Interdisciplinary Journal of Virtual Learning in Medical Sciences

Review Article

Ethical Principles in E-Learning; Investigating Key Issues in Instructional Design and Teaching Methods: A Narrative Review

Abdollah Mehrfar[1,2], Zahra Zolfaghari[1,2*], Yamin Hejazi[2], Nahid Zarifsanaiey[2]

[1]*Student Research Committee of Shiraz University of Medical Sciences, Shiraz, Iran*
[2]*Department of E-Learning in Medical Sciences, Virtual School and Center of Excellence in E-Learning, Shiraz University of Medical Sciences, Shiraz, Iran*

ABSTRACT

Background: The expansion of E-learning has brought about new ethical challenges concerning academic integrity, privacy, inclusivity, technological impacts, and power dynamics, necessitating careful examination. This article reviews the literature related to ethical issues in online education to prioritize considerations for instructors and educators.

Methods: A narrative review of 49 articles on E-learning ethics published during 2005-2022 was conducted. The inclusion criteria focused on full-text English-language publications in the field of higher education published in peer-reviewed academic journals or conference proceedings. Studies without empirical or theoretical analysis were excluded. Manuscripts were retrieved via Google Scholar, ERIC, and Education Source databases utilizing "online learning ethics," "e-learning ethics," "academic integrity," and "learner privacy" keywords. The articles were analyzed using qualitative synthesis. The articles' quality was evaluated using the SANRA checklist.

Results: Among the 273 articles identified, 49 were finally selected for the analysis. The study highlights five main ethical priorities: maintaining academic integrity through comprehensive policies, safeguarding learner privacy via data security mechanisms, enhancing inclusivity through design considerations, evaluating technological impacts, and exercising responsible instructor power.

Conclusion: Actively addressing ethical complexities enhances academic integrity in digital classrooms, but sustainable engagement with the evolution of e-learning requires continuous participation. The findings shed light on the responsibilities of online educators in empowering diverse learners.

Keywords: Distance, Education, Ethics, Academic Integrity, Learner Privacy, Inclusivity

**Corresponding author:*
Zahra Zolfaghari,
Department of E-Learning in Medical Sciences, Virtual School and Center of Excellence in E-Learning, Shiraz University of Medical Sciences, Shiraz, Iran
Tel: +98 9365003435
Email: zzolfagharimedical@gmail.com

Please cite this paper as:
Mehrfar A, Zolfaghari Z, Hejazi Y, Zarifsanaiey N. Ethical Principles in E-Learning; Investigating Key Issues in Instructional Design and Teaching Methods: A Narrative Review. Interdiscip J Virtual Learn Med Sci. 2023;14(4):251-262.doi:10.30476/IJVLMS.2023.100458.1261.

Received: 09-12-2023
Revised: 09-22-2023
Accepted: 10-07-2023

Introduction

Distance learning has been present for many years, relying on correspondence courses delivered through postal systems (1, 2). The emergence of media and technologies in the 1960s and 70s, such as television and radio-based education, paved the way for new avenues in distance learning (3-5). With the advent of the internet and computer-based learning management systems in the 1990s and early 2000s, E-learning introduced itself as a form of distance education, providing comprehensive

online learning experiences (2, 4, 6). The rapid growth of e-learning at all levels can be attributed to advancements in online learning technologies and the necessity of remote education due to the global impact of COVID-19 (7, 8). This surge in e-learning and virtual education has opened up new opportunities for flexible and accessible learning (9).

However, this transformation has also raised ethical considerations for educators and instructional designers, requiring careful examination (10, 11). Teaching and facilitating learning in virtual spaces raise concerns about academic integrity, content ownership, learner privacy, assessment methods, inclusivity, ethical use of technology, and power dynamics in instructor-learner interactions (12-15).

Adhering to ethical principles in virtual education can yield multiple beneficial outcomes for learners, educators, and the broader research community (9). Prioritizing learner privacy and data security may lead to a greater sense of comfort for participants in digital classrooms, especially as virtual environments increasingly surpass traditional face-to-face teaching methods (7).

Transparency regarding emerging technologies can assist instructors and institutions in making more informed choices to support learners' success (16). Online anonymity can, however, encourage misconduct without facing immediate consequences (17). Additionally, reliance on technology exacerbates risks related to data privacy violations, security breaches, and unethical use of learners' personal information (14). Moreover, dependence on digital platforms raises concerns about access, inclusivity, and educational equity for learners without reliable internet access (18, 19). Lastly, the rapidly evolving nature of virtual environments means that new ethical challenges continuously emerge (20).

Learner engagement in virtual classes is a significant advantage of online education (21). Nevertheless, as virtual spaces replace physical classrooms, existing ethical norms are challenged (20). Preserving academic integrity and honesty in e-learning environments is a key priority (22). It is essential to recognize that e-learning entails specific requirements and principles for instructors and educators (23, 24). Comprehensively addressing these ethical obligations fosters integrity and credibility in online research and educational practices, ultimately impacting the real world (25).

