Comparative Analysis of Mainstreaming E-learning and Digital Divide: The Academia Perspectives

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ABSTRACT

The rapid use of digital technologies in teaching, learning, research and collaborative activities of Higher Education Institutions (HEIs) has raised a concern on the existing digital divide, limited experiences of some scholars in some of our universities in implementing e-learning projects, limited relevant and quality electronic content and other specific challenges faced by individual institutions, faculty and students, all these and more have become a challenging factor in our day to day life and endeavours.. The Mainstreaming e-learning within academia is being challenged today by the digital divide that is evident in most African countries. The digital divide makes access to internet infrastructure, digital devices, and the requisite skills difficult for the disadvantaged learners and faculty. The digital divide in Africa affects those in the lower income brackets, those residing in remote areas not covered by communication infrastructures and those communities who are illiterate. This paper expanded the horizon of the need to commit resources for the development of robust national internet infrastructure by supporting flexible national communication policies for the benefit of national research and education networks (NRENs).

Keywords: Mainstreaming, digital divide, E-learning,

INTRODUCTION

The concept digital divide could be described inequalities in access to computers and the Internet between some individuals based on one or more dimensions of social or cultural identity. Accordingly, researchers have compared the rates of physical access to, or actual use of, these technologies across groups based on race, gender, socioeconomic status, education level, disability status, first language, and other identifiers. The Organization for Economic Co-operation and Development [3] (OECD) defines the digital divide as the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard to both their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities. E-learning on its own is defined as the 'innovative use of digital tools, technologies, and practices during teaching and learning'. E-learning could also be referred to as 'Technology Enhanced Learning (TEL)'. In other words, Online Training is a form of distance learning in which educational information is delivered through internet. There are many online applications. The emerging digital technologies enable the development of blended or fully online courses or programs (World Bank, 2021).

Mainstreaming e-learning has become very critical for all educational institutions globally because of the challenges presented by ebolavirus, coronavirus and many other pandemics that negatively impacted the smooth teaching and learning processes. Not only that, the world we live today calls for distance and digital

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learning. Even the reason the CCMAS is being introduced in our various institution in Nigeria. The Cambridge Dictionary defines mainstreaming as 'the process of making something start to be considered normal'.

The world has grown to the level that one can study from home, office and any other place. Distance or pandemic may not be the barrier, but one is to bridge the gap.The pandemic brought to the forefront several weaknesses in academia in relation to (1) unpreparedness to teach remotely, (2) lack of qualitative and quantitative content for online delivery, (3) the limited experiences of faculty with teaching online, (4) the limited experiences of faculty in developing quality digital content, (5) the weak internet infrastructure in African countries that could not cater for the most vulnerable learners, (6) the resistance to online learning by some students who deemed it inferior to face to face learning.

The major factor challenging mainstreaming e-learning within our institutions especially in Africa is particularly challenged by the digital divide that is evident in most African countries. The digital divide makes access to internet infrastructure, digital devices, and the requisite skills difficult for the disadvantaged learners and faculty. The digital divide in Africa affects those in the lower income brackets, those resident in remote areas not covered by communications infrastructure and those communities who are illiterate.

Talking from experience, a lot needs to be done to improve internet infrastructure in Africa, especially in Nigeria for the benefit of educational institutions. The Khan Academy website aptly describes the reasons for the digital divide and these include: (1) the huge government financial investments required to build the high-speed internet infrastructure, (2) the geographical considerations that make it difficult to wire large countries and island countries, (3) the fact that some countries have difficult and mountainous terrains that render the building of internet infrastructure difficult.

LITERATURE REVIEW

The history of e-learning or online learning can be traced back to the early development of computer technology and the internet. In the 1960s, the concept of computer-based training (CBT) emerged. Educational programs were developed to run on mainframe computers, allowing students to interact with the content through punch cards or early terminals. Consequently, in **1970s** The PLATO (Programmed Logic for Automated Teaching Operations) system, developed at the University of Illinois, one of the first computer-based systems designed for educational purposes. It included interactive lessons and quizzes. Going forth to **1980s** the widespread adoption of personal computers contributed to the growth of educational software. CD-ROMs and floppy disks became common mediums for distributing educational content.

Internet and World Wide Web: The internet revolutionized e-learning in the 1990s. With the World Wide Web, content became more accessible, and online courses started to gain popularity. Learning Management Systems (LMS) like Blackboard and WebCT were introduced.

