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COMMENTARY

Student learning needs during the pandemic

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ABSTRACT

COVID-19 has disrupted daily living globally due to increased deaths and lockdowns that heavily affected 156 million learners as of July 2021. Over 28 million Filipino students had their classes cancelled for more than 41 weeks; hence, educational institutions have endeavored to continue teaching via alternative learning modes with remote learning as the most feasible. However, literature has mixed views of online education, citing positive and negative factors affecting learning. Thus, the objective of the article is to synthesize existing literature on the potential factors influencing student learning during the COVID-19 pandemic.

Curricular design should take note of both physical and human factors. Physical factors include internet access and EdTech, while human factors include instructor's characteristics, curricular design, and student characteristics, attitudes, and psychosocial needs. Various steps such as ensuring internet access, training teachers, and characterizing students, alongside continuous feedback and timely preparation, are recommended to properly execute remote learning in emergencies.

Keywords: *health professions education, online, learning, COVID-19, pandemic*

Introduction

The COVID-19 pandemic has caused widespread disease and death, prompting government-led responses and the imposition of quarantines. This has shifted behaviors and lifestyles, impacting most societal sectors including Philippine education with over 41 weeks of face-to-face cancellations, affecting 28,451,212 learners to date [1]. However, student learning must still be addressed with consideration to its stakeholders [2] and so schools adapted to alternative modes of learning to continue the lessons.

One of the most feasible alternatives is remote learning (RL) on internet-based platforms. However, several challenges such as poor internet infrastructure, digital inequality, and differences in faculty preparedness and pedagogical approaches persist, especially for health sciences education (HSE) which necessitates skill-based learning, patient encounters, and unique methods of assessment [3,4]. Although some literature suggests that RL can help students develop skills, disadvantages remain, especially among marginalized communities with the complexity of teaching methods and reliance on learner satisfaction hindering its effectiveness [5-7]. RL as the final solution for most learners requires guidance throughout the course design and implementation.

This commentary then aims to synthesize existing literature on the potential factors influencing student learning during the COVID-19 pandemic and elucidate ways forward.

Factors Affecting Learning during Pandemics

Critical factors to consider include technological access, technical skills, and attitude of stakeholders (i.e., students, teachers, institution) towards chosen methods [8]. Physical and human factors are explored in the succeeding sections.

Physical Factors

Educational technology or "EdTech" which refers to any technological tool providing alternatives to the conduct of learning has been widely used during crises; however, many are designed without accounting for existing evidence [9,10). To ensure effectiveness, other factors such as content, student and teacher characteristics, infrastructure,

and learning environment should be considered.

Appropriate use of EdTech offers valuable support for teacher-student interaction [9]. Facilitating learning occurs best where a community can be fostered as open communication improves relationships [11,12]. In RL, creating virtual communities is feasible via discussion boards and chat rooms. However, verbal signals (i.e., tone) and non-verbal communication used to gauge reception are not easily replicated, making interaction unnatural and challenging [13-15].

EdTech is reliant on existing infrastructure and varying access across regions [9,13,16,17], thus, RL is said to emphasize the digital divide [3,7,13,16-18]. For example, internet connection remains a barrier to certain students especially in rural areas where the connection is often limited [16,17,19]. Furthermore, the collective need for the same devices in a household limits access and interrupts classes [16,17,20]. Therefore, a needs inventory should be done via consultations and surveys [7].

Adopting proper software can enhance the student learning experience [9]. Several electronic platforms are available; Learning Management Systems (LMS) provide resource organization, discussions, and announcement platforms. When choosing tools, bandwidth requirements and the immediacy of communication should be considered, hence, a mix of tools is recommended. Text-based platforms such as modules and discussion boards require less bandwidth and immediacy, while conference calls require high bandwidth and time allotment from all participants [21]. Collaborative documents, pre-recorded lectures, and well-designed reading assignments may also be used [21,22]. Properly synthesized and shortened content favors information retention [3,21]. Notably, accessibility may depend on licenses and support by the administration.

Human Factors

Instructor's Characteristics and Design of Curricula

Instructors are critical not only in selecting modes and tools of delivery but in facilitating meaningful interaction [9, 22]. Proper course revisions during the pandemic should treat EdTech merely as a supplement to traditional learning tools [9,22]. Students undergoing blended learning or using both offline and online activities positively perceive RL [23,24]. Offline materials also smoothen the transition towards online methods [25].

Student-teacher interaction has been repeatedly cited as the hallmark of learning [22,23,26]. Therefore, communication must be consistent, persistent, and encouraging [26]. Being engaging and maintaining a safe space are skills necessary for success and positive feedback [11, 23, 26].