There is a review article published by Antonella Esposito in 2012 investigated ethical issues related to conducting virtual research in massive open online courses (MOOC). He emphasizes the necessity of paying attention to the participants' privacy, obtaining informed consent from them, and maintaining the identity and anonymity of the volunteers. It also emphasizes the importance of the researcher's role as an active participant (26).

Another review article was published by Bill Anderson and Mary Simpson in 2007. The authors have investigated ethical issues in virtual education. They emphasize the importance of paying attention to justice and equality in access to virtual education, protecting students' privacy and obtaining informed consent from them (27).

Elif Toprak and colleges published an article on ethics in ELearning at 2010. The authors have investigated the views of students and professors on ethical issues in e-learning. They emphasize the need to inform students about ethical rules, protect their privacy, and obtain consent from students (28).

In another study, Dimitrios Tzimas and Stavros Demetriadis have investigated ethical issues related to analytical learning in 2021. They emphasize the necessity of respecting students' privacy, transparency in the use of data and algorithms, and avoiding the classification and labeling of students (29).

Although virtual education has many advantages, including flexibility and easy access (7), there are also ethical challenges in this area. According to recent research, students' violations of virtual exams and assignments have increased by about 20% during the Covid-19 era (30). In addition, there are concerns about the privacy of students and the security of their information in the virtual

environment (14). Also, the limitation of access to the Internet and technology for low-income students, the lack of physical presence of the lecturer, and the reduction of human interactions are among other challenges. Virtual education is considered (10). According to these challenges this article focused on e-learning and examines educators' responsibilities in promoting ethical education within digital learning environments and its various aspects. In this study we aimed to find the answer of following questions:

What are the key ethical challenges in virtual education?

What are the moral responsibilities of teachers and educational designers in the virtual environment?

How can ethical principles and standards be guaranteed in virtual education?

Methods

Study Design

This review was conducted based on the literature research published during the last 15 years (2005-2022) regarding ethical issues in e-learning and online education. This 15-year period was chosen to cover contemporary research that aligns with the digital transformation accompanied by the emergence of new learning technologies and platforms.

Search Strategy

Database searches were performed on Scopus, Google Scholar, ERIC, and Education Source, using a combination of keywords including "online learning ethics," "e-learning ethics," "academic integrity," "learner privacy," and related phrases.

Selection Criteria

Inclusion criteria focused on full text English-language publications in the field of higher education published in peer-reviewed academic journals or conference proceedings. Exclusion criteria consisted of research without empirical or theoretical analysis.

Quality Assessment

Studies solely focused on traditional face-to-face learning were excluded due to their lack of relevance. After screening titles, abstracts, and keywords for alignment with the research objectives.

For analysis of the retrieved manuscripts, three experts analyzed the full text of the articles based on the Prisma checklist. A narrative approach was used to categorize ethical issues, compare findings, and synthesize results related to the responsibilities of online instructors and instructional designers. The sources provided primary evidence across various fields to minimize bias and offer a transparent analytical framework.

Results

The initial searches yielded over 250 articles, after applying the inclusion and exclusion criteria, 49 articles met the criteria for review and full-text analysis. Out of 49 reviewed articles, seven key ethical priorities were exploited as preserving academic integrity through comprehensive policies, content ownership, safeguarding learner privacy via data security mechanisms, enhancing inclusivity through design considerations, evaluating technological impacts, exercising responsible instructor power, and designing assessment and evaluation of learner (Figure 1).

In order to analyze the data and extract the main themes related to ethical issues in e-learning, thematic analysis method was used. By carefully studying the texts, the researchers first extracted the related concepts and themes. Then, by comparing these concepts, more comprehensive classes and themes were formed. Finally, the themes were categorized in the form of the following main axes:

Academic Integrity in E-learning

Upholding academic integrity is a vital ethical priority in e-learning. Digital environments can facilitate new forms of cheating, such as identity forgery, unauthorized collaboration, and inappropriate file sharing (31-33). Instructors have the responsibility of mitigating misconduct risks through appropriate assessment designs,

