

Assessing Teaching Effectiveness Online in the Wake of the COVID-19 Pandemic: A Case Study

Kaitlyn S. Breiner

Department of Child Development, California State University, Dominguez Hills, Carson, CA, USA
Email: kbreiner@csudh.edu

Abstract—The COVID-19 pandemic required instructors to change teaching modalities, from face-to-face to online. Many of these instructors who moved to this modality were unfamiliar with teaching online, making it imperative to receive course feedback to ensure course delivery was effective. Unfortunately, relying upon university-standard Perceived Teaching Effectiveness surveys (PTEs) proved challenging in an online environment, as response rates and student morale were negatively impacted due to the pandemic. The present case study assessed alternative research-supported methods for soliciting student feedback on teaching effectiveness in asynchronous online courses. Methods identified to improve response rates and to identify areas of teaching to improve/maintain included creating course-specific surveys, offering the surveys multiple times during the semester, soliciting feedback anonymously, and providing extra credit.

Keywords—faculty development, learning outcomes & assessment, reflection, asynchronous learning

I. INTRODUCTION

Assessing Perceived Teaching Effectiveness (PTE) has changed for many higher-education instructors since the start of the COVID-19 pandemic, especially those who were teaching predominantly in face-to-face teaching modalities. In face-to-face courses, faculty often had the ability to designate a time in which students could complete Perceived Teaching Effectiveness surveys (PTEs) if they had not already done so, a practice that has been reported to improve responses [1]. In fact, faculty tend to prefer administering these evaluations in person rather than online [2, 3]. The benefits of administering teaching evaluations in person include ensuring there is designated time for students to complete these assessments, informing students of the importance of the assessments and how they are utilized, reminding students about their anonymity, and offering an incentive at that time to encourage completing the assessment [1, 4]. The result of this practice means faculty can routinely expect high response rates and variability of responses/feedback [4]. Indeed, prior to the pandemic, response rates tended to be higher when teaching evaluations were administered in-person compared to online [5].

Since many faculty have moved to online teaching due to the pandemic, it is of no surprise that obtaining PTEs from students has proved challenging, especially in asynchronous courses. One reason for this may be survey fatigue, a problem that has impacted many [6, 7]. The PTEs ask the same series of questions with no specificity for each class—something that is undeniably helpful from a researcher’s standpoint, so as to compare results across classes, but may be problematic for the aforementioned reasons, especially if students are taking the same survey for upwards of five courses. While many students and faculty were pushed to an online learning modality during the pandemic, many students have since elected to enroll in asynchronous courses, perhaps due to the convenience they offer [8] (no in-person meetings), suggesting the students taking them require flexibility due to demands outside of the classroom (e.g., full time jobs, care taking, etc.). This has led to difficulty administering PTEs, whereby there is no designated time a faculty member can set aside for students to complete the surveys [1, 3, 4].

Students engage in asynchronous courses in part by reading, rather than sitting in a class and participating. Reading and writing tend to take up the same amount of time as in-person class attendance in an online asynchronous course [9]. In the wake of the pandemic, many modes of communication have been pushed online—requiring additional reading. The primary way to alert and communicate with students enrolled in asynchronous courses is via writing, which includes (but is not limited to) email, discussion boards, and direct messages and posts within the learning management system. This means faculty are contending with other written announcements from the college/university to get students’ attention, especially when messages are sent via email. Compounded by compassion fatigue and burnout during the pandemic [10], it is perhaps no surprise that students may be less likely to complete PTEs or to carefully read the same detailed PTE questions for each course. Reading or focusing on reading has become more challenging for some during the pandemic [11], which may be another contributing factor in obtaining reliable student feedback on teaching.

Students during the pandemic have been struggling to keep up with coursework [12, 13], remain enrolled in school [14], and have dealt with burnout [15] among other health/pandemic related issues impacting them/their families [16–18]. For these reasons, it is understandable

that response rates on PTEs have dropped — students have more to concern themselves with than identifying ways in which an instructor has been effective in teaching a class, especially if there is no incentive for them to complete the survey.

