

THE IMPACT OF ELECTRONIC LEARNING DURING COVID-19 ON PHINMA SAINT JUDE COLLEGE MEDICAL TECHNOLOGY STUDENTS AND THEIR COPING MECHANISM

Norlyn Bihay¹, Veejay Robles², Patricia Joy Viguella³, Jan Nicole Termulo⁴, Diana Joyce Barrientos⁵*

bihaynorlynmae@gmail.com¹, Vepo.robles.sjc@phinmaed.com², peejayviguella@gmail.com³, nicoletermulo5@gmail.com⁴, barrientosdianajoyce@gmail.com⁵

PHINMA SAINT JUDE COLLEGE, Sampaloc, Manila 1008 Philippines

Abstract:

A descriptive research study was conducted to determine the impact of Electronic-Learning on Medical Technology Students and their Coping Mechanisms. The estimated population sampling was 124 students and only 106 students responded. The student response is dominated by females within the age range of nineteen to twenty-one, with the majority of the population in the second-year level. The mean assessments in the coping mechanism reported that 50% of the students sometimes confront their problems, talk to other people, plan their next move, and are sometimes optimistic in dealing with difficulties during learning. More than half of the students have somewhat developed their ways to keep their emotional well-being in shape by distancing themselves from things that they think are slowly dragging them down such as stress but still have control over them. They sometimes criticized themselves, prepared for the worst things that could happen, and tended to escape by turning on their work or doing other things not related to school activities as a way of avoidance. It was found that the students' coping mechanism during Electronic-Learning has no significant relation to their educational level. However, the data collected are not sufficient enough to support the existence of the students' academic rank and performance during electronic learning.

Keywords: Stress, Coping Mechanism, Electronic-Learning

I. INTRODUCTION

Our educational system had adopted online learning”, particularly in the higher education and training sectors. Although the practice is not yet widespread, the number of organizations and individuals adopting these adjustments appears to be expanding at an exponential rate (Dhanarajan et al., 2010). Because of the pandemic outbreak that began in December of 2019, strategies have been established to combat the virus in the Philippines (WHO, 2020). Schools have chosen to provide online classes rather than traditional ones. This is frequently one of the government's methods of preventing the virus from spreading. Citizens had reacted in a variety of ways to this (Zhong, 2020). Most parents and even pupils requested an academic freeze owing to financial troubles in every household for the reason that their parents were laid off far away from work and a few didn't have access to gadgets or the internet. Others are fortunate enough to be able to commute to school with little difficulty, but they have no choice but to finish their education. We begin a massive summer-semester transition from traditional instruction to electronic online classrooms, just like other colleges across the country. The school and pupils will be able to connect themselves to the development of regular weekly video welcomes (Castillo, 2020). Few students have lack reliable internet access and/or technology to participate in digital learning; this gap can be seen across countries and income levels within countries, where modules are given to students who do not have a good internet connection, while those who do are required to complete online assessments and participate in virtual learning. Education has not been made easy at any point or any view and perspective whether it's in camera or public. While considering the benefits of E-learning as a tool to promote the delivery of educational barriers to the adoption of this technology should also be considered (Parslow et al, 2016) this pandemic has greatly affected the learning of the many Medical Technology students and therefore the adapting of electronic learning has been implemented. Does, the researcher would like to study ‘The impact of Electronic Learning During Covid-19 on PHINMA Saint Jude College’.

Generally, this study is conducted to know the impact of E-learning on SJC Medical technology students” and their coping mechanisms. This aims to identify the coping mechanisms of the students” who have undertaken the field of medical laboratory science during electronic medical education. Specifically aims to:

1. Identify the socio-demographic profile of the respondents in terms of:
 - a. Name (optional)
 - b. Sex
 - c. Age
 - d. Year level
2. What are the mean assessment of the students on coping mechanisms during E-learning in terms of:

2.1 Active Coping Strategies

- 2.1.1 Confrontive Coping
- 2.1.2 Seeking Social Support
- 2.1.3 Planful Problem Solving
- 2.1.4 Positive Reappraisal