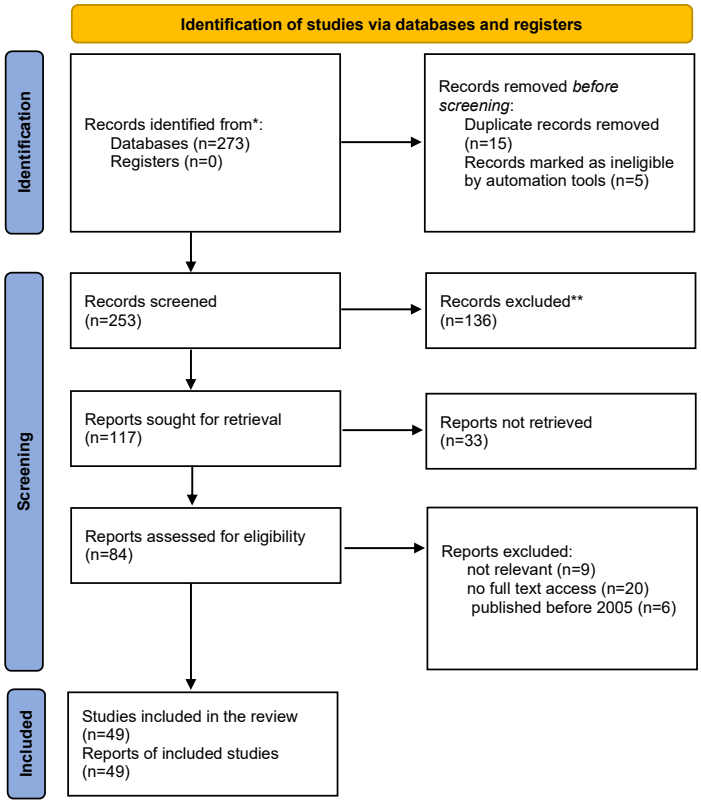

Figure 1: Prisma flow diagram of the study.

honor codes, and supervision (34-36). Active integrity policies and honor codes may reduce cheating behaviors in online classes and foster integrity norms (37, 38). Instructors should clearly communicate their expectations, verify learners' identities, and use technologies like plagiarism detectors to maintain academic coherence and integrity (25, 39). Random and fair assessments, as well as online proctored exams, can also enhance academic integrity (40, 41).

1. Content Ownership and Intellectual Property:

In e-learning, educators often manage or remix third-party content. This raises ethical issues concerning appropriate attribution and respect for intellectual property rights (34, 42, 43). To prevent plagiarism, all included content must have legal permission and proper citation. Fair use principles allow limited educational use of copyrighted materials. Clear policies regarding content ownership and original work help prevent conflicts over intellectual property rights in online classes (42, 44). Discussing issues related to ownership, licensing, and fair use encourages more creative and ethical consumers of content (38, 45, 46).

2. Learner Privacy and Data Security:

Protecting learner privacy and data is an essential ethical priority. Increased data collection in online learning raises risks of identity, demographic, behavioral, and performance disclosures (47, 48). Encryption, access controls, and data minimization help mitigate risks (48, 49). Data usage policies should be transparent, and informed consent should be obtained for data collection and research purposes (14, 49). Instructors must secure learners' personal information and interactive data against unauthorized access or exploitation. Periodic audits ensure organizational learning systems and educational programs comply with best security practices (14, 49, 50).

3. Inclusivity and Diversity:

Inclusive and non-discriminatory learning environments are ethical necessities (50, 51). Course design choices and technologies should minimize barriers faced by learners with

disabilities or socio-economic disadvantages (12, 50). Content review helps eliminate biases or stereotypes that misrepresent learner groups and fosters cultural inclusivity (52, 53). Accessibility accommodations for disabilities, asynchronous participation options, and language support promote inclusivity (12, 50, 52, 54). Mentorship and creating a learning community contribute to the acceptance of online class culture (55) and increasing access through facilitation, flexible participation options, and assistive technologies (50, 56, 57).

4. Ethical Use of Learning Technologies:

Ethical use of new tools like artificial intelligence, automation, and augmented reality requires evidence-based evaluation focusing on risks to privacy, fair access, and physical or emotional well-being (58-61). Automated systems like AI teachers demand transparency, bias checks, and human oversight (61-63). Immersive technologies necessitate protections against physical and emotional risks (60, 61, 64). Analyzing the use of such technologies requires balancing learning benefits and privacy risks (14, 49). Learner priorities and preferences should take precedence over mere technological capabilities when implementing novel tools like AI, virtual reality, and learning analytics (65, 66).

5. Instructor-Learner Interactions and Power Dynamics:

Natale and Doran defined power dynamics as follows: "Power dynamics in educational contexts refers to the power and influence that educators exert over learners through subject mastery, monitoring of learning processes, control over grades/assessments, and other mechanisms" (67). Instructors inherently possess authority, expertise, and grade control, which should be exercised responsibly (55, 68, 69). Healthy instructor-learner interactions and balanced power dynamics are fundamental to ethical e-learning. Clear communication policies and expectations facilitate respectful discussions. Instructors must maintain transparent professional relationships, amplify learner voices, and prevent misuse of power (68, 70). Building caring yet professional relationships reduces the risks of online isolation (54, 55). Modeling constructive discourse dynamics helps combat toxic digital conversations (70-72). Adhering to these principles facilitates learning while overlooking them poses risks (55, 73).

6. Assessment and Evaluation of Learners:

Designing a fair assessment is an ethical commitment in e-learning (74, 75). Rubrics, anonymous grading, and compatible criteria aid in ensuring fairness (76, 77). To prevent bias, learners' identities should remain anonymous during automated grading (41, 78). Assessments must align with stated educational objectives and outcomes to provide meaningful evaluations (75, 77). Offering flexible options, feedback opportunities, and transparency in decision-making preserves ethical standards (77, 79).

Discussion

This review article analyzes studies on key ethical issues in the field of e-learning to highlight priorities for online educators. The findings provide insights into areas related to academic integrity, privacy, inclusivity, emerging technologies, power dynamics, intellectual property, and fair assessment design.