The purpose of this case study was to test a variety of research-supported methods on teaching effectiveness and learning in online asynchronous courses. Research has demonstrated the effectiveness of incentivizing students [4], engaging students [19], and using appropriate measures with clear questions to assess feedback important to the instructor [20, 21]. The aims of this study were to 1) increase response rates (thereby increasing variability of responses); 2) identify whether learning materials aided in student learning and achievement of Student Learning Outcomes (SLOs) in the course; and 3) determine student learning progress by addressing the achievement of SLOs over the course of the semester.

II. METHODS

A. University Administered PTEs

Demographics: A subset of the university students (103) enrolled in two upper-division courses in the Department of Child Development (CDV 423, 63 (61.17%); CDV 490, 40 (38.84%)) were included in the sample. Of these students, 46 (44.66%) completed the university-administered Perceived Teaching Effectiveness surveys (PTEs) (CDV 423, 32 (50.79%); CDV 490, 14 (35%)). Because the responses were anonymous, no additional data on the students is available.

Procedure: Perceived Teaching Effectiveness surveys (PTEs) were administered by The Office of Faculty Affairs and Development at California State University, Dominguez Hills to all students enrolled in classes on the Monday of Week 13 of a 15-week semester. Students had until the Friday of Finals Week (the week following Week 15 of classes, 27 days total) to complete PTEs for all classes. Instructors were emailed a reminder about the surveys 9, 14, 22, and 26 days after the initial email, which included the number of students enrolled in each section and how many students completed the PTEs in the given section. Faculty were encouraged to ask students to complete the PTEs and reminded how to instruct students to access them.

Materials: Surveys consisted of eight multiple choice questions assessing student perceived teaching effectiveness (Table I) and required students to respond on a 5-point scale (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree) or to select N/A. Three open ended questions followed, including “What has the teacher done especially well in the teaching of this course?”, “What might be done to improve the instructor’s teaching in this course?”, and “Additional comments”. Student submissions were anonymous. Results were made available to faculty after grades were submitted/due to the University (13 days following the due date).

TABLE I. PERCEIVED TEACHING EFFECTIVENESS ITEMS

No.	University-Administered PTE Items
1	The objectives of the course were clearly stated.
2	The course content covered the stated objectives.
3	The instructor presented the course material clearly.
4	The class included appropriate student participation and discussion.
5	The instructor was responsive to student’s questions.
6	The instructor showed enthusiasm for the subject.
7	The course assignments and class activities were helpful in learning the course content.
8	The instructor’s teaching was effective.

B. Course Administered Surveys

Demographics: One hundred three students enrolled in two upper-division Child Development courses (CDV 423, 63 (61.17%); CDV 490, 40 (38.84%)) and were included in the present study. Eighty-nine (86.41%) students completed at least one of the two Course Administered Surveys (CDV 423, 57 (90.48%); CDV 490, 32 (80%)). Survey 1 was completed by 55 (53.40%) students (CDV 423, 43 (68.25%); CDV 490, 12 (30%)); Survey 2 was completed by 87 (84.47%) students (CDV 423, 59 (93.65%); CDV 490, 28 (70%)). Forty-five (43.69%) students completed both surveys (CDV 423, 37 (58.73%); CDV 490, 8 (20%)). Because the responses were anonymous, no additional data on the students is available.

Procedure: Students in both courses were informed of an opportunity to receive extra credit by completing a survey via an announcement posted to the online learning management system, Blackboard. This announcement was posted three days after the end of the first major learning module (Week 6) and the last major learning module (Week 15). Students were informed that an extra credit opportunity was available and that to receive extra credit in the course, they needed to complete a survey which asked about their learning experience in a given learning module. They were informed the survey would remain open for one week. Students were sent a reminder two days before the close of each survey. The survey responses were anonymous and determined unique by timestamps and IP addresses. All students received extra credit at the end of the semester.

