THE EFFECT OF ADOPTING TUTORING STRATEGY TO CATCH-UP COVID-19 PANDEMIC LEARNING LOSS DURING THE ELECTRONIC LEARNING

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Abstract - The current study aimed to investigate the effect of adopting a tutoring strategy to catch-up learning loss that emerges as a result of switching to online learning during the pandemic of COVID-19. The participants of the study were 17 female students at Najran University who enrolled in the researcher course. A mixed method was used and a paired-sample t test (pre-posttest) to collect and analyze the data. The findings demonstrated that the applied tutoring strategy improved the students' academic performance, with $t(16)= 3.2$, $p<.05$. The participants reported that being familiar with the instructors methods during the tutoring help them understand the course materials and tests better. However, as pandemic learning recovery will continue for few years, more studies are needed to examine other strategies which assist in recovery of learning losses emerged due to pandemics.

Keywords - Online Learning, Learning Loss, Tutoring, COVID-19, Pandemic.

I. INTRODUCTION

Life aspects have been affected seriously by the pandemic of COVID-19 around the globe in 2020. In most countries, measures were applied and social distancing were necessary strategies to prevent the spread of the novel corona virus (COVID-19). Accordingly, schools were locked down and the face-to-face teaching and learning were suspended. Nearly1.6 billion students in more than 190 countries were affected by educational institutions closure due to the pandemic, according to the UNESCO (2020). Therefore, there are more and more concerns about the longer-term effects on learning. Switching to online emergency teaching, instructors used the available resources to deliver their courses materials and continue the provision of learning using different online platforms. Although this transformation was an emergency procedure all over the world, it has serious concerns on the quality of the teaching and learning process. Students' academic, socio-emotional, and physical health are affected. According to Betebenner & Wenning (2021), for the majority of students, the impact in terms of academic and non-academic outcomes has been negative. For the academic outcomes, students encountered significant challenges, involving cumulative learning loss, problems in students' confidence and physical and mental wellbeing (Azevedo et al., 2020; &DfE, 2020b).

Learning loss defined as learning declines of students' knowledge and skills(Pier et al, 2021). Students missed some knowledge and academic skills because of the disruptions of their learning during the pandemic as learning hours and curriculum content decreased. This causes existing local and global educational inequalities such as learning loss (UNESCO et al., 2020). Countries practices expect recovery from learning loss will need few years. Therefore, they established some policies, discussed allocated funds, and hired education prioritizing curriculum content, administered diagnostic assessment, and tutoring (Alzaghibi, 2021). Tutoring is one of the suggested strategies to catch-upCOVID-19 learning loss. Most studies demonstrated that tutoring had positive effect on learning outcomes. According to Nickow et al, (2021), tutoring is defined as one-on-one or small-group instructional programs—rank among the most widespread, versatile, and potentially transformative instruments in today's educational toolkit. The findings of their study revealed that tutoring programs yield substantial positive impacts on learning outcomes. Thus, as COVID-19 learning loss is one of the concerns due to the widespread institutional closures, the current study aims to investigate the effect of applying a tutoring strategy to improve students' academic performance during the pandemic of COVID-19.

II. PURPOSE OF THE STUDY

The current study aims to:
(1) To investigate the effect of adopting a tutoring strategy to improve students' academic performance during the pandemic of COVID-19.

Research Hypothesis

H1: The adopted tutoring strategy, to catch-up learning loss during COVID-19 pandemic, improve students' academic performance.

III. LITERATURE REVIEW

Learning Loss

The COVID-19 pandemic has led to serious changes in the world. One of the aspects that has been severely interrupted is education. Several educational

concerns (academic and non-academic outcomes) have been impacted negatively, such as students' absence, switching to less- quality teaching, emotional loss, phycological impacts, physical health, and behavioral issues as well (Blanden et al. (2021); Myung et al. (2020); & Azevedo et al. (2020)). Sonnemannand Goss (2020) demonstrated that students tend to learn less when schools is done remotely rather than in the classroomwhere some students will have thrived while learning remotely, and some will have cruised. The longer they are away from regular classes, the worse the damage can be.

Learning loss is the most common academic impact about what most countries and educational institutions concern. Studies demonstrated that during the pandemic of COVID-19 learning loss has been experienced due to the suspension of the face-to-face teaching and learning to the online learning. Engzell's and Verhagen (2021) study revealed a learning loss of about 3 percentile points or 0.08 standard deviations, and losses are up to 55% larger among students from less-educated homes. Additionally, Engzell's and Verhagenfound that most of the effect reflects the cumulative impact of knowledge learned rather than transitory influences on the day of testing.