The results emphasize academic integrity and honesty as essential ethical requirements in virtual environments, where risks of cheating, unauthorized collaboration, identity forgery, and inappropriate content sharing may increase compared to traditional physical classrooms (25, 33). Implementing comprehensive codes of honor and academic honesty policies indicates a vital preventive strategy by establishing formal and serious consequences for violations (37, 38). Precise assessment design, proactive identification of literary theft, identity verification during critical phases, and academic monitoring mechanisms foster a more supportive framework (25, 33). Beyond policies and controls, fostering a culture of honesty relies on communication and emphasis on

expectations, modeling, learning moments arising from misconduct, and collaborative policy development by incorporating learners' perspectives (37, 38). Continuous alignment of multidimensional strategies to protect integrity is crucial as risks evolve alongside emerging technologies and platforms.

The development of educational materials and online experiences often involves the integration or remixing of pre-existing third-party content. Therefore, ethical considerations, such as proper attribution, citation, ensuring permissions, and respect for original ownership, are vital (42). Educators should obtain legal permission for any external content used, adhere to fair use principles for limited educational application of copyrighted works, and provide complete referencing for all cited ideas to prevent plagiarism (43). Transparent course policies that elucidate intellectual property rights, expectations for original content, and content licensing parameters aid in avoiding ownership conflicts and help establish clear instructor guidelines (42, 44). However, it is equally important to explicitly address consumers and creators of educational content, i.e., learners, by instructing them in documenting practices, fair use, copyright concerns, and the risks of literary theft (38, 39). Incorporating ethical modeling and content nurturing equips learners with vital skills for the digital age.

Collecting, analyzing, and storing extensive learner data raises significant ethical concerns about privacy and security. Emerging concerns include learner profiling based on learning behaviors, demographic-related topics, identity, disabilities, or other factors (14, 47). Technical controls such as data encryption, multi-factor authentication, strict access restrictions, data anonymization, and minimizing access demonstrate frontline protections (49). Privacy should be safeguarded through informed consent requirements that clearly delineate data usage boundaries, withdrawal policies, and strict limitations in secondary research programs (14). Regular auditing of data systems, access reports, and monitoring mechanisms ensure compliance (47). However, even robust privacy protocols require ongoing evaluation as technologies and data applications evolve rapidly.

Online learning communities must exemplify inclusivity, diversity, and accessibility. This begins with educator modeling of respectful discourse, enforcement of behavioral codes, and fostering classroom cultures where all perspectives are valued (21). Course design choices indicate another potent mechanism, ranging from employing universal design principles for inclusive facilities from the outset to providing multi-faceted and flexible participation options to accommodate various needs and limitations (51, 52). Content review helps identify and reduce biases, stereotypes, or language that marginalizes or misrepresents specific groups (53). Providing language support, anonymous options, and identity protection can promote inclusivity (57). Although expanding participation remains an ideal challenge, progress should be pursued through targeted and comprehensive efforts to overcome barriers.

New technologies hold transformative potential but also come with risks that require ethical evaluation. Artificial intelligence, automation, augmented reality, and other tools promise enhanced education and learning opportunities, but concerns about privacy preservation, security, equitable access, unintended tracking, and dehumanization are also raised (58, 59). Responsible implementation necessitates an evidence-based assessment of impacts on rights, well-being, autonomy, and inclusivity to ensure that benefits outweigh potential harms (66). Learner interests and perspectives, not just technical capabilities, should guide decision-making (65). Continuous monitoring and refinement are essential as technologies and applications rapidly evolve.

The authority of educators arising from subject expertise, curriculum control, and classroom discussions carries the risk of power abuse or misuse if boundaries blur (73, 80). This situation calls for ethical management of relationships, preventing inappropriate or

intimate disclosures, avoiding discrimination, fostering constructive dialogue spaces, attending to learners' needs, and refraining from reinforcing power dynamics through technology (68). Power, when used rightly, promotes growth; when misused, it causes harm. Awareness of relational dynamics and modeling ethical communications prevent educators from becoming absolute authorities.

Fair, valid, and inclusive assessments demonstrate a fundamental ethical commitment (74). Rubrics, anonymous grading, and transparency about methods and reasoning aid in ensuring fairness (76). Universal design principles actively make assessments more accessible from the outset (52). Balancing learning benefits with stereotypical risks requires careful analysis (78). Adjustable options to meet individual students' needs necessitate better support (65). Above all, co-designing assessments to align with shared goals, competencies, and learning activities promotes equitable student engagement (75). Assessments rooted in shared objectives foster motivation for improvement.

Educators, by conscientiously and courageously addressing these ethical dimensions in an interconnected manner with care and effort, support the principles of social justice, diversity, privacy, and compassionate education. While solutions may encounter resistance, progress in addressing these hidden challenges is attainable.

