



# Education for Sustainable Development through E-Learning

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**Abstract.** Globally, e-learning is bringing about significant transformations in education as a new learning platform. In order to preserve sustainable teaching and learning, the COVID-19 pandemic has compelled all Chinese higher education institutions to implement e-learning. Modern society faces the issue of designing scenarios that balance the requirements of future generations with the balance of nature and anthropological progress. This is known as sustainability. From the standpoint of sustainable development, education should aim to advance not only information but also the kinds of behaviours, approaches, and actions that will lead to changes in lifestyles and sustainable patterns of development. This paper aims to teach students about sustainable development by having teachers use online learning resources. The association between the main factors influencing e-learning use behaviour and instructional sustainability is determined by this study.

**Keywords:** Education for Sustainable Development; E-learning; Sustainable teaching; Sustainable development goals.

## 1 Introduction

A key strategy for attaining sustainable development is education. Learning content, outcomes, pedagogies, and learning environments are all addressed in Education for Sustainable Development, which is a comprehensive and transformative education that encourages broad-based and lifelong learning [1]. The science of sustainability is a unique field of study with its own techniques, skills, and capacities in science and technology; nevertheless, it also embraces the ideals of Education Sustainable Development and connects knowledge to action. A new area of study in education science called "education sustainable development" has close ties to sustainability science [2].

E-learning, which makes full use of the available information technology to give advanced informatization of teaching media and tools to create a new method of learning, refers to the use of the Internet or other digital content for learning as well as teaching activities. A set of exercises known as "e-learning" include instruction and learning

through the use of the Internet and other digital tools. It realizes a new way of learning by fully utilizing the sophisticated teaching methods and resources made possible by contemporary information technology. This learning paradigm will alter the nature of education and the instructional framework by redefining the role of the teacher and the teacher-student dynamic. E-Learning in higher education is important for effective and sustainable lifelong learning education in the student population. This article starts from the disadvantages of traditional teaching mode, analyzes the characteristics and future development trend of E-Learning teaching mode, then analyzes the role of E-Learning in education for sustainable development, and finally introduces the requirements of E-Learning teaching mode for teachers and students.

## **2 Research Background**

The customary training model of colleges actually stays in the method of educator's addressing as the primary body and understudies' aloof learning. It stifles understudies' pragmatic capacity and imaginative reasoning and assumes a negative part in understudies' social help capacity. To develop more friendly gifts, the conventional instruction model should be changed to meet the advancement of advanced education and the necessities of society.

Educator understudy, instructing learning these two connections are the most essential relationship all through the instructing and educational experience. It incorporates the relational connection among instructors and understudies and the connection among educating and learning. In managing this relationship, the customary showing model puts uneven accentuation on educators and their educating, framing an instructor situated instructor understudy relationship and educating relationship. The customary model of instructing is educator focused, with course happy moving through the instructor to the understudies. Albeit the attributes of the customary model of training assist the educator with assuming their primary part in educating and assist instructor with arranging and control homeroom instructing. Nonetheless, this one-way, inconsistent educator understudy relationship, which needs humanistic consideration, genuinely denies understudies of their independence, harms their confidence and annihilates their self-assurance. Besides, there is a major defect in the customary training model, which is that it overlooks the independence and imagination of the understudies and can't assume the primary part of the understudies well. In this manner, the conventional training model should be improved and changed, and significant e-learning science and innovation can be utilized to show content in a reasonable manner.

## **3 The Role of E-Learning in Education**

At present, the expanded interest for instructive innovation corresponds with an expansion in the variety of instructive innovation mediations that are being utilized to address a great many issues in the schooling system. Subsequently, E-Learning is generally utilized in training [3].