2.2 Passive Coping Strategies

- 2.2.1 Distancing
- 2.2.2 Self-controlling
- 2.2.3 Escape-avoidance
- 2.2.4 Accepting Responsibility

3. Is there a significant relationship between the demographic profile (Year level) and the coping mechanism?

II. METHODOLOGY

Research Design

This study used the descriptive research design and survey method used to acquire the demographic profile (sex, age, and year level) and the coping mechanisms of the Medical Technology Students in PHINMA Saint Jude College school year 2021-2022 in the implementation of electronic learning during COVID-19. Descriptive research includes identifying the attributes of a particular phenomenon through observation or exploration process in the correlation between the variables (Creswell, 2002). When conducting a given study such descriptive design helps understand the nature of things and phenomena (Siedlecki, 2020). A descriptive design involves data gathering from a certain population which is neither manipulated nor experimented on. The researchers selected the particular design because the study incorporates the estimated 124 respondents and only requires data from students who can help provide the information regarding the implementation of electronic learning and their coping mechanisms.

Locale of the Study

The study was conducted in PHINMA St. Jude College Manila: the place was selected for its significance knowing the efficiency of the study in implementing electronic learning. This study was implemented in the respective homes of the researchers because of the pandemic and with the use of different platforms to communicate with the respondents.

Samples of the Study

This study utilized stratified random sampling, the respondents of the study were 1st year to 4th-year students taking up Bachelor of Science in Medical Technology who are officially enrolled in PHINMA Saint Jude College, in response to their assessment of the “new normal”, wherein the researcher will consider the demographic of the respondents.

Data Analysis

The responses to the questionnaire by the Medical technology students were statistically analyzed with the data requirements of this study. Descriptive statistical data analyses were performed on the sample groups to obtain a clear understanding of the population. The instrument that has been used in this research is questions that are set on the base of the Likert scale. It used a four-point Likert scale; 1 is the lowest and 4 is the highest. The student’s mean assessments were analyzed and interpreted as:

- 3.50 - 4.00 = Used a great deal”
- 2.50 - 3.49 = Used quite a bit”
- 1.50 - 2.49 = Used somewhat”
- 1.00 - 1.49 = Does not apply

Standard deviation, mean, percentage, frequency counts, and ANOVA to treat the data statistically.

III. RESULTS AND DISCUSSION

4.1 Profile of the respondents in terms of Sex, Age, and Year level.

Age	Frequency	Percentage
18 and below	10	9.43
19-21	89	83.96
22-24	5	4.72
25-27	1	0.94
28-30	1	0.94
Average		100

Table 2. Frequency and Percentage Distribution of Respondents According to Age

As shown in **Table 2**, eighty-nine (89) or 83.96 % belong to the 19-20 age bracket, five (5) or 4.72 % are belong to the 22-24, ten (10) or 9.43 % belong to 18 and below age bracket, one (1) or 0.94 % are belong to 25-27 age bracket, one (1) or 0.94 % are belong to 28-30 age bracket, which implies that most of the respondents fall to 19-21 age bracket.

Sex	Frequency	Percentage
Male	20	18.87
Female	86	81.13
Average		100

Table 3. Frequency and Percentage Distribution of Respondents According to Sex

Table 3 shows that 81.13% of our respondents are female and 18.87% of them are male. The table clearly shows that of the 106 respondents, the majority of them are female with 86 respondents.

Table 4. Frequency and Percentage Distribution of Respondents According to Year Level

Year Level	Frequency	Percentage
First-Year	43	40.57
Second-Year	48	45.28
Third-Year	13	12.26
Fourth-Year	2	1.89
Average		100

Table 4 shows the demographic profile of the respondents on a year-by-year basis”. As shown, forty-three (43) or 40.57 % of the respondents are first-year students, followed by the second-year students with forty-eight (48) or

45.27%, third-year students with thirteen (13) or 12.26%, and fourth-year students with two (2) or 1.89%. This means that the majority of the respondents in the sample are second-year students.

