Spring 3-31-2022

# Global Pandemic and Higher Education: Swift changes for Faculty, Staff and Students

Keyantta Houston
keyantta.houston19@siu.edu

# GLOBAL PANDEMIC AND HIGHER EDUCATION: SWIFT CHANGES FOR FACULTY, STAFF AND STUDENTS

by

Keyantta Houston

B.S., Southern Illinois University, 2019

A Research Paper
Submitted in Partial Fulfillment of the Requirements for the
Master of Science in Education

School of Human Sciences
in the Graduate School
Southern Illinois University Carbondale
May 2022

RESEARCH PAPER APPROVAL

# GLOBAL PANDEMIC AND HIGHER EDUCATION: SWIFT CHANGES FOR FACULTY, STAFF AND STUDENTS

by

Keyantta Houston

A Research Paper Submitted in Partial

Fulfillment of the Requirements

for the Degree of

Master of Science in Education

in the field of Kinesiology

Approved by:

Juliane P. Wallace, Chair

Graduate School
Southern Illinois University Carbondale
April 4, 2022

## TABLE OF CONTENTS

## LIST OF TABLES

## LIST OF FIGURES

FIGURE PAGE

# CHAPTER 1

## INTRODUCTION

The onset of the coronavirus, also known as COVID-19, has become a crucial interference to colleges and universities across the country, with most institutions canceling in-person classes and moving to e-learning (electronic learning). According to Yuki and colleagues (2021), COVID-19 is a lower respiratory illness that attacks the lungs that was first discovered in Wuhan, China, in late 2019. Symptoms include dry cough, fever, difficulty breathing and much more. The disease can be compared to a common cold such as the flu. Since 2019 the fatal disease has spread over to several countries and affected the livelihood of many. The pandemic quickly changed almost every angle of what college is supposed to feel and look like for faculty, staff and students. Concerns that COVID-19 have brought into play include overall academic and teaching response to COVID-19, physical activity and even mental health. The future of higher education in many institutions plays into the personal and professional lives of many with not much but speedy yet questionable developments to go off of.

As the pandemic continues to evolve, school officials are prompt to communicating both the immediate and long-term challenges related to the outbreak with possible solutions in order to help. According to Landin et al. (2021), school officials along with scholars agreed that returning back to traditional in person learning may not be ideal after the pandemic. The author also mentions that even if in person does resume, school officials should empathize with the needs of students and faculty due to hardship that they already going through due to the shift that the pandemic has caused on them. The Higher Education Emergency Relief Fund (HEERF) was set up to reduce financial burden on students. Faculty and staff have also been given as many tools as possible, such as video conferencing, in order to continue weekly lessons with their

students so learning interference can be avoided throughout the school year. Emergency preparedness and response plans are crucial when attempting to prevent burnout on both parties. It is time to create new models in order to conform to the realities of each person's lives with technological advances and personalized instruction. Though these precautions are established as of now, countless colleges are still unknowledgeable on what faculty, staff and students deal with on a regular basis.

# CHAPTER 2

## METHODOLOGY

The Preferred Reporting Items for Systemic Reviews and Meta- Analyses (PRISMA) approach was used to report the retrieval and selection of articles review. We searched PubMed and Medline (EBSCO) using the terms *pre covid-19, faculty, staff, students, mental health, physical activity and pandemic in higher education* in ANY FIELD. With respect Morris Library Kinesiology and Education Research Guide: Resources, each term was searched using the MeSH Heading and the MeSH Major Topics selection under an advanced search. Inclusion criteria for articles consisted of: (1) published in English (2) examination of higher education during COVID-19 (3) responses to students and faculty within higher education programs (4) aspects such as time management, mental health and/or physical activity responses. Abstracts were read to determine inclusion of the article. Full articles were read for determinations of inclusion. Abstracts were reviewed for all articles that seemed to meet the inclusion criteria or where there was variability about the connection of specific articles was unknown. Assessment of comprised articles reference list for further published works not otherwise recognized. For each incorporated article, as suitable to the specific questions under study, we noted the country location, study participants, variable(s) measured, the type of study design and notable outcomes or findings.

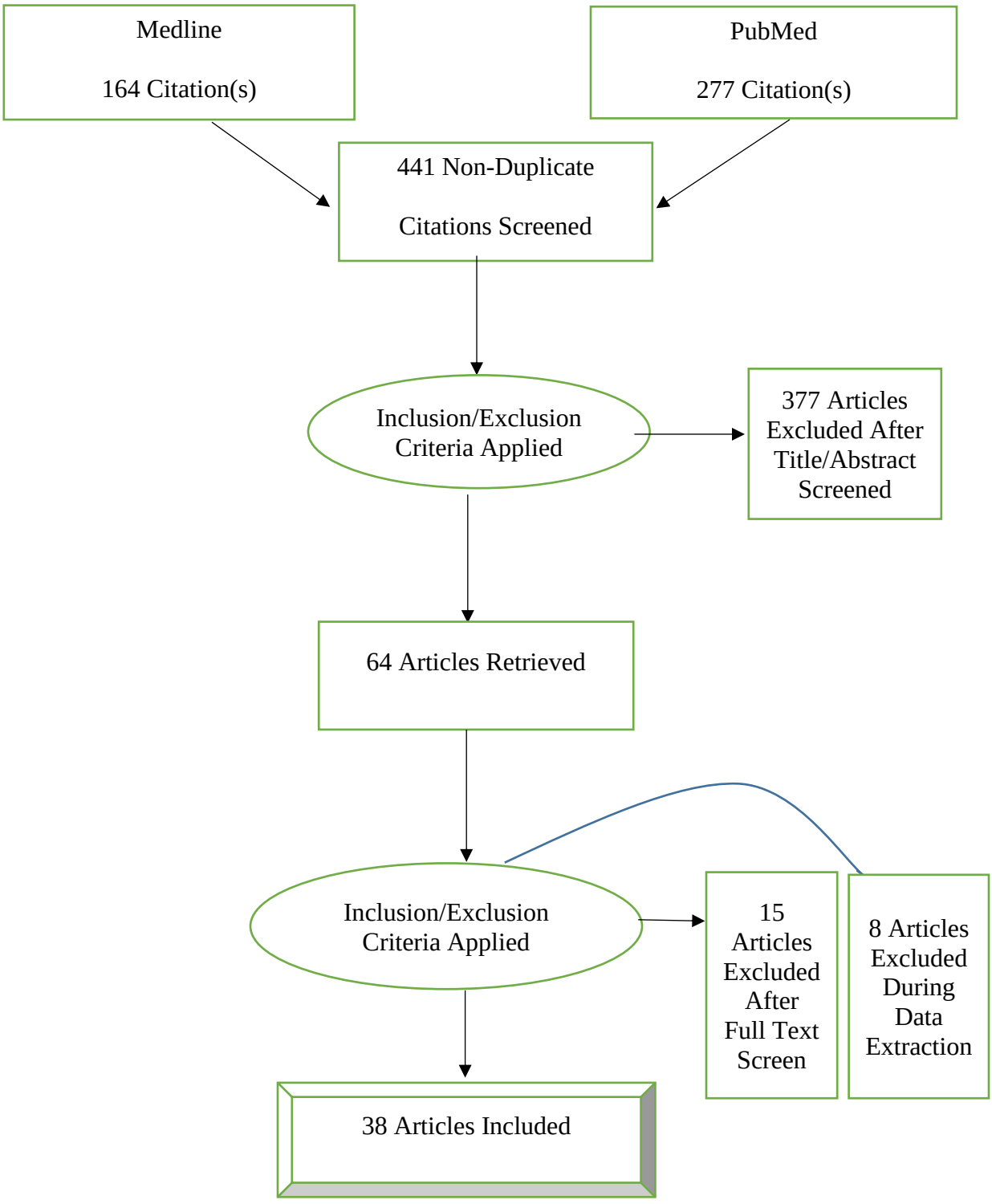


**Figure 1. PRISMA Flow Diagram**

# CHAPTER 3

## RESULTS

The original search criteria gave 441 (277 from PubMed and 164 from MEDLINE). The search *pre covid-19, faculty staff, students, mental health, physical activity and pandemic in higher education* provided the most information of the returned articles. Pertinent information as far as abstracts with included full text was evaluated for inclusion purposes. 5 research questions were developed based on criteria. Of all the reviewed articles, 41 met the inclusion criteria and analyses intentions. Articles were separated into 5 main categories including COVID-19 response to academics, transitioning from in-person to e-learning, mental health, physical activity and the future of learning based on questions assembled by the search. 4 research questions included:

- What is the academic continuity response of faculty and students due to Coronavirus (COVID-19)?
- What is the outlook of faculty, staff and students on e-learning?
- How has faculty and students mental health evolved or devolved since COVID-19?
- What does regular physical activity now look like for faculty and students since the onset of COVID-19?
- What does the future of academics look like based off this pandemic?