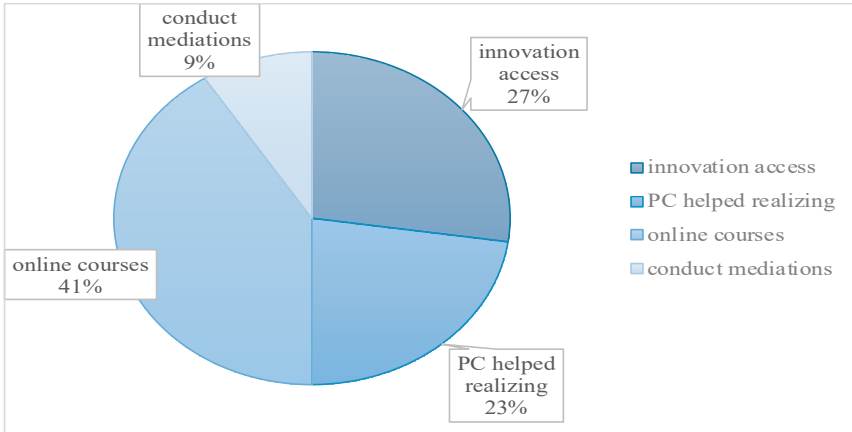


Fig. 1. The role of e-learning in education.

As shown in Fig. 1, the first is innovation access, which includes expanding under-studies' admittance to PCs, programming and different advances for instructive purposes and will in general zero in more on further developing the mastering climate than on mental abilities. Second, PC helped realizing, which is characterized as the utilization of programming bundles intended to further develop understudy learning in unambiguous school branches of knowledge. Third, online courses, which allude to guidance conveyed somewhat or completely over the Web, can expand the setting wherein guidance is conveyed, alter how learning content is instructed, or both. Fourth, conduct mediations to expand parent, educator, or potentially understudy commitment and nonmental abilities through techniques, for example, further developed data stream and outlook intercessions [4].

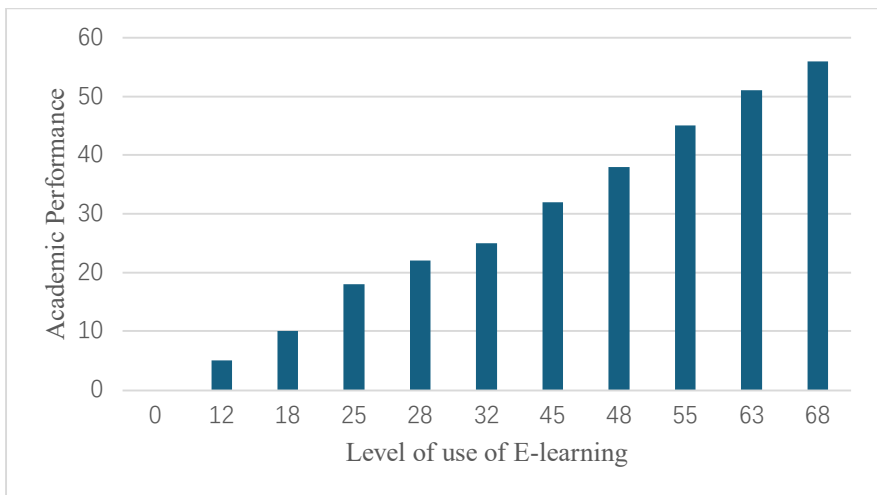
### 3.1 Advantage in E-Learning

The hypothetical ramifications of E-Learning reception for feasible advanced education allude to the likely results and effects of consolidating web-based learning techniques with regards to the manageability of advanced education organizations. E-Learning decreases the requirement for actual foundation, like huge colleges, homerooms and transportation, and increments asset productivity. Advanced education organizations can decrease their biological impression by moving to an online stage, bringing about asset productivity and ecological supportability. E-Learning supports the utilization of intelligent and sight and sound assets and advances development in instructing techniques. It considers customized and versatile opportunities for growth, empowering ceaseless development in educating and learning. e-learning is another model of understudy focused instructing that will in general have more criticism to the teacher or the web-based framework. Students have more chances to sort out their own learning and, in this manner, become more proactive, and a proactive demeanor towards learning could in fact make the teacher or online framework fashioner an aide for new learning styles. E-Advancing for all intents and purposes satisfies the ability needs of inventive

innovation-based instruction. Its critical benefits are its minimal expense and the extensive variety of showing assets accessible to understudies. Through E-learning, understudies can assume command over their own way of learning.