Materials: Surveys were created using Alchemer. Students were prompted with a series of three different types of questions. The first series of questions attempted to engage students [21] and asked students about their experience with a major course assignment. For example, students were asked about their experience with the amount of time allotted on an exam, whether they found their notes helpful, what they studied, and about their experience with different types of questions. Students provided a response that best aligned with an ordinal option. For example, for an open book/note exam, students were asked “Did you use your notes?” and selected either “No, but I didn’t really take any notes”; “No, but I didn’t really need to”; “Yes, for a few questions”; or “Yes, I felt like they were really helpful”.

The second series of questions asked students to indicate how much they felt they learned on a given topic. Each of the module topics was listed, and students provided a response that best aligned with an ordinal option, which included “No, nothing. I knew all about this coming into the course”; “No, not really. I learned maybe one term”; “Yes, something. I learned a few things”; and “Yes, a lot. I feel like I could explain something about it to someone”.

The final series of questions (those of interest for this study) were pointed [20] and asked students to reflect on the learning material and how it aligned with the course SLOs. For example, students were prompted with, “Consider what we’ve covered so far and rate the extent to which you agree that the learning assignments (including readings, Discussion Board posts, quizzes, writing assignments) have helped you to do the following” and were presented with each of the SLOs that were covered in that learning module. Students responded on a 5-point Likert scale indicating the strength to which they agreed (Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree) that the course learning material assisted them in achieving the Student Learning Outcomes (SLOs) that were addressed in that module (Table II).

TABLE II. COURSE SURVEY SLOS

Course	SLO	Item
CDV 423	1	Identify, integrate, evaluate, and apply developmental concepts and theories, historical trends, and current population data pertaining to the development of child and family policy.
	2	Explain age related variations in developmental risk and their significance for policy development and intervention.
	3	Compare research methods relevant for the process of policy making, policy implementation, and program evaluation. Explain the significance of evidence-based practice for the design and delivery of services.
CDV 490	1	Synthesize information from different sources and formulate a critical summary.
	2	Describe links between theoretical, empirical, and practical knowledge.
	3	Apply theoretical, empirical, and practical knowledge to the investigation of a selected problem in child development.
	4	Present scientific and professional ideas clearly and effectively through written and oral presentation.

Design: To assess the first aim, responses and means were compared between surveys. To assess the second aim, group means were compared between-subjects. To assess the third aim, a within-subjects ANOVA was utilized to compare means within each course.

III. RESULTS

A. Aim 1: Increase Response Rates

Differences were calculated between 1) total Course Survey responses and PTEs; 2) responses to Course

Survey 1 and PTEs; and 3) responses to Course Survey 2 and PTEs (Table III).

TABLE III. DIFFERENCE IN RESPONSE RATES BETWEEN COURSE SURVEYS AND PTEs

	Total	Survey 1	Survey 2
CDV 423	25 (39.68)	11 (17.46)	27 (42.86)
CDV 490	18 (45.00)	-2 (-0.05)	14 (35.00)
Total	43 (41.75)	9 (8.74)	41 (39.81)

Note: Percentages in parentheses. Positive numbers indicate greater completion rate of Course Surveys than PTEs.

These differences demonstrate that there were more completed responses overall to the course surveys compared to the PTEs (43, 41.75% more; 25 in CDV 423 (39.68% more); and 18 in CDV 490 (45% more)). Course Survey 1 received 9 more responses than the PTEs (an 8.74% increase); 11 more in CDV 423 (17.46% increase); 2 fewer in CDV 490 (0.05% decrease). Course Survey 2 received 41 more responses than the PTEs (a 39.81% increase); 27 more in CDV 423 (42.86% increase); and 14 more in CDV 490 (35% increase).

B. Aim 2: Addressing SLO Achievement

Students responded to Question 7 on the PTEs and to each SLO in the course on the Course Survey. To compare responses from the PTEs and Course Survey 2, the mean was taken for each type of response (positive, neutral, negative) across all SLOs queried for a given course. Valence of response was calculated by adding Strongly Agree and Agree responses (positive) and adding Strongly Disagree and Disagree responses (negative). Neutral responses had one response value. Course Surveys received more positive responses (CDV 423, 81.2%; CDV 490, 94.64%) than PTEs (CDV 423, 59.38%; CDV 490, 64.29%). Course Surveys received fewer neutral (CDV 423, 18.4%; CDV 490, 3.57%) and negative (CDV 423, 0.4%; CDV 490, 1.79%) responses than PTEs (Neutral: CDV 423, 25%; CDV 490, 28.57%; Negative: CDV 423, 15.63%; CDV 490, 7.14%), respectively (Table IV).

