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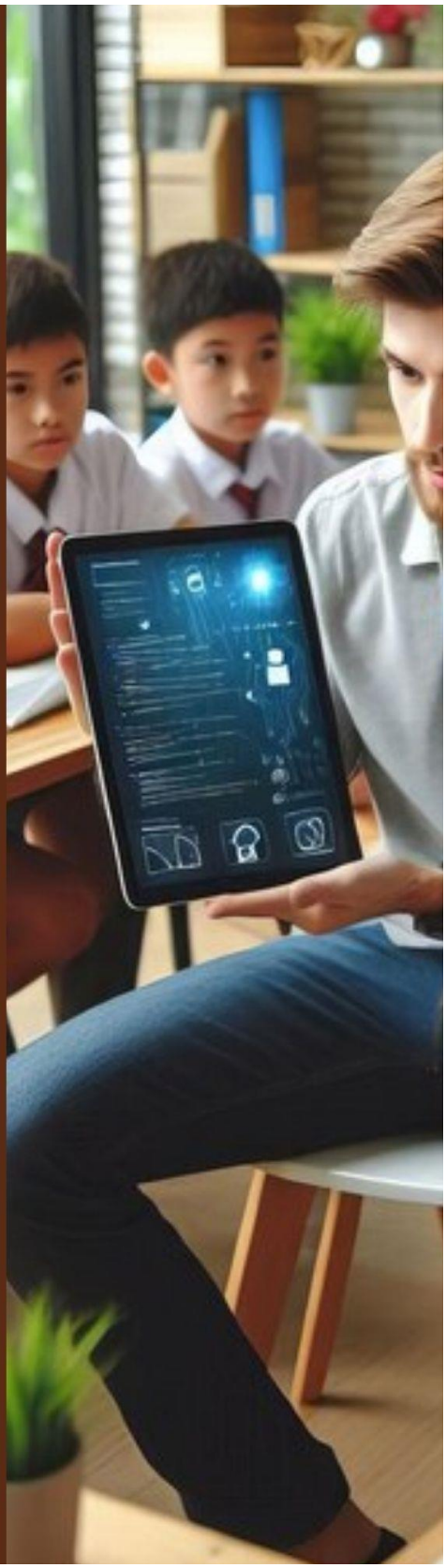

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E-Learning and Its Effects on Teaching and Learning in a Global Age

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Abstract

Students need a distinct set of skills to succeed in online courses since they are exposed to a whole new learning environment (Romiszowski, 2004). With ever-increasing amounts of data to sift through, students' ability to think critically, do thorough research, and provide constructive evaluations is more important than ever (New Media Consortium, 2007). Additionally, students are far more autonomous than in the conventional context, especially in fully online classes. This necessitates a strong desire to study and an unwavering dedication to the process, since there will be few opportunities for social contact with classmates or teachers (Huynh et al., 2003). Distance learners outperform their in-class counterparts on average, although they are more likely to drop out or submit incomplete work (Zhang, Zhou and Briggs, 2006). As a methodology for learner-centred and collaborative instruction, e-learning may be defined as computer-assisted learning. An early form of online education was computer-assisted learning, in which students received some or all of their course materials over the internet. The educational component of online education has lately gained prominence. Any kind of instruction or study that makes use of electronic means is considered e-learning. Whether via networked learning or not, information and communication technologies are the particular mediums that enable the learning to take place.

Keywords: E-learning, efficient, computer-based.

Introduction

E-learning according to Markus (2008) can be defined as a learning process created by interaction with digitally delivered content, network-based services and tutoring support E-learning is any technologically mediated learning using computers, whether from a distance or in face-to-face classroom setting (computer-assisted learning), it is a shift from traditional

education or training to an online learning community that is personalised, flexible, individual, self-organised, and collaborative, supported by information and communication technology. To improve one's knowledge and performance, e-learning makes use of Internet technology. In order to achieve their own learning goals, students may personalise their e-learning experiences by controlling the material, learning sequence, speed of learning, time, and, often, media. so that online course materials may be easily accessible, technical standards can be agreed upon, and ways for peer evaluation of these materials can be established. The proliferation of online courses has created many new avenues for academic inquiry, but the documentation of scholarly work has remained a persistent obstacle. Advancements in online education are heralding a sea change in the educational system, one that will allow for more personalised instruction (adaptive learning), better group work (collaborative learning), and a new standard for what it means to be a teacher. Online education has the potential to speed up the adoption of adult learning theory in the classroom, shifting the role of teachers from material distributors to learning facilitators and competence assessors. "E-learning" is shorthand for "learning through the Internet," which encompasses a wide range of approaches to improving both knowledge and performance. In light of the aforementioned social, scientific, and pedagogical obstacles, medical educators might use e-learning to enhance the efficacy and efficiency of educational activities. Its use has been more widespread in fundamental science classes than in clinical clerkships, although its popularity has grown over the last decade. Nonetheless, medical schools' adherence to it is quite inconsistent. Web-based learning, online learning, distributed learning, computer-assisted education, and Internet-based learning are different names for the same thing: e-learning. The two most prevalent forms of online education in the past have been computer-assisted teaching and remote learning. Students enrolled in a distant learning program get their lessons via electronic means rather than at a central location. Variously referred to as "computer-based learning" or "computer-based training," this method of teaching and learning makes use of computers to facilitate the distribution of independent multimedia packages. Learning via multimedia. The term "multimedia" refers to the use of more than one kind of media to create interesting and interactive material that students may see on their computers. Blended learning is a relatively new notion in education, although most educators are already aware with the idea. It's a way to blend online tutorials with more conventional forms of instructor-led instruction, such as lectures and demonstrations. Multimedia e-learning improves instruction and student retention, according to educators, administrators, and students. These benefits may be classified as aiming towards either the delivery of learning or the improvement of learning. The most often mentioned benefit of online learning is the simplicity of delivery of the material, which encompasses many other benefits as well, such as enhanced access to knowledge, individualised teaching, content standardisation, distribution convenience, and accountability. When something is accessible, it means the user can easily discover it when they need it. Since learning is typically an impromptu process, it is critical to enhance access to instructional resources. Educators may easily and rapidly update their content with the use of e-learning technology, making it far faster to update electronic information than printed material. Students may personalise their learning experience by controlling the material, learning sequence, speed, time, and, often, media. Thanks to the Internet, digital information may be shared with a large audience at any time, from any location. Online education also has the advantage that it

standardizescoursecontentanddelivery;unlike,forinstance,alecturegiventoseparatesections of the same course. Automated tracking and reporting of learners' activities lessenfacultyadministrativeburden.Moreover,e-learningcanbedesignedtoincludeoutcomesassessment to determine whether learning has occurred. Advantages in learning enhancementarea less wellrecognizedbutpotentiallymore revolutionary aspectof e-learningthanarethose related to learning delivery. E-learning technologies offer educators a new paradigmbased on adult learning theory, which states that adults learn by relating new learning to pastexperiences, by linking learning to specific needs, and by practically applying learning, resultingin moreeffective andefficientlearningexperiences.

Learningenhancementpermitsgreaterlearnerinteractivityandpromoteslearners'efficiency, motivation, cognitive effectiveness, and flexibility of learning style. Learning is adeeply personal experience: we learn because we want to learn. By enabling learners to bemore active participants, a well-designed e-learning experience can motivate them to becomemore engaged with the content. Interactive learning shifts the focus from a passive, teacher-centered model to one that is active and learner centered, offering a stronger learning stimulus.Interactivityhelpstomaintainthelearner'sinterestandprovidesameansforindividualpracticeandreinforcement.Evidencesuggeststhate-learningismoreefficientbecauselearnersgainknowledge,skills,andattitudesfasterthanthroughtraditionalinstructor-ledmethods.Thisefficiencyislikelytotranslateintoimprovedmotivationandperformance.

E-learnershavedemonstratedincreasedretentionratesandbetterutilizationofcontent,resultinginbetterachievement ofknowledge, skills, andattitudes.

Multimediae-learningofferslearnerstheflexibilitytoselectfromalargemenuofmediaoptionstoaccommodatetheirdiverse learning styles.

PolicyConsiderations

E-learninghasbecomepopularbecause ofitspotentialforproviding moreflexibleaccessto contentand instructionatanytime,fromanyplace (Meanset al,2009).

Focusforpolicyconsiderationentailsthefollowing:

a) Increasingtheavailabilityoflearningexperiencesforlearnerswhocannotorchoosenottoattendtraditional face-to-faceofferings,
b) Assemblinganddisseminatinginstructionalcontentmorecost-efficiently,
c) Enablinginstructorstohandlemorestudentswhilemaintaininglearningoutcomequalitythat isequivalenttothatofcomparableface-to-faceinstruction.

If student outcomes are the same whether a course is taken online or face-to-face, then onlineinstruction can be used cost-effectively in settings where too few students are situated in aparticular geographic location to warrant an on-site instructor (e.g., rural students, students inspecialized courses).

ComponentsofE-Learning

Creating e-learning material involves several components: once content isdeveloped, it mustbe managed, delivered, and standardized. Content comprises all instructional material, whichcan range in complexity from discrete items to larger instructional modules. A digital learningobject is defined as any grouping of digital materials structured in a meaningful way and tied toan educationalobjective.

Learningobjectsrepresentdiscrete,selfcontainedunitsofinstructionalmaterialassembled and reassembled around specific learning objectives, which are used to build largereducational materials such as lessons, modules, or complete courses to meet the requirementsof aspecified curriculum.
Examples include: tutorials, case-based learning, hypermedia, simulations, and gamebasedlearningmodules.Contentcreatorsuseinstructionaldesignandpedagogicalprinciplestoproduce learning objects and instructional materials. Content management includes all theadministrative functions (e.g., storing, indexing, cataloging) needed to make e-learning contentavailabletolearners.
Examples include portals, repositories, digital libraries, learning-management systems, searchengines,ande-Portfolios.

Synchronousorasynchronousdeliveryofcontent

Synchronousdeliveryreferstoreal-time,instructor-lede-learning,whereallearnersreceiveinformationsimultaneouslyandcommunicatedirectlywithotherlearners.Examplesincludeteleconferencing(audio,video,orboth),Internetchatforums,andinstantmessaging.Whileinasynchronous delivery, the transmission and receipt of information do not occursimultaneously.Thelearnersareresponsibleforfacingtheirownselfinstructionandlearning.Theinstructorandlearnerscommunicateusinge-mailorfeedbacktechnologies,butnotinrealtime.Avarietyofmethodscanbeusedforasynchronousdelivery,including email,onlinebulletin boards, newsgroups, and Weblogs. In addition to establishing, managing, and deliveringcontent,afourthcomponentispartofthee-learningequation.
Itisbecomingincreasinglyclearthatstandardsareneededfor thecreationofnewe-learningmaterial.Suchstandardspromotecompatibility and usability of products across many computer systems, facilitating thewidespread useofe-learning materials.

TheEvidenceforEffectiveandEfficientE-Learning

Theeffectivenessofe-learninghasbeendemonstratedprimarilybystudiesofhighereducation, government, corporate, and military environments. However, these studies havelimitations, especially because of the variability in their scientific design. Often they have failedtodefinethecontentquality,technologicalcharacteristics,andtypeofspecifice-learningintervention being analyzed. In addition, most have included several different instructional anddelivery methodologies, which complicates the analysis. Most of these studies compared e-learning with traditional instructor-led approaches. Yet three aspects of e-learning have beenconsistently explored: product utility, cost-effectiveness, and learner satisfaction. Utility refersto the usefulness of the method of e-learning. Several studies outside of health care haverevealedthatmostofte ne-learningisatleastasgoodas,ifnotbetterthan,traditionalinstructor-led methods such as lectures in contributing to demonstrated learning. Gibbons andFair weather cite several studies from the pre-Internet era, including two meta analyses thatcomparedtheutilityofcomputer-basedinstructiontotraditionalteachingmethods.Thestudies used a variety of designs in both training and academic environments, with inconsistentresultsformanyoutcomes.Yetlearners'knowledge,measuredbypre-posttestscores,was

shown toimprove.Moreover,learnersusingcomputer-basedinstructionlearnedmoreefficientlyanddemonstrated betterretention.

EvaluatingE-LearningProcessesandOutcomes

There has to be a compelling case to administrators and leadership for the substantial financial, time, and space commitments required to implement e-learning and its associated technologies. Process and results are the two main ways that online learning may be evaluated, just like any other kind of educational content. An online learning program's process assessment may reveal its advantages and disadvantages as well as the steps used to generate the program's outcomes, which can be useful for other programs looking to implement similar strategies. One way to assess a process is via peer review. Journal papers undergo a traditional process of peer review to ensure high-quality material. Additional aspects must be considered when it comes to e-learning. Is the content simple to "navigate" when seen online, for instance? Is it easy to learn in this setting? Is the usage of multimedia components efficient? Does the level of the learner determine the appropriateness of the interaction? Is there specific software, gear, or knowledge of computers needed? In their work evaluating e-learning processes, peer reviewers face new challenges such as these and others. Specifically, in response to a request from the Council of Deans, the AAMC has launched an online peer review procedure that will acknowledge these materials as proof of academic achievement for the purpose of faculty recognition and advancement. In order to determine the efficacy of an e-learning program, outcome evaluations are conducted to measure changes in learners' knowledge, abilities, or attitudes. Online learning programs may be assessed using the same criteria first proposed by Kirkpatrick in the 1950s and modified for use in medical school curricula. Patient result, organisational change, learner behaviour change, and satisfaction are the four stages of outcome-based assessment defined by the Kirkpatrick model. Learners' responses to the content are measured by satisfaction: Was it simple to use, complex, entertaining, dull, etc.? However, satisfaction metrics by themselves do not indicate learning. If students have trouble understanding and using otherwise high-quality material, it could get a low rating. Also, a module that has great multimedia but doesn't really cover much ground might still be considered great.