This schooling model totally opens up the learning time and learning space, disposing of the conventional training on the student in the reality, degree and different parts of the constraints. Simultaneously, this training model establishes another fresh out of the plastic new learning climate. Individuals in various geographic areas, with various characters, of various ages, and with various encounters can find what they need to realize in the virtual the internet. Any understudy can concentrate on the manner in which they need to, picking a helpful time and suitable area. In Table 1, the relationship between student achievement and the extent and frequency of e-learning use in the teacher's classroom was analysed using bar charts by collecting the relevant student achievement and the frequency of e-learning use in the teacher's classroom. It was found that as the degree of e-learning use increases, student achievement increases, thus proving that student achievement is affected by the degree of e-learning use.

**Table 1.** Interaction between academic performance and level of e-learning use.



Intuitiveness is fundamentally reflected in its fixed-time conveyance and two-way correspondence. The thorough utilization of different intelligent capabilities gives understudies the most unique type of learning and the best learning climate. The wide assortment of devices, for example, Q&A loads up, discussions, and discussion channels have likewise led to more extensive and all the more convenient correspondence among understudies and among instructors and understudies.

Proficiency and creativity regarding assets, the E-Learning framework is portrayed by quick refreshing and proficient administration. Simultaneously, the framework can give many significant arrangements and state of the art advancements. It likewise permits understudies to comprehend the most recent data and make opportune input rapidly.

### 3.2 Disadvantage in E-Learning

Although E-learning has been heartily invited and grown well, there are numerous issues that should be tackled. The justification for this is that on one hand, there are numerous issues in the E-learning framework itself, and then again, there are misconceptions about E-learning during the time spent execution. The issues in the utilization of E-learning are as follows:

**Networking Issues.** From strong sites to individual PC designs, from stable waiters to media programming support, all give E - learning a one-of-a-kind and present-day flavor. E-Learning is advance necessities systems administration, and one might say that E-Learning relies upon systems administration [5]. In addition to other things, foundation decides if E-Learning has the option to get by or not, and regardless of whether E-Learning has better applications. However, assuming the organization is compromised, the server neglects to answer or the understudy's PC neglects for sure, the E-Learning is incapacitated to learn framework.

**Practice Issues.** To genuinely acquire information and expert methods, it isn't sufficient to pay attention to others' clarifications, yet it is likewise important to work and practice [6]. For instance, electronic introductions work with the clear conveyance of data. Notwithstanding, to genuinely dominate an innovation, understudies should have the option to rehearse it and figure out how to involve it in a true setting. Hence, the useful shortcomings of the training are likewise areas of progress for the E - learning framework.

**Content Issues.** The greatest burden of E-Learning is wearing substance and little collaboration out. Contrasted and present-day showing strategies, eye to eye instructing is more striking and fascinating. In the utilization of E-Learning courseware, assuming the homeroom is simply moved to the courseware, understudies' learning will fall into uninvolved and dull, which is likewise the issue of latest courseware. To solve these problems, it is necessary to improve the design of courseware, such as arranging learning according to the characteristics of the course, providing teaching tools and situational learning.

### 3.3 Requirements of the E-learning Model for Teachers and Students.

It can be challenging for faculty to get students online. Find out if students are engaged. Online engagement can be perceived differently than in-class engagement. Research has shown that teachers' perceptions of student engagement affect their interactions with students and student achievement. Understanding how teachers perceive engagement, especially in online environments, is critical to practice and research.

Understudy centeredness is the help objective of E-Learning; it totally liberates understudies from the conventional inactive learning mode, and furthermore makes understudies truly become the greatest subjects of learning. Understudies can plan their

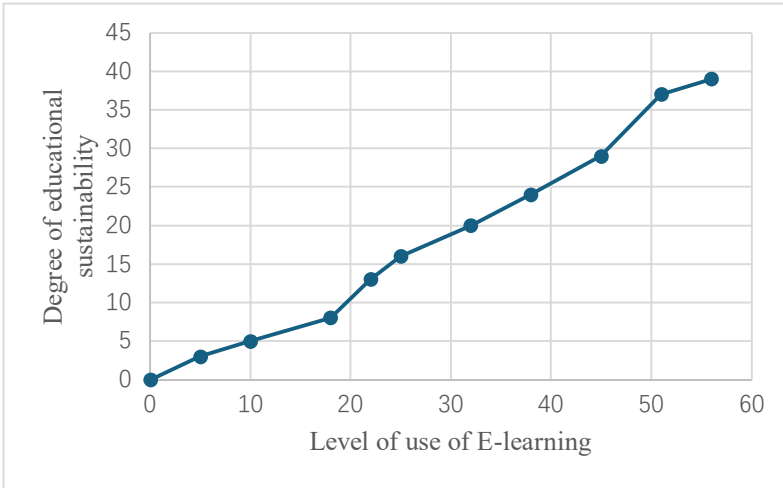
own review plans, decide their review time and pick their own learning techniques; simultaneously, they can likewise deliberately pick their educators and partake in classes. In this mode, educators and understudies can have eye to eye exchanges and back and forth discussions, and understudies are the two members and coordinators, giving most extreme play to their emotional drive.

