletal and visual issues with computers is poor ergonomic design. Similarly, during the COVID-19 epidemic, Karingada and Sony revealed evidence for MSD generated in online classes. Following online learning, various symptoms in the head, neck, and eye were described in a recent study. MSD symptoms are linked to the length of time students spend online learning, their stress level, and whether or not they wear glasses (Karingada & Sony, 2021).

A local study by Universiti Selangor mentioned there were high prevalence of upper extremities musculoskeletal discomfort complaints among university students who are using a laptop. Number of hours spent, laptop position and use an external keyboard shows a significant relationship to musculoskeletal discomfort. It was suggested that students should learn about ergonomic practices, schedule their break and stretching exercise in between tasks to avoid overuse of muscle activity. The university also should inculcate the awareness on ergonomics aspect to provide the students with appropriate knowledge (Arshad, Shamsudin, & Mustafa, 2020).

3.3 NORDIC BODY MAPPING

Nordic body mapping is a form of questionnaire that identifies the pain sites in body regions that have musculoskeletal discomfort. It can then be used as the foundation for better work posture. The body map Nordic questionnaire is a tool that may be used to examine any activity, whether it falls under the purview of work or is part of a person's regular routine outside of work.

According to Tanzila and Prameswarie, a non-ergonomic laptop position can lead to musculoskeletal disorders. The data for the study was gathered using a questionnaire with a Nordic Body Map score. The Chi-Square test was utilized in the analysis. The findings revealed that respondents used their laptops for a long time and in a poor manner. The majority of musculoskeletal problems were felt in the neck (Tanzila, Prameswarie, Hartanti, & Denaneer, 2021).

In addition to that, by comparing pain severity with ergonomic intervention, Cristiane Shinohara Moriguchi and Fernanda Cabegi discovered a pattern. A numerical pain scale and the Nordic Musculoskeletal Questionnaire were used to measure the level of pain in the neck, shoulder, upper back, and wrist/hand. Pain intensity in the neck, shoulder, upper back, wrist, and hand was reduced using individual anthropometric measurements (Cristiane Shinohara Moriguchi, Fernanda Cabegi, Stefany, & Tatiana, 2021).

3.4 COMPUTER VISION SYNDROME

Besides Standardized Nordic Body Map Questionnaire (SNBMQ) which is widely used, there is another tool which can be used to measure ergonomic condition of students while online learning. Computer Vision Syndrome (CVS) questionnaires is also a good tool to use since students are likely to be exposed towards learning device for long hours.

There are more health dangers associated with using computers at home and at work, particularly for the eyes. More and more people who spend a lot of time in front of computer displays are developing a condition called Computer Vision Syndrome (CVS), which affects the eyes. Although eye doctors have not yet linked CVS to any long-term eye damage, the pain and discomfort caused by the issue can interfere with daily life or performance at work. However, the signs and symptoms of CVS can be quickly eliminated with a few precautionary actions.

According to one study, Sri Lankan computer employees have a high rate of CVS. Female gender, longer duration of occupation, higher daily computer usage, pre-existing eye disease, not

using a VDT filter, use of contact lenses, and higher ergonomics practises knowledge were all found to be significantly associated with the presence of CVS using a random sampling method through questionnaire. The duration of employment and the existence of pre-existing eye disease were both linked to the severity of CVS (Ranasinghe et al., 2016).

Another study in Malaysia supports this. Computer vision syndrome (CVS) is a disorder in which a person develops one or more eye symptoms as a result of extended computer use. In a cross-sectional questionnaire survey study, data on demographics, spectacle use, duration of daily continuous computer use, symptoms of CVS, preventive measures taken to reduce symptoms, use of a radiation filter on the computer screen, and lighting in the room were collected from college students. Ninety percent of university students in Malaysia had CVS symptoms, which were more common among those who used the internet for more than two hours per day (Reddy et al., 2013).

CHAPTER 4: RESEARCH METHODOLOGY

The ergonomic intervention program will be designed as a community-based intervention in the education sector. It will be introduced in the form of questionnaire by ergonomic recommendations. Then, the results will then be evaluated by relating to the symptoms. Random sampling will be done in order to obtain a set number of subjects. From the results, it is then analyzed by observing the most chosen answer from the multi choice questions.