The 2000s saw the rise of dedicated e-learning platforms such as Moodle, Sakai, and others. Virtual Learning Environments (VLEs) provided a centralized space for course materials, communication, and assessments. MOOCs gained prominence in the late 2000s, offering free online courses to a massive audience. Platforms like Coursera, edX, and Udacity emerged, providing courses from top universities and institutions. from 2020 e-learning has witnessed the integration of advanced technologies like artificial intelligence, virtual reality (VR), and augmented reality (AR), creating more immersive and interactive learning experiences.

Throughout its history, e-learning has evolved from basic computer-based programs to sophisticated online platforms that cater to diverse learning styles and needs. The continuous advancements in technology are

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likely to shape the future of e-learning even further.

Access as a process of appropriation of technology

The term *access* is used in both narrow and broad perspectives. The most common narrow meaning is physical access, as defined. However, a broad meaning is more appropriate to describe and explain all kinds of digital divide including the second-level divide. Such a meaning is the whole process of appropriation of a particular technology. Here, physical access is preceded by the motivation, attitude, and expectation of getting physical access. Further, physical access is not a single decision to adopt and purchase a particular technology but a continuing process of getting access to new versions of hardware and software, peripheral equipment, and subscriptions. Obtaining physical access makes no sense when people are not able to use the technology. So, skills and competencies are also needed for access. When people have learned to operate and understand a technology, the purpose of access and the final goal of appropriating the technology will be looked for: actual usage.

In social and communication science, these stages of access are dealt with by technology acceptance theories. More psychological theories such as the technological acceptance model and the theory of planned behavior deal with access focusing on motivation and attitudes. Examples are perceived usefulness, ease of use, and subjective norms that affect behavioral intention to gain access to digital media. As soon as acceptance reaches the stage of decision making, adoption theories such as diffusion of innovation are used. These are theories more rooted in sociology and communication and also focus on social and contextual factors. In the postadoption stages (initial and continuous use), social, cultural, and communication theories figure. Examples include domestication theory, uses and gratification theory, and social cognitive theory, leading to the model of media attendance (LaRose & Eastin, 2004).

All these theories of acceptance or access are linked to a particular methodological point of view by investigating social and information (in)equality. The descriptive nature of digital divide research is mainly inspired by methodological individualism, which leads to individualistic notions of (in)equality. Here differential access is related to individuals and their demographics. An alternative notion of (in)equality uses a relational or network approach (Wellman & Berkowitz, 1988). Here the prime units of analysis are not individuals but positions of individuals and relationships between them. Inequality is not primarily a matter of individual attributes but of categorical differences between groups of people such as managers and executive personnel, males and females, blacks and whites; these groups try to appropriate the technology first, hoard its opportunities, and reinforce their positions in relation to the other category. This view was developed by the sociologist Charles Tilly (1998) and is backed up by a network perspective (Kadushin, 2012). This approach is inspired by the rise of social networking and the Internet. Here all stages of access are not primarily related to individual attributes but to social support and relationships.

THEORETICAL FRAMEWORK FOR E-LEARNING

A theoretical framework for e-learning provides a conceptual structure that guides the design, implementation, and evaluation of online education initiatives. Here's a theoretical framework that incorporates key elements essential for understanding and advancing e-learning:

Constructivism and Social Constructivism:

- **Description:** Acknowledges that learners actively construct knowledge through their experiences and interactions. Social constructivism emphasizes collaborative learning in a social context.
- **Application to E-Learning:** Encourage interactive and collaborative activities, discussion forums, and group projects. Utilize social media and online communities to foster peer-to-peer learning.

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Technology Acceptance Model (TAM):

- **Description:** Focuses on the factors influencing the acceptance and use of technology. Perceived ease of use and perceived usefulness are critical components.
- **Application to E-Learning:** Ensure user-friendly interfaces, provide clear benefits of e-learning, and offer support for learners who may be less technologically inclined.

Connectivism:

- **Description:** Proposes that learning is distributed across networks, acknowledging the role of technology in connecting learners to resources and people.
- **Application to E-Learning:** Emphasize networked learning, leverage social media and online platforms for resource sharing, and encourage learners to build their personal learning networks.

Community of Inquiry (CoI) Model:

- **Description:** Focuses on the importance of social presence, cognitive presence, and teaching presence in creating a meaningful online learning experience.
- **Application to E-Learning:** Design courses that foster a sense of community through discussions, collaborative projects, and synchronous interactions. Facilitate meaningful interactions between instructors and students.