TABLE IV. RESPONSE RATES BETWEEN PTEs AND SURVEYS

	CDV 423		CDV 490	
	PTE	Survey 2	PTE	Survey 2
Strongly Agree	13	14.2	8	16.25
Agree	6	26.4	1	10.25
Positive	19 (59.38)	40.6 (81.2)	9 (64.29)	26.5 (94.64)
Neutral	8 (25)	9.2 (18.4)	4 (28.57)	1 (3.57)
Disagree	2	0.2	1	0.5
Strongly Disagree	3	0	0	0
Negative	5 (15.63)	0.2 (0.4)	1 (7.14)	0.5 (1.79)

Note: Percentages in parentheses.

C. Aim 3: Assessing Learning Progress

Students in CDV 423 indicated how well assignments and learning material helped them achieve three SLOs on Course Survey 1 and Course Survey 2. To assess the learning progress in CDV 423, a 3×2 within-subjects ANOVA revealed a main effect of the SLO, such that students felt SLO 2 ($M = 4.04$, $SE = 0.09$) was better achieved than SLO 1 ($M = 3.86$, $SE = 0.10$) and SLO 3 ($M = 3.75$, $SE = 0.08$) $F(2,70) = 8.45$, $p = 0.001$. A main effect of learning across the semester was also revealed, such that students found the SLOs were better achieved by the end of the semester (Week 15) ($M = 4.12$, $SE = 0.11$) compared to the middle of the semester (Week 6) ($M = 3.64$, $SE = 0.09$) $F(1,35) = 18.14$, $p < 0.001$ (Fig. 1). There was no interaction between SLOs and the effect of learning across the semester ($p > 0.05$).

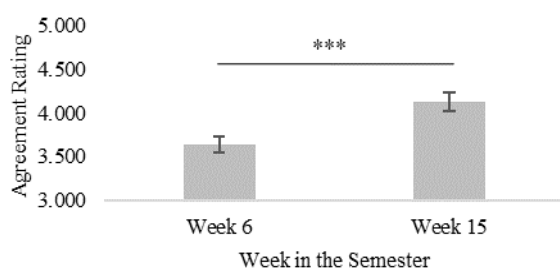


Figure 1. Effect of learning across the semester in CDV 423.

Note: *** = $p < 0.001$.

Students in CDV 490 indicated how well assignments and learning material helped them achieve 4 SLOs on Course Survey 1 and Course Survey 2. To assess the learning progress in CDV 490, a 4×2 within-subjects ANOVA was conducted and revealed a main effect of the SLO, such that students felt SLO 1 ($M = 4.50$, $SE = 0.09$), SLO 2 ($M = 4.25$, $SE = 0.19$), and SLO 3 ($M = 4.31$, $SE = 0.16$) were better achieved than SLO 4 ($M = 4.00$, $SE = 0.21$) $F(3,21) = 6.15$, $p = 0.004$. A main effect of learning across the semester was also revealed, such that students found the SLOs were better achieved by the end of the semester (Week 15) ($M = 4.59$, $SE = 0.18$) compared to the middle of the semester (Week 6) ($M = 3.94$, $SE = 0.17$) $F(1,7) = 14.91$, $p = 0.006$ (Fig. 2). There was no interaction between SLOs and learning over the semester ($p > 0.05$).

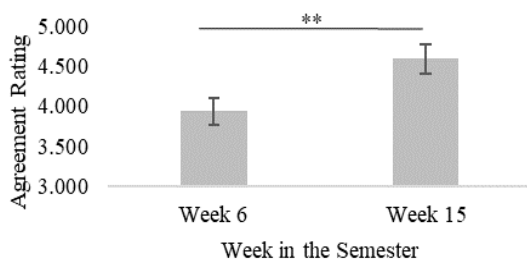


Figure 2. Effect of learning across the semester in CDV 490.

Note: ** = $p < 0.010$.

IV. DISCUSSION

The purpose of this case study was to compare research-supported methods to the University-prescribed survey that solicits student feedback on teaching effectiveness online in the wake of the COVID-19 pandemic. Moving to remote instruction from face-to-face instruction presented challenges in obtaining student feedback on teaching effectiveness, which was of particular interest for instructors who had not taught online previously. Key concerns included response rates (they dropped significantly during the pandemic), opportunities for soliciting feedback early in the semester to make changes midway through the semester (PTEs are sent only at the end of the semester), engaging students with course-specific content (PTEs ask standardized questions that can be applied to all courses at the university), and determining whether student learning occurred over the course of the semester (PTEs ask about all course SLOs in one question, at the end of the semester).

To address these issues, a Course Survey was sent to students twice during the semester. By sending the survey to the students midway through the semester and offering extra credit in exchange for its completion, students could become familiar with taking the survey and were incentivized to complete it [1, 3, 4]. Additionally, the surveys were “personalized” to the course [20, 21], asking students to provide feedback to help improve the course. These practices demonstrated that students were more inclined to complete the course surveys compared to the PTEs. Overall, there were 41.75% more responses to the Course Surveys compared to the PTEs (8.74% more responses on Survey 1; 39.81% more responses on Survey 2). While it is unclear specifically why students may have been more inclined to complete the Course Surveys compared to the PTEs, it is likely that the two methods employed to increase response rates (offering extra credit and engaging students with the surveys by asking for feedback to improve the course) were effective.

Students were asked about whether the learning materials assisted student learning in the PTEs (one question) and the Course Survey (each SLO was queried). The Course Survey questions reminded students of the type of course material that may have helped them achieve a learning outcome, while the PTE did not refer to examples of course materials. A comparison was drawn between the PTE item that assessed this question, and an average of the responses from the equated SLO questions in Course Survey 2. This comparison demonstrated that in both courses, there were more positive responses and fewer neutral and negative responses from Course Survey 2 than on the PTEs. It is likely that asking students to recall specific types of methods that were utilized in addressing the SLOs allowed them to remember how the course addressed the SLOs and answer accordingly [20].

Finally, while the PTEs ask students about their perception of teaching in the course, it is not clear whether students believe they are learning in the course. To address this, the Course Survey asked students to

evaluate how well they believed SLOs were achieved at two time points during the semester. By comparing the responses from the middle to the end of the semester, it was clear students believed that in both classes, SLOs were more fully achieved by the end of the course. Rather than simply asking students a question pertaining to their learning once at the end of the semester (which may be flawed, as it relies on one-time recall and may be reflective of a salient negative/positive experience in the course [22]), asking students the same question at two different points in the semester allowed for a more unbiased examination of student perceived learning, which is critical for understanding how an instructor should tailor their teaching materials to address SLOs.

While this study demonstrates important survey techniques instructors can utilize for their courses to assess student learning, there are some limitations. First, this study employed a small sample size as a case study, suggesting limited generalizability. Additionally, anonymous data was solicited from two courses. While using anonymous data may allow students to respond freely without fear of retribution from the instructor, data with demographic information would be helpful in understanding whether student perceptions were reflections of students who were doing well or poorly in the class. It would also allow for more direct comparisons between surveys, rather than comparing group averages. Asking students to provide their information may make it necessary to survey a larger sample of students (considering it may be more challenging to assure response rates are high) and to do so across multiple courses (to obtain a better reflection of different types of students (e.g., first-years, newly transferred, seniors, etc.). Additionally, it would be helpful to implement these surveys over multiple semesters to examine whether the results are reflective of the course as a whole or are specific to that semester. Future studies should consider longitudinal research of this nature in online courses to better assess student learning to assist instructors in reflecting on and modifying their course delivery.