4.2 Results of a personal view of respondents in confrontive coping.

The seven (7) elements of this factor, as an active component of a coping method, reveal personal ideas on how individuals actively engage or tackle the issue or difficulty they encounter. During E-learning, Medical Technology students report their level of agreement on coping mechanisms indicators that are relevant to them.

The respondents said they "sometimes" tried to persuade the person in charge to change his or her mind; that they "sometimes" let their feelings out in some way; that they "occasionally" took a big risk or did something very risky; and that they "occasionally" stood firm and fought for what they wanted.

2.1 Active Coping Mechanism	Confrontive coping Mean	Interpretation
6. I did something which I didn't think would work, but at least I was doing something	2.67	Used quite a bit
7. Tried to get the person responsible to change his or her mind	2.50	Used quite a bit
17. I expressed anger to the person(s) who caused the problem	2.02	Used somewhat
28. I let my feelings out somehow	2.62	Used quite a bit
34. Took a big chance or did something very risky	2.53	Used quite a bit
46. Stood my ground and fought for what I wanted	2.92	Used quite a bit
Average	2.54	Used quite a bit

Table 5: Mean of Responses on Confrontive Coping

4.3 Results of a personal view of respondents in Seeking social Support.

The responses demonstrate their active coping aspect of seeking practical, emotional, and informational assistance. Respondents generally stated that they spoke with someone to learn more about the situation, that they accepted compassion and empathy from others, that they spoke with someone that can help them solve the problem, that they sought advice from a relative or a companion, and that they talked to someone about how they felt.

2.1.2 Seeking social support		
	Mean	Interpretation
8. Spoke to someone to find out more about the situation	3.04	Used quite a bit
18. Accepted sympathy and understanding from someone	3.00	Used quite a bit
22. I got professional help	2.08	Used somewhat
31. Spoke to someone who could do something concrete about the problem	2.72	Used quite a bit
42. I spoke to a relative or friend I respected for advice	2.58	Used quite a bit
45. Spoke to someone about how I was feeling	2.53	Used quite a bit
Average	2.66	Used quite a bit

Table 6: Mean of Responses on Seeking Social Support

4.4 Results of a personal view of respondents in planful problem-solving.

The elements of this factor, as an active construct of coping mechanism, represent personal views on proactive issue solving, where students' responses reflect their problem-focused efforts to change the situation, as well as a systematic approach to resolving the issue. They doubled their efforts to make things work; they came up with a couple of different solutions to the problem; they changed anything so things would turn out okay; they made a plan of action and followed it; they just focused on what to do next; they drew on their previous experiences in similar situations and made concessions to get something positive out of the situation.

2.1.3 Planful problem solving		
	Mean	Interpretation
1. Just concentrated on what I had to do next	2.97	Used quite a bit
5. Bargained or compromised to get something positive from the situation.	2.78	Used quite a bit
26. I made a plan of action and followed it	3.08	Used quite a bit
39. Changed something so things would turn out all right	3.10	Used quite a bit
48. Drew on my past experiences; I was in a similar situation before	2.79	Used quite a bit
49. I knew what had to be done, so I doubled my efforts to make things work	3.22	Used quite a bit
52. Came up with a couple of different solutions to the problem	3.14	Used quite a bit
62. I went over in my mind what I would say or do.	3.29	Used quite a bit
Average	3.05	Used quite a bit

Table 7: Mean of Responses on Planful problem solving

4.4 Results of a personal view of respondents in positive reappraisal.

2.1.4 Positive reappraisal		
	Mean	Interpretation
4. I felt that time would make a difference – the only thing to do was to wait.	2.38	Used somewhat
19. I told myself things that helped me to feel better.	3.34	Used quite a bit
20. I was inspired to do something creative	3.14	Used quite a bit
23. Changed or grew as a person in a good way	3.28	Used quite a bit
27. I accepted the next best thing to what I wanted.	3.29	Used quite a bit
30. I came out of the experience better than when I went in	2.94	Used quite a bit
36. Found new faith	2.69	Used quite a bit
38. Rediscovered what is important in life	3.16	Used quite a bit
56. I changed something about myself	3.08	Used quite a bit
60. I prayed	3.49	Used quite a bit
64. I tried to see things from the other person's point of view.	3.09	Used quite a bit
66. I jogged or exercised.	2.61	Used quite a bit
Average	3.04	Used quite a bit