4.1 QUESTIONNAIRES

At the start of the study, all subjects will be given a multi-part questionnaire to fill out. The first section of the questionnaire asked about their sociodemographic background.

The Standardized Nordic Body Map Questionnaire and occupational risk factors were discussed in Section 2. (SNBMQ). To help students identify the relevant body parts when answering the questions, this questionnaire includes a body diagram with nine body parts: neck, shoulder, upper back, lower back, elbow, arm, hand, thigh, knee, and leg.

Section 3 contain questions concerning digital eye strain which is a topic of concern among online learning. The study will use the validated Computer Vision Syndrome questionnaire to assess the prevalence of CVS and its symptoms, which include eye fatigue, headache, blurred vision, double vision, itching eyes, dryness, tearing, eye redness and pain, excessive blinking, a foreign body sensation, burning or irritation, difficulty focusing for near vision, a sense of sight worsening, and light sensitivity.

4.2 DATA COLLECTION

In early stage of the study, all subjects will be distributed with the questionnaire, and given a time frame of 4 weeks to fill in the questionnaires.

The entire data collection process will take approximately one month. Pre-assessment of computer users' personal and computer-related data, as well as medical history, will be conducted using the given questionnaire.

The questionnaire shall be developed through Google forms, or by using Microsoft Words and distributed to the subject through emails. All data will be entered into Microsoft Excel. Data from demographics, SNBMQ and CVS questionnaire are collected, arranged and tabulated into corresponding category.

Google Forms will be used to analyze the information gathered. To define the sample characteristics, descriptive analyses with visual and numerical summaries and measures of central tendency were performed on the demographic data.

4.3 ERGONOMIC INTERVENTION PROGRAM

To reduce ergonomic risk factors for musculoskeletal discomfort, the ergonomic intervention program consists of a series of changes and many short exercises. Following the first identification of risk variables, this program was developed. It serves as a starting benchmark towards a long period of the program.

Initial proposal shall consist a series of adjustment made towards chairs, study table, keyboard and mouse, monitor and also lighting. A chair's back, seat height, footrest, and armrest

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should all be adjustable. The study table should be large enough to hold all of the necessary materials and allow adequate viewing distance.

For keyboard and mouse, it should be at the same level and directly in front of the subject. Padded wrist rest are optional and subject should try to avoid overreaching. Computer monitors should be placed in front of the subject, at a comfortable viewing distance, with the top of the screen at eye level. Glare and eye discomfort can be caused by excessive overhead lighting. Eye tiredness can be reduced by dimming overhead lighting and utilizing a desk lamp.

CHAPTER 5: RESULTS AND DISCUSSIONS

5.1 SOCIODEMOGRAPHY

The questionnaire that has been distributed towards the school community, particularly in East Malaysia able to obtain a large respondent of 94 subjects. From this numbers, 58 of them (61.7%) falls under students' category while the remaining 36 (38.3%) are teachers.



Figure 5.1 Subjects categorization

Focusing into the teachers' category, 32 (88.9%) out of 36 are females and 4 (11.1%) are males. The teachers come from multiple backgrounds, with Malay being the largest percentage (61.1%) while Bidayuh and Iban being last two minor community at 8.4% and 2.8% respectively. Their average age range falls under 30 - 39 years old category (66.7%).







Figure 5.3 Teacher's age range

As for students, the number of subjects is almost equal with 30 (51.7%) females and 28 (48.3%) males. Their background consists of Malay (50%), Chinese (39.7%), Indian (8.6%) and Bidayuh (1.7%) as minor community. Out of 58 responses, 70.7% of them ages from 16 to 17 years old, which is Form 4 and 5 according to school standards. However, there is some subjects which is above 18 years old.