The term learning loss refers to any specific or general loss of knowledge and skills or to reversals in academic progress, most commonly due to extended gaps or discontinuities in a student's education (Great Schools Partnership, 2021).During the pandemic of COVID-19, learning loss is a decrease in student academic growth resulting in a decrease in attainment (Betebenner&Wenning, 2021), and of students' knowledge and skills (Pier et al, 2021). Studies of fully online schools in the US consistently show that students learn much less than their peers in traditional face-to-face classes (Fitzpatrick, 2020).

According to Great Schools Partnership (2021) there are different potential forms and sources of learning loss include: summer learning loss, interrupted formal education, returning dropouts, senior year, school absence, ineffective teaching, course scheduling, and pandemic learning loss. Summer learning loss is the most commonly cited form that occurs when students take extended breaks in their education during the summer up to two or two-and-half months. According to Quin et al. (2016), over the US summer break, young children are estimated to lose up to three months of learning from the previous school year. The second form of learning loss is the interrupted formal education experienced by recently immigrated refugee students who have been unable to attend school for extended period of time. The third form is returning dropouts as students return to school after dropping out for an extended period of time so that they need to repeat previous grades, complete additional coursework, or accelerate their learning progress in other ways. The fourth potential source of learning loss is senior year since course-credit requirements load are reduced so that students leave schools. School absence is another source of learning loss due to long health condition or suspension related to behavioral issues. Another potential source of learning loss is the ineffective lower-quality teaching that leads to slower academic progress since it decreases students chances of catching up with their peers or completing school. Unproperly designed course scheduling; block scheduling, can also create half-year or yearlong gaps in the continuity of instruction in some subjects that leads to learning loss for some students. However, rather than the summer and the pandemic learning loss, all of the other mentioned sources of learning loss are exceptional. Learning loss during the pandemic affects all of the educational stages and levels around the globe. It is emerge due to two main reasons, which are the decreased of teaching hours and the poor quality of online learning compared to the face-to-face teaching (Chetty et al, 2020).

However, BetebennerandWenning (2021) argue that before jumping ahead and implement plans and interventions of how to help students recover academically from the impacts of the pandemic, we need to address three basic questions: Who needs help?; isexperiencing or has experienced learning loss, What do they need help in?; what have students experience learning loss in, and How much help do they need?; how much learning loss have students experienced and what is the magnitude of the learning loss?

The World Bank (2020a) expects three scenarios of learning loss. The first is the most straightforward transformation, which is caused by a reduction in average learning levels across the distribution. This is an extremely likely scenario despite the best efforts of school systems to offer distance learning. The second is that children from wealthier families (live in comfortable homes, have good internet connections, can hire a private tutor, and may be better placed for home schooling by well-educated parents) progress more compared to disadvantaged children (live in inferior homes, may not have even a radio let alone internet connection or digital gadgets, don't have the resources to hire a tutor). Thus, the wealthy will pull ahead, and the poor will fall further behind. The third scenario is that school enrollment can fall sharply because income shock that leads families to ask their children to work so they never go back to school.

Other scenarios were developed by Betebenner and Wenning (2021) ranging severity from no impact to severe impact. Yet, they did not decide which students or groups of students are associated with each scenario and in what subjects.

Although these scenarios explain the short-term effects of learning loss, studies should also examine in depth the long-term impacts and how long will it take to know how large the effects of the pandemic of COVID-19 on learning outcomes will be.

Strategies to catch-up learning loss during the Pandemic of COVID-19

Studies are investigating learning loss during the COVID-19 pandemic and how to recover it.Whether it was the result of decreasing learning hours as schools were locked down, orincreasing the gap of the less-quality online teaching compared to the face-to-face one, learning loss leads to existing local and global educational inequalities (UNESCO et al., 2020).

Strategies to catch-up COVID-19 learning losses are appropriate action as no one knows how many time will it take to know how large the effects of the pandemic of COVID-19 will be.Sonnemannand Goss (2020) believe that catching-up COVID-19 learning loss is hard but possible by adopting targeted strategies to recover learning losses across all educational institutions. Theyargue that catch-up initiatives shouldhave high impact, quick to implement, have a track record of successful implementation, and help stimulate the economy through a recession. They conclude essential factors that government should give priority to initiatives to catch-up COVID-19 learning losses which are: Have been shown in research studies to significantly improve student learning, Have benefits that clearly outweigh the costs, Have a track record of successful implementation across many schools, and can be implemented quickly, and will help stimulate the economy in recession by providing extra income to people likely to spend it.