**Table 1.Studies of academic continuity during Pre-COVID and Pandemic in higher education.**

| Authors | Type of Study | Major Findings |
|---|---|---|
| **Sharma, A., et al. (2021)** | Investigation/Evaluation | • Blended e-learning methods are perceived better than the web assisted e-learning methods by the students.<br>• Students preferred the mixed mode of courses to e-learning courses.<br>• Students perceived blended e-learning as a more attractive proposition than the web assisted learning.<br>• The main focus of the instructors should not be merely on adoption of Web-based learning in the course of crises, such as the COVID 19 Pandemic, but be on the development and improvement of the quality of learning during the emergency |
| **Verde, A., & Valero, J. M. (2021)** | Review | • The benefits of the blended education are for professors and students.<br>• With the potentiality of connection through the Internet, new learning possibilities arise, with added resources that help toward comfort, accessibility, effectiveness, and more options to access education.<br>• Classes in hybrid mode allow for optimization of the use of academic resources and grant control of the capacity and social distance, as there are fewer people in the classroom, such that the social distancing measures imposed by the state can be better complied with. |

Some articles suggested that students and faculty prefer blended learning, also known as hybrid learning when compared to completely in person or web based. According to Sharma et al

(2021) this new learning possibility along with added resources from faculty will assist with comfort, accessibility, effectiveness and more options to access education. Hybrid classes make it easier for students to have more control over how their time is spent on their studies while also being able to social distance during the pandemic. Boyer-Davis et al (2020) found that faculty experienced more technostress during the COVID-19 pandemic than ever before. Technostress is a form of stressed that develops from having to learn new technological uses for online information and communication. More instructors should try to embrace hybrid learning in order to attend to students who may not be able to make classes. It is important for them to create a quality learning environment for themselves and the students in order for technostress to be reduced.

**Table 2. Studies of Mental Health in Staff, Faculty and Students**

| Authors | Types of Study | Major Findings |
|---|---|---|
| **Boyer-Davis, S. (2020)** | Experimental | • Faculty experience significantly more technostress during the COVID-19 crisis than before the existence of the virus.<br>• Significant difference in overall faculty perceived technostress scores before the COVID-19 pandemic and during the health crisis. |
| **Marshall, J., Roache, D., & Moody-Marshall, R. (2020)** | Experimental | • Measures to support work–life balance, digital competencies, and the improvement of the work environment could serve as a buffer against stress in general and the stress generated by using technologies in particular.<br>• Therefore, there is a need to consider actions that could support teachers who have performed their work without planning, relying on their own resources and, in many cases, who are individuals required to support the education of their own children.<br>• There is a particular need for strategies that could help teachers to provide quality education without suffering a |

| | | |
|---|---|---|
| | | decrease in their own quality of life—a condition that makes it impossible to perform their task with the dedication that a teaching–learning process requires, either in a widespread situation such as a global pandemic or in other unique situations that a teacher must face during their career. |
| **Van de Velde, S., et al (2021).** | Review | • Elevated risk for depressive symptoms was found in female students, students with fewer social support resources and in a more disadvantaged socioeconomic position, and students with a migrant background.<br>• COVID-19 related stressors, such as reduced social contact, increased financial insecurity, and academic stress explained a relatively larger proportion of the variance in depressive symptoms compared to non-COVID-19 related stressors.<br>• Not the pandemic itself, but rather the secondary effects of the pandemic relate to students' mental health. |
| **Hunt, C., et al (2021).** | Experimental | • GD or gender diverse, extent to which a person's gender identity, role, or expression differs from the cultural norms prescribed for people of a particular sex, students had very high levels of psychological distress relative to their male and female peers during the pandemic and may need additional support and expanded access to treatment.<br>• Lower psychological resilience may have contributed to their elevated psychological distress.<br>• these students, already at greater risk for preexisting distress, may be more vulnerable during times of widespread societal upheaval |
| **Rogowska, A. M., et al (2021).** | Cross Section | • The prevalence of people at high risk of anxiety and perceived stress, poorer physical health, and low life satisfaction changed significantly across three waves of the COVID-19 pandemic. |

| | | |
|---|---|---|
| | | • Both the wave (W1<W2, W1>W3), and genders (men<women).<br>• Statistically significant changes in perceived stress were found between pandemic waves (W1>W2, W1>W3), and genders (W3, W2>W3), and was significantly worse in women than in men.<br>• The level of life satisfaction also decreased significantly in W3 (W1>W3, W2>W3), but did not differ between men and women<br>• High GAD (generalized anxiety disorder) risk was presented two times more frequently among women and people who subjectively assessed their health as poor, three times more likely in participants dissatisfied with their lives, and seven times more probably in persons with high-stress levels. |
| **Abdulghani, H. M., et al (2020).** | Cross-sectional | • The prevalence of overall stress was significantly higher in female medical students, i.e., (40%) as compared to the male students (16.6%), and was highest (48.8%) during the 3rd medical year.<br>• It was also noted that the most effective strategy, embraced by students to cope with the severe stress, was "indulging in religious activities"<br>• 22.3% of students had perceived severe stress as they did not prefer online learning. Similarly, those students who have not believed or refused the online learning or disagree in "there is pleasure in the study due to COVID" they have significantly higher stress. 21.5% mild, 17.8% of moderate, and 21.2% severe. |
| **Baloch, G. M., et al (2021).** | Experimental | • Among the 494 respondents, 125 (25.3%), 45 (9.1%) and 34 (6.9%) experienced minimal to moderate, severe, and most extreme levels of anxiety, respectively.<br>• The odds of a female student being more anxious are higher compared to a male student<br>• The most prominent stressors attained from the qualitative feedback from the Pakistani students are associated with online teaching, concerns about their |

| | | |
|---|---|---|
| | | academic performance and completion of the current semester, uncertainty related to exam dates, and the status of the following semester.<br>• All stakeholders should join force regardless of pre-existing differences and inequalities to ensure the well-being of future generations, specifically students from higher educational institutions. |
| **Deng, J., et al (2021).** | Systematic Review and Meta-Analysis | • The pooled prevalence of depressive symptoms, anxiety symptoms, and sleep disturbances was 34%, 32% and 33%, respectively.<br>• The prevalence values differ based on geographical regions, diagnostic criteria, education level, undergraduate year of study, financial situation, living arrangements and gender.<br>• Overall, the prevalence of depressive symptoms and anxiety symptoms synthesized in this study was higher compared to pre-pandemic prevalence in similar populations.<br>• Evidently, mental health screening and intervention should be a top priority for universities and colleges during the pandemic. |
| **Matiz, A., et al (2020)** | Experimental | • Pre–post Mindfulness-Oriented Meditation (MOM) significant improvements were found in both groups in anxiety, depression, affective empathy, emotional exhaustion, psychological well-being, interceptive awareness, character traits and mindfulness levels.<br>• Improvements in depression and psychological well-being were higher in the low resilience (LR) vs. high resilience (HR) group.<br>• Mindfulness-based training (based on meditation practices taken from the Buddhist tradition and adapted into contemporary, psychologically-oriented programs; eight group meetings led by a mindfulness instructor and daily individual practice at home) can effectively mitigate the psychological negative consequences of the Covid-19 outbreak, helping in |