Training and support ensure instructor effectiveness. Considering that technological gaps among professors persist, administrative support is paramount while shifting to a vastly different learning delivery mode [18]. Managing expectations, adopting new working habits, and preparing for additional roles including COVID-19 content lecturer and troubleshooter should also be done [3,6,27]. Therefore, teaching the instructors how to adeptly use online platforms, tailor-fit their work ethic, and center low-bandwidth activities around the most crucial learning outcomes is important [9,27-29]. Designing assessments must also be meaningful, incorporate latest technology, and well-planned to address cheating [3,11].

Student's Characteristics and Attitude

Due to diverse student backgrounds and interests, educational interventions must account for the learners' characteristics. However, literature on the association of demographic factors and RL remains contentious. A study found that module design and learning experience were more important than student characteristics [30]while others found that those with previous educational experience may have greater flexibility and access in an online setting [31]. Gender representation in materials and discussion or being a working student may also affect participation in RL [3,4].

Some learner's intrinsic characteristics may have a significant effect on RL where self-motivation is necessary. For example, curious, self-motivated students who engaged more with content have developed better mastery [26] while more serious, ambitious learners who allotted more study time, had family support, and accomplished tasks early were more likely to succeed [4]. Thus, time management is an inherent part of this learner-centered approach. These manifest as unique RL behaviors which must be mirrored by different learning approaches [32]. However, there is a risk that students gradually become less engaged over time [25].

Amid contradictory claims, course design must still consider the learner's characteristics, goals, and learning styles because instructors may deem these necessary [33]. Values transfer and attitudinal outcomes are also contingent

on the implementation of instructional hallmarks; therefore, student engagement, interest, and motivation must be enriched [2,3]. These can be affected by the learner's expectations of the curriculum and delivery. Instructional platforms must then be user-friendly, simple, and capable of easy file management. Learners may expect a comprehensive, pre-use orientation of the LMS to maximize it. Instructors are also expected to mark important readings and use hyperlinks to streamline resources to help retain focus and interest [27].

Psychosocial Needs and Mental Health (MH)

External stressors may cause a psychosocial imbalance during a prolonged quarantine. Common stressors include fear of infection, inadequacy of supplies, financial problems, and inconsistent quarantine duration [3,34]. Stress is also associated with residence, living arrangements, and infection of loved ones [35]. Traumatic events may also affect cognitive functions, hindering learning [9]. Cascading disruptions in academic requirements may also partly explain students' anxiety as they grapple with meeting deadlines and taking assessments [36].

The shift to being away from campus has also led to harbored feelings and anxiety [36]. To mitigate this, students exert conscious mental efforts to adapt to the new environment [37]. Immediate shifts to RL were shown to decrease motivation [38] which may be attributed to incompatibility among learning style, resources, and environment resulting in poor performance [3,39]. Although acute stress is expected, RL establishes an academic routine positively affecting MH [36].

Considering the pandemic's impact on MH, there is an urgent need to account for student concerns in the development of action plans and health policy [36].

Discussion

RL's success necessitates the measurement and analysis of several variables. For holistic assessment, student performance must be contextualized in terms of satisfaction, meaningful interaction, preferences, teaching tools, and utilization. School management, teacher training, and curriculum development must be considered prior to formulating interventions [9,28]. RL strategies should account for the target population, age, technological infrastructure, and socio-economic context [13,40]. Although developed countries have an advantage in implementing RL [41], maintaining education should be a globally unchanging goal.

Student preparedness should be improved throughout RL as a sudden shift may leave traditional learners without ample resources and preparation [42]. Administrators must then use creative problem-solving strategies to produce solutions including faculty support and training [2,28,43]. Institutions should also consider that during crises, schoolwork may not always be prioritized; this should be addressed through realistic expectations [44].

Key aspects in implementing RL are then as follows: (1) high-quality content and teaching; (2) accessibility and proper compromises for those without resources; (3) meaningful interactions and support; (4) proper training and support for faculty; and (5) an easily navigable and functional LMS [25,45].

Overall, more research is needed on the factors affecting student learning in these times. Areas of study include the association of academic success to independent aspects of individual learners, instructor qualities and interactions, and evaluation of novel approaches to RL.

Conclusion and Recommendations

When designing effective course designs, one must consider pedagogical principles of active engagement and content keeping in mind the individuality and welfare of students during global emergencies. Theories can inform curriculum designers on prioritization and design; however, execution is challenging if student learning is taken at face value.

One should first ask what tools are available then maximize utilization and interactions among students and teachers. Although online tools are commonly used, course content can be delivered synchronously and asynchronously, and are not limited to online methods as other forms of mass communication can be used in resource-limited settings.

Capacity building for educators on online course design and facilitation may ensure meaningful interactions with students and the platform [28]. Administrators should strive to establish access to learning materials through cost-effective means and to open communication for constructive discussion [28].

Meanwhile, an analysis on effective learning styles and their barriers is recommended as online setups require sustained motivation and interest. Moreover, addressing MH needs will aid greatly in maintaining engagement and motivation among students [28]. Most importantly, educators

should strive to prepare contingencies early on, as RL is dependent on system preparedness. It is therefore paramount that current research is continuously reviewed, best practices are shared, and both offline and online interventions are upscaled to promote resilience in education.

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References

1. UNESCO. (2021) Distance learning solutions.
2. Hodges C, Moore S, Lockee B, Trust T, Bond A. (2020) The difference between emergency remote teaching and online learning, educause review.
3. Rabe A, Sy M, Cheung W, Lucero-Prisno D. (2020) COVID-19 and Health Professions Education: A 360° View of the Impact of a Global Health Emergency. Mededpublish, 9(1). doi: 10.15694/mep.2020.000148.1
4. Knebel E. (2001) The use and effect of distance education in healthcare: What do we know? Operations Research Issue Paper 2(2). Bethesda, MD: Published for the U.S. Agency for International Development (USAID) by the Quality Assurance Project.
5. Sinclair P, Kable A, Levett-Jones T. (2015) The effectiveness of internet-based e-learning on clinician behavior and patient outcomes: a systematic review protocol. JBI Database of Systematic Reviews and Implementation Reports, 13(1),52–64. doi:10.11124/jbisrir-2015-1919
6. Sigulem DM, Morais TB, Cuppari L, Franceschini SC, Priore SE, Camargo KG, Gimenez R, Bernardo V, and Sigulem D. (2001) A Web-based distance education course in nutrition in public health: case study. Journal of Medical Internet Research, 3(2), E16. https://doi.org/10.2196/jmir.3.2.e16
7. Trust, T. (2020). The 3 biggest remote teaching concerns we need to solve now.
8. Mercado, C.A., (2008). Readiness assessment tool for an eLearning environment implementation. International Journal of the Computer, the Internet Management 16(3).
9. Tauson, M., & Stannard, L. (2018). EdTech for learning in emergencies and displaced settings. Save the Children UK.
10. Han, H., Resch, D. S., & Kovach, R. A. (2013). Educational technology in medical education. Teaching and learning in medicine, 25 Suppl 1, S39–S43. https://doi.org/10.1080/10401334.2013.842914
11. Huang, R.H., Liu, D.J., Tlili, A., Yang, J.F., Wang, H.H., et al. (2020). Handbook on facilitating flexible learning during educational disruption: The Chinese experience in maintaining undisrupted learning in COVID-19 Outbreak. Beijing: Smart Learning Institute of Beijing Normal University.
12. Islam, M.S., & Grönlund, Å. (2016). An international literature review of 1:1 computing in schools. Journal Of Educational Change, 17(2), 191-222. doi: 10.1007/s10833-016-9271-y
13. Joaquin, J., Biana, H., & Dacela, M. (2020). The Philippine Higher Education Sector in the Time of COVID-19. Frontiers In Education, 5. doi: 10.3389/feduc.2020.576371
14. Bambaeeroo, F., & Shokrpour, N. (2017). The impact of the teachers' non-verbal communication on success in teaching. Journal of advances in medical education & professionalism, 5(2), 51–59.
15. Hollier, D.R. (2011).Web-based instruction: What would john dewey think? National Forum of Teacher Education Journal Volume 21, Number 3.
16. Magsambol, B. (2021). Distance learning in the Philippines: A year of hits and misses.
17. Santos, A. (2021). In the Philippines, distance learning reveals the digital divide. Heinrich Böll Stiftung | Brussels office - European Union.
18. Nueva, M.G.C. (2019). A literature review on the current technology in education: An examination of teachers use of technology and its association to digital inequality in school.
19. Priebe, M., Brooks, C., Hampton, K., & Bauer, J. (2020 Mar 02). Poor internet connection leaves rural students behind.
20. Sahu, P. (2020 Apr 04). Closure of Universities Due to Coronavirus Disease 2019 (COVID-19): Impact on Education and Mental Health of Students and Academic Staff. Cureus 12(4): e7541. doi: 10.7759/cureus.7541
21. Stanford, D. (2020). Videoconferencing Alternatives: How Low-Bandwidth Teaching Will Save Us All.
22. Ho, M. (2020). From Face-to-Face Instruction to Online Teaching: Practical Considerations for Synchronous and Asynchronous Teaching and Learning — FOCUS.
23. Zhao, Y., Lei, J., Yan, B., & Tan, S. (2005). What Makes the Difference? A Practical Analysis of Research on