OECD (2020) suggested three recommendations for policy makers to leap forward into a better normal education and minimize estimated learning losses. The first suggestion is educators should nurture resilient mind-sets that value people and processes over classrooms and devices. The second is educators need new skills and knowledge to capitalize on new education priorities and means of delivery. Third recommendation is addressing learning gaps will minimize disruption in students' educational journeys.

However, countries take into action some strategies to recover COVID-19 learning losses. One of these strategies is specifying essential budgets and assigning experts and specialists to investigate and estimate COVID-19 learning losses tohelp governments and educational institutionsdevelop long-term plans for catching-up COVID-19 learning losses.

Another strategy is increasing learning hours and academic days which proposes that more hours lead to more learning so that learning loss could be minimized. Nevertheless, Patall et al. (2010) demonstrated no relationship between increasing time of learning and enhancement of that learning except for disadvantaged children. This depends on the effective utilization of time factor by instructors since additional time might lead to more burden and stress on instructors, students, and parents as well. Additional strategy is specifying the learning contentthat should be covered which is the most important strategy to obtain the learning efficiency during the pandemic. To prioritize the learning content provided to students, there are some models which help educators determine the specific content such as Glatthorn (1987) model.Glatthorn categorizes the curriculum content with two dimensions, which are basic (represents 70% of the curriculum and consists of two types; mastery and vital content,) and enriching (represents 30% of the curriculum and contains what students themselves like to learn in the electives).

Furthermore, a strategy implemented in the current study to recover learning loss is tutoring strategy. Tutoring was the first strategy that most countries rushed to apply to catch-up learning losses. Starting from the beginning of the 2021 school year, in South Australia, up to 2000 public school students have access to one-on-one tutoring for math as part of a $3.6 million pilot. In addition, the Victorian Government pledged $250 million for 4100 tutors to be deployed in Victorian schools. Also, New South Wales announced a program worth $337 million, employing 5500 tutors to help struggling students (Vukovic, 2021).

Studies demonstrates that small group tutoring is a highly effective remedial learning and teaching strategy for students experiencing learning loss (Nickow et al, 2020). Sonnemannand Goss (2020) suggest promoting two high-priority initiatives; small-group tuition (up to $1.1 billion), and successful literacy and numeracy instruction programs ($70 million). Sonnemannand Goss recommended that the tutoring programs in schools should be offered to the students who struggled the most in online learning during the pandemic. Leaders should identify students who are not near the benchmarks where they should be, compared to their classmates and compared to what the curriculum expects for their year level.Vukovicalso argues that the role of school leaders is crucial in co-designing tutoring programs for their own context as they are experts of their own contexts and communities, they know best which model of small group support is appropriate for their students' learning, engagement and wellbeing needs, and their staffing arrangements.

An evaluation of the ABRACADABRA tutoring program in early literacy in the Northern Territory found positive effects of the tutoring on students' achievements (Abrami et al., 2020). Sonnemannand Goss (2020) also concluded that small-group tuition quickly improve student achievement, especially for disadvantaged students. They revealed that although one-on-one tutoring three times a week over 20 weeks can increase student learning by as much as five months, tutoring in groups of two to five is also highly effective, and there is evidence that it can deliver similar benefits as one-on-one tuition at lower

cost. Sonnemannand Goss also recommend short, regular tutorial sessions for groups of about three students, either within or outside regular class, three-to-four times a week, for 10-to-20 weeks. However, Sonnemannand Goss argue that for effective implementation, government should do not recommend that schools use extra catch-up funding to simply hire more teaching assistants without giving them adequate training. But, tutors should be well trained, and should work closely with teachers to ensure their tutoring is closely linked to normal teaching.

The benefits from tutoring is that the tutor is able to focus exclusively on a small number of students. The tutor can set work which is more closely matched to students' needs, and give targeted feedback.

In the current study, as the previous studies demonstrated the effectiveness of tutoring as a remedial strategy for the COVD-19 learning loss, the researcher implement the tutoring strategy by dividing students into groups and explain the course content that was covered and explained form the beginning of the semester for each group twice a week. The students were tested for the midterm and after that were tutoring and later took the posttest test and their scores were recorded and their achievement were evaluated.

IV. METHOD

Research participants

The participants in this study included all students enrolled in the researcher's "Educational Technology and Means" course during the spring of 2021. There were 17 female students from different academic majors.