Table 8: Mean of Responses on Positive reappraisal

The respondents stated that they "sometimes" prayed; that they told themselves things to make them feel better; that they accepted the next best thing to what they wanted; that they positively changed or grew as a person; that they rediscovered what is important in life; that they were inspired to do something creative; that they tried to see things from the other person's point of view; that they changed something about themselves; that they came out of the experiment fee They "rarely" believe that time will help them or make a difference, thus there was nothing left to do but wait.

4.6 Results of a personal view of respondents in Distancing.

The six (6) elements for this factor, as a passive construct of coping mechanism, represent personal beliefs on distancing as a source of coping mechanism. Their replies reflect their cognitive efforts to remove themselves from situations and minimize their value.

2.2 Passive Coping Mechanism		
	2.2.1 Distancing	
	Mean	Interpretation
12. Went along with fate; sometimes I just have bad luck	2.63	Used quite a bit
13. Went on as if nothing had happened	2.70	Used quite a bit
15. Looked for the silver lining, so to speak; tried to look to the bright side of things	3.27	Used quite a bit
21. Tried to forget the whole thing	2.71	Used quite a bit
32. Got away from it for a while; tried to rest or take a vacation.	2.69	Used quite a bit
41. Didn't let it get to me; refused to think too much about it	2.74	Used quite a bit
Average	3.23	Used quite a bit

Table 9: Mean of Responses on Distancing

The respondents stated that they "sometimes" looked for the silver lining, that they tried to see the bright side of things, that they didn't let it get to them, that they refused to think too much about it, that they tried to forget about it, that they went on as if nothing had happened, that they got away from it for a while; that they "sometimes" went along with fate; that they "just had bad luck."

4.7 Results of a personal view of respondents in Self-controlling.

The respondents stated that they "sometimes" tried to keep their feelings to themselves, that they tried to keep their feelings from interfering with other things, that they thought about how a person they admire would handle this situation and used that as a model, that they kept others from knowing how bad things were, that they tried not to act too quickly or follow their first hunch, that they waited to see what would happen before doing anything, and that they kept their feelings to themselves.

2.2.2 Self-controlling		
	Mean	Interpretation
10. Tried not to burn my bridges, but leave things open somewhat	2.59	Used quite a bit
14. I tried to keep my feelings to myself	3.22	Used quite a bit
24. I waited to see what would happen before doing anything	2.59	Used quite a bit
35. I tried not to act too rashly or follow my initial hunch	2.63	Used quite a bit
37. I held my pride and maintained a stiff upper lip.	2.48	Used somewhat
43. Kept others from knowing how bad things were	2.78	Used quite a bit
54. I tried to keep my emotions from interfering with other things too much	3.09	Used quite a bit
63. I thought about how a person I admire would handle this situation and used that as a model	2.81	Used quite a bit
Average	2.78	Used quite a bit

Table 10: Mean of Responses on Self-controlling

4.8 Results of a personal view of respondents in Accepting Responsibility.

Respondents stated that they "sometimes" attempted to analyze the problem to better understand it, that they criticized or lectured themselves, that they promised themselves that things would be different the next time, that they apologized or did something to make amends, that they braced themselves for the worst, that they reminded themselves how much worse things could be, and that they realized they were the problem.