V. CONCLUSION

The COVID-19 pandemic required many students and educators to quickly pivot from face-to-face instruction to online instruction. After adapting to this mode of teaching, instructors would arguably benefit from receiving student feedback to improve their instruction but given the nature of the traditional university-administered surveys, may not have received sufficient responses or feedback to discern whether their teaching was effective. This study revealed that by implementing course-specific surveys multiple times during the semester (and offering extra credit in exchange), online instructors can receive a more accurate depiction of their teaching effectiveness and can thus better serve their students. Future research in this area should consider expanding upon this work by requesting student-specific data and examining these trends longitudinally to better understand teaching effectiveness online. This research demonstrates that by implementing empirically supported survey

administration techniques in online asynchronous courses, instructors can expect to receive more and varied feedback than they would otherwise receive via university-administered surveys, especially when students and faculty are taxed due to the pandemic. This feedback can help instructors to modify their teaching in course-specific areas that are perceived to be less effective than others, while maintaining areas that are considered successful.

CONFLICT OF INTEREST

The author declares no conflict of interest.

ACKNOWLEDGMENT

The author would like to thank the student respondents in the Department of Child Development at California State University, Dominguez Hills for their willingness to complete the PTEs and Course Surveys.

REFERENCES

- [1] I. Neath, "How to improve your teaching evaluations without improving your teaching," *Psychological Reports*, vol. 78, no. 3, pp. 1363–1372, 1996. <https://doi.org/10.2466/pr0.1996.78.3c.1363>
- [2] C. J. Dommerer, P. Baum, K. S. Chapman, et al., "Attitudes of business faculty towards two methods of collecting teaching evaluations: Paper vs. online," *Assessment & Evaluation in Higher Education*, vol. 27, no. 5, pp. 455–462, 2002. <https://doi.org/10.1080/026029302200009320>
- [3] T. B. Crews and D. F. Curtis, "Online course evaluations: Faculty perspective and strategies for improved response rates," *Assessment & Evaluation in Higher Education*, vol. 36, no. 7, pp. 865–878, 2011. <https://doi.org/10.1080/02602938.2010.493970>
- [4] C. J. Dommerer, P. Baum, R. W. Hanna, et al., "Gathering faculty teaching evaluations by in-class and online surveys: Their effects on response rates and evaluations," *Assessment & Evaluation in Higher Education*, vol. 29, no. 5, pp. 611–623, 2010. <https://doi.org/10.1080/02602930410001689171>
- [5] D. D. Nulty, "The adequacy of response rates to online and paper surveys: What can be done?" *Assessment & Evaluation in Higher Education*, vol. 33, no. 3, pp. 301–314, 2008. <https://doi.org/10.1080/02602930701293231>
- [6] B. Fass-Holmes, "Survey fatigue — Literature search and analysis of implications for student affairs policies and practices," *Journal of Interdisciplinary Studies in Education*, vol. 11, no. 1, pp. 56–73, 2022.
- [7] R. D. Koning, A. Egiz, J. Kotecha, et al., "Survey fatigue during the COVID-19 pandemic: An analysis of neurosurgery survey response rates," *Frontiers in Surgery*, vol. 8, 690680, pp. 1–7, 2021. <https://doi.org/10.3389/fsurg.2021.690680>
- [8] D. K. O'Neill, S. Reinhardt, and K. Jayasundera, "What undergraduates say about choosing an online or in-person course: Quantitative results from a large-sample, multi-discipline survey," *Higher Education Research & Development*, vol. 41, no. 4, pp. 1199–1214, 2021. <https://doi.org/10.1080/07294360.2021.1896484>
- [9] A. H. Brown and T. Green, "Time students spend reading threaded discussions in online graduate courses requiring asynchronous participation," *International Review of Research in Open and Distributed Learning*, vol. 10, no. 6, pp. 51–64, 2009. <https://doi.org/10.19173/irrodl.v10i6.760>
- [10] R. Vanderhill and C. Dorroll, "Teaching, self-care, and reflective practice during a pandemic," *PS: Political Science & Politics*, vol. 55, no. 3, pp. 1–5, 2022. <https://doi.org/10.1017/S1049096521001918>
- [11] E. Pettit. (2020). A side effect of the COVID-19 pandemic? Reading got a lot harder. *The Chronicle of Higher Education*. [Online]. Available: <https://static1.squarespace.com/static/5ade38cf7e3c3a8e0fd03b28/t5ebc69c9cb51d10a41cb28bf/1589406154240/A+Side+Effect+of>

- +the+Covid-19+Pandemic_+Reading+Got+a+Lot+Harder+-+The+Chronicle+of+Higher+Education.pdf
- [12] J. Hope, "Pandemic hampers student engagement, highlights inequities," *The Successful Registrar*, vol. 20, no. 10, p. 9, 2020. <https://doi.org/10.1002/tsr.30781>
- [13] Canvas. (2020). State of student success and engagement in higher education. 2020 *Global Research Study and Trends*. [Online]. Available: <https://www.instructure.com/canvas/resources/insights/student-success-engagement-higher-education-research-study-trends#main-content>
- [14] L. Moscovitz and D. K. Evans. (2022). Learning loss and student dropouts during the COVID-19 pandemic: A review of the evidence two years after schools shut down. *Center for Global Development, Working Paper*. [Online]. 609. pp. 1–24. Available: <https://www.ungei.org/sites/default/files/2022-04/learning-loss-and-student-dropouts-during-covid-19-pandemic-review-evidence-two-years.pdf>
- [15] J. Gonzalez-Ramirez, K. Mulqueen, R. Zealand, *et al.* (2021). Emergency online learning: College students' perceptions during the COVID-19 pandemic. *College Student Journal*. [Online]. 55(1). pp. 29–46. Available: <https://www.ingentaconnect.com/contentone/prin/cs/2021/00000055/00000001/art00005>
- [16] X. Wang, S. Hegde, C. Son, *et al.*, "Investigating mental health of US college students during the COVID-19 pandemic: Cross-Sectional survey study," *Journal of Medical Internet Research*, vol. 22, no. 9, 2020. <https://doi.org/10.2196/22817>
- [17] C. Yang, A. Chen, and Y. Chen, "College students' stress and health in the COVID-19 pandemic: The role of academic workload, separation from school, and fears of contagion," *PLOS One*, 2021. <https://doi.org/10.1371/journal.pone.0246676>
- [18] W. E. Copeland, E. McGinnis, Y. Bai, *et al.*, "Impact of COVID-19 pandemic on college student mental health and wellness," *Journal of the American Academy of Child & Adolescent Psychiatry*, vol. 60, no. 1, pp. 134–141, 2021. <https://doi.org/10.1016/j.jaac.2020.08.466>
- [19] F. Martin and D. U. Bolliger, "Engagement matters: Student perceptions on the importance of engagement strategies in the online learning environment," *Online Learning*, vol. 22, no. 1, pp. 205–222, 2018. <https://doi:10.24059/olj.v22i1.1092>
- [20] F. J. Fowler, *Improving Survey Questions: Design and Evaluation*, 1st ed., Sage Publications, Inc., 1995.
- [21] N. P. Diaz, J. P. Walker, L. M. Rocconi, *et al.* (2022). Faculty use of end-of-course evaluations. *International Journal of Teaching and Learning in Higher Education*. [Online]. 33(3). pp. 285–297. Available: <https://www.isetl.org/ijtlhe/pdf/IJTLHE4083.pdf>
- [22] M. J. D. Adams and P. D. Umbach, "Nonresponse and online student evaluations of teaching: Understanding the influence of salience, fatigue, and academic environments," *Research in Higher Education*, vol. 53, pp. 576–591, 2011. <https://doi.org/10.1007/s11162-011-9240-5>

Copyright © 2023 by the author. This is an open access article distributed under the Creative Commons Attribution License (CC BY-NC-ND 4.0), which permits use, distribution and reproduction in any medium, provided that the article is properly cited, the use is non-commercial and no modifications or adaptations are made.