# Online Teaching at Its Best: Merging Instructions Design with Teaching and Learning Research; An Overview

**Suchitra Labhane**
Assistant Professor, MBA, Datta Meghe Institute of Management Studies,
Atrey Layout, Nagpur- 440022
suchitra.labhane@gmail.com

**Dr. Akhila K P**
Assistant Professor, Department of Social work,
Sree Sankaracharya University of Sanskrit, Regional Campus Payyannur
Edat P.O Kannur-670 327, Kerala
akhicuk@gmail.com

**Dr. Ameya Madhukar Rane**
Associate Professor, Department of Finance,
Regenesys Business School, Johannesburg, Santon, South Africa
dr.ameyarane@gmail.com

**Dr. Shabnam Siddiqui**
Associate Professor, Department of Commerce and Management, Faculty of Management Studies (FMS-WISDOM), Banasthali Vidyapith,
Rajasthan- 304023, India
shabnamsiddiqui@banasthali.in

**Dr. Mirshad Rahman T M**
Assistant Professor, Department of Social Work, Acharya Institute of Graduate Studies, Acharya Institutes, Acharya Dr. Sarvepalli Radhakrishnan Road,
Soldevanahalli, Hesaraghatta Main Road, Bengaluru-560107
rahmansocialwork@gmail.com
mirshadtm@acharya.ac.in

**Dr. K. Srinivasan**
HOD, Commerce and Management, Presidency College (Autonomous),
Karnataka, Bangalore
Srini11189@gmail.com

## Abstract

More than 70 percent of universities that award degrees provide online classes. However, despite the availability of technological resources, these courses typically fail to effectively include the most effective methods of online teaching, even if they meet the requirements for online course design. Commonly, these standards tend to disregard the optimal methodologies in pedagogy and the tenets derived from cognitive research, so placing students in a predicament where they encounter difficulties in maintaining the desired progression, comprehending the subject matter, and realizing their full capabilities as knowledge seekers. This literature addresses the existing void by offering empirically-supported strategies for online instruction, online curriculum development, and online student engagement, including principles from pedagogical and cognitive sciences. Its aim is to assist educators in constructing distant learning courses and programmes that meet the needs and expectations of their students. It is a qualitative study measuring

the factors influencing design with teaching and learning research in online. 500 college faculty members from private college have been selected for the study. The primary data have been collected using Google forms. The data are analyzed using the SPSS software. The secondary data were collected from a variety of sources, including books, journals, periodicals, expert opinions. Convenient sample technique is used for the study. The study concluded that with the increasing prevalence of distant learning among students, it becomes imperative for designers and instructors to reassess conventional approaches and enhance their efficacy inside the online learning milieu. Additionally, administrators also play a role in providing the necessary leadership in this context.

**Keywords:** Online teaching, design, teaching, professional development learning Research and Incorporate Formative Assessment.

## Introduction

A significant majority, over 70 percent, of educational institutions that confer degrees provide online courses. [7]However, despite the abundance of technological resources, these courses often fail to effectively include the most effective methods of online teaching, even if they adhere to established criteria for online course design. Commonly, these standards tend to exclude the incorporation of effective teaching and learning strategies, as well as the concepts derived from cognitive research.[12] Consequently, students often have difficulties in maintaining the expected progress, comprehending the subject matter, and achieving their maximum capabilities as learners. This publication addresses the existing void by offering empirically-supported methodologies for online instruction, online curriculum development, and online student engagement, using pedagogical and cognitive science principles. Its aim is to assist educators in constructing distance learning courses and programmes that meet the needs and expectations of their students.[8] The limitation to achieving a quality education is not determined by geographical distance, but rather by the presence of insufficiently designed and implemented online courses, as well as poor training and support for faculty members. These obstacles may be effectively addressed by administrators. It emphasizes the need of fostering a sense of community and personal connection among students, while also equipping them with the necessary skills to flourish in future endeavors. [16]