2.2.3 Accepting responsibility		
	Mean	Interpretation
2. I tried to analyze the problem to understand it better	3.36	Used quite a bit
9. Criticized or lectured myself	3.30	Used quite a bit
25. I apologized or did something to make up	3.27	Used quite a bit
29. Realized I brought the problem on myself	3.05	Used quite a bit
51. I made a promise to myself that things would be different next time	3.28	Used quite a bit
53. Accepted it, since there's nothing that could be done.	3.04	Used quite a bit
61. I prepared myself for the worst-case	3.27	Used quite a bit
65. I reminded myself how much worse things could be.	3.25	Used quite a bit
Average	3.23	Used quite a bit

Table 11: Mean of Responses on Accepting responsibility

4.9 Results of a personal view of respondents in Escape-Avoidance.

Respondents reported that they "sometimes" turned to work or a substitute activity to take their minds off things; that they hoped for a miracle; that they avoided being around people in general; that they slept more than usual; that they refused to believe it had happened; that they wished they could change what had happened or how it felt; that they tried to make themselves feel better by eating, drinking, smoking, using drugs or medication; and that they triangulated.

2.2.4 Escape-Avoidance		
	Mean	Interpretation
3. Turned to work or substitute activities to take my mind off things	3.36	Used quite a bit
11. Hoped a miracle would happen	3.30	Used quite a bit
16. Slept more than usual	3.27	Used somewhat
33. Tried to make myself feel better by eating, drinking, smoking, using drugs or medication	3.05	Used somewhat
40. Avoided being with people in general	3.28	Used quite a bit
47. Took it out on other people	3.04	Used somewhat
50. Refused to believe that it had happened	3.27	Used somewhat
55. Wished that I could change what had happened or how I felt.	3.25	Used quite a bit
Average	2.78	Used quite a bit

Table 12: Mean of Responses on Seeking Social Support

Table 13: Mean and Standard Deviation of Responses of Coping mechanism per Year Level.

Descriptives			
	N	Mean	Std. Deviation
First-year	41	19.2927	1.87409
Second-year	48	19.8125	.73387
Third-year	14	21.3571	1.69193
Fourth-year	3	21.6667	.57735
Total	106	19.8679	1.56799

In the above table there is a mean of 19.29 and a standard deviation of 1.87 in the first year; a mean of 19.81 and SD .73 for the second year; a mean of 21.36 and SD 1.69 for the third year; a mean of 21.67 and SD of .58 for the fourth year with the total of 106 responses based on the summary of the data gathered per year level and coping mechanism.

Table 14: Comparison of Coping Mechanism per Year level using ANOVA.

Dependent Variable: Coping Mechanism

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	54.470	3	18.157	9.092	.000
Within Groups	203.681	102	1.997		
Total	258.151	105			

In the above table, we report the results of the ANOVA test to compare the means of data relation between respondents' year level and the Coping Mechanism. Results indicate a statistical difference between the two groups ($F=9.092$, $p=.000$). Thus, in concluding our empirical results we find that our hypothesis is supported by reporting an accepted null hypothesis

Post Hoc Tests**Multiple Comparisons**

Dependent Variable: Coping Mechanism

Scheffe

(I) level	(J) level	Mean Difference (I-J)		Sig.	95% Confidence Interval	
			Std. Error		Lower Bound	Upper Bound
First-year	Second-year	-.51982	.30051	.397	-1.3741	.3345
	Third-year	-2.06446*	.43742	.000	-3.3079	-.8210
	Fourth-year	-2.37398	.84518	.054	-4.7766	.0286
Second-year	First-year	.51982	.30051	.397	-.3345	1.3741
	Third-year	-1.54464*	.42923	.007	-2.7648	-.3245
	Fourth-year	-1.85417	.84097	.189	-4.2448	.5365
Third-year	First-year	2.06446*	.43742	.000	.8210	3.3079
	Second-year	1.54464*	.42923	.007	.3245	2.7648
	Fourth-year	-.30952	.89903	.989	-2.8652	2.2462
Fourth-year	First-year	2.37398	.84518	.054	-.0286	4.7766
	Second-year	1.85417	.84097	.189	-.5365	4.2448
	Third-year	.30952	.89903	.989	-2.2462	2.8652

*. The mean difference is significant at the 0.05 level.