| | | |
|---|---|---|
| | | particular to restore well-being in the most vulnerable individuals. |
| **Romeo, M., et al (2021).** | Observational | • Students are the ones who have suffered the most as a result of this situation (temporary employment regulation, higher scores in negative work-home and home-work interaction, lower scores in positive home-work interaction, and negative effects of teleworking).<br>• Higher mean score in interpersonal conflict and worse scores with regard to negative affective states.<br>• Women were the ones whose environment was shown to be more frequently affected by the pandemic and who exhibited more negative effects of teleworking.<br>• Participants with the highest scores in negative affective states were those who perceived an increase in conflict and a high negative effect from work spilling over into their personal lives.<br>• On the contrary, participants with the highest levels of positive affective states were those with medium to low levels of negative home-work interaction, over 42.5 years old, and with medium to high levels of positive work-home interaction<br>• Results aim to help higher education to reflect on the need to adapt to this new reality, since the institutions that keep pace with evolving trends will be able to better attract, retain, and engage all the members of the university community in the years ahead. |
| **Zhang, Y., & Liu, B.**<br><br>**(2021).** | Cross<br><br>Sectional/Experimental | • Respondents from a disadvantaged family background (i.e., below-college parental education, below-average family economic condition, and rural residence) were more likely to have an "unsupportive" attitude during online courses (ATOC).<br>• Respondents with a "neutral" or "unsupportive" ATOC had greater during-COVID psychological distress, compared to their counterparts with a "supportive" ATOC. |

| | | |
|---|---|---|
| | | • Given the persistent spread of the COVID-19 worldwide and the profound onsite-online transition in course delivery in higher education, students' perceptions and evaluations of the massive online courses should be carefully considered and integrated into curriculum reforms in both present and post COVID-19 situations. |

Technostress also ties into the mental health and especially staff and faculty, but students as well. Keeping a balance between work and personal life is not always easy. Colliding the two can cause major health issues for all at an institution. Planned action needs to be put in place in order to support professors that are relying on their own resources without help from the institution that they work for. Professors should be able to continue being able to give quality education to students without the fear that their quality of personal life will begin to deteriorate. Van De Velde, et al (2021) suggests that depressive symptoms are seen more in females, students that have no support at home, those who come from a poor socioeconomic background and foreigners who come from different countries. Though social distancing is important during this time it has also been a barrier to the health of students. Other COVID-19 stressors include financial burdens followed by the stress of academics.

Hunt et al (2021) discovered that gender diverse groups which are described as, "… a person's gender identity, role, or expression differs from the cultural norms prescribed for people of a particular sex" students displayed greater levels of psychological distress when compared to their male and female cohorts. These students were experiencing psychological distress pre-covid, but it was worsened due to the vulnerable times we are in. High risk anxiety, stress, lack of physical activity and life satisfaction has decreased over the past three waves of Covid. Rogowska (2021) and other researchers found that perceived stress was less by the time wave 2

occurred, but greater between waves 2 and 3. Women endured greater anxiety and stress than men. Perceived stress was greater in pandemic wave 1 when compared to wave 2 and 3. Life satisfaction decreased completely by wave 3 overall for both men and females equally.

A cross-sectional study done by Abdulghani et al (2020) revealed that female medical students experienced increased overall stress (40%) as compared to the male students (16.6%), and was highest (48.8%) during the 3rd medical year. It was also noted by researchers that, "22.3% of students had perceived severe stress as they did not prefer online learning. Similarly, those students who have not believed or refused the online learning or disagree in "there is pleasure in the study due to COVID" they have significantly higher stress. 21.5% mild, 17.8% of moderate, and 21.2% severe" (Abdulghani, H. M., et al, 2020). The best coping mechanism used for medical students partaking in religious activities. This assisted with the decrease mental health issues emerging during the pandemic. A similar experimental study was conducted by Baloch et al (2021) that stated, "Among the 494 respondents, 125 (25.3%), 45 (9.1%) and 34 (6.9%) experienced minimal to moderate, severe, and most extreme levels of anxiety, respectively" (Baloch, G. M., et al, 2021). Females once again were shown to have higher levels of anxiety when compared to men. This was due to e-learning, worry of how they were doing in classes, the possibility of not being able to complete the semester thoroughly, confusion related to exams being taken and uncertainty of what the following semester would look like.

When the world shifted abruptly, students and faculty were hit with ways of teaching and learning they never thought imagined. Overall readiness for online English classes in higher educated in student was scored at a 3.68 out of 5 and a score of 3.70 out of 5 for professors which was reported by Zou et al (2021). Only 2 weeks into the pandemic Almendingen and colleagues (2021) reported in their experimental study that 75% of students revealed that life

became difficult one lockdown as put place. 50% of students reported that their outlook on learning decreased due to the sudden change of their face-to-face learning. By week 12 life difficulty decreased to 57%, but lack of motivation and interest to e-learning increased to 71%. The biggest reasons effort and motivation lacked was because of either usual social interaction with others or their home being unfit to be used as a learning space for them. Their norm was face-to-face learning so the abrupt shift in that was not easy. Most students did agree that online lectures being posted, streamed lectures and virtual class meetings such as zoom would be beneficial in improving the way they had begun to look at e-learning.

**Table 3. Studies of Student and faculty outlook on E-learning**

| Authors | Type of Study | Major Findings |
|---|---|---|
| **Bordel, B., et al (2021)** | Case Study | • A clear gender gap is observed. Female students had more difficulties to conciliate the domestic and academic tasks, so they could not attend classes and participate at the same level than male students.<br>• This gap is also observed in the work and domestic hours, which tend to be highly different depending on the gender (with a much higher dedication of female students to family care than male students)<br>• Female students have suffered the consequences of the lockdown more than men. They felt more stressed and worried and, besides, they tended to contribute more to home duties. Consequently, their educational performance during the lockdown was worse than men's. |
| **Sigdel, S., et al (2021).** | Review | • It is possible that in the months or years ahead, online remote learning may become acceptable in Nepal, at least in other disciplines. However, today's emergency, Internet-based learning will not help the current crop of medical students.<br>• In the longer term, if online medical education is further developed and permitted to continue, it may be |

| | | |
|---|---|---|
| | | challenging for Nepal's universities to protect their student intake, faculty jobs, and income.<br>• Nepalese medical students and trainee doctors, many of whom already go abroad for training, may prefer to register and take online courses from overseas universities, which would threaten the relevance of Nepalese medical schools. |
| **Ghosal, T., et al (2021).** | Descriptive cross-sectional study | • Digital Education Material (DEM) There was variable opinion of the students regarding the effectiveness of the DEMs, with most agreeing that the DEMs are relevant (83.2%) and informative (80.7%)<br>• Online Interaction (OI) Regarding OI, a similar diverging trend was observed with most students agreeing that the OI with the teachers being prompt (77.9%), relevant (71.6%), informative (84.2%) and helpful for understanding (64.2%) but only 46.8% of them considered that OI was fulfilling their learning experience<br>• Online Assessment (OA) Regarding OA majority of the students agreed regarding all the parameters posed in the query, except 55% of students disagreed that OA was harder |
| **Eycan, Ö., & Ulupinar, S. (2021).** | Descriptive and cross-sectional study | • Although the use of DE (distance education) in theoretical lessons has been accepted in nursing education, it was found that it is ineffective in clinical practice.<br>• For educational institutions to adapt to these developments, it is important to support Nis (Nurse Instructors) in terms of DE, to organize instructor trainings, to inform them about the use of web tools, to make arrangements to increase student participation in the lessons, and to provide ease of internet access.<br>• It is a fact that DE cannot replace clinical practice. However, developing simulation applications in skill training may be beneficial. Conducting qualitative studies to determine the training needs of NIs regarding DE will make significant contributions to the literature. |