Instrument

The study design is both quantitative and qualitative. Th quantitative is students' scores in the midterm (pre and post test) as the researcher compare their achievement before and after implementing the treatment, which is the tutoring strategy.

Procedure

At the beginning, **t**he participants took the midterm covered in five chapters. and then the tutoring strategywas implemented dividing the students into small groups. The researcher explains the content that was covered before the midterm for the students twice a week for two weeks as remedial procedure and then give the same exam for the students after the treatment was applied.

Data Analysis

The Statistical Package for Social Science (SPSS) software version 20 was used to analyze the data in this study. All analyses were conducted using $p \leq .05$ as a level of statistical significance. A paired sample t test ; also called the dependent sample t test is used to compare the means of the same item in two different conditions or any another connection between the two samples when there is a one to one connection between the samples.

Results

The research question for the current study is: does adopting the tutoring strategy improve students' performance? The findings of the current study show major differences in students' scores for post-test (M =16.2, SD =3.2) over pre-test (M = 13.3, SD =3.8), t(16) =3.22, p =.005. Students score higher in the post-test after implementing the tutoring strategy and their performance in the midterm were higher after applying the treatment (See Table1)

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	post - per	33.20000	3.58	5.34228	18.36744	48.03256	3.22	17	0.005

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	post	16.2	17	3.2	.853
	per	13.3	17	3.8	.464

Table 1. Means and Standard Deviations of Students' performance in the pre-test post- test

In the conducted interviews after the post-test, the students reported that the tutoring strategy helped them more understand the curriculum concepts and content. In addition, students reported that they get more individualized attention. They also revealed that tutoring helps them receive an individualized learning experiences. Additionally, tutoring, according to the students, helps them prepared for tests and exams

more. One of the students said, "I become familiar more with your style and design of the test questions during the tutoring". Tutoring also encourages students' freedom to ask questions. Some students mentioned that the reason behind getting low scores on the pre-test is because this was the first semester to take the test in class after schools come back to open under new constrains and learning transform from online to face-to-face teaching.

V. DISCUSSION

The low scores of the pre-test of the midterm reflected that the students experienced learning loss due to learning online during the pandemic of COVID-19. Implementing the tutoring strategy twice a week dividing the students into different groups and explaining in depth the content that was covered before the midterm (pre-test), the findings revealed significant improvement on students' scores of the post-test. They performed higher on the midterm (post-test) than in the pre-test after implementing the tutoring strategy. The students also in the qualitative part reported that implementing the tutoring strategy was helpful and effective and help them better understand the content and prepare for the test. These findings are consistent with the previous studies such as (Nickow et al. (2020), Sonnemannand Goss (2020), Abrami et al. (2020), &Vukovic, 2021). These studies demonstrated the effectiveness of the tutoring strategy to recover learning loss caused during the pandemic of COVID-19. However, the tutor in the current study is the researcher so it is important to take into consideration the impact of untrained tutors on the students' performance. In addition, researcher should focus on the impact of other factors such as individual differences, gender, and other demographic information.

VI. CONCLUSION

The findings of the study revealed learning loss reflected in the students' scores of the midterm (pre-test). Implementing the tutoring strategy reflects improvement in students' score in the post-test. Although learning outcomes have been affected negatively as learning shifted to online learning because of the pandemic, educators should focus on the quality of learning more than the type of it, whether online, in class, or blended learning. They also should take into consideration that recovery of the learning loss will need few years. Applying frequent diagnostic tests and accordingly implement effective strategies to catch-up these learning losses would decrease the time. However, institutions should prepare the infrastructure for future pandemics and prepare perfect online platforms and digital alternatives as well to minimize possible learning losses. In addition, it is crucial that summer breaks, as one strategy, should be utilized effectively for students who experience learning loss more than other.

REFERENCE

[1] Abrami et al (2020). Abrami, P. C., Lysenko, L. and Borokhovski, E. "The effects of ABRACADABRA on reading outcomes: An updated meta-analysis and landscape review of applied field research". Journal of Computer Assisted Learning 36.3, pp. 260–279. https://onlinelibrary.wiley.com/doi/abs/10.1111/jcal.12417.