5.2 INCORRECT POSTURE AND DISCOMFORT LEVEL

The next part of the questionnaire consists of multiple-choice answers, and subjects are expected to pick which answer suited them. During the pandemic, there is a trend on using smartphones (95.7%) and laptops (94.7%). Desktops and tablets are less popular choice at 57.4% and 36.2% respectively. As for surface used while online learning, table is the definite choice with 97.9% usage while 58.5% sometimes use their hand to hold the device while online learning. Two least popular choice is putting device on lap and also on the floor. Also, during online class session subjects choose dining chair (88.3%) and office chair (83%) as their main choice of seat, followed by sitting on couch and on the floor.



Figure 5.6 Devices used for online learning session



Figure 5.7 Type of surface used to place the device

The results of type of surface used for online learning session can be analysed that a few of the subjects have chosen to conduct on their lap or on the floor. This can be identified as an incorrect posture as it is not a choice among the subjects. The device used need to be placed on top of a surface. If we do not use a surface, then the subject will tend to bend or lean their body towards the screen or monitor. This will in turn develop an incorrect posture of the human body and will stress the muscle located at neck, shoulder, and upper back body area.



Figure 5.8 Type of seat used while having online learning session

From the type of seating chosen by subjects to conduct online learning session also can be used as an indicator of incorrect posture. Most subjects have opted office chair and dining chair as their seat. While a few of the subjects picked couch and sitting on the floor. These two latter options is not ergonomic to be considered as a type of seating over prolonged time. By not sitting at a proper chair, the human body will sit in an unnatural position either at couch or on the floor. This will stress out the muscle at feet, knees, thigh and the lower back body area.

During online classes, 90 (95.7%) subjects has chosen the option of using both typed and handwritten as a medium of teaching and learning. Besides that, subjects have given a trend in using mouse, keyboard and also an external monitor during online classes as an additional device.



Figure 5.9 Medium of learning used while having online learning session



Figure 5.10 Additional equipment used while having online learning session

The last sub question of the section prompts subject to state which parts of their body experience pain while conducting online class. The position with most user reported of frequent pain are at the lower back area and upper back area of their body. The result shows that for both location, 50 subjects have chosen it as a common place to have frequent pain during online learning class. For occasional pain category, subjects also have identified a few locations namely neck, shoulders, elbows, hands, lower back and also upper back. From all these given location, 88 subjects agreed that there is occasional pain in the neck area while online learning, while for shoulders area 60 subjects have reported occasional pain. This result is in agreement with studies done by Karingada & Sony (2021), Tanzila & Prameswaree (2021), and also Cristiane & Fernanda (2021), where the symptom occurs at neck, shoulders and back area of the body.



Figure 5.11 Frequency of aches on specific parts of the body

On the second part of the questionnaire, the questions are designed to obtain information related to the human optics and eyes condition while online learning. 79 out of 94 subjects do not wear glasses.



Figure 5.12 Subjects eye condition

From there, subjects are required to give input at which the time that they normally spend on their device every day. The answer options are given based on normal daily class duration with a minimum of 4 hours per day. Results shown that majority of the subjects normally spend 8 - 10hours per day in front of a device, with 35 subjects and a percentage of 37.2%.



Figure 5.13 Subject's duration spent on devices per day



Figure 5.14 Frequency and symptoms related to CVS

The last sub question of the second part of questionnaire requires subject to give input on frequency and location of pain related to the human eyes while conducting online class. Apparently, there is small numbers reported on frequent pain, where eyes feeling itchy, teary and headache have less than 5 subjects. On occasional pain, the top three symptoms are 86 subjects reported having headache, 83 are having itchy eyes, 79 have their eyes becoming red.

The type of subjects whether they are wearing glasses or not does not affect the discomfort level while having an online session class. However, the frequency of symptoms reported by subjects through this questionnaire can be deduced that the discomfort level is likely high because most of the subjects are required to do online learning classes with a minimum of 4 hours per day, more than the average from past study by Reddy et al (2013), where CVS symptoms developed from students who are usually in front of a device for 2 hours.

5.3 ERGONOMIC INTERVENTION

The final part of the questionnaire prompts subject to give their opinion on best ergonomic practices to do while conducting online learning class. It is divided into three sub questions focusing on MSD symptom, CVS symptom and also exercises which could improve from these conditions.