| | | |
|---|---|---|
| **Totlis, T., et al (2021).** | Cross-sectional study | • The traditional anatomy teaching method through face-to-face lectures remains the most preferred and effective teaching modality according to students.<br>• The self-teaching by studying the anatomy lectures' presentation is considered the least effective and preferred method.<br>• The remote teaching methods' development has increased the active participation of students in the anatomy lessons. The majority of students do not believe that remote teaching can completely replace the traditional anatomy teaching method. However, one third of the students consider that the online lectures or the pre-recorded lectures could be implemented in the anatomy curricula.<br>• The transition from the traditional teaching method into remote methods seems to affect the students' performance at exams. |
| **Yoo, H., Kim, D., & Lee, Y. M. (2021).** | Experimental | • Anatomy achievement scores of the blended learning group (the 2020 class) were higher than those of the traditional lecture one (2019 class).<br>• The blended learning group demonstrated significantly higher scores in the abdomen and pelvis, and head and neck topics compared to the 2019 classes.<br>• Most of the students who participated in the survey preferred online lectures for several reasons. The online class made it possible for students to tailor their learning, save more time for self-studying, easily access the course materials, and repeatedly study at their own pace.<br>• Blended learning approach is an effective method for anatomy learning, and the advantage may result from increased self-directed study through online learning. |
| **Zawacki-Richter, O. (2021).** | Case Study | • It should not be argued here that "e-learning" is better than face-to-face learning. Rather, it should be emphasized that there are always advantages and disadvantages, pros and cons of using digital media in teaching and learning.<br>• In the current situation, many have put a lot of effort into converting their lectures and seminars into a digital format and have shown great flexibility in order to |

| | | |
|---|---|---|
| | | make it possible for most students to study. Many lecturers would like to continue to use the developed materials when we are hopefully back to normal in the near future.<br>• On the part of students, too, the experience with remote learning could lead, as empirical research has shown, to a greater desire for digital learning and also raise a certain level of expectation. |
| **Kanetaki, Z., et al (2021).** | Experimental | • By applying innovative teaching methods, thereby meeting the challenge of an imposed distance learning environment, students' spatial conceptions improve, overcoming the absence of a physical learning space.<br>• Deep insights for individual students were discovered, as well as significant relationships between students' transition from secondary to higher education and their understanding of geometric features. |
| **McGee, J., & Tashakkori, R. (2021).** | **mixed methods study** | • Both groups improved in balance and physical performance measures.<br>• Both showed better improvement than the non-intervention group of TUG, gait speed, limits of stability in post-urography assessment, FES-I score and handgrip strength.<br>• Evidence of the effectiveness of the online learning framework that was integrated showed that it positively influenced students' learning styles. |
| **Almendingen, K., et al (2021).** | Experimental | • Two weeks into the lockdown, 75% of students reported that their life had become more difficult and 50% felt that learning outcomes would be harder to achieve due to the sudden shift to online education. Twelve weeks into the lockdown, the corresponding numbers were 57% and 71%, respectively.<br>• The most pressing concerns among students were a lack of social interaction, housing situations that were unfit for home office purposes, including insufficient data bandwidth, and an overall sense of reduced motivation and effort.<br>• Most students agreed that pre-recorded and streamed lectures, frequent virtual meetings and student response systems |

| | | |
|---|---|---|
| | | could improve learning outcomes in future digital courses.<br>• The preference for written home exams over online versions of previous on-campus exams was likely influenced by student's familiarity with the former. The dropout rate remained unchanged compared to previous years. |
| **Khan, M. A., et al**<br><br>**(2021).** | Case Study | • During this COVID-19 outbreak, it has become imperative for universities to adopt the online examination system. However, this has both benefits and problems. The universities should carefully design their exam strategy to reap the benefits of the technology and the students' needs concurrently.<br>• Students/learners recognized various benefits of e-exams compared to the paper-based method, including critical factors of reliability in scoring and long-term effectiveness concerning time, effort, and cost.<br>• Impartiality, authenticity, and security being the primary challenges meeting the successful implementation of e-exams.<br>• Teachers need to have adequate training to organize online courses and examinations appropriately.<br>• Teachers and educational institutions must employ the time, effort, and money needed to produce a positive outlook towards electronic assessment. The efficacy of e-exams can then, therefore, be attained by devising them to be authentic, reliable, secure, and compliant in promoting learning and ensuring alignment with intended learning outcomes (ILOs)<br>• For a triumphant implementation of e-exams, higher education institutions must showcase support, including the formulation of adequate conditions required for conducting e-exams in the universities, attributing to the needfulness of training the students for using the online assessment system. Otherwise, they will experience anxiety<br>• Research findings further revealed that the e-exam method must be embedded in the |

| | | |
|---|---|---|
| | | university's strategic planning for sustainable development. |
| **Swaminathan, N., et al (2021)** | Experimental | • An educator's ability to handle technical tools is one of the major challenges in implementing online teaching<br>• After the online faculty development program, the level of perceived competency in conducting online classes increased among the nurse educators<br>• The participants perceived their competency in using various components of Google Classroom and other digital tools to have increased post training and they also demonstrated skills in utilizing various components of Google Classroom and digital platforms such as Kahoot, Socrative, and GoSoapBox quiz.<br>• The design and delivery of the short course on Google Classroom are effective in improving the required competency of nursing educators to deliver online teaching.<br>• Google Classroom can be used effectively to train faculty members. |
| **Tan, L. T., et al (2021).** | Intervention | • Participant satisfaction remained high despite the reduction in direct contact time with the faculty.<br>• While the pros and cons of online teaching are well-documented [20], there remains concern that it is less effective than face-to-face teaching.<br>• Although <50% of our participants viewed >75% of the mandatory lectures before the webinars, this may reflect self-perceived learning needs based on their different levels of experience. |
| **Zou, C., Li, P., & Jin, L. (2021).** | Experimental | • The overall level of readiness for unexpected online transition of college English education students was 3.68 out of a score of 5, and that for teachers was 3.70.<br>• Though the students reported the highest level of readiness in technology access, they were most troubled by technical problems during online study.<br>• For teachers, among challenges, they were most frustrated by students' disengagement in online class. |

| | | |
|---|---|---|
| | | • Institutions should take the initiative and continue promoting the development of online college English education, because a majority of the respondents reported their willingness and intention to continue learning/teaching English in online or blended courses in the post-pandemic period.<br>• Institutions should also arrange proper training for instructors involved, especially about pedagogical issues (technical challenges, challenges concerning learning process, learning environment, self-control, efficiency and effectiveness, etc.). Language teachers are suggested to pay special attention to students' engagement and communication in online courses. |

When comparing faculty, staff and student's outlook on e-learning, a clear gender gap was discovered. Studies were reviewed and conducted around the world to reveal how everyone feels about distance learning. Female students and faculty had a harder time balancing work, life and academic duties which put them in a position to not always be able to attend and participate in regular classes when compared to male students. Bordel et al (2021) says that this is due to the fact that women attend to family care at a more personal level than males do. Women's contribution to their home life has resulted in their suffering greater consequences during the pandemic such as stress which has resulted in decreased educational presentation. A review done by Sigdel et al (2021) found that in the months and years to come, online learning may be okay for medical students in Nepal, but at this time it is hindering them. Medical students are unable to get the hands on learning that is needed for their future career if their studies are conducted solely through e-learning. Challenges will eventually arise once they are actually going into their field. Though it is evident that in person is needed in their case, Sigdel et al noted that, "Nepalese medical students and trainee doctors, many of whom already go abroad for training, may prefer

to register and take online courses from overseas universities, which would threaten the relevance of Nepalese medical schools" (Sigdel, S., et al, 2021).