Conclusion

The survey on the demographic profile of the respondents showed that the majority of the respondents in terms of age belongs to 19-21 years old, Female with 81.13% in terms of sex, and second-year with a percentage of 45.28% in the year level. It could be concluded from the findings that out of the 8 coping mechanisms namely active coping strategies: confronting, seeking social support, planful problem solving, positive reappraisal, the majority of respondents sometimes used this coping mechanism strategy to identify their negative thoughts and deal directly to their problems to reduce their stress while in passive coping strategies: distancing, self-controlling, escape-avoidance, and accepting responsibility, the majority of the respondents also used this type of coping mechanism sometimes to reduce to their emotional tension by the means of eating, smoking, and drinking, as the results student-respondents sometimes used these indicators. With two main coping strategies, students have equal predominance in terms of use

during Electronic learning. The results also revealed the null hypothesis stating that there is no significant relationship between demographic profile (year level) and the respondents coping mechanism is accepted. As a result, it can be stated that the students' ability to cope with academic strain and stress during E-learning has no relation to their current educational level.

Recommendations

The researchers strongly advise Medical Technology students to cope with academic and personal problems brought on by E-learning during the COVID-19 pandemic by paying equal attention to these problems as well as emotions; that they should invest more broadly in their academic engagement while also considering their mental and emotional health. The results revealed that most of the time the students seek social assistance thus parents need to nurture and support their children while in-the-home environment learning, which is fairly significant instead of putting up too much pressure. With this, supportive and communication skills such as talking and sharing could be enhanced. This is one of the reasons why it is highly recommended that the Counselling Centre of the School should always be accessible and reactive to students. When students particularly are in their own homes while facing difficulties and challenges, To create a better learning experience online in a subtle way, teachers must continue to deliver favorable learning to students in methods they can specifically cope with. Online workshops, seminars, and conferences on 'stress management, mental health awareness during electronic learning, time management, and other significant and relevant subjects that need to be addressed to all students as a starting point for a healthy habit while in at-home learning to equip themselves with these ways of coping.

Reference

- Abdulghani, H. M. (2020). Association of COVID-19 Pandemic with undergraduate Medical Students", Perceived Stress and Coping. *Psychology research and behavior management*, 13, 871–881. <https://doi.org/10.2147/PRBM.S276938>
- Arinto, P. B. (2016). Issues and challenges in open and distance e-Learning: Perspectives from the Philippines. *International Review of Research in Open and Distributed Learning*, 17(2), 162- 180. <https://doi.org/10.19173/irrodl.v17i2.1913>
- Asoodar, M., Vaezi, S., & Izanloo, B. (2016). Framework to improve e-learner satisfaction and further strengthen e-learning implementation. *Computers in Human Behavior*, 63, 704–716.
- Astin, A. W. (1993). *What matters in college: Four critical years revisited*. San Francisco: Jossey-Bass
- Baloran, E.T. (2020) Knowledge, Attitudes, Anxiety, and Coping Strategies of Students during COVID-19 Pandemic, *Journal of Loss and Trauma*, 25:8, 635-642, DOI:10.1080/15325024.2020.1769300
- Baticulon, R.E., Sy, J.J., Alberto, N.R.I. et al. Barriers to Online Learning in the Time of COVID-19: A National Survey of Medical Students in the Philippines. *Med.Sci.Educ.* 31, 615–626 (2021). <https://doi.org/10.1007/s40670-021-01231-z>
- Beqiri, M. S., Chase, N. M., & Bishka, A. (2009). Online course delivery: An empirical investigation of factors affecting student satisfaction. *Journal of Education For Business*, 85(2), 95-100. doi:10.1080/08832320903258527.
- Bozkurt, A. & Sharma, R. C., (2020). Emergency remote teaching in a time of global crisis due to the CoronaVirus pandemic. *Asian Journal of Distance Education*, 15(1), 1-6. <https://doi.org/10.5281/zenodo.3778083>
- Cedeño, T. D. D., Rocha, I. C. N., Ramos, K. G., & Uy, N. M. C. (2021). Learning Strategies and Innovations among Medical Students in the Philippines during the COVID-19 Pandemic.' *International Journal of Medical Students*, 9(1), 77–79. <https://doi.org/10.5195/ijms.2021.908>
- Chickering, A. W., & Gamson, Z. F. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin*, 3, 7