FamilyandHomeEffectsofE-learning

Parentalinvolvementandotherhomeeffectsareoftensecondary,ifnotperipheral,tothegoals of e-Learning deployment. Nevertheless, e-Learning does seem to produce some positiveeffectsinthehome.

Evidence suggests a relationship between frequency of home PC use and academicachievement. Reviewing data from the 1996 National Assessment of Educational Progress inmathematics, one study reported that students using home computers more often had higherlevels of achievement in mathematics. (Wenglinsky, USA) This seems to echo findings frompreviousstudies,describingincrementalimpactswhentechnologyismoremobile,personalized, and integrated throughout the day and across the curriculum.Another impactnotedbyresearchersisincreasedfamily interaction.Many school systemsestablishane-

Learning portal that parents can access to track homework assignments and communicate withteachersandstaff, providing

Opportunitiesforincreasedawarenessanddiscussionofhomeworkassignments,student progress, and so forth. In addition, when students bring their laptops home, they arefree to study in the sitting room with family rather than in a more isolated room. This givesparentsgreatervisibilityofschoolworkandopensnewavenuesfordiscussion.(MitchellInstitute,USA).

SocialandCommunityEffects

By issuing a laptop to each student, schools aim to meet the educational needs of students whoordinarily could not afford a PC and thereby improve the performance of all students. Researchshowsthatthisstrategy is working.

• In studies of students with disabilities, researchers have observed improved student self-esteem,increasedmotivationandabilitytoworkindependently,andotheracademicachievementssuchasimp rovedqualityand quantityof student writing.(Harris, USA).

Howtomakee-learningmoreeffective:

ProvisionofthelistedpointswillimproveE-learningeffectively.

- Availabilityofhardware(particularlycomputers)
- FasterInternetconnectivity/improved bandwidth
- Improvedsoftware
- Appropriatepoliciesfavouringe-learning
- Provisionoftechnicalsupportfore-learningatarangeofscales
- Lowerpricesforconnectivity
- Availabilityofreliableelectricity
- Appropriatecontentinappropriatelanguages
- Awarenessraisingaboutthe valueof e-learning
- Improvedtrainingforteachers in e-learningatalllevels.

Benefitsofe-learning

- E-learning is important for education because it can improve the quality of the learningexperience, andextendthereachof every lecturerand tutor.
- E-learning canhelp remove barriers to achievement, by providing new andcreativewaysofmotivatingandengagingpupilsandlearnersofallabilities,enablingandinspiringev eryonetoattaintheireducationalpotential.
- E-learning can support learning by offering differentiated learning,Particularlyforthosewhoneedsupportinliteracy,numeracyandICT.
- E-learningoffersawiderangeoftoolstoenableteachersandlearnerstobeinnovative,creativeandresour cefulinalllearningactivities.Teachersandlearnerscaneasily

customize digital learning resources to suit pace and level, appropriate to any learningstyle andability.

- E-learningcreateson-linecommunitiesof practice.TheInternetcanbringlearners,teachers, specialist communities, experts, practitioners and interest groups together toshare ideas andgoodpractice.
- E-learning can provide an individualized learning experience for all learners, includingthose who are disadvantaged, disabled, exceptionally gifted, have special curriculum orlearningneedsor whoare remoteor awayfromtheirusualplaceoflearning.
- E-learningcanfacilitatewiderparticipationandfaireraccesstofurtherandhighereducationbycreatingtheopportunitytostartlearningandtochoosecoursesandsupportaccordingtothelearners'needs.
- E-learningprovidespersonalizedlearningsupportthroughinformation,advice,andguidanceservices.Itcanhelplearnersfindthecoursetheyneed,withaseamlesstransition to the next stage of their learning, including online application or enrolmentand anelectronicportfoliooftheirlearningtotake withthem.
- E-learning provides virtual learning worlds where learners can take part in active andcreative learning with others through simulations, role-play, remote control of real-world tools and devices, online master classes, or collaboration with other educationproviders.

Conclusion

E-learning is a large and growing market with great potential in higher education. (Means et al,2009). In his empirical study from 1996 and 2008 concluded that students using e-learningperformed better than students who did not use e-learning. The students who performed bestwere those whoreceivedblended learning.

In order to maximize this potential, e-learning implementations should endeavor tosatisfytheneeds andconcernsofallstakeholdergroupsas much aspossible.

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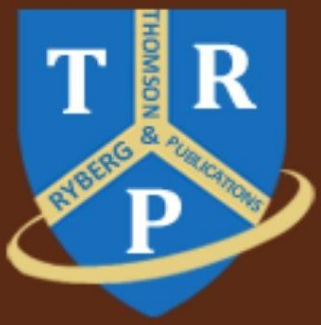

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