Ghosal et al (2021) did a descriptive cross-sectional study examining Digital Educational Material (DEM), Online Interaction (OI) and Online Assessment (OA). The study found that most students (83.2%) agreed that DEM was applicable and explanatory (80.7%). OI revealed that over half of students agreed that during the pandemic faculty and staff were prompt (77.9%), applicable (71.6%), explanatory (84.2%) and understanding (64.2%), but under half (46.8%) of students thought that OI was best for the experience as far as learning. Most students agreed that OA was beneficial with 55% of students disagreeing. They felt that OA was too dense.

Nursing students were also observed and as studies done on the medical students in Nepal revealed, distance learning has been accepted overtime, but it is no effective in the long run when clinical practice has to be completed. E-learning cannot replace in person clinical practices due to the amount of physical training needed for medical professionals to thrive in their career. Educational institutions should set in place instructor trainings for nurse instructors so they are able to provide students with the online tools needed. This will help to increase thorough student participation and improve the ability for them as instructors to organize their internet access. Though hands on classes such as clinicals are looked down on actual classes being taken are usually not.

An experimental study conducted by Yoo et al (2021) revealed that blended learning scores for anatomy students were higher in class of 2020 (pandemic) when compared to the class of 2019 students (pre-pandemic). Most students stated that they preferred e-learning because they were able to, "…to tailor their learning, save more time for self-studying, easily access the course materials, and repeatedly study at their own pace" (Totlis, T., et al, 2021). A similar study

conducted by Yoo and colleagues reveled something different. Face-to-face anatomy was desired because students felt it was more successful in terms of how they did in the class. Faculty saw that e-learning did increase participation from students, but students felt that they were teaching themselves the material through online lectured. One third of students believed learning lectures online instead of in person was best for them, but the rest of the student population agreed that e-learning could never take the place of in-person as it would affect their exam grades eventually due to lack of understanding the material.

Tan and colleagues (2021) did an intervention study that reported participation of students remained high though there was no real contact with faculty members. While there are several pros and cons to e-learning it was noted that it would be hard for it to take the place of face-to-face learning as it is not as effective for faculty and students without the right training and guidance. Tan and colleagues (2021) reported that more than 50% of students reviewed less than 75% of materials for class meetings while e-learning took place. This could be because some students and faculty were used to navigating online technology whereas others were not. In an experimental students Zou et al (2021) reported that students had a high level of readiness when it came to accessing technology, but many of them would run into problems while studying for their online class. This study also revealed that the thing faculty was most upset about was the lack of participation on the students end towards the beginning of the pandemic.

**Table 4.Studies of Student and Faculty Physical Activity Changes.**

| Authors | Type of Study | Major Findings |
|---|---|---|
| **Barkley, J. E., et al (2020).** | Experimental | • Undergraduate students reported a significant reduction of 33.7% in mild physical activity from pre-to post-cancellation.<br>• There was a 22.4% reduction in total physical activity from pre- to post-cancellation in participants who were |

| | | |
|---|---|---|
| | | most physically active before the pandemic and this reduction was apparent for each exercise intensity (light, moderate, vigorous).<br>• These results suggest that while the university closure may have created some barriers to participating in physical activity for some individuals it is possible that other aspects of the cancellation may have encouraged physical activity behavior in others. (could be because of closure of fitness centers and gymnasiums)<br>• While total daily physical activity was only decreased in the most active participants in this sample, the significant increase in daily sitting was across all physical activity groups and is worrisome.<br>• There was not a significant change in bodyweight from pre- to post-cancellation. This lack of a change may be because the majority of our sample (i.e., *low* and *moderate* activity groups) maintained or increased total physical activity over the survey period. |
| **López-Valenciano, A., et al (2021).** | Observational | • Compared to pre-lockdown values, five studies showed a reduction of light/mild physical activity (walking) between 32.5 and 365.5%, while seven studies revealed a reduction of high/vigorous physical activity between 2.9 and 52.8%.<br>• Walking, moderate, vigorous, and total physical activity levels have been reduced during the COVID-19 pandemic confinements in university students of different countries.<br>• Despite of the reductions, those who met the current minimum PA recommendations before the lockdown generally met the recommendations also during the confinements. |
| **Luciano, F., et al (2021).** | Cross Sectional/Observational | • Medicine students are at risk for high sedentary behaviour and low physical activity levels |

| | | |
|---|---|---|
| | | • Even physically active students were mainly 'high sitting–high active'. Sitting time was on average 10 h per day, and higher among those sleeping less than 7 h per night.<br>• Sleeping less than recommended (<7 h/night) was associated with more sitting time and less energies to perform daily activities.<br>• An increase in sleep time may be noticed in some individuals due to a lack of strict onset hours and the possibility to tailor schedules to personal needs |
| **Rodríguez-Larrad, A., et al (2021).** | Observational | • University students reduced moderate (−29.5%) and vigorous (−18.3%) physical activity during the confinement and increased sedentary time (+52.7%)<br>• However, they spent more time on high intensity interval training (HIIT) (+18.2%) and mind-body activities (e.g., yoga) (+80.0%)<br>• Adaptation to the confinement, in terms of physical activity, was handled better by women than by men.<br>• These results will help design strategies for each gender to promote physical activity and reduce sedentary behavior during confinement periods. |
| **Roldan, A., & Reina, R. (2021)** | Experimental/Comparative study | • Self-efficacy has been recommended as a preferred theoretical framework for studying the beliefs of prospective PE teachers toward inclusion<br>• Distance learning is more complex when subjects have a high percentage of practical content. However, teaching strategies that encourage students' participation and learning reflections increase the students' SE regardless of the teaching format (i.e., face-to-face vs. online teaching). |
| **Romero-Blanco, C., et al (2020)** | Observational/cross-sectional | • Changes in physical activity and sedentary behavior patterns both globally and by group. |

| | | |
|---|---|---|
| | | • Students spent more time doing physical activity and spent more time sitting when their usual environment was limited.<br>• In the analysis by group, minutes of physical activity increased significantly during lockdown among the following groups: women; all years of study except final year; normal or low BMI; those who did not eat a Mediterranean diet; and those in the preparation or action stage of change.<br>• We do not know the exact reasons why physical activity increased, and we do not know if the effects on physical activity habits would have been maintained if the lockdown had gone on for longer.<br>• No changes in physical activity were found in men. Perhaps men and women had different motivations and the environment influences one gender more strongly.<br>• Although the results during lockdown are positive in terms of physical activity, it is necessary to recognize that this population might suffer from health issues in the future due to an increase in sedentary behavior. |

Physical inactivity is another controversial matter COVID has brought upon faculty and students. In an experimental study conducted by Barkley et al (2020). 33.7% of undergraduate students reported an exceptional decrease in mild physical activity and students who were regularly active reported a 22.4% reduction in total physical activity once the pandemic occurred. This was mainly due to fitness centers and gyms temporarily closing. Though physical activity was still promoted, the complete closing of institutions who have recreational centers posed as a barrier to why physical inactivity occurred. Most mild sedentary student's behavior changed once face-to-face classes we were cancelled. No real movement was being made by them especially with having to now sit around the house all day. This was very alarming for

many who saw severe weight gain over the course of time. Those who were regularly active showed no substantial change in body weight as they continued to maintain their low to moderate physical activity from home.

