



PERCEPTIONS OF COLLEGE STUDENTS REGARDING ONLINE VERSUS CLASSROOM-BASED LEARNING

Physiology

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ABSTRACT

This cross-sectional descriptive study was conducted on 162 students (83 females: 51.23%; 79 males: 48.77%), by administering a pre-tested and pre-validated questionnaire via Google forms. The average age of female participants was 19.99 +/- 1.33 years, while that for their male counterparts was 20.14 +/- 1.24 years. The gender difference in age was not statistically significant ($Z=0.742$; $p=0.457$). A significantly higher number of female respondents opined that they were more dependent on online learning ($Z=2.527$; $p=0.011$) and that they had problems with Internet connectivity ($Z=1.991$; $p=0.046$). Significantly higher number of male students ($Z=2.098$; $p=0.035$) felt that interaction with teachers was possible in online learning mode. Classroom-based learning was preferred by a majority of respondents. Online learning denotes a significant, emergent transformation in the application of technology to facilitate student learning. The findings of this study provide essential insights about users' perceptions of e-learning and raise practical considerations for its implementation.

KEYWORDS

Classroom, Distance Learning, E-learning, Online Learning, Student Perceptions

INTRODUCTION

Online learning (synonyms: e-learning, web-based learning) refers to a form of distance education where all courses are delivered to the learners entirely via the Internet. [1, 2] In contrast, in the traditional face-to-face classroom-based learning, students are required to physically attend teaching sessions. From the student viewpoint, costs related to student transport, accommodation and food are not incurred in online learning. From the institutional perspective, increased number of students can be enrolled and the cost of building new infrastructure [3] and recurring costs of maintaining infrastructure and staff salaries are minimized. Thus, online learning is cost-effective. [1] Students who cannot access courses in higher education due to socioeconomic, geographic, financial, educational, and personal barriers can benefit from online courses. [4, 5] As long as students have access to the internet, they can be provided with quality education from numerous institutions anytime and anywhere. [1] Online learning can be less distracting because the students can focus only on class lessons and need not be bothered about non-academic issues, such as, the daily commute. [6]

Online learning is self-guided and enables students to plan their time and study effectively. [6] E-learning can proficiently highlight information by offering examples, explanations, assessments, and exercises. Multimedia resources, such as, animation, can be utilized to demonstrate concepts that cannot be easily depicted in traditional classes. Online instruction can potentially enhance learning compared to what can be accomplished using a classroom only approach. [7]

Conversely, absence of teacher negatively impacts learning outcomes of online students and their mean scores are lower than that of traditional classroom education students. [6] Another demerit is missed learning due to lack of peer interaction. Stipulation of compulsory attendance is helpful for students with inadequate time management and independent learning skills who prefer attending classroom education. [8] Other shortcomings of online learning include student's self-perception feeling of isolation, [9] student frustration, anxiety, and confusion, [10, 11] higher student dropout rates [12-14] the need for high levels of self-motivation and time management skills in the student [15, 16] Negative misconceptions regarding online courses, such as, diminished student experience, impaired ability of students to connect with faculty, [17] decreased instructional quality, [18, 19] and institutional factors, such as, resource deficits, also hinder the growth of online instruction. [20-22]

Due to the above-mentioned reasons, some researchers have

advocated "blended" learning. [23, 24] Blended learning is an instructional approach that combines elements of e-learning with that of the traditional classroom. [25, 26] Distractions, if any, may be surmounted by measures, such as, eliminating extraneous information, simultaneous narration with animation, using cues to highlight essential information. [27] Connecting with students with a conversational speaking style is most advantageous for improved learning outcomes. [28] It will be necessary to identify best practices that will help improve effectiveness of online courses. Feedback from students can help pinpoint and rectify deficiencies. Researchers [29] have provided guidelines for making appealing and effective lecture videos to support creation of best practices in online instruction.

Online teaching has come into the limelight as a consequence of closure of educational institutions due to the coronavirus lockdown. Educators have come under tremendous stress because, in addition to managing curriculum and teaching methods, they also have to contend with basic issues, such as, Internet connectivity and unpredictable power supply. The objective of the present study, conducted in May 2020, during the lockdown, was to determine the student perceptions regarding online learning.