Apparently, all of the answers to the three sub questions are a form of ergonomic intervention developed from common MSD. The first ergonomic intervention is more focused on the computer workstation and posture, while the second intervention aimed to reduce effects from CVS. The final intervention is a set of exercises which is suitable to be performed while on a workstation. From the results of these three sub questions, most subjects are in favour to all the multiple choice of answers provided.

The first question gives the result at which most subjects (98.9%) agreed that using a comfortable chair with back support definitely will improve ergonomic posture. The second popular opinion would be adjusting device or monitor used to match with eye level (90.4%), followed by resting arms comfortably (69.1%) and putting feet on a footrest (66%).

Second sub question yields a popular opinion that by taking a break every 20 minutes, looking at a far object for 20 seconds (95.7%) is appropriate to take care of vision. Other statements such as controlling monitor distance at an arm's length (93.6%) and keeping eye drops nearby to keep eye moisture (88.3%) are also considered valid. Using a screen filter (66%) and adjusting screen brightness (73.4%) is considered are less chosen as an appropriate statement for taking care of human vision.

In your opinion, which statements below helps in improving ergonomic posture? / Pada pendapat anda, pernyataan di bawah yang manakah membantu dalam meningkatkan postur ergonomik? ^{94 responses}



Figure 5.15 Ergonomic intervention related to MSD



Figure 5.16 Ergonomic intervention related to CVS

The last sub question was a sample set of stretching exercises which will help improve the subjects' online class experience while on a workstation. Almost all subjects agreed with the given exercises, with most of them selecting tilting and turning heads (98.9%) as the main choice for

stretching. The second most chosen option is through the standing up exercise after sitting for a long time (94.7%). While the other two choices have an equal result at 89.4%, where the exercises are by rotating shoulders slowly and pulling the subjects hand towards themselves.



Figure 5.17 Ergonomic intervention by stretching exercises

From the results of these three sub questions, more than half of subjects are in agreement with the ergonomic intervention program proposed. It can be deduced that the program is simple to understand and easy to perform throughout online learning session.

CHAPTER 6: CONCLUSION

The data collection through questionnaire is distributed by random sampling technique and focused more on education sector of East Malaysia. The results from the subjects collected is convincing showing that there is still lack of ergonomics information. Incorrect postures and discomfort level are identified from the subject's point of view. Type of surface where the device is placed which is on their lap or on the floor is an incorrect posture while on a workstation. Occasional headache and multiple eyes condition such as redness and teary shows the discomfort level while having prolonged online session is likely high.

As working from home becomes more common and the "new normal during pandemic," it's critical to teach students and also teachers about ergonomics in order to prevent musculoskeletal pain and discomfort. As the scientific community continues to address significant and critical challenges, research in this field will be forthcoming. The ergonomic intervention program introduced in this study serves as a starting point to help in improving their knowledge towards ergonomics. The initial result based from their opinion towards the ergonomic intervention is quite favourable. These findings suggest that a more comprehensive strategy could have a significant impact on students and teachers home workstations.

CHAPTER 7: RECOMMENDATIONS

Ergonomics is commonly associated with risks at work. During the pandemic, many have opted to start working remotely or work from home. This also includes the education sector, where both students and teachers have to apply the new norm. As they started to work remotely, the importance of understanding good ergonomics and applying it has become more apparent. Having the correct knowledge to adjusting furniture and equipment to suit individually in terms of increasing comfort and reducing injuries. By choosing the correct seating, it can give support which can lasts throughout the day.

A longer longitudinal method should be used in future study. The results could be greatly influenced by a longer period and a bigger number of participants. An ergonomic intervention should be conducted practically and sets of data collected at two different time. By doing this, the efficiency of the program can be measured. Furthermore, future researchers may gain a better knowledge of at-home workstation configurations by utilising new or more objective evaluation measures, such as additional images or an occupational therapist or professional ergonomist evaluating individual workstations. To adequately analyse the success of ergonomic interventions for teachers and students, a similar study with a more effective intervention, such as ergonomic evaluation with suggestions unique to an individual's workstation, is required.

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