An observational study done by López-Valenciano et al (2021) compared pre-pandemic physical activity within 5 studies. Researchers noted that, "…a reduction of light/mild physical activity (walking) between 32.5 and 365.5%, while seven studies revealed a reduction of high/vigorous physical activity between 2.9 and 52.8% (López-Valenciano, A., et al, 2021). Overall physical activity in several countries whether light, moderate or vigorous has decrease since the lockdown due to COVID-19 has occurred. As the previous study revealed, those who were already regularly physically active before COVID still met their physical activity recommendations during COVID. Luciano et al (2021) revealed that medical students who were regularly physically active had an average sitting of 10 hours per day in combination with getting less than 7 hours of sleep at night. Sleeping patterns were due a higher level of sitting during the day which gave them less energy to exercise on a regular basis. Lack of sleep was most likely due to them not having the strict hours of waking up to physically go to class in the morning. Their schedule was also now tailored to their personal needs with adjustments that had to be mad during lockdown.

Other university students had increased sedentary time (+52.7%) and decreased moderate (-29.5%) and vigorous (-18.3%) physical activity. During confinement regularly active students spent more time doing alternative exercises such as high intensity interval training HIIT (+18.2) and mind-body activities like yoga (+80.0%). During lockdown, regular physical activity was handled well by women than it was by men. Romero-Blanco and other researchers reported that, ", minutes of physical activity increased significantly during lockdown among the following

groups: women; all years of study except final year; normal or low BMI; those who did not eat a Mediterranean diet; and those in the preparation or action stage of change" (Romero-Blanco, C., et al, 2020). There was no clear reason why physical activity increased in women, but no change was seen in men, but it may have been due to the fact that men and women had incompatible motivators.

Though some results had a positive for those who were already active or in the action stage of change, light to mild sedentary activity seen in men and women in to be acknowledged before future health issues arise for us as a population. The future of academic learning is crucial during this time. It is mandatory that higher ups at universities to listen to what will make their student and faculty comfortable while also conforming to their needs and local/national policies. Marshall et al (2021) proposed that, "When faced with complex situations, leaders must encourage all affected stakeholders to embrace change" (Marshall, J., Roache, D., & Moody-Marshall, R., 2020). Effective leaders should always make it a point to let those in their organization know that even when there are issues arise they will still stay afloat on all things when trying to handle the situation. Leaders must also look at things from a birds eye view when diagnosing a problem. Processes and change will not always be linear, especially in a force crisis such as the pandemic. Complications will arise but a good leader will always do what's best for their organization.

**Table 5. Studies of the future of academic learning due to the pandemic**

| Authors | Type of Study | Major Findings |
|---|---|---|
| **Velde, F.V. et al. (2021)** | Cross Sectional | • Creating novel opportunities was perceived most positively from the students, secondly, informing the students through email updates about COVID-19, finally, reminders through visual cues.<br>• Institutional trust presented the largest positive effect on informing the students through email |

| | | |
|---|---|---|
| | | updates, while no effect was measured for reminders.<br>• Attitudes toward Infection prevention and control (IPC) behaviors showed the strongest effect on students' perceptions of new opportunities and reminders, whereas providing email updates about COVID-19 is less affected by pre-existing perceptions. |
| **LANDIN, J., & PACENKA, N. (2021).** | Review/Assessment | • The return to traditional educational methods may no longer be practical after the pandemic concludes, as reflected by scholars from various countries<br>• The way forward must include a compassionate and sustainable consideration of student needs, instructor abilities and broader compassion for each groups challenges<br>• It is time to abandon old-fashioned models of life and for education to fit within the realities of people's lives (technological advances and personalized instruction) |
| **Hani, A. B., et al. (2021)** | Cross Sectional | • The incidence of positive COVID-19 tests was found to be higher among clinical students as compared to pre-clinical students.<br>• Commitment to general health safety precautions did not appear to be protective enough for clinical students.<br>• It is fundamental that additional strategies, including access to vaccines, are set, and deficiencies in current protections are identified to maintain students' safety and well-being. |
| **Marshall, J., Roache, D., & Moody-Marshall, R. (2020).** | Experimental | • When faced with complex situations, leaders must encourage all affected stakeholders to embrace change.<br>• In the midst of the COVID-19 pandemic, educational leaders must convey the message that 'a culture of change consists of great rapidity and nonlinearity, on the one hand, and equally great potential for creative break-throughs on the other.<br>• effective leaders remind everyone that the constant threats they face each day should be overshadowed by 'determination, solidarity, strength, shared purpose, humanity, kindness, and resilience<br>• establish a sense of urgency and create a guiding coalition – a group of individuals who represent the stakeholders (It is important that the group discusses and develops a vision inspired by the current anxiety and confusion that everyone may be experiencing, but to keep in mind that 'the best |

| | | |
|---|---|---|
| | | way to "manage" change is to allow for it to happen')<br>• Educational leaders should constantly reflect on the fact that these processes and experiences are not linear; change, especially when forced by a crisis, is very complicated. |
| **Devkota, K. R.**<br><br>**(2021).** | Observational study | • Recommends the adoption of policies and practices that optimize the inclusive use of online and distance education programmers for best effect, both now and in the post-pandemic era.<br>• Universities urged their affiliated campuses/colleges to initiate online teaching and learning using diverse online platforms. However, this sudden shift to online tutoring was and continues to be limited to urban areas. Large numbers of university teachers and students, particularly those living in rural villages, were and continue to be disconnected from learning. |
| **Dumulescu, D.,**<br><br>**Pop-Păcurar, I., &**<br><br>**Necula, C. V.**<br><br>**(2021)** | Observational | • The result is an example of an instructional work-model based on the complex dynamic between cognitive, emotional-motivational, and social aspects of learning in online settings.<br>• The effectiveness of university teaching in the post-digital era is strongly connected with the ability to create cognitive-transferable learning experiences, emotionally safe learning environments, while promoting an active autonomy-focused approach for self-regulated learning. |
| **Paetsch, J., &**<br><br>**Drechsel, B.**<br><br>**(2021).** | Observational | • The perceived quality of teacher training during the online semester and self-reported improvements in digital skills predicted significantly students' intentions to use digital learning materials for future teaching.<br>• Attentional regulation predicted perceived quality of teacher training and self-reported improvements in digital skills during distance learning. Thus, attentional regulation had a significant indirect effect on pre-service teachers' behavioral intentions.<br>• The indirect effects of other resource management strategies (effort and time management) and intrinsic motivation were not significant.<br>• The quality of online instruction was an important factor in student teachers' learning processes during the pandemic. |

A cross sectional study was done by Velde et al (2021) proposing that generating innovative options for students, keeping students up to date on campus COVID-19 policies put in place through email and also giving them reminders through visual cues was shown to impact students positively in all aspects. Institutional trust has the biggest positive effect when giving students updates through email. It was also noted that students are more likely to be opened to new experiences on campus if they are made aware by the university that prevention of healthcare associated infections, such as COVID, will be under control. The occurrence of COVID-19 was found more in clinical students when compared to pre-clinical students. That is why it is key for general health precautions, such as opening COVID testing and vaccination sites on campus, should be in place to protect all students attending the institutions.

Devkota and colleagues (2021) created an observational study that recommended that universities should endorse policies and practices that will improve introduce e-learning for the present and future. It should depend on how the faculty wants to conduct their class and if students are willing to go back in the classroom physically post-pandemic. Giving the option of completely face-to-face, completely online or hybrid will grant this ability. Another observational study done by Dumulescu et al (2021) confirmed that there were improvements in digital skills when professors were trained correctly on how to use different online programs. This also made students more willing to adapt to e-learning and pay better attention in classes since their professor was more proficient in that area. The quality of instruction the university provides to faculty is a major element when trying to teach to students during the pandemic.