Cognitive Load Theory:

- **Description:** Examines the mental effort required for learning and emphasizes the importance of managing cognitive load to optimize learning outcomes.
- **Application to E-Learning:** Design courses that present information in a structured manner, utilize multimedia elements effectively, and provide support for learners to manage cognitive load.

Experiential Learning:

- **Description:** Learning through direct experiences, reflection, and application of knowledge in real-world contexts.
- **Application to E-Learning:** Incorporate simulations, case studies, and real-world scenarios. Encourage reflective activities and provide opportunities for practical application of knowledge.

Personalization and Adaptive Learning:

- **Description:** Recognizes the diversity of learners and emphasizes tailoring learning experiences to individual needs and preferences.
- **Application to E-Learning:** Implement adaptive learning technologies, personalized learning paths, and flexible assessment options. Collect and analyze data to adapt content to individual learning styles.

Quality Matters (QM) Framework:

- **Description:** A rubric-based approach for designing, assessing, and improving the quality of online and blended courses.
- **Application to E-Learning:** Use the QM framework to ensure alignment between learning objectives, assessments, and instructional materials. Consider accessibility, engagement, and learner support.

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Motivational Design:

- **Description:** Focuses on factors that influence learners' motivation, including autonomy, relevance, and a sense of competence.
- **Application to E-Learning:** Incorporate goal-setting, provide choices in assignments, emphasize the real-world relevance of content, and offer timely feedback to enhance motivation.

Ethical Considerations:

- **Description:** Emphasizes the ethical implications of technology use in education, including issues related to privacy, data security, and equity.
- **Application to E-Learning:** Prioritize privacy and security in online platforms. Address issues of digital equity and accessibility. Promote responsible use of technology in the learning environment.

DISCUSSION ON E-LEARNING AND DIGITAL DIVIDE

Agencies that are mainstreaming e-learning and addressing the digital divide

The Association of African Universities (AAU) has been supporting the development of e-learning in African universities since 2005. The support for e-learning growth by the AAU has been through the promotion of national research and education networks (NRENs). NRENs are key institutions that provide internet bandwidth services, cloud services and other value-added e-services to research and education institutions at reduced costs. The AAU recognized that the importance of building strong communications infrastructures for higher education and research institutions in Africa cannot be over-emphasized. Such infrastructure is needed to support advanced e-learning delivery through high-speed campus telecommunications networks. Through the support of the AAU and development partners, most of the African countries have established NRENs but the majority of these NRENs have not achieved the "maturity" status of development because of limited support from their governments.

Following the outbreak of the coronavirus pandemic, the AAU, the UbuntuNet Alliance (UA), the West and Central Africa Research and Education Network (WACREN), the Arab States Research and Education Network (ASREN) and the National Research and Education Networks (NRENs) in Africa issued a statement calling for investments to support the development and strengthening of campus networks & research and education networks infrastructure and provision of online/remote teaching and learning platforms/ tools for African Higher Education Institutions (HEIs). The statement noted that the campus networks, supported by the national and regional research and education networks, were fundamental in transforming methods of teaching, learning and research as a response to the COVID-19 pandemic that led to the closure of a large majority of African Higher Education Institutions.

In July 2020 a survey was conducted by the AAU to find out how the member universities were coping with COVID-19 related restrictions. Seventy-five (75) universities in 29 countries completed the survey. 76% of the universities reported that they were already using technology-supported teaching platforms. Only 9 universities out of 75 reported that they were not using any type of learning management system. Fifty-two (52) universities were using some type of learning management system – with the majority using the Moodle learning management system. The universities reported that their use of various e-platforms had grown during the COVID-19 lockdowns to reach and engage the students. These communication e-platforms included the university email systems, WhatsApp communication groups, university websites, FaceBook, Twitter, Instagram, university learning management platforms and telegram.

The universities made several suggestions for possible support areas that the AAU could focus on and these

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included (1) capacity building in instructional design and content creation, (2) identification of human resources for e-learning, (3) training of staff in on online teaching, (4) sharing of e-learning experiences and networking, (5) sharing of low technology e-learning platforms, (6) negotiations with Zoom to reduce rates for African institutions, (7) internet accessibility and (8) research collaborations on dealing with pandemics in higher education.