#### **4 The Role of E-Learning in Education Sustainable Development**

Education for Sustainable Development aims to promote and improve the quality of lifelong education with the goal of acquiring knowledge, skills and values for sustainable development, adapting academic curricula, such as reflecting, integrating, reforming and greening education to achieve sustainable development. Thus, raising public awareness through a better understanding of the concept of sustainable development [7]. To raise public attention to manageable turn of events, training is a significant instrument for empowering social orders to accomplish the objectives of reasonable turn of events. Training for economic improvement intends to make a huge commitment to the accomplishment of the practical advancement objectives by moving consciousness of reasonable improvement through future instruction, including regular asset preservation, maintainable utilization, worldwide citizenship schooling and orientation fairness.

Training in Education for Sustainable Development through e-learning tools needs to consider the characteristics of this educational medium, the characteristics of e-learning and the structure of the pedagogical modules for learning objects seem to be particularly effective for a number of reasons. In the first place, the chance of coordinating learning objects into particular learning content gives adaptability to the learning content and empowers courses to be adjusted to various sorts of students. The E-Learning program is additionally intended to increment student independence in gaining information, and in this sense, it answers an instructive need [8]. Besides, it is vital to establish a climate helpful for expanding educators' advantage in utilizing e-advancing by giving them the fundamental offices, for example, ideal administrations and data through E-Learning courses. This empowering climate will propel them to utilize E-Learning gateways and further develop their instructing execution. Informative organization and personnel should work cooperatively to guarantee that all important circumstances are met and that assets are unreservedly accessible to get to and use the E-Learning framework actually and proficiently. Moreover, personnel ought to be prepared to routinely refresh data on the utilization of the E-Learning framework. Creating relational associations with one another is fundamental. In Table 2, a line graph was used to analyse the relationship between the extent of e-learning use and the extent of educational sustainability in the classrooms of the teachers concerned by collecting them. It was found that as the degree of e-learning use increases, the degree of educational sustainability improves, thus proving that educational sustainability is affected by the degree of e-learning use.

**Table 2.** Correlation between the extent of e-learning use and the extent of educational sustainability



E-learning is another instructive idea and instructive model that stresses the student by making a learning way that utilizes E-Learning instruments to create and introduce instructive substance for reasonable turn of events, in light of current high level data advancements and present day administration expressions, in view of instructive recommendations, with the student at the center, making collaborations between the qualities of the object of learning and the capability of the instructive devices utilized, and underscoring the student's Cognizant pleasure in instructive administrations, giving students rich, unequivocal and adaptable instructive ways.

E-learning is crucial to the student body's successful and long-lasting lifelong learning education in higher education. This essay begins with the drawbacks of traditional instruction, then examines the traits and potential directions of the E-learning teaching mode, evaluates its place in education for sustainable development, and concludes by outlining the demands of the E-learning teaching mode on both teachers and students.

## 5 Conclusion

At present, there is a momentary stage in the shift from the conventional instructive way of thinking to the E-Learning instructive model. the foundation of E-Learning has quite recently been finished, which ought to permit us to approve the adequacy of the substance and academic instruments created, and to feature their assets and address their basic angles. Since E-Learning gain some degree not the same as the conventional training model, educators and understudies shouldn't characterize themselves in customary jobs tenaciously. On the off chance that instructors position themselves as the transmitter of information content, the moderator of the educational plan framework and the supervisor of educating, and understudies simply advance latently, then, at that point, they can't meet the showing climate of E-Learning. Hence, the difference in

educator and understudy jobs is unavoidable for the advancement of the times. With the nonstop improvement of E-Learning and the promotion of its application in schools and colleges, training for maintainable advancement will acknowledge quick turn of events.

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