# CHAPTER 4

# DISCUSSION

We identified 41 studies that examined academic continuity, mental health, outlook on e-learning, physical activity changes and the future of academic learning during Pre-COVID and pandemic in higher education. Our review suggests that blended learning can become a thing of the future, but completely online classes for both faculty and students will become and issue due to the fact that everyone learns and teaches in different forms. This could specifically be a problem for medical and nursing students including their instructors based off of the fact that no real online training was received. Developments of technostress will occur if institutions do not take into the consideration the already hard balance of work and personal life. Also, student's mental health is bound to decrease as many institutions continue to close and remain in e-learning format for important classes. Universities must plan and prioritize class formats based on the comfortability of students and faculty. Grades will deteriorate and anxiety will increase and the unknown of what the next semester will look like grows. Physical activity should also be taken into account. Though some results had a positive for those who were already active or in the action stage of change, light to mild sedentary activity seen in men and women in to be acknowledged before future health issues arise for us as a population

***Pre-COVID and pandemic impact on mental health.*** Students seem to be the ones who have suffered the most during this pandemic. This includes little to no income due to job closures, no balance of work-home life making their ability to focus on academics a struggle and the lack of motivation. Women were reported to have been most affected by the pandemic in comparison to men due to work tipping over into their personal lives. These results should aim to help those in higher education adapt to updated ways of teaching/learning in order to attract

engagement of students and faculty in the future. At home mindfulness-based trainings can also help to stabilize anxiety and depression that the lockdown has brought on. Those we should also keep in mind are students who come from a poor socioeconomic status. With an already troubling family disadvantage, institutions need to keep in mind to stay supportive during e-learning as their situation at home is already uneasy for them.

***Impact of e-learning on faculty and students.*** Although e-learning has been slowly but surely accepted by many universities, it does have its pros and cons. E-learning ineffective when it comes to medical and nursing students receiving hands on clinical practice, but can be to students who have been able to tailor their studies to their liking and have more flexibility with daily tasks that need to get done. If institutions provide instructors with up to date training there are several possibilities to making online lectures more innovative and enjoyable. It should not be an argument of if e-learning is better than face to face, but pointed out that they both have their advantages and disadvantages during the pandemic. Online teaching and learning for some faculty and students is inevitable. It is important for faculty to provide students with the comfortability of being able to get in contact with them even if it is not physically and for university officials to provide their faculty with adequate online training so they can better adapt to temporary e-learning. Institutions must also note to securely design online exam strategies that are beneficial for the class needs. If exams are secure, authentic and reliable professors will have no need to worry about the electronic assessment of exams and students will feel that they are being graded fairly.

***Physical activity impact of faculty, staff and students.*** Physical inactivity has been assessed globally as sedentary behavior has begun to take a major toll on every population worldwide. Results of physical inactivity from men and women can help to improve and promote

greater physical activity while reducing sedentary behaviors during the pandemic. One thing that should be looked into is the self-efficacy of each gender in order to create a framework of positive change. An abrupt closure of fitness centers and gymnasiums is not an excuse for physical inactivity. We just need to adapt to the complexity of what the pandemic has brought upon us. Reflective learning of self-efficacy should be in mind whether there is a temporary closure or not. There is no clear reason as to why physical activity increased for women, but had not changed for men, but it should be maintained for both parties. It is also necessary that institutions continue to promote being active through the post-COVID or the population will suffer future health issues due to increased sedentary behavior.

***The future of academic learning post-COVID.*** It is crucial that institutions have effective leaders in these higher up roles when dealing with the pandemic. Students and faculty agreed that when being updated through email and given innovative ways to still enjoy daily life they were more likely to want to participate in in-person events and academics. That is why general health precautions for everyone need to be established and presented to everyone at the university. Effective leaders should never put a plan in place ad not make their organization aware of changes through updates. Returning to face-to-face classes was said to may not be practical once the pandemic is over, but it is possible with the correct steps taken. Putting updated policies and procedures in place would do just that. Also, be mindful to students needs and instructors abilities would also help. Sometimes old fashioned models need to be ditched, especially within the educational realm, so that universities are able to fit into the novel realities of people's lives. Creating further strategies, such as opening on campus COVID testing and vaccination clinics will help to shield and maintain the safety and well-being of their faculty and students**.**

# CHAPTER 5

## LIMITATIONS

It should be observed that there were limitations within the study. First, access to databases was minimal. Other databases may have given more information on the specific topics addressed. Since pertinent information as far as abstracts with included full text was evaluated for inclusion purposes, source materials within databases with restrictions to access of specific articles that may have helped with the validation of the topic was included in the list of limitations. Restriction was only on search terms *pre covid-19, faculty, staff, students, mental health, physical activity and pandemic in higher education.* Other search terms may have given wider selection of articles. Publication in the English language was also a limitation. If articles of other languages were looked into further sources of research would have been provided to increase contribution of the relevant work within the topic. Also, there may have been missed data and information as governmental agencies reports and any journal that presented possible grey area was not looked into. Lastly, when dealing with science there is always room for bias and error. In the scientific community there can be several studies done on the same topic, but each outcome and opinion is completely different.

## HUMAN SUBJECTS APPROVAL STATEMENT

The assembling of this review did not require gathering of original date from humans, and consequently, my study was excused from institutional review board (IRB) examination and approval.

## REFERENCES

Abdulghani, H. M., Sattar, K., Ahmad, T., & Akram, A. (2020). Association of COVID-19 pandemic with undergraduate medical students' perceived stress and coping. *Psychology research and behavior management, 13*, 871.

Almendingen, K., Morseth, M. S., Gjølstad, E., Brevik, A., & Tørris, C. (2021). Student's experiences with online teaching following COVID-19 lockdown: A mixed methods explorative study. *PloS one, 16*(8), e0250378.

Baloch, G. M., Sundarasen, S., Chinna, K., Nurunnabi, M., Kamaludin, K., Khoshaim, H. B., & AlSukayt, A. (2021). COVID-19: exploring impacts of the pandemic and lockdown on mental health of Pakistani students. *PeerJ, 9*, e10612.

Barkley, J. E., Lepp, A., Glickman, E., Farnell, G., Beiting, J., Wiet, R., & Dowdell, B. (2020). The acute effects of the COVID-19 pandemic on physical activity and sedentary behavior in university students and employees. *International journal of exercise science*, *13*(5), 1326.

Bordel, B., Alcarria, R., Robles, T., & Martin, D. (2021). The Gender Gap in Engineering Education during the COVID-19 Lockdown: A Study Case. *International Journal of Engineering Pedagogy*, *11*(6).

Boyer-Davis, S. (2020). Technostress in higher education: An examination of faculty perceptions before and during the COVID-19 pandemic. *Journal of Business and Accounting*, *13*(1), 42-58.

Deng, J., Zhou, F., Hou, W., Silver, Z., Wong, C. Y., Chang, O., & Huang, E. (2021). The prevalence of depressive symptoms, anxiety symptoms and sleep disturbance in higher education students during the COVID-19 pandemic: A systematic review and meta-analysis. *Psychiatry Research*, *301,* 113863.

Devkota, K. R. (2021). Inequalities reinforced through online and distance education in the age of COVID-19: The case of higher education in Nepal. *International Review of Education*, *67*(1), 145-165.

Dumulescu, D., Pop-Păcurar, I., & Necula, C. V. (2021). Learning design for future higher-education– insights from the time of COVID-19. *Frontiers in Psychology*, *12,* 2843.

Eycan, Ö., & Ulupinar, S. (2021). Nurse instructors' perception towards distance education during the pandemic. *Nurse Education Today*, *107*, 105102.

Ghosal, T., Sadhu, A., Mukherjee, P., & Mukhopadhyay, P. (2021). Assessment of online learning procedure through the eyes of medical students in COVID-19 scenario. *Journal of Clinical and Diagnostic Research*, AC01-AC05.

Hani, A. B., Alaridah, N., Abeeleh, M. A., Shatarat, A., Rayyan, R., Kamal, A., & Al-Taher, R. N. (2021). Medical students and risk of COVID-19 infection: A descriptive cross-sectional study from the University of Jordan. *Annals of Medicine and Surgery*, *70*, 102775.

Hunt, C., Gibson, G. C., Vander Horst, A., Cleveland, K. A., Wawrosch, C., Granot, M., & Hughes, J. W. (2021). Gender diverse college students exhibit higher psychological distress than male and female peers during the novel coronavirus (COVID-19) pandemic. *Psychology of Sexual Orientation and Gender Diversity*.

Kanetaki, Z., Stergiou, C., Bekas, G., Troussas, C., & Sgouropoulou, C. (2021). Analysis of Engineering Student Data in Online Higher Education During the COVID-19 Pandemic. *International Journal of Engineering Pedagogy, 11*(6).

Khan, M. A., Vivek, V., Khojah, M., Nabi, M. K., Paul, M., & Minhaj, S. M. (2021). Learners' perspective towards e-exams during COVID-19 outbreak: Evidence from higher educational institutions of India and Saudi Arabia. *International Journal of Environmental Research and Public Health*, *18*(12), 6534.

Landin, J., & Pacenka, N. (2021). Reframing Education Delivery and Assessment during and after the COVID-19 Pandemic. *Proceedings of IAC 2021 in Vienna, 1*, 9.

López-Valenciano, A., Suárez-Iglesias, D., Sanchez-Lastra, M. A., & Ayán, C. (2021). Impact of COVID-19 pandemic on university students' physical activity levels: an early systematic review. *Frontiers in psychology*, 3787.

Luciano, F., Cenacchi, V., Vegro, V., & Pavei, G. (2021). COVID-19 lockdown: Physical activity, sedentary behaviour and sleep in Italian medicine students. *European Journal of Sport Science*, *21*(10), 1459-1468.

Marshall, J., Roache, D., & Moody-Marshall, R. (2020). Crisis leadership: A critical examination of educational leadership in higher education in the midst of the COVID-19 pandemic. *International Studies in Educational Administration (Commonwealth Council for Educational Administration & Management)*, *48*(3), 30-37.

Matiz, A., Fabbro, F., Paschetto, A., Cantone, D., Paolone, A. R., & Crescentini, C. (2020). Positive impact of mindfulness meditation on mental health of female teachers during the COVID-19 outbreak in Italy. *International Journal of Environmental Research and Public Health*, *17*(18), 6450.

McGee, J., & Tashakkori, R. (2021). STEM Scholars' Sense of Community During the COVID-19 Pandemic Breadcrumb. *Journal of College Science Teaching*, *51*(1).Paetsch, J., & Drechsel, B. (2021). Factors Influencing Pre-service Teachers' Intention to Use Digital Learning Materials: A Study Conducted During the COVID-19 Pandemic in Germany. *Frontiers in psychology*, *12*.

Rodríguez-Larrad, A., Mañas, A., Labayen, I., González-Gross, M., Espin, A., Aznar, S., & Irazusta, J. (2021). Impact of COVID-19 confinement on physical activity and sedentary behaviour in Spanish university students: Role of gender. *International journal of environmental research and public health*, *18*(2), 369.

Rogowska, A. M., Ochnik, D., Kuśnierz, C., Chilicka, K., Jakubiak, M., Paradowska, M., & Babińska, Z. (2021). Changes in mental health during three waves of the COVID-19 pandemic: a repeated cross-sectional study among polish university students. *BMC psychiatry*, *21*(1), 1-15.

Roldan, A., & Reina, R. (2021). Are Self-Efficacy Gains of University Students in Adapted Physical Activity Influenced by Online Teaching Derived From the COVID-19 Pandemic?. *Frontiers in Psychology*, *12*, 1034.

Romeo, M., Yepes-Baldó, M., Soria, M. Á., & Jayme, M. (2021). Impact of the COVID-19 Pandemic on Higher Education: Characterizing the Psychosocial Context of the Positive and Negative Affective States Using Classification and Regression Trees. *Frontiers in Psychology*, *12*.

Romero-Blanco, C., Rodríguez-Almagro, J., Onieva-Zafra, M. D., Parra-Fernández, M. L., Prado-Laguna, M. D. C., & Hernández-Martínez, A. (2020). Physical activity and sedentary lifestyle in university students: Changes during confinement due to the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, *17*(18), 6567.

Sharma, A., & Alvi, I. (2021). Evaluating pre and post COVID 19 learning: An empirical study of learners' perception in higher education. *Education and Information Technologies*, *26*(6), 7015-7032.

Sigdel, S., Ozaki, A., Dhakal, R., Pradhan, B., & Tanimoto, T. (2021). Medical education in Nepal: impact and challenges of the COVID-19 pandemic. *Academic Medicine*, *96*(3), 340-342.

Swaminathan, N., Govindharaj, P., Jagadeesh, N. S., & Ravichandran, L. (2021). Evaluating the effectiveness of an online faculty development programme for nurse educators about remote teaching during COVID-19. *Journal of Taibah University Medical Sciences*, *16*(2), 268-273.

Tan, L. T., Tanderup, K., Nappa, A., Petric, P., Jürgenliemk-Schulz, I. M., Serban, M., & Nout, R. A. (2021). Impact of transitioning to an online course–A report from the ESTRO gyn teaching course. *Clinical and translational radiation oncology*, *29*, 85-92.

Totlis, T., Tishukov, M., Piagkou, M., Kostares, M., & Natsis, K. (2021). Online educational methods vs. traditional teaching of anatomy during the COVID-19 pandemic. *Anatomy & Cell Biology*, *54*(3), 332-339.

Vande Velde, F., Hamed, A., Lange, J. S., Sælid, T., & Bastien, S. (2021). Assessing student perceptions of a Norwegian University's COVID-19 response strategy: A cross-sectional study. *Frontiers in Public Health*, 1173.

Van de Velde, S., Buffel, V., van der Heijde, C., Çoksan, S., Bracke, P., Abel, T., & Wouters, E. (2021). Depressive symptoms in higher education students during the first wave of the COVID-19 pandemic. An examination of the association with various social risk factors across multiple high-and middle-income countries. *SSM-population health*, *16*, 100936.

Verde, A., & Valero, J. M. (2021). Teaching and learning modalities in Higher Education during the pandemic: responses to COVID-19 from Spain. *Frontiers in Psychology*, 3376.

Yoo, H., Kim, D., & Lee, Y. M. (2021). Adaptations in anatomy education during COVID-19. *Journal of Korean medical science*, *36*(1).

Yuki, K., Fujiogi, M., & Koutsogiannaki, S. (2020). COVID-19 pathophysiology: A review. *Clinical immunology*, *215*, 108427.

Zawacki-Richter, O. (2021). The current state and impact of Covid-19 on digital higher education in Germany. *Human Behavior and Emerging Technologies*, *3*(1), 218-226.

Zhang, Y., & Liu, B. (2021). Psychological Distress Among Chinese College Students During the COVID-19 Pandemic: Does Attitude Toward Online Courses Matter?. *Frontiers in Psychology*, *12*, 2010.

Zou, C., Li, P., & Jin, L. (2021). Online college English education in Wuhan against the COVID-19 pandemic: Student and teacher readiness, challenges and implications. *PloS one*, *16*(10), e0258137.

# VITA

Graduate School

Southern Illinois University

Keyantta J. Houston

houstonkeyantta338@gmail.com

Southern Illinois University Carbondale
Bachelor of Science, Exercise Science, December 2019

Research Paper Title:
Global Pandemic and Higher Education: Swift Changes for Faculty, Staff and Students

Major Professor: Juliane P. Wallace