MATERIALS AND METHODS

This cross-sectional descriptive study was conducted in May 2020, during the lockdown, by administering a pre-tested and pre-validated questionnaire via Google forms to students aged 18+ years, of either gender, who were enrolled for graduate courses. The chain sampling technique was used. Informed consent was taken on the Google forms. The data were adapted to Microsoft Excel spreadsheet (Microsoft Corporation, Redmond, WA, USA) and analyzed using SPSS statistical software Windows Version 25.0 (IBM Corporation, Armonk, NY, USA). The percentage of responses and the standard error of difference between two sample proportions were calculated. For continuous data, the standard error of difference between two means was calculated. 95% Confidence interval (CI) was stated as: [Mean-(1.96)*Standard Error] - [Mean+(1.96)* Standard Error]. The statistical significance was determined at $p<0.05$.

RESULTS AND DISCUSSION

A total of 162 persons (83 females: 51.23%; 79 males: 48.77%) participated in the study.

The average age of female participants was 19.99 +/- 1.33 years (95% CI: 19.70 – 20.27 years), while that for their male counterparts was 20.14 +/- 1.24 years (95% CI: 19.87 – 20.41 years). The gender

difference in age was not statistically significant ($Z=0.742$; $p=0.457$). The maximum age was higher for males. But, the third quartile, median, first quartile and minimum age was identical for both sexes (Fig-1).

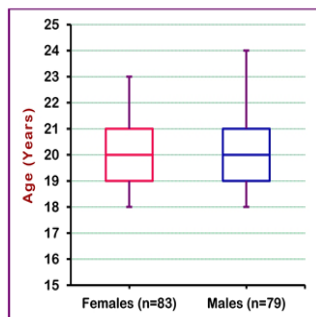


Fig-1: Box Plot Showing Age Distribution

Table-1: Gender Difference In Perceptions On Online Learning

Parameter	Females (n=83)	Males (n=79)	Zvalue	p'value
More dependent on online learning	76(91.51%)	61(77.22%)	2.527	0.011*
Accessible any where at anytime	71(85.54%)	68(86.08%)	0.097	0.920
Cost-effective	58(69.88%)	50(73.42%)	0.889	0.373
Saves commuting time	70(84.34%)	63(79.75%)	0.761	0.447
More leisure time available	54(65.04%)	51(64.56%)	0.067	0.944
Can learn at one's own pace	68(81.93%)	70(88.60%)	1.196	0.230
Internet connectivity is an issue	73(87.95%)	60(75.95%)	1.991	0.046*
Increases feeling of loneliness	71(85.54%)	65(82.28%)	0.565	0.568
Can get easily distracted	64(77.11%)	52(65.82%)	1.592	0.111
Increases eye strain	66(79.52%)	53(67.09%)	1.790	0.073
Interaction with teachers possible	40(48.19%)	51(64.56%)	2.098	0.035*
Affects social interaction	69(83.13%)	67(84.81%)	0.290	0.771

Z=Standard error of difference between two proportions;
*Significant

This study was conducted during the coronavirus lockdown in May 2020. A significantly higher proportion of females students ($Z=2.527$; $p=0.011$) felt that they were more dependent on online learning and that internet connectivity was an issue (Table-1).

A survey conducted in Houston, Texas, revealed that 78% of the students preferred an intra-classroom interaction with the faculty either in person or in hybrid format. [30]

Researchers [29] have presented different lecture video styles with standardized material that improved student engagement and satisfaction, while maintaining high learning outcomes. In a California-based study, video styles that were described as impersonal and unfamiliar were rated poorly, while those that were described as personal and engaging and evoked positive affective responses were rated highly. [29]

CONCLUSION

Face-to-face classroom-based learning was preferred by a majority of respondents, of either gender, because students faced problems with online teaching, such as, problems with Internet connectivity, increased feeling of loneliness, easy distraction, increased eye strain and lack of social interaction in online teaching.

REFERENCES

- Nguyen, T. (2015), "The effectiveness of online learning: Beyond no significant difference and future horizons." *MERLOT J Online Learning Teaching*, 11(2), 309-329.
- O'Neill, K., Singh, G. & O'Donoghue, J. (2004), "Implementing e-learning programmes for higher education: A review of the literature." *J Information Technol Educ*, 3, 313-323.
- Seaman, J. E., Allen, I. E., & Seaman, J. (2018), "Grade increase: Tracking distance education in the United States." Oakland, CA: Babson Survey Research Group.
- Hansen, J. D., & Reich, J. (2015), "Democratizing education? Examining access and usage patterns in massive open online courses." *Science*, 350(6265), 1245-1248.

- Flowers, L. O., White, E. N., Raynor, J. E. Jr., & Bhattacharya, S. (2012), "African American students' participation in online distance education in STEM disciplines." *SAGE Open*, 2(2), 2158244012443544.
- Kirtman, L. (2009), "Online versus in-class courses: An examination of differences in learning outcomes." *Issues Teacher Educ*, 18(2), 103-117.
- McEwen, T. (1997), "Communication training in corporate settings: Lessons and opportunities for the academe." *Mid-American J Business*, 12(1), 49-58.
- Xu, D., & Jaggars, S. S. (2013), "Examining the effectiveness of online learning within a community college system: An instrumental variable approach." *CCRC Working Paper No. 56*. Columbia University: CCRC Research Center.
- Brown, K. M. (1996), "The role of internal and external factors in the discontinuation of off-campus students." *Distance Educ*, 17(1), 44-71.
- Hara, N. & Kling, R. (2000), "Students' distress with a web-based distance education course: An ethnographic study of participants' experiences." *Information Communication Soc*, 3(4), 557-579.
- Piccoli, G., Ahmad, R. & Ives, B. (2001), "Web-based virtual learning environments: A research framework and a preliminary assessment of effectiveness in basic IT skills training." *MIS Quarterly*, 25(4), 401-425.
- Laine, L. (2003), "Is e-learning effective for IT training?" *T + D*, 57(6), 55-60.
- Frankola, K. (2001), "Why online learners drop out." *Workforce*, 80(10), 52-60.
- Ryan, S. (2001), "Is online learning right for you?" *American Agent & Broker*, 73(6), 54-58.
- Golladay, R., Prybutok, V. & Huff, R. (2000), "Critical success factors for the online learner." *J Computer Information Systems*, 40(4), 69-71.
- Serwatka, J. (2003), "Assessment in on-line CIS courses." *J Computer Information Systems*, 43(3), 16-20.
- Smart, K., & Cappel, J. (2006), "Students' perceptions of online learning: A comparative study." *J Information Technol Educ Res*, 5(1), 201-219.
- Hara, N. (2000), "Student distress in a Web-based distance education course." *Information, Communication & Society*, 3(4), 557-579.
- Brown, K. M. (1996), "The role of internal and external factors in the discontinuation of off-campus students." *Distance Educ*, 17(1), 44-71.
- Harvey, C., Eshleman, K., Koo, K., Smith, K. G., Paradise, C. J., & Campbell, A. M. (2016), "Encouragement for faculty to implement vision and change." *CBE-Life Sci Educ*, 15(4), e57.
- Gormally, C., Evans, M., & Brickman, P. (2014), "Feedback about teaching in higher ed: Neglected opportunities to promote change." *CBE-Life Sci Educ*, 13(2), 187-199.
- Brownell, S. E., & Tanner, K. D. (2012), "Barriers to faculty pedagogical change: Lack of training, time, incentives, and ... tensions with professional identity?" *CBE-Life Sci Educ*, 11(4), 339-346.
- Koohang, A. & Durante, A. (2003), "Learners' perceptions toward the web-based distance learning activities/assignments portion of an undergraduate hybrid instructional model." *J Information Technol Educ*, 2(1), 105-113.
- Davis, J. (2000), "Traditional vs. online learning: It's not an either/or proposition." *Employment Relations Today*, 27(1), 47-60.
- Rubenstein, H. (2003), "Recognizing e-learning's potential & pitfalls." *Learning & Training Innovation*, 4(4), 38.
- Ward, J. & LaBranche, G. (2003), "Blended learning: The convergence of e-learning and meetings." *Franchising World*, 35(4), 22-23.
- Mayer, R. E., & Fiorella, L. (2014), "Principles for reducing extraneous processing in multimedia learning: Coherence, signaling, redundancy, spatial contiguity, and temporal contiguity principles." In: Mayer, R. E. (Ed.), *The Cambridge handbook of multimedia learning* (2nd ed., pp. 279-315). Cambridge, UK: Cambridge University Press.
- Mayer, R. E. (2014), "Principles based on social cues in multimedia learning: Personalization, voice, image, and embodiment principles." In: Mayer, R. E. (Ed.), *The Cambridge handbook of multimedia learning* (2nd ed., pp. 345-368). Cambridge, UK: Cambridge University Press.
- Choe, R. C., Scuric, Z., Eshkol, E., Cruser, S., Arndt, A., Cox, R., et al. (2019), "Student Satisfaction and Learning Outcomes in Asynchronous Online Lecture Videos." *CBE-Life Sci Educ*, 18(4), ar55.
- Smith, C., Hoderi, M., & McDermott, W. (2019), "A preliminary study of students' perception and learning from different delivery methods". *Acad Educ Leadership J*, 23(2).