[2] Azevedo, J. P., Hasan, A., Goldemberg, D., Iqbal, S. A., & Heven, K. (2020). Simulating the potential impacts of Covid-19 school closures on schooling and learning outcomes. World Bank Group: Education. http://pubdocs.worldbank.org/en/798061592482682799/covid-and-education-June17-r6.pdf

[3] Betebenner, D., & Wenning, R. (2021). Understanding Pandemic Learning Loss and Learning Recovery: The Role of Student Growth & Statewide Testing. National Center for the Improvement of Educational Assessment Dover, New Hampshire. Retrieved Mar14, 2021, from: https://www.nciea.org/sites/default/files/inline-files/CFA_LearningLossRecoveryGrowthStatewideTesting.pdf

[4] Blanden, D., Crawford, C., Fumagalli, L., & Rabe, B. (2021). School closures and children's emotional and behavioral difficulties. Institute for Social and Economic Research. Retrieved Mar 15, 2021 from: https://www.iser.essex.ac.uk/files/projects/schoolclosures/SDQnote2021_final.pdf

[5] Chetty, R., Friedman, J., Hendren, N., &Stepner, M. (2020). The Economic Impacts of COVID- 19: Evidence from a New Public Database Built from Private Sector Data. Working Paper. Retrieved Feb 11, 2021, from: https://opportunityinsights.org/wp-content/uploads/2020/05/tracker_paper.pdf

[6] Department for Education. (2020b). Effect of pandemic on children's wellbeing revealed in new report (DFE-RR-999; Government Social Research). UK Government. https://www.gov.uk/government/news/effect-of-pandemic-on-childrens-wellbeing-revealed-in-new-report

[7] Engzell, P., Frey, A., &Verhagen, M. (2021). Learning inequality during the Covid-19 pandemic. Proceedings of the National Academy of Sciences, 118(17).

[8] Fitzpatrick et al (2020). Fitzpatrick, B. R., Berends, M., Ferrare, J. J. and Waddington, R. J. "Virtual Illusion: Comparing Student Achievement and Teacher and Classroom Characteristics in Online and Brick-and-Mortar Charter Schools". Educational Researcher 49.3, pp. 161–175. https://doi.org/10.3102/0013189X20909814.

[9] Great Schools Partnership. (2021). Learning Loss. The Glossary of Education Reform. Retrieved Feb 22, 2021, from: https://www.edglossary.org/learning-loss/

[10] Myung, J., Gallagher, A., Cottingham, B., Gong, A., Kimner, H., Witte, J., Gee, K. & Hough, H. (2020). Supporting Learning in the COVID-19 Context: Research to Guide Distance and Blended Instruction. Policy Analysis for California Education. Retrieved Feb 20,2021, from: https://www.edpolicyinca.org/publications/supporting-learning-covid-19-context

[11] OECD. (2020). Lessons for Education from COVID-19: A Policy Maker's Handbook for More Resilient Systems. OECD Publishing, Paris. Retrieved Feb 18, 2021, from: https://www.oecd-ilibrary.org/education/lessons-foreducation-from-covid-19_0a530888-en

[12] Patall, E., Cooper, H., & Allen, A. (2010). Extending the school day or school year. Review of Educational Research, 80(3), 401–436.

[13] Pier, L., Hough, H. J., Christian, M., Bookman, N., Wilkenfeld, B., & Miller, R. (2021). Covid- 19and the educational equity crisis: Evidence on learning loss from the CORE data collaborative. Policy Analysis for California

Education. https://edpolicyin ca.org/ newsroom/covid-19-and educational- equity- crisis

[14] Quinn et al (2016). Quinn, D. M., Cooc, N., McIntyre, J. and Gomez, C. J. "Seasonal Dynamics of Academic Achievement Inequality by Socioeconomic Status and Race/Ethnicity: Updating and Extending Past Research with New National Data". Educational Researcher

[15] Sonnemann J., & Goss, P. (2020). COVID catch-up: Helping Disadvantaged Students Close the EquityGap. Grattan Institute Report No. 2020-08. Retrieved Feb 25, 2021, from: https://grattan.edu.au/wp-content/uploads/2020/06/COVID-Catch-up-Grattan-School-Education-Report.pdf

[16] UNESCO, UNICEF, & World Bank. (2020). What have we learnt? Overview of findings from a survey of ministries of education on national responses to COVID-19. UNESCO, UNICEF, and World Bank. https://data.unicef.org/resources/national-education-responses-to-covid19/

[17] Vukovic, R. (2021). Co-designing school tutoring programs. Teacher Magazine. Retrieved Jan 25, 2021, from: https://www.teachermagazine.com/au_en/articles/codesigning-school-tutoring-programs?utm_source=CM&utm_medium=Bulletin&utm_term=27January

[18] World Bank. (2020a). We should avoid flattening the curve https://www.oecdilibrary.org/sites/3081ceca-en/index.html?itemId=/content/publication/3081ceca-en

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