the Effectiveness of Distance Education. Teachers College Record - TEACH COLL REC. 107. 1836-1884. 10.1111/j.1467-9620.2005.00544.x.
24. Rabacal, J. S. (2018). Blended learning: Unveiling its potential in one asean classroom setting. Asia Pacific Journal of Multidisciplinary Research (6, 3).
25. Schwartz, H.L., Ahmed, F., Leschitz, J.T., Uzicanin, A., and Uscher-Pines. (2020). Opportunities and challenges in using online learning to maintain continuity of instruction in K-12 Schools in Emergencies. Santa Monica, California: RAND Corporation
26. Osman, M. A., Wahid, A.K., & Zakaria, A. (2018). Assessment of dactors affecting e-learning: Preliminary investigation.
27. Daniels, M.M., Sarte, E., & Cruz, J. (2019). Students' perception on e-learning: a basis for the development of e-learning framework in higher education institutions. The International Conference on Information Technology and Digital Application 482. doi:10.1088/1757-899X/482/1/012008
28. International Federation of Medical Students' Associations (IFMSA). The Impact of Covid-19 on Medical Education Worldwide. (2021).
29. Piper, B., Jepkemei, E., Kwayumba, D., & Kibukho, K. (2015). Kenya's ICT policy in practice: The effectiveness of tablets and e-readers in improving student outcomes. Forum for International Research in Education, 2(1), 3–18.
30. Li, N., Marsh, V., & Rienties, B. (2016). Modelling and managing learner satisfaction: Use of learner feedback to enhance blended and online learning experience. Decision Sciences Journal of Innovative Education, 14(2), 216-242.
31. Islam, M., Abdul Rahim, A., Tan, C., & Momtaz, H. (2011). Effect of demographic factors on e-learning effectiveness in a higher learning institution in Malaysia. International Education Studies, 4(1). doi: 10.5539/ies.v4n1p112
32. Del Valle, R., & Duffy, T. M. (2009). Online learning: Learner characteristics and their approaches to managing learning. Instructional Science, 37(2), 129-149.
33. Bates, A.W. (2018) Teaching in a digital age: Guidelines for designing teaching and learning (2nd Ed.). Vancouver BC: Tony Bates Associates Ltd. ISBN: 978-0-9952692-0-0.
34. Brooks, S.K., et al. (2020). The psychological impact of quarantine and how to reduce it: rapid review of evidence. The Lancet 369(10227), 912-920. doi: 10.1016/S0140- 6736(20)30460-8
35. Cao, W., Fang, Z., Hou,G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. Science Direct 287. https://doi.org/10.1016/j.psychres.2020.112934
36. Zhai, Y., & Du, X. (2020). Addressing collegiate mental health amid COVID-19 pandemic. Psychiatry research, 288, 113003. https://doi.org/10.1016/j.psychres.2020.113003
37. Cheng, X. (2020). Challenges of "school's out, but class's on" to school education:
Practical exploration of chinese schools during the covid-19 pandemic. Sci Insight Edu Front 2020 5(2):501-516. Doi: 10.15354/sief.20.ar043
38. Arenliu, A. & Berxulli, D. (2020). Rapid assessment: Psychological distress among students in Kosovo during the COVID- 19 pandemic. University of Prishtina Department of Psychology: Pristina, Kosovo.
39. Kong, Q., (2020 Mar 31). Practical Exploration of Home Study Guidance for Students during the COVID-19 Pandemic: A case study of Hangzhou Liuxia Elementary School in Zhejiang Province, China. Sci Insight Edu Front 2020; 5(2):557-561. http://dx.doi.org/10.2139/ssrn.3565636
40. Davies, L. and Bentrovado, D. (2011). Understanding education's role in fragility: Synthesis of four situational analyses of education and fragility: Afghanistan, Bosnia and Herzegovina, Cambodia, Liberia. Paris, France: International Institute for Educational Planning.
41. Bozkurt, A. & Sharma, R. (2020). Emergency remote teaching in a time of global crisis due to CoronaVirus pandemic. American Journal of Distance Education 15(1). doi:10.5281/zenodo.3778083
42. Centre for Innovation in Teaching and Learning [CITL]. (2020). Remote versus online Instruction.
43. Head, J.T., Lockee, B., & Oliver, K. (2002). Method, media, and mode: Clarifying the discussion of distance education effectiveness. The Quarterly Review of Distance Education, 3(3), 261-268.
44. Utah State University. (2018). Keep teaching remotely during an emergency.
45. Zafari, N.M.K. (7 May 2020). Distance education for rohingya children during COVID19 Emergency: Bangladesh rohingya response perspectives.