Limitation and Suggestions

Although this study, tried to identify and review articles related to the topic by carefully checking the databases, this research has also faced some limitations. First, the search for articles was not done systematically and based on a specific protocol. In addition, only articles published in English were reviewed. Studies and reports may have been published in other languages regarding the ethical issues of e-learning, which were not included in this study. Also, due to limited access, it was not possible to review all related full texts. It is suggested that in future studies, systematic search methods should be used and language restrictions should not be considered so that the findings are more comprehensive.

Conclusion

As online and virtual education rapidly expands, adhering to ethical standards becomes essential to protect learners and maintain academic integrity. This article combines key ethical priorities that educators, designers, institutions, and the educational community as a whole must actively address. The most critical aspect is preserving academic integrity in digital environments, where the risks of cheating evolve. Comprehensive integrity policies, honor codes, assessments designed to minimize misconduct, detecting plagiarism, and verifying essential identity are crucial. Likewise, respecting content ownership and intellectual property through appropriate licensing, attribution, and promoting learners' content literacy is highly important.

Ensuring learners' privacy requires commitments such as encryption, access controls, consent requirements, minimal data collection, and auditing to secure identities, demographics, behaviors, and performance. Empowering diverse online learning communities necessitates designing globally accessible courses, combating biases, offering accommodations, and embracing diversity.

The ethical acceptance of emerging technologies in evidence-based evaluations depends on a focus on risks, fair access, welfare implications, and learner agency. Balancing the benefits of learning analytics and privacy protection is highly important. Conscientious management of power dynamics requires preserving boundaries, building community, constructive modeling, and preventing abuse. Fair assessment calls for rubrics, anonymity, alignment with objectives, flexible options, transparent procedures, and bias awareness.

Throughout these interconnected dimensions, online educators and designers' shoulder profound ethical responsibilities but also have opportunities to demonstrate integrity. As virtual education continues to evolve, a sustained commitment to ethical

considerations is crucial for empowering learners. While no single article or study can comprehensively cover all aspects, this review amalgamates insights from previous research to highlight priorities at the intersection of education and technology. Active engagement with ethical complexities allows educators to fulfill their commitment to empowering learners in digital learning environments. Continuous scrutiny of evolving tools and methodologies is essential to actualize ethical e-learning at scale.

To uphold ethics in e-learning, the following important recommendations can be proposed:

Development of Ethical Policies and Codes: Establishing clear and explicit ethical policies and codes for educators, designers, and educational institutions to adhere to ethical standards and protect the rights of learners is essential.

Ethical Training for Educators: Providing educators with training on ethical principles in e-learning and methods to protect learners' privacy to promote ethical behavior and responsibility is crucial.

Enhancing Transparency and Equity: Promoting transparency in assessment and grading processes, creating fair rubrics, and criteria aligned with educational objectives help learners better understand the assessment process and achieve fair evaluation.

Privacy Protection: Taking necessary actions to safeguard learners' privacy and personal information, such as encryption, access controls, and informed consent forms, ensures data protection.

Proper Communication: Informing learners about their ethical rights and responsibilities, ethical policies and codes, and methods to protect their privacy ensures they are fully aware of these aspects.

Attention to Diversity and Learner Intensity: Paying attention to the diverse needs and perspectives of learners, creating learning environments that suit learner diversity, and providing necessary support for vulnerable groups are essential.

Continuous Evaluation and Updates: Regularly evaluating evolving tools and methods in e-learning and updating ethical policies and codes to adapt to technological changes and protect learners are of great importance.

Focus on Educator-Learner Interactions: Establishing respectful and dignified relationships between educators and learners, transparently managing power dynamics, and providing effective feedback opportunities to learners are crucial points in ethical interactions between designers and learners.

Support for Ethical Awareness: Creating opportunities for learners to be educated on ethical principles and ethical issues related to e-learning to promote participation and communication among learners is important.

By following these recommendations and prioritizing ethical considerations, e-learning can become an effective and ethical tool in empowering and enhancing the knowledge and education of learners worldwide.

Acknowledgements

Not applicable.

Authors' Contribution

All authors (AM, ZZ, YH and NZ) conceptualized the study, and all were major contributors to writing the manuscript. AM performed the literature search, in consultation with NZ, assisted with ZZ and YH. AM, ZZ, and YH provided writing and critical revision of the manuscript. NZ has supervised the process. AM, ZZ performed critical revision of the manuscript. All authors approved the final manuscript.

Conflict of Interest

None declared.

Funding/Support

Not applicable

References

1 Bower BL, Hardy KP. From correspondence to cyberspace: changes and challenges in distance education. New Dir Community Coll. 2004;(128):5-12.

doi: 10.1002/cc.169.
2 Casey DM. A journey to legitimacy: the historical development of distance education through technology. TechTrends. 2008;52(2):42-51. doi: 10.1007/s11528-008-0135-z.
3 Peters O. Distance education in transition: developments and issues. 5th ed. Oldenburg: BIS-Verlag der Carl-von-Ossietzky-Univ; 2010.
4 Kentnor HE. Distance education and the evolution of online learning in the United States. Curric Teach Dialogue. 2015;17(1):21-34.
5 Larreamendy-Joerns J, Leinhardt G. Going the distance with online education. Rev Educ Res. 2006;76(4):567-605. doi: 10.3102/00346543076004567.
6 Harasim L. Learning theory and online technologies. 2nd ed. New York: Taylor & Francis; 2017. doi: 10.4324/9781315716831.
7 Dhawan S. Online learning: a panacea in the time of COVID-19 crisis. J Educ Technol Syst. 2020;49(1):5-22. doi: 10.1177/0047239520934018.
8 Ali W. Online and remote learning in higher education institutes: a necessity in light of COVID-19 pandemic. High Educ Stud. 2020;10(3):16-25. doi: 10.5539/hes.v10n3p16.
9 Sangrà A, Vlachopoulos D, Cabrera N. Building an inclusive definition of e-learning: an approach to the conceptual framework. Int Rev Res Open Distrib Learn. 2012;13(2):145-59. doi: 10.19173/irrodl.v13i2.1161.
10 Rapanta C, Botturi L, Goodyear P, Guàrdia L, Koole M. Online University Teaching during and after the Covid-19 Crisis: refocusing teacher presence and learning activity. Postdigit Sci Educ. 2020;2(3):923-45. doi: 10.1007/s42438-020-00155-y.
11 Hodges CB, Moore S, Lockee BB, Trust T, Bond MA. The difference between emergency remote teaching and online learning. EDUCAUSE Review; 2020 March 27. [Cited 2023 July 29]. Available from: https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning.
12 Ossiannilsson E, Landgren L. Quality in e-learning–a conceptual framework based on experiences from three international benchmarking projects. J Comput Assist Learn. 2012;28(1):42-51. doi: 10.1111/j.1365-2729.2011.00439.x.
13 Kennedy K, Nowak S, Raghuraman R, Thomas J, Davis SF. Academic dishonesty and distance learning: student and faculty views. Coll Stud J. 2000;34(2):309-14.
14 Ifenthaler D, Schumacher C. Student perceptions of privacy principles for learning analytics. Educ Technol Res Dev. 2016;64(5):923-38. doi: 10.1007/s11423-016-9477-y.
15 Butcher N. Basic guide to open educational resources (OER). Vancouver: Commonwealth of Learning (COL) & UNESCO; 2015. doi: 10.56059/11599/36.
16 Sutherland-Smith W. The tangled web: internet plagiarism and international students' academic writing. J Asian Pac Commun. 2005;15(1):15-29. doi: 10.1075/japc.15.1.04sut.
17 Levmore SX, Nussbaum MC. The offensive Internet: privacy, speech, and reputation. Cambridge (MA): Harvard University Press; 2011.
18 Morgan H. Online instruction and virtual schools for middle and high school students: twenty-first-century fads or progressive teaching methods for today's pupils? Clearing House. 2015;88(2):72-6. doi: 10.1080/00098655.2015.1007909.
19 Muilenburg LY, Berge ZL. Student barriers to online learning: a factor analytic study. Distance Educ. 2005;26(1):29-48. doi: 10.1080/01587910500081269.
20 Gikas J, Grant MM. Mobile computing devices in higher education: student perspectives on learning with cellphones, smartphones & social media. Internet High Educ. 2013;19:18-26. doi: 10.1016/j.iheduc.2013.06.002.
21 Dixson MD. Creating effective student engagement in online courses: what do