1. United Nations Educational, Scientific and Cultural Organization (UNESCO):

UNESCO works to promote inclusive and equitable quality education, and they actively advocate for leveraging technology to address educational challenges. Their initiatives focus on bridging the digital divide and ensuring access to quality education for all.

2. World Bank:

The World Bank supports projects that aim to enhance education through the use of technology. They provide funding and technical assistance to countries working on e-learning initiatives, particularly those focused on reducing disparities in education.

3. United Nations Children's Fund (UNICEF):

UNICEF is committed to ensuring that every child has access to quality education. They work on various initiatives, including those that utilize technology to enhance learning opportunities, especially for children in disadvantaged or remote areas.

4. International Telecommunication Union (ITU):

ITU is a specialized United Nations agency that focuses on information and communication technologies (ICTs). They work on initiatives to improve connectivity, digital literacy, and access to technology, with a specific emphasis on addressing the digital divide.

5. Global Partnership for Education (GPE):

GPE is a multi-stakeholder partnership that supports education in developing countries. They work to ensure that all children have access to quality education, including initiatives that leverage technology to bridge educational gaps.

6. USAID – United States Agency for International Development:

USAID supports global education initiatives, including projects that integrate technology to improve learning outcomes. They work in collaboration with various partners to address challenges related to the digital divide in education.

7. European Commission – Directorate-General for Education, Youth, Sport and Culture:

The European Commission actively promotes the use of digital technologies in education. They fund projects that focus on e-learning, digital skills development, and addressing inequalities in access to technology across European countries.

8. Commonwealth of Learning (COL):

COL is an intergovernmental organization that works to promote open and distance learning. They collaborate with governments and institutions to mainstream e-learning and improve access to education,

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particularly in Commonwealth countries.

9. Internet.org (now part of Meta):

Internet.org, an initiative by Meta, focuses on providing affordable internet access to underserved communities. While not an independent agency, it plays a significant role in addressing the digital divide by working on initiatives related to internet accessibility.

10. National Education Technology Plan (NETP) – U.S. Department of Education:

The NETP outlines the U.S. Department of Education's vision for how technology can be effectively integrated into education. It addresses issues of equity and access, aiming to ensure that all students have the opportunity to benefit from technology-enhanced learning.

Recently, the National Universities Commission has taken a giant step in ensuring and implementing the e-learning in most universities in Nigeria. Below are some of the policies and guidelines they have put in place.

The Nigerian National Policy on Education has over the years recognized the place of open and distance learning in achieving life long education and affirms that life long education shall be the basis of the nation's education policy. It went further to state that at any stage of the educational process after junior secondary education, an individual shall be able to choose between continuing full-time studies, combining work with study, or embarking on full time employment without excluding the prospect of resuming studies later.

According to the policy document, the goals of open and distance education are to:

- Provide access to quality education and equity in educational opportunities for those who otherwise would have been denied.
- Meet special needs of employers by mounting special certificatecourses for their employees at their work place.
- Encourage internationalization especially of tertiary education curricula.
- Ameliorate the effect of internal and external brain drain in tertiary institutions by utilizing experts as teachers regardless of their locations or places of work. (NPE, 2004) 2 However. a critical appraisal of the scope of open and distance learning practice at any level of education in Nigeria against the backdrop of the long- standing recognition of its potential for increasing access to education for all socio-cultural groups, unfortunately, reveals a glaring mismatch between policy and practice even in the face of obvious and widely acknowledged perennial inadequacies of the conventional face-to-face mode, in meeting the higher educational aspirations of a large number of Nigerians, especially in the university sub-sector.

¾ The National Open University of Nigeria (NOUN) is currently the only Uni-mode university mandated for Open and Distance Learning in the delivery of university education.

¾ There are about six universities which may be regarded as dual- mode universities with limited capacity to deliver degree programmes by the open and distance learning (ODL) in addition to the conventional face- to-face mode

¾ All stakeholders agree that the practice of distance learning by these dual mode universities is far below acceptable best practice and that at best, they are in transition from the running of part-time/ sandwich courses to distance learning 3

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Rationale For Open And Distance Learning Guidelines In order to bring the Practice of distance learning up to speed with global practice, it is incumbent on NUC as the statutory quality assurance agency in the Nigerian university system, to streamline the practice of distance learning by stipulating a code of good practice. Such a document should clearly enunciate performance standards pertaining to the entire gamut of teaching and learning by the ODL mode including learner support which is a critical success factor in open and distance learning;

Eligibility to offer degree programmes by the ODL mode It is within the purview of the guidelines to stipulate eligibility criteria for Nigerian universities intent on offering degree programmes by the ODL mode..

Effective from the date these guidelines become operational:

- All existing dual mode universities shall apply to NUC for re-validation / accreditation as ODL institutions
- All universities interested in offering degree programmes by the ODL mode shall apply to NUC in writing indicating the academic programmes and the specific academic discipline(s) they intend to offer by the ODL mode.
- Interested universities shall complete the necessary application formats indicating the human and material resources including learner support facilities available to guarantee sustainable teaching and learning
- Such universities shall be evaluated by a panel of ODL experts from within and outside the Nigerian university system for purposes of accreditation to offer ODL programmes. Only universities accredited to offer degree programmes shall be granted approval to run degree programmes in the specific academic discipline(s) in which they have verifiable competence4 Scope of ODL activities (academic disciplines to be taught) Cognizant of the need to contextualize the applicability of the various ODL delivery modalities, the ODL mode shall not be applicable to academic disciplines in a university that does not have capability for that discipline. In view of the nation's present technological and infrastructural challenges, the academic disciplines which may be offered by the ODL mode within the short to medium -term (2009-2015)

Strategies and considerations for mainstreaming e-learning:

Policy and Leadership:

Develop clear policies and guidelines at institutional and national levels to support the integration of e-learning. Foster strong leadership that champions the adoption of e-learning and encourages a culture of innovation within educational institutions.

Infrastructure and Technology Access:

Invest in the necessary technological infrastructure, including high-speed internet, hardware, and software, to ensure equitable access for all students and educators. Provide training and support to ensure that teachers and students are proficient in using e-learning tools and platforms.

Curriculum Integration:

Align e-learning with the existing curriculum to enhance and complement traditional teaching methods. Integrate online resources, multimedia content, and interactive activities to create a blended learning experience that combines face-to-face and online components.

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Professional Development:

Offer ongoing professional development opportunities for educators to enhance their e-learning skills.

Provide training on effective online pedagogy, instructional design, and the use of educational technologies.

Quality Assurance:

Establish quality standards for e-learning courses and materials to ensure that they meet educational objectives.

Implement mechanisms for continuous evaluation and improvement of e-learning content, assessments, and delivery methods.

Student Support Services:

Provide adequate support services, such as online tutoring, counseling, and technical assistance, to address the diverse needs of students in an e-learning environment.

Foster a sense of community through virtual student forums and collaborative activities.

Accessibility and Inclusivity:

Ensure that e-learning materials and platforms are accessible to all students, including those with disabilities.

Address issues of digital equity by considering the needs of learners with varying levels of technology access.

Assessment and Evaluation:

Develop effective methods for assessing student learning in an online environment.

Implement a robust system for evaluating the effectiveness of e-learning initiatives, gathering feedback from students, educators, and other stakeholders.

Flexible Learning Pathways:

Recognize and accommodate diverse learning styles by providing flexible learning pathways.

Offer a variety of online courses and resources that cater to different interests, aptitudes, and career paths.

Research and Innovation:

Encourage research in the field of e-learning to explore innovative approaches, emerging technologies, and best practices.

Foster a culture of innovation within educational institutions to adapt to the evolving landscape of e-learning.

Public Awareness and Advocacy:

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Raise awareness among the public, parents, and stakeholders about the benefits and potential challenges of e-learning.

Advocate for policies that support the integration of e-learning at local, regional, and national levels.

Some benefits of e-learning

Similar to attending a physical campus and learning in person, there are advantages and disadvantages of attending a virtual classroom and learning online. Among the many benefits of online learning, you'll find that virtual education allows you to enjoy a more flexible schedule, can reduce the cost of your degree, and can allow you to more easily develop your career alongside furthering your education.

While there are many pros to online learning, there are cons to consider. Staying on task and being self-motivated can be challenging in its own way; which is part of the reason why online learning isn't right for everyone. By understanding more about the advantages and disadvantages of online learning, you can get a better idea of whether it might be suitable for you and your educational and career goals.

1. Flexibility

Among the many benefits of an online learning, you'll find virtual classrooms are great for people who are advancing their education while working. In a traditional classroom, lectures will be scheduled at a specific time of day and your schedule will be formed around the availability of classes. If you're currently employed and courses aren't available after your working hours, it can be difficult to juggle a course load in addition to your work duties.

When attending a virtual campus, online learning allows for far more autonomy in deciding your own schedule. That means you can study whenever it's convenient for you. Live with some noisy roommates? Having more control over your schedule also means you can avoid distractions easier.

2. Reduced Costs

Education can be expensive, but virtual learning can provide a number of ways for students to save. Not having to commute to campus can help you save on transportation costs.

Every year, the average student spends more than a thousand dollars on textbooks and course materials. Virtual coursework often takes advantage of virtual resources, which translates into less money spent on textbooks.

Tuition costs can also vary between online and on-campus programs. For instance, at Drexel University, students enrolled in online programs in the School of Education receive a 25% discount off the price of regular tuition. Most online programs offered by the school are also financial aid eligible.

Between all these sources of savings, cost-cutting can be an enormous benefit of online classes.

3. More Free Time

Because your schedule isn't dictated by classes, you can spend more time doing the things you want. Plus, in addition to saving money, not having to commute also means saving time because you don't need to travel to-and-from campus.

That extra time can be used in any way you want, such as focusing on your career or spending time with

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your family. All you need is a digital device and an internet connection, and you have access to the necessary tools to further your education and earn your degree on your own time.

4. Increased Course Variety

Another reason why online school is better for some is the increased variety of education options. Since students are not required to travel to campus for courses schedule on specific days and times, students can enroll in the courses they are most interested in. There's no need to rearrange schedules, students in an online program can take the course they want and complete the coursework at a time that is most convenient for them. Through online courses, students can gain the knowledge they need to earn their degree or grow in their profession.

Online courses allow you to earn essentially the same range of different degrees that can be earned from a traditional educational environment. That includes learning certificates and professional certifications to master's degrees or doctoral degrees.

5. Career Advancement Opportunities

Just like courses taken in a traditional classroom setting, virtual learning can provide you with a number of career advancement opportunities.

Because you're the master of your own schedule, students of virtual learning are better prepared to continue working while pursuing academic credentials. And for students who aren't employed, academic work can serve to explain any discontinuity or gaps in a resume. In either case, the advantages of virtual learning can be clearly seen on a resume.

6. Increased Collaboration

Online students have better opportunities to collaborate with classmates through virtual group work and meetings. One of the benefits of online courses are the message boards and grouping tools that allow students to post their feedback on readings and other assignments and respond to their classmates.

Students may also receive more one-on-one time with their professor with virtual learning, which is beneficial for both learning and networking. Students can communicate director with their professor and upload assignments for review.

7. Personalized Education

Students who find their focus suffers from classroom activity may benefit from online classes. Students who aren't as assertive may have better opportunities to participate in class discussions when communicating online. Working from your own choice of environment, with self-paced learning, the result can be a more personalized learning experience.

In online courses, students to choose the time that works best for them to complete readings and assignments. Since the coursework is online, courses can be completed anywhere there is an internet connection.

8. Enhanced Time Management Skills

While the benefits of online learning include the flexibility to complete assignments at a time that is most convenient to the student, the student still needs to manage their time wisely to ensure they complete their assignments by the deadlines set by the professor. Online courses teach students how to manage their time

better since the student bears the responsibility of engaging with the course instead of simply showing up to class on an assigned day and time. As a result, students not only gain knowledge from the coursework, but they also sharpen their time management skills.

9. Immediate Feedback

Integrating coursework with technology provides a number of advantages. Rather than waiting days or weeks after exams, you can often get immediate feedback. In online courses, students upload assignments digitally for review by their professor. Professors review student work online and submit feedback electronically. As a result, students receive feedback right away. In a traditional classroom setting, students may need to wait a week or two to receive feedback on their assignments. By receiving feedback sooner, students can learn faster and make adjustments for future assignments.

10. Repeated Access to Course Materials

Where a traditional lecturing leaves you at the mercy of your best note-taking skills, video presentations can be watched and revisited as necessary. If a student didn't quite understand some of the content covered in a video lecture, they can go back and listen to it again. Students can use lecture videos as a supplemental tool to help with competing assignments.

FUTURE RESEARCH

In future research the shift from the first to the second digital divide will probably be amplified. More and more research will be expected about a number of digital skills or media literacies and about actual use of digital media and their outcomes. The merger of these media in all societal domains and every part of everyday life will show what the effects will be in terms of type and level of access.

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