- Chu-Carroll, J. and Michael K. Brown. 1998. An evidential model for tracking initiative in collaborative dialogue interactions. *User Modeling and UserAdapted Interaction*, 8:215-253
- Core, M. G., Moore, J. & Zinn, C. (2002), Initiative In Tutorial Dialogue. in ITS 2002 Workshop on Empirical Methods for Tutorial Dialogue Systems, San Sebastian, Spain.
- Creswell, J. (2002). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Merrill Prentice Hall.
- Daniel, S.J. Education and the COVID-19 pandemic. *Prospects* 49, 91–96 (2020). <https://doi.org/10.1007/s11125-020-09464-3>.
- Dawidziuk A., Michal Kawka, Bartosz Szyszka, Ignatius Wadunde, Aastha Ghimire, Global Access to Technology-Enhanced Medical Education During the COVID-19 Pandemic: The Role of Students in Narrowing the Gap, *Global Health: Science and Practice*, 9, 1, (10-14), (2021).
- Dawson, P., & Guare, R. (2010). *Executive skills in children and adolescents: A practical guide to assessment and intervention* (2nd ed.). New York: The Guilford Press.
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crises. *Journal of Educational Technology*, 49(1), 5–22. <https://doi.org/10.1177/0047239520934018>
- Elfirdoussi, S., Mohamed Lachgar, Hind Kabaili, Abdelali Rochdi, Driss Goujdami, Larbi El Firdoussi, (2020) "Assessing Distance Learning in Higher Education during the COVID-19 Pandemic", *Education Research International*, vol., Article ID 8890633, 13 pages, 2020. <https://doi.org/10.1155/2020/8890633>
- Frese M., Fay, D. (2001). The Concept of Personal Initiative: An overview of Validity Studies. *Human Performance*, 14(1), 97–124
- Frese, M., Fay, D., Hilburger, T., Leng, K., & Tag, A. (1997). The concept of personal initiative:: Operationalization, reliability, and validity in two German samples. *Journal of Occupational and Organizational Psychology*, 70, 139–161.
- Fry, R. (2005). *Get organized* (3rd ed). Clifton Park, NY: Thomas Delmar Learning.
- Gambill, J.M., Moss, L.A., & Vescogni, C.D. (2008). The impact of study skills and organizational methods on student achievement. Retrieved from ERIC database. (ED 501312). <https://eric.ed.gov/?id=ED501312>
- Greener, S. L. (2008). Self-aware and self-directed: Student conceptions of blended learning. *MERLOT Journal of Online Teaching and Learning*, 4(2), 243-253.

Internet Sources

- Jaggars, S. S., & Xu, D. (2016). How do online course design features influence student performance? *Computers and Education*, 95, 270–284
- Jocelyn H. Schiller, R. Brent Stansfield, David C. Belmonte, Joel A. Purkiss, Rishindra M. Reddy, Joseph B. House & Sally A. Santen (2018) Medical Students' Use of Different Coping Strategies and Relationship With Academic Performance in Preclinical and Clinical Years, *Teaching and Learning in Medicine*, 30:1, 1521, DOI: [10.1080/10401334.2017.1347046](https://doi.org/10.1080/10401334.2017.1347046)