students find engaging? J Scholarsh Teach Learn. 2010;10(2):1-13.
22 O'Rourke J. Tutoring in open and distance learning: a handbook for tutors. Vancouver: Commonwealth of Learning; 2003.
23 Darabi AA, Sikorski EG, Harvey RB. Validated competencies for distance teaching. Distance Educ. 2006;27(1):105-22. doi: 10.1080/01587910600654809.
24 Baran E, Correia A-P, Thompson A. Transforming online teaching practice: critical analysis of the literature on the roles and competencies of online teachers. Distance Educ. 2011;32(3):421-39. doi: 10.1080/01587919.2011.610293.
25 Rogerson AM, Basanta G. Peer-to-peer file sharing and academic integrity in the internet age. In: Bretag T, editor. Handbook of academic integrity. Singapore: Springer; 2016. p. 273-85. doi: 10.1007/978-981-287-098-8_55.
26 Esposito A. Research ethics in emerging forms of online learning: issues arising from a hypothetical study on a MOOC. Electron J e-Learn. 2012;10(3):286-96.
27 Anderson B, Simpson M. Ethical issues in online education. Open Learn. 2007;22(2):129-38. doi: 10.1080/02680510701306673.
28 Toprak E, Ozkanal B, Aydin S, Kaya S. Ethics in E-learning. Turk Online J Educ Technol. 2010;9(2):78-86.
29 Tzimas D, Demetriadis S. Ethical issues in learning analytics: a review of the field. Educ Technol Res Dev. 2021;69(2):1101-33. doi: 10.1007/s11423-021-09977-4.
30 Eaton SE. Academic integrity during COVID-19: reflections from the University of Calgary. Int Stud Educ Adm. 2020;48(1):80-5.
31 Harmon OR, Lambrinos J. Are online exams an invitation to cheat? J Econ Educ. 2008;39(2):116-25. doi: 10.3200/JECE.39.2.116-125.
32 Watson GR, Sottile J. Cheating in the digital age: do students cheat more in online courses? Online Journal of Distance Learning Administration. 2010;13(1).
33 Moten Jr J, Fitterer A, Brazier E, Leonard J, Brown A. Examining online college cyber cheating methods and prevention measures. Electron J e-Learn. 2013;11(2):139-46.
34 Eaton SE. Plagiarism in higher education: tackling tough topics in academic integrity. Santa Barbara (CA): Bloomsbury Collections, ABC-CLIO; 2021. doi: 10.5040/9798400697142.
35 Lee-Post A, Hapke H. Online learning integrity approaches: current practices and future solutions. Online Learn. 2017;21(1):135-45. doi: 10.24059/olj.v21i1.843.
36 Coren A. Turning a blind eye: faculty who ignore student cheating. J Acad Ethics. 2011;9(4):291-305. doi: 10.1007/s10805-011-9147-y.
37 Dee TS, Jacob BA. Rational ignorance in education: a field experiment in student plagiarism. J Hum Resour. 2012;47(2):397-434.
38 Youmans RJ. Does the adoption of plagiarism-detection software in higher education reduce plagiarism? Stud High Educ. 2011;36(7):749-61. doi: 10.1080/03075079.2010.523457.
39 Rolfe V. Can Turnitin be used to provide instant formative feedback? Br J Educ Technol. 2011;42(4):701-10. doi: 10.1111/j.1467-8535.2010.01091.x.
40 Ladyshewsky RK. Post-graduate student performance in 'supervised in-class' vs. 'unsupervised online' multiple choice tests: implications for cheating and test security. Assess Eval High Educ. 2015;40(7):883-97. doi: 10.1080/02602938.2014.956683.
41 Fask A, Englander F, Wang Z. Do online exams facilitate cheating? An experiment designed to separate possible cheating from the effect of the online test taking environment. J Acad Ethics. 2014;12(2):101-12. doi: 10.1007/s10805-014-9207-1.
42 Crews KD. Copyright law for librarians and educators: creative strategies and practical solutions. Chicago (IL): ALA Editions; 2020.
43 Guibault L, Angelopoulos C. Open

content licensing: from theory to practice. Amsterdam: Amsterdam University Press; 2011.
44 Bissell AN. Permission granted: open licensing for educational resources. Open Learn. 2009;24(1):97-106. doi: 10.1080/02680510802627886.
45 Elander J, Pittam G, Lusher J, Fox P, Payne N. Evaluation of an intervention to help students avoid unintentional plagiarism by improving their authorial identity. Assess Eval High Educ. 2010;35(2):157-71. doi: 10.1080/02602930802687745.
46 Gullifer JM, Tyson GA. Who has read the policy on plagiarism? Unpacking students' understanding of plagiarism. Stud High Educ. 2014;39(7):1202-18. doi: 10.1080/03075079.2013.777412.
47 Rubel A, Jones KM. Student privacy in learning analytics: an information ethics perspective. Inf Soc. 2016;32(2):143-59. doi: 10.1080/01972243.2016.1130502.
48 Prinsloo P, Slade S. Student privacy self-management: implications for learning analytics. Proceedings of the fifth international conference on learning analytics and knowledge; 2015 March 16-20; Poughkeepsie, New York. New York, United States: Association for Computing Machinery; 2015. doi: 10.1145/2723576.2723585.
49 Drachsler H, Greller W. Privacy and analytics: it's a DELICATE issue a checklist for trusted learning analytics. Proceedings of the sixth international conference on learning analytics & knowledge. 2016 April 25-29; Edinburgh, United Kingdom. New York, United States: Association for Computing Machinery; 2016. doi: 10.1145/2883851.2883893.
50 Burgstahler S. Universal design of distance learning. Inf Technol Disabil. 2002;8(1).
51 Dolan R, Hall TE, Banerjee M, Chun E, Strangman N. Applying principles of universal design to test delivery: the effect of computer-based read-aloud on test performance of high school students with learning disabilities. J Technol Learn Assess. 2005;3(7):1-33. Available from: https://ejournals.bc.edu/index.php/jtla/article/view/1660.
52 Schelly CL, Davies PL, Spooner CL. Student perceptions of faculty implementation of universal design for learning. J Postsecond Educ Disabil. 2011;24(1):17-30.
53 McGuire JM, Scott SS, Shaw SF. Universal design for instruction: the paradigm, its principles, and products for enhancing instructional access. J Postsecond Educ Disabil. 2003;17(1):11-21.
54 Glazier RA. Building rapport to improve retention and success in online classes. J Political Sci Educ. 2016;12(4):1-20. doi: 10.1080/15512169.2016.1155994.
55 Garrison DR, Cleveland-Innes M, Fung TS. Exploring causal relationships among teaching, cognitive and social presence: student perceptions of the community of inquiry framework. Internet High Educ. 2010;13(1-2):31-6. doi: 10.1016/j.iheduc.2009.10.002.
56 Coy K, Marino MT, Serianni B. Using universal design for learning in synchronous online instruction. J Spec Educ Technol. 2014;29(1):63-74. doi: 10.1177/016264341402900105.
57 Fichten CS, Ferraro V, Asuncion JV, Chwojka C, Barile M, Nguyen MN, et al. Disabilities and e-learning problems and solutions: an exploratory study. J Educ Technol Soc. 2009;12(4):241-56.
58 Luckin R, Holmes W. Intelligence unleashed: an argument for AI in education. London, UK: UCL Knowledge Lab; 2016.
59 Henderson M, Selwyn N, Finger G, Aston R. Students' everyday engagement with digital technology in university: exploring patterns of use and 'usefulness'. J High Educ Policy Manag. 2015;37(3):308-19. doi: 10.1080/1360080X.2015.1034424.
60 Mikropoulos TA, Natsis A. Educational virtual environments: a ten-year review of empirical research (1999–2009). Comput Educ. 2011;56(3):769-80. doi: 10.1016/j.compedu.2010.10.020.

61 Bayne S. Teacherbot: interventions in automated teaching. Teach High Educ. 2015;20(4):455-67. doi: 10.1080/13562517.2015.1020783.
62 Goel A, Polepeddi L. Jill Watson: A Virtual Teaching Assistant for Online Education. Atlanta, GA: Georgia Tech Library. [Preprint] doi: 10.48550/arXiv.2405.11070.
63 Fadel C, Holmes W, Bialik M. Artificial intelligence in education: promises and implications for teaching and learning. Boston, USA: Center for Curriculum Redesign; 2019.
64 Radianti J, Majchrzak TA, Fromm J, Wohlgenannt I. A systematic review of immersive virtual reality applications for higher education: design elements, lessons learned, and research agenda. Comput Educ. 2020;147:103778. doi: 10.1016/j.compedu.2019.103778.
65 Roberts LD, Howell JA, Seaman K. Give me a customizable dashboard: personalized learning analytics dashboards in higher education. Technol Knowl Learn. 2017;22(3):317-33. doi: 10.1007/s10758-017-9316-1.
66 Macfadyen LP, Dawson S, Pardo A, Gaševic D. Embracing big data in complex educational systems: the learning analytics imperative and the policy challenge. Res Pract Assess. 2014;9:17-28.
67 Natale SM, Doran C. Marketization of education: an ethical dilemma. J Bus Ethics. 2012;105(2):187-96. doi: 10.1007/s10551-011-0958-y.
68 Dixson MD, Greenwell MR, Rogers-Stacy C, Weister T, Lauer S. Nonverbal immediacy behaviors and online student engagement: bringing past instructional research into the present virtual classroom. Commun Educ. 2017;66(1):1-17. doi: 10.1080/03634523.2016.1209222.
69 Baker JD. An investigation of relationships among instructor immediacy and affective and cognitive learning in the online classroom. Internet High Educ. 2004;7(1):1-13. doi: 10.1016/j.iheduc.2003.11.006.
70 Vallade JI, Kaufmann R. Investigating instructor misbehaviors in the online classroom. Commun Educ. 2018;67(3):363-81. doi: 10.1080/03634523.2018.1467027.
71 Lapadat JC. Written interaction: a key component in online learning. J Comput Mediat Commun. 2002;7(4):JCMC742. doi: 10.1111/j.1083-6101.2002.tb00158.x.
72 Wise A, Chang J, Duffy T, Del Valle R. The effects of teacher social presence on student satisfaction, engagement, and learning. In: Embracing Diversity in the Learning Sciences. New York: Routledge; 2012. p. 569-75.
73 Collis B. Tele-learning in a digital world: the future of distance learning. London: Kogan Page; 1996.
74 Jaggars SS, Xu D. How do online course design features influence student performance? Comput Educ. 2016;95:270-84. doi: 10.1016/j.compedu.2016.01.014.
75 Bali S, Liu M, editors. Students' perceptions toward online learning and face-to-face learning courses. J Phys Conf Ser. 2018;1108(1):012094. doi: 10.1088/1742-6596/1108/1/012094.
76 Suskie L. Assessing student learning: a common sense guide. 2nd ed. San Francisco (CA): Jossey-Bass; 2018.
77 Bearman M, Dawson P, Boud D, Bennett S, Hall M, Molloy E. Support for assessment practice: developing the Assessment Design Decisions Framework. Teach High Educ. 2016;21(5):545-56. doi: 10.1080/13562517.2016.1160217.
78 Sclater N. Developing a code of practice for learning analytics. J Learn Anal. 2016;3(1):16-42. doi: 10.18608/jla.2016.31.3.
79 Jaggars SS. Choosing between online and face-to-face courses: community college student voices. Am J Distance Educ. 2014;28(1):27-38. doi: 10.1080/08923647.2014.867697.
80 McCroskey JC, Richmond VP. Power in the classroom I: teacher and student perceptions. Commun Educ. 1983;32(2):175-84. doi: 10.1080/03634528309384387.