## Theoretical Background

Job performance pertains to the results achieved by an individual's endeavors within a certain timeframe and in accordance with a pre-established procedure.[1] There is a contention among scholars that the evaluation of educators' efficacy may be accomplished by assessing their achievements in terms of quantity, excellence, and time. The concept of job performance encompasses the degree to which a person effectively carries out their assigned tasks and, in certain instances, exceeds the expected level of performance. Learning outcomes serve as a means of assessing the efficacy of a teacher's performance within the educational setting. The concept of "performance" pertains to the results generated by a collective of employees via adherence to set procedures while operating under the guidance of supervisors.[14]. The achievement of organisational success requires the combined contributions of both individuals and collectives. Watson (2012) explored that the productivity of individuals in the workplace is influenced by several factors, including personality attributes, organisational trust, and corporate culture. The decisions made by a firm have a significant influence on its operational efficiency. In order to facilitate the learning and development of their pupils, a proficient educator must possess a comprehensive range of abilities in four distinct domains: competent, educational, personal, and social[5].

Students represent a very significant asset within a given society. The future well-being of society is contingent upon the current generation of students, hence necessitating the pivotal role of educators in equipping them for the challenges of maturity and the professional sphere. Educators have a crucial role in assisting students through the several key academic changes they are likely to encounter.[3]Individuals want to be employed by companies and contribute their skills and abilities in order to maximise their own

974

growth and development. Employee dissatisfaction with their work leads to reduced productivity, elevated rates of absenteeism, and heightened turnover. The issue of whether work happiness is assured in the occupation of college instructors is a significant inquiry in contemporary times. When educators have a sense of appreciation within their professional duties, they are more capable of devoting their whole attention and unwavering commitment to their pupils. One of the primary concerns in contemporary society, characterized by extensive interconnectivity, is to the level of job satisfaction experienced by employees. The growth of educational systems worldwide is of utmost importance [9]. The satisfaction of educators in their careers is contingent upon the alignment between their professional objectives and personal needs. Therefore, it is important for a college lecturer to exhibit a sense of satisfaction in order to make a meaningful contribution to the learning environment. Blashki (2007) conducted a study. Enhancing the quality of human capital is mostly achievable via educational endeavors. There exists a close correlation between a nation's level of life and the quality of its educational system. Educator's composition a crucial role in augmenting the pool of human capital. Enhancing the teaching ability of educators has a direct correlation with the improvement of students' academic performance. The educational landscape in India necessitates concerted efforts from both governmental bodies and educational institutions, with particular emphasis on enhancing teacher efficacy.

**Figure 1**
**Pedagogical and content knowledge designing**
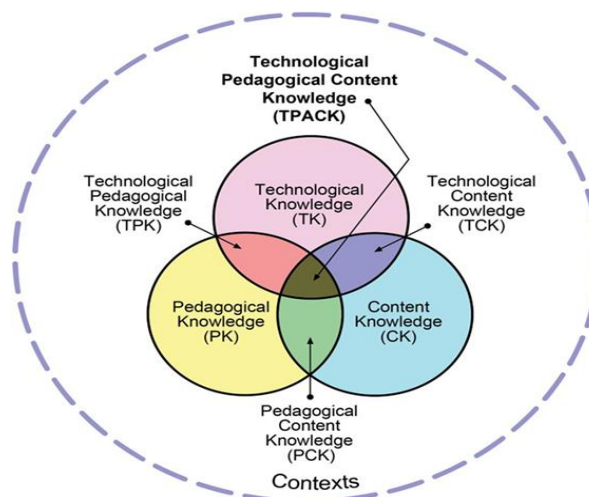


**Establishing the Foundation for Student Education**

When engaging in the preparation of an oral presentation, a publication, or any kind of written correspondence, the first consideration that is taken into account is the intended audience. The intended recipients of our message significantly impact several aspects of our communication, including the content, format, organisation, sentence structure, and word selection.[4] The aforementioned principle also applies to the field of education. The characteristics of our pupils, including their academic readiness, ambitions, and cognitive growth, influence our decisions about the content and methods of instruction. It is essential to reframe our perspective from only instructing subjects such as art, biology, English, history, math, psychology, and others, to prioritizing the education of kids as a whole.[15]. Another factor to be taken into account, especially in the context of education, is to the cognitive processes involved in human learning. In relation to a certain domain of knowledge, some modes and formats of dissemination seem to be more efficacious in facilitating communication, enhancing individuals' ability to engage, comprehend, and retain information. However, despite the collective responsibility to foster human intellectual development, it

seems that only cognitive or educational psychologists possess comprehensive knowledge about the functioning of the human mind [6].The human cognitive process is inherently inclined towards the pursuit and establishment of structure. Consequently, when faced with gaps in our comprehension of various events, we tend to fabricate connections in order to bridge these gaps, unless we had a comprehensive explanatory framework readily available. Certain hypothetical associations that withstand careful examination are raised to the status of scientific knowledge.[1]

## The cognitive development of undergraduate students

Despite the potential challenges that may arise while engaging with the millennial age, it is possible to effectively connect with them by implementing certain modifications. In addition, individuals possess professional aspirations, optimistic mindsets, adeptness in technology, and a propensity for collaboration [6]. Moreover, these individuals possess sufficient cognitive abilities to acquire a substantial amount of information, but not always aligned with the knowledge that is highly esteemed in our society. There is no need for our changes to include a reduction in our own standard. Educational institutions have equal significance in comparison to other forms of social establishments. This platform serves as a meeting place for many individuals within a given society, particularly young individuals, who engage in interactions with one another while actively seeking career opportunities and personal satisfaction [11].Additionally, this platform facilitates significant socialization processes that contribute to individual development. Teaching is widely seen as a significant and prominent occupation on a global scale. The vocation of education serves as the fundamental basis for all other occupations within society. The profession in question serves as the cornerstone for the development of any nation. The profession of teaching is becoming more challenging due to several factors, including an increase in administrative tasks, a rise in bureaucratic processes, and the presence of more disruptive classroom environments. The impact of social and psychological factors on teacher performance, job happiness, and mental well-being is significant.[5]. However, it is evident that the teaching profession has inherent worth. The occupation of teaching has historically been granted full autonomy. It fulfils an essential role in the development of youngsters. The significance of this matter is profound due to the weighty duties it entails, since it places a high priority on the development and well-being of children. Female educators exerted maximum effort to accomplish their professional and domestic obligations. The individuals endeavored to fulfil the familial obligations imposed upon them, while also being obligated to engage in extracurricular pursuits inside the educational institution. At the secondary level, there is a shift in focus towards instructional methods and the assessment of performance, which assumes an even greater significance [2].The significance of educators at every educational level cannot be exaggerated. This stance is hindered by a multitude of factors, causes, and challenges. A schoolteacher encounters a range of personal and professional pressures. Educators may experience heightened levels of stress due to the aforementioned demands. Educators experiencing stress may find themselves unable to effectively fulfil their duties and responsibilities in alignment with the required expectations [13]. The characteristics of teachers are mostly shaped by the instruction they receive in their pre-service education courses. The influence of several factors on the effectiveness of teacher education programmes may be seen, including the specific characteristics of the course itself, the criteria used for admitting trainees, the instructional materials utilised for assessing teacher performance, and the curriculum implemented within these programmes. The provision of quality education is contingent upon the presence of teachers who possess the necessary skills, unwavering dedication, and resourcefulness. The concept of quality encompasses not only the volume of material imparted to pupils, but also the effectiveness with which they use that information to effectively address forthcoming obstacles. These traits possess undeniable significance; nonetheless, their meaning is contingent upon the subjective valuation of individuals. The valuation of a particular aspect of a career is contingent upon the individual's personality, social, and psychological background. It is essential for any profession to strategize and prepare for its own advancement. Failure to do so may result in societal rejection of the profession over an extended period of time[7]. Professional growth is predicated upon a confluence of factors, including motivation, ability,

attitude, and devotion. Teaching is widely seen as a highly esteemed profession that demands a strong sense of duty and integrity, along with qualities such as keenness, intellect, devotion, accountability, practical abilities, and a heightened feeling of responsibility.

## A Comprehensive Examination of Pedagogical Approaches

A worldwide scale has been attributed to expediting the shift of education towards an online content paradigm. The potential impact of OTL on education and the specific mechanisms via which it enhances learning outcomes are contingent upon many factors associated with the Technological Pedagogical Content Knowledge framework. Moreover, it is important for educational institutions to consider the many forms of interaction that occur among educators, learners, and technological tools, since this is crucial for attaining significant outcomes in the use of instructional technology[9].The use of technological breakthroughs in educational settings will inevitably lead to a transformation in the relationship between teachers and students. The job of educators has undergone a transformation, assuming the responsibilities of guiding pupils, serving as representatives of certain topic domains, and becoming indispensable discussion partners. This implies that the instructor is promoting the idea of more autonomy within the educational setting. The evolving nature of teacher-student interactions necessitates the use of instructors' Third Culture Kid (TCK) experiences. Furthermore, it is essential for educators to incorporate Technological Pedagogical Content Knowledge (TCK) into the realm of educational technology in order to enhance the scholastic achievements of pupils. Teachers have the potential to enhance student learning outcomes via the use of Technological Pedagogical Knowledge (TPK) in their own professional development, the design and implementation of instructional techniques, and the incorporation of students into diverse practice and job-related activities.

## The pedagogy of instructing the millennial

E-learning has garnered significant popularity among students due to its innovative and dynamic approach to delivering educational content. As a consequence, there has been a resurgence in the appreciation of the gratification derived from engaging in scholarly endeavors. The author examined the role of institutions in facilitating the expansion of educational alternatives in contemporary schooling. The potential of e-learning to transform people, as well as their knowledge, talents, and performance, has been recognized by schools and other educational institutions. Brown (2018) enhanced their ability to provide online courses in response to the expanding demand for cyber education. The significance of e-learning is increasing inside educational institutions that provide advanced levels of education. The widespread use of various e-Learning technologies has led to many alterations being made in higher education institutions, particularly in terms of educational delivery and support operations. There exists a multitude of diverse types of e-Learning, with a wide array of approaches for integrating technology inside educational environments.

## Research Objectives

1. To find out the relationship between age and factors influencing design with teaching and learning research in online
2. To identify the key elements in teaching and learning research process.

## Research Methodology

It is a qualitative study measuring the factors influencing design with teaching and learning research in online. 500 college faculty members from private college have been selected for the study. The primary data have been collected using Google forms. The data are analyzed using the SPSS software. The secondary data were collected from a variety of sources, including books, journals, periodicals, expert opinions. Convenient sample technique is used for the study.

Analysis, findings and Results

1.      Age

The examination of age's influence on design and research pertaining to teaching and learning in the context of online education has significant importance. Learning preferences, technical skills, and cognitive aptitude differ across various age groups. Gaining an understanding of these distinctions may assist educators and designers in developing online learning experiences that are more efficacious. Various age cohorts may have unique learning preferences. For example, it is seen that younger learners tend to exhibit a preference for information that is interactive and visually stimulating, while older learners tend to gravitate towards forms that are text-based or lecture-style in nature. When designing online learning materials, it is important for designers to take into account the various preferences of the learners. The difference in the design with teaching is tested as below with the help ONE WAY ANOVA test.

Table 1
Age and elements influencing design with teaching and learning research in online

| Age group | N | Mean | Std. Deviation | F | Sig. |
|---|---|---|---|---|---|
| Young | 187 | 38.63 | 5.181 | | |
| Middle | 179 | 35.12 | 5.643 | 4.217 | 0.018 |
| Old | 134 | 37.17 | 6.542 | | |
| Total | 500 | 36.23 | 6.439 | | |

Age can have a significant impact on design when it comes to teaching and learning in an online para (parallel) environment. Designing effective online learning experiences requires consideration of learners' age-related characteristics, preferences, and needs. The above table shows that the design with teaching and learning research in online from the young age group (38.63) is found more than the middle (35.12) and old age (37.17) respondents. The difference in the efficiency (F-4.217) has been identified as significant at 5% level (p-0.018). Younger learners who have grown up with technology are generally more digitally literate and comfortable using various digital tools. In contrast, older learners may have varying levels of technology proficiency, and the design should accommodate their needs through user-friendly interfaces and clear instructions. Different age groups may have distinct learning preferences. For example, younger learners may prefer interactive learning experiences, while older learners might appreciate more structured and text-based content. Designers need to consider these preferences to engage learners effectively. The hypothesis is rejected as the p value is less than 5%. It is concluded that the efficiency of the young age group respondents has increased due to online teaching methods. Younger learners tend to be more accustomed to social media and online interactions, making collaborative and social learning features important for them. Older learners might prefer a more individualized and private learning environment, where they can focus on the content without external distractions.

2.      Key elements in Teaching and Learning Research

Online teaching at its best involves the seamless integration of effective instructional design principles with the latest teaching and learning research. By merging these two aspects, educators can create engaging, meaningful, and impactful online learning experiences for their students. The result is given below.

Table 2
Opinion on the key elements in teaching and learning research

| Dimension | Mean | Std. Deviation | Mean Rank |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Clear Learning Objectives | 3.03 | 1.411 | 5.44 |
| Student-Centered Approach | 3.14 | 1.394 | 5.66 |
| Multimedia and Interactive Content | 3.06 | 1.378 | 5.51 |
| Responsive Design and Accessibility | 3.02 | 1.415 | 5.41 |
| Incorporate Formative Assessment | 3.07 | 1.441 | 5.52 |
| Data-Driven Decision Making | 3.04 | 1.441 | 5.63 |
| Professional Development | 3.11 | 1.407 | 5.56 |
| Teaching presence | 3.10 | 1.353 | 5.43 |
| Incorporate Formative Assessment | 2.92 | 1.416 | 5.22 |
| Timely and Constructive Feedback | 3.12 | 1.391 | 5.62 |

Student-Centered Approach (3.14), Emphasize a student-centered approach that considers the diverse learning needs, preferences, and backgrounds of learners. Use different instructional strategies to cater to various learning styles, followed by timely and constructive feedback (3.12) Provide regular and timely feedback to students on their assignments and participation. Constructive feedback helps students understand their progress and areas for improvement. Professional Development (3.11) are ranked third, Teaching presence (3.10) and Incorporate Formative Assessment (3.07) was ranked fourth and fifth. It is essential for the teacher to consistently exhibit an engaged and prominent role. Facilitate active communication with students through various channels such as announcements, emails, and discussion forums. The presence of a highly effective instructor may serve as a catalyst for student motivation and foster a profound feeling of connection inside the virtual realm of online learning. It is essential to advocate for the active engagement of educators in continuous professional development initiatives, as this serves to augment their proficiency in online pedagogy and ensure their awareness of contemporary advancements and scholarly investigations in the realm of online education. By integrating instructional design concepts with research on teaching and learning, online educators have the ability to create a dynamic and efficient learning environment that optimizes student engagement, comprehension, and achievement. The attainment of optimal results in online education necessitates the implementation of continuous improvement strategies and a steadfast dedication to student-centered learning. The significance of the rank is assessed using the Friedman test, as described below.

Table 3

Friedman Test

| N | 500 |
|---|---|
| Chi-Square | 9.527 |
| df | 9 |
| Asymp. Sig. | 0.317 |

The Friedman test yielded an inconsequential result, indicating that the estimated Chi-Square value (9.527) for the degree of freedom 9 did not reach statistical significance. The computed significance value of 31.7% exceeds the threshold of 5%. Hence. It is well acknowledged that the opinion of the essential factors in teaching and learning research exhibits little variation and lacks substantial differences in terms of mean rank.

**Conclusion**

Online teaching has emerged as a powerful and effective method of education, especially in recent times. When executed at its best, online teaching offers numerous advantages that enhance the learning experience for students of all ages and backgrounds. One of the key benefits of online teaching is accessibility.[7]. It breaks down geographical barriers and allows students from around the world to access quality education. This inclusivity promotes diversity and creates a global learning community, where students can share perspectives and ideas beyond their local surroundings. Furthermore, online teaching offers flexibility in scheduling and pacing. Students can access course materials and lectures at their convenience, allowing them to learn at their own pace and accommodate other commitments such as work or family responsibilities.[12] This flexibility empowers learners to take control of their learning journey and fosters a sense of autonomy.[10]. A well-designed online learning platform provides a wide range of multimedia resources and interactive tools. These materials cater to different learning styles, making the learning process engaging and enjoyable. [8].Visual aids, audio recordings, quizzes, and discussion forums stimulate active learning, encouraging students to participate actively and retain information better. Effective online teaching also incorporates various communication channels, facilitating seamless interaction between students and instructors. Real-time video conferencing, chat rooms, and email support create opportunities for personalized feedback, questions, and discussions. Regular and constructive feedback helps students to track their progress and make necessary improvements, promoting a culture of continuous improvement.[3]. Additionally, online teaching can harness the power of data analytics to monitor students' performance and identify areas where additional support may be required. By leveraging data, educators can tailor their teaching strategies to meet individual needs, thereby maximizing the learning outcomes. Safety and convenience are other aspects that make online teaching the best option in certain situations, such as during the COVID-19 pandemic or in remote areas with limited access to traditional educational facilities [1]. To achieve the best in online teaching, educators must undergo proper training and utilize innovative teaching techniques that are specifically tailored for the virtual environment. Regular updates to course content, leveraging emerging technologies, and ensuring inclusive practices are also crucial for maintaining high-quality online education. In conclusion, when online teaching is implemented at its best, it provides accessible, flexible, engaging, and personalized learning experiences for students, enabling them to acquire knowledge and skills effectively, regardless of their location or circumstances. With the right approach and commitment to excellence, online teaching can truly transform the way we learn and educate in the modern world. [15].

**Reference**

1.  Greg and Lindon. (2011), "Computers in Education should Target Test Scores", Educational Blogs, Communications of the ACM Journal, Vol. 2(1-2), 41−61.
2.  Hakanen, J.J., B Aaker, A.B. and Schaufeli, W. B. (2006), "Burnout and Work Engagement among Teachers". Journal of School Psychology, Vol. 43(6), pp. 495-513.
3.  Kintu, Zhu and Kagambe (2017), "Blended learning effectiveness: the relationship between student characteristics, design features and outcomes", International Journal of Educational Technology in Higher Education, Vol. 14(7), 15-17.
4.  Larreamendy- Joerns and Leinhardt, G. (2006), "Going the distance with online education", Review of educational research, Vol. 76(4), 567-605.
5.  Leigh, A. and Mead, S. (2005), "Lifting Performance of teachers, Policy Report", Progressive Policy Institute
6.  McLellan, H. (2006), "Digital storytelling in higher education", Journal of Computing in Higher Education, Vol. 19(1), 65-79.

7. Muthuprasada S.Aiswaryab K. S.AdityaaGirish & K.Jhaa (2021), Students' perception and preference for online education in India during COVID -19 pandemic" Social Sciences & Humanities Open, .3 (1), 5-6.

8. Norman Carrol, Dominican (2010), "Learning Effectiveness Using Different Teaching Modalities", American Journal of Business Education, Vol .3 (12), 66-67.

9. Bao, W. (2020). COVID -19 and Online Teaching in Higher Education: A Case Study of Peking University. *Human Behaviour Emerging Technology.* 2 (2), 113–115.

10. Brown, A. H., and Green, T. D. (2018). Beyond Teaching Instructional Design Models: Exploring the Design Process to advance Professional Development and Expertise. *Journal Computer Higher Education.* 30 (1), 176–186

11. Dolmans, D. H. J. M., Loyens, S. M. M., Marcq, H., and Gijbels, D. (2016). Deep and Surface Learning in Problem-Based Learning: a Review of the Literature. *Advance Health Science Education,* 21 (5), 1087–111.

12. Khadjooi, K., Rostami, K., and Ishaq, S. (2011). How to Use Gagne's Model of Instructional Design in Teaching Psychomotor Skills. *Gastroenterol. Hepatol. Bed Bench* 4 (3), 116–119.

13. Meskhi, B., Ponomareva, S., and Ugnich, E. (2019). E-learning in Higher Inclusive Education: Needs, Opportunities and Limitations. *International Journal of Education. Management.* 33 (3), 424–437.

14. Sadeghi, M. (2019). A Shift from Classroom to Distance Learning: Advantages and Limitations. *International Journal Res. English. Education.* 4 (1), 80–88.

15. Sun, A., and Chen, X. (2016). Online Education and its Effective Practice: A Research Review. *JITE: Research* 15, 157–190.

16. Tseng, H., Yi, X., and Yeh, H.-T. (2019). Learning-related Soft Skills among Online Business Students in Higher Education: Grade Level and Managerial Role Differences in Self-Regulation, Motivation, and Social Skill. Computer Human Behaviour. 95, 179–186