Journals

- Keengwe, J., Onchwari, G., & Wachira, P. (2008). Computer technology integration and student learning: Barriers and promise. *Journal of Science Education and Technology*, 17(6), 560-565. doi:10.1007/s10956-008-9123-5
- Kopp A.R., Sharon Rikin, Todd Cassese, Matthew A. Berger, Amanda C. Raff, Inessa Gendlina, Medical student remote eConsult participation during the COVID-19 pandemic, *BMC Medical Education*, 21, 1, (2021).
- Kuh, G. D., Kinzie, J., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006). What matters to student success”: a review of the literature. Commissioned report for the National Symposium on Postsecondary Student Success: Spearheading a dialog on student success. Washington, DC: National Postsecondary Education Cooperative.
- Martin, F. & Bolliger, D.U. (2018). Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment. *Online Learning* 22(1), 205- 222. doi:10.24059/old.v22i1.1092
- Muthuprasad, T., Aiswarya, S., Aditya, K.S., Jha, G.K. (2021). Student’s perception and preference for online education in India during COVID-19 pandemic, *Social Sciences & Humanities Open*. Volume 3, 1, <https://doi.org/10.1016/j.ssaho.2020.100101>
- Newmann, F. M., Wehlage, G. G., & Lamborn, S. D. (1992). The significance and sources of student engagement. In F. Newmann (Ed.), *Student engagement and achievement in American secondary schools* (pp. 11–39). New York, NY: Teachers College Press.
- Ngampornchai, A., Adams, J. (2016). Students’ acceptance and readiness for E-learning in Northeastern Thailand. *Int J Educ Technol High Educ* 13, 34, <https://doi.org/10.1186/s41239-016-0034-x>
- Petrie, C. (2020). Spotlight: Quality education for all during COVID-19 crisis (hundRED Research Report #01). United Nations. <https://hundred.org/en/collections/quality-education-for-all-during-coronavirus>
- Roblyer, M. D., & Ekhaml, L. (2000). How interactive are YOUR distance courses? A rubric for assessing interaction in distance learning. *Online Journal of Distance Learning Administration*, 3(2).
- Roland, N., Frenay, M., & Boudrenghien, G. (2016). Understanding academic persistence through the theory of planned behavior: Normative factors under investigation. *Journal of College Student Retention: Research, Theory & Practice*, 15, 1-21.
- Ruiz, J.G., Michael J. Mintzer, Rosanne M. Leipzig. "The Impact of E-Learning in Medical Education", *Academic Medicine*, 2006
- Sebastianelli, R., Swift, C., & Tamimi, N. (2015). Factors affecting perceived learning, satisfaction, and quality in the online MBA: A structural equation modeling approach. *Journal of Education for Business*, 90(6), 296–305
- Siedlecki, Sandra. (2020). Understanding Descriptive Research Designs and Methods. *Clinical nurse specialist CNS*. 34. 8-12. 10.1097/NUR.0000000000000493.
- Sinclair, J.M. and R. Malcolm Coulthard. 1975. *Towards an Analysis of Discourse: The English used by teachers and pupils*. Oxford University Press.
- Sintema, E. J. (2020 April 7). Effect of COVID-19 on the performance of grade 12 students: Implications for STEM education. *EURASIA Journal of Mathematics, Science and Technology Education*, 16(7). <https://doi.org/10.29333/ejmste/7893>
- Subedi, S., Nayaju, S., Subedi, S., Shah, S. K., Shah, J. M. (2020). Impact of e-learning during COVID-19 pandemic among nursing students and teachers of Nepal. *International Journal of Science and Healthcare Research*, 5(3), 9.”

- Thakur, A., Soklaridis, S., Crawford, A., Mulsant, B., & Sockalingam, S. (2021). Using Rapid Design Thinking to Overcome COVID-19 Challenges in Medical Education. *Academic medicine: Journal of the Association of American Medical Colleges*, 96(1), 56–61. <https://doi.org/10.1097/ACM.0000000000003718>
- Wayne, D. B., Green, M., & Neilson, E. G. (2020). Medical education in the time of COVID-19. *Science advances*, 6(31), eabc7110. <https://doi.org/10.1126/sciadv.abc7110>
- Whittaker, S., and Phil Stenton. (1988). Cues and control in expert-client dialogues. In *Proceedings of the 26th annual meeting on Association for Computational Linguistics (ACL '88)*. Association for Computational Linguistics, USA, 123–130. DOI:<https://doi.org/10.3115/982023.982038>
- Zalat MM, Hamed MS, Bolbol SA (2021). The experiences, challenges, and acceptance of e-learning as a tool for teaching during the COVID-19 pandemic among university medical staff. *PLoS ONE* 16(3): e0248758. <https://doi.org/10.1371/journal.pone.0248758>