

# Innovative Teaching Methods – A Systematic Literature Review

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## Abstract

Introducing new teaching methods, techniques or strategies into the classroom on purpose is the process of innovative teaching. These innovative teaching techniques are being applied to improve academic standards, deal with current challenges, and promote equal learning. This study goal is to provide a summary of the current developments in an innovative teaching method for the use of cutting-edge instructional strategies and to investigate how teachers and students are interpreting these developments. In order to do so, 30 articles in total were obtained utilising methodical searching techniques and met the minimum quality standard for the period of last five years. There are two databases namely Scopus and Web of Science (WoS) and other journal databases used in the screening of past research articles. The seven primary Systematic Literature Review (SLR) topics that were covered are the creation and validation of the review protocol, publication standard, reporting standard, guidelines, formulation of research questions, systematic search strategies, quality assessment, data extraction, data synthesis, and data demonstration. The Scopus database contributed the most articles to this study. Two scopes of study has been analyzed which is the types of innovative teaching methods and student's achievements using innovative teaching methods compared to conventional approach. A suggestion for further study that can be made is to introduce more innovative teaching methods through a holistic medium.

**Keywords:** Innovative Teaching Method, Student's Achievements, Innovative Teaching

## Introduction

New scientific advancements, globalisation, information technology, and the development of robots, artificial intelligence, and astronautics are causing significant changes in the twenty-first century. This century is known as the era of digital technology and knowledge. The twenty-first century brought forth a lot of changes in education and instructional strategies. The twenty-first century's pedagogy is different from the twentieth century's. Since the start of the twenty-first century, there have been many changes in the development of both national and international education. The most visible occurrences at the moment are the

Internetization of society and the adoption of digital technology in education. The present generation of schoolchildren is referred to as digital, socially digital, and generation Z. Knowing something is the step from reading about it to understanding it visually or via in-class discussion. Our way of life, our methods of communication, our ideas, our sentiments, our capacity to influence others, as well as our social skills and conduct, are all impacted by digital technology. Hietajärvi et al. (2015) claim that the high-tech environment, which includes computers, cellphones, video games, and internet search engines, reshapes the human brain. Instead, creative teaching involves proactively implementing new pedagogical approaches and techniques in the classroom. These innovative teaching techniques are being used to raise academic standards, address pressing issues, and support equitable learning.

The most obvious tendency is brought on by changes in didactics and pedagogical theory (Mynbayeva et al. 2018). In a didactic setting, students mostly function as receptive listeners to the teacher's directions. It is a teacher-centered style to education that places a focus on content. According to Tagunova et al. 2022, upbringing in the broadest meaning of pedagogy is an intentional social impact intended to better educate the younger generation for life. According to a restricted pedagogical definition of raising, certain personal characteristics are purposefully impacted (Tagunova et al. 2022). The domain of meaning and understanding that the category of education's theme, twenty-first century pedagogy, covers has expanded. There have been presented methods that emphasise competence and the person. This study demonstrates that several earlier studies have been conducted to assess the efficacy of utilising cutting-edge teaching strategies and approaches from the perspective of raising student accomplishment. This research trend analysis will be useful to other researchers when they do further research in the future. There are ideas that may be put out for more research. It is recommended that in the future, all-level students make up the target group for the employment of innovative teaching techniques.

### **Innovative Teaching**

The purposeful process of educating and training a person in unique ways is known as innovative education. This type of education helps a person develop their creative abilities, as well as their skills in self-learning and self-improvement (Mikheeva & Pankova 2021). When seen from the point of view of the processes that are responsible for the development of post-industrial civilization, the major objective of innovative education is to promote the overall progression of the human development process. Education is developing much more quickly than other forms of social engagement, which is viewed as a key component of it. Innovative work is a multifaceted kind of social engagement in the field of education. Through innovations in professional education, the combined substance of advancements in the scientific and technological domains, pedagogical fields, organisational and management sectors, and socioeconomic fields is reflected. These developments ensure that professional education, as well as research, production, the economy, management, and the social sphere as a whole, will continue to evolve in a creative manner. The creative methods that have been created for vocational education are used in innovative education.

Pedagogical innovations include the whole spectrum of education and involve a unique and innovative method of structuring the educational process. The whole area of education is impacted by pedagogical advances. The need for students to engage in effective self-education and self-preparation for productive activities in a constantly changing external environment is made more pressing by the fact that the real-world operation of the educational process in universities is in direct conflict with the requirements that society

places on the standard of vocational training that university graduates receive. Graduates must be capable of engaging in self-education with purpose and effectiveness. The adoption of new state educational standards has given the inventive process and innovation in general a unique place in global secondary and higher education. Humans learn to engage with the world through interacting with it from an early age. Toddlers do not learn to walk because their parents stand at the front of the room and teach them on walking mechanics. They learn through observing, experimenting, and practising the skill until it is mastered. The same scenario continues in school. According to one study, 4-and-5-year-olds who had the opportunity to play with geometric shapes learned—and retained—more than children of the same age who were given direct instruction about those shapes. Many early primary teachers recognise this, and education in elementary schools frequently employs play, movement, and group work as strategies to assist pupils in learning. However, between middle and high school, these innovative learning methods give way to lectures, slideshows, and worksheets. The end result? Only 32% of 11th graders report feeling engaged in school, compared to 75% of 5th graders. The recent trend to online learning has exacerbated this issue. College classrooms are often run in a manner similar to high school classrooms rather than primary school ones. They frequently consist of tedious lectures for both students and teachers, with the occasional slideshow or project. Through interactive learning, this paradigm is flipped on its head. It encourages teachers and students to collaborate, experiment, and explore in ways that are more natural to the human experience. Teachers that do this right can not only engage their pupils but also improve learning to obtain higher results. In contrast to listening to lectures and taking notes, interactive learning requires students to actively engage with the material. This includes activities such as debates, field trips, and group projects. Students who are engaged in their studies do not have the option to left out or fall asleep. Instead, they are driven to solve challenges and figure out why they are learning what they are.

Educators or teacher will probably noticed that students arrive in classroom with preconceived notions about what they are going to learn. College students may be eager to learn if the subject interests them, or they may have determined before entering the classroom that the subject is irrelevant to them, and that they are merely there to meet a degree requirement. Because the students come from such diverse backgrounds, convincing them to embrace innovative learning can be difficult. Because of these differences, the educational requirements that students have are also growing increasingly varied. The search for instructional methods that can cater to their requirements is a fresh obstacle. Different creative teaching strategies and methods, as well as differentiated approaches, are being implemented in classrooms at higher educational levels as a means for lecturers to cater to the numerous and varied requirements of their pupils. So that, the goal is to use an innovative instructional approaches that your pupils cannot ignore and that demand all students to participate. In most recent studies, shows that the more innovative learning tactics which can include throughout the course, the more chances students will have to engage in active learning rather than passive learning. It can be difficult to redefine curriculum to be more participatory if we are used to teach pupils through lectures, slideshows, and podiums. Education's purpose should not be to teach pupils how to pass a test, it should be to provide pupils with the tools they need to learn on their own. Students, however, cannot excel unless they are interested, so that innovative learning is an important way for efficiently teaching students so that they can use their information both inside and outside of the classroom. By incorporating innovative learning into the classroom, we may not only improve the environment, but also the overall achievement of education.

**Theory and Model of Innovation Teaching Methods**

The learning model, according to Hosnan (2014), is a conceptual framework that outlines a systematic learning process in organising learning experiences to meet the desired learning goals and acts as a guide for the instructor in performing learning activities from planning to acting the process. The learning process is greatly influenced by the learning model that is utilised based on the findings of interviews with primary school pupils in grade V. Therefore, utilising suitable and creative learning models is crucial in the process of learning mathematics with relation to higher-order thinking abilities, in the teacher's perspective. Innovative learning involves a systematic process, defined learning goals, the selection of a particular learning environment, the determination of a measure of success, and interaction with the environment, according to Sugiyanto (2007). The Problem Based Learning (PBL) model is one of the cutting-edge instructional strategies that addresses the issue of students' critical thinking abilities.

Innovative teaching strategies have been employed extensively internationally during the past three decades to deal with the diversity of today's pupils (Barakzai, 2004). novel educational practises are developed and implemented in schools with the aim of raising the standard of instruction through novel teaching methods. According to Christian, Carl Frederick 1972, the term innovations is used synonymously with cutting-edge instructional techniques. As students accept new difficulties and rise to them with resourcefulness, creativity, and imagination, they demonstrate innovative learner traits and are prepared for present and future problems. They possess the ability to use their knowledge and skills to tackle new and challenging issues and the flexibility to change their thinking style in response to changing circumstances. As an inventive learner, they are secure in their knowledge, hesitant to take anything for granted, and prepared to take intellectual risks while dealing with information and ideas that are both their own and those of others. The learner is eager to investigate and assess concepts and claims in a methodical, critical, and analytical manner. They may express and defend their thoughts and beliefs while still showing respect for others. Innovative students are full of curiosity, have an inquiry-based mindset, desire to go further, are active in both their academic and social lives, and are prepared to change the world. They are eager to pick up new skills, open to new ideas, and capable of working both independently and collaboratively. They are also prepared to contribute positively to local, national, and international society and the economy and will create human capital that is internationally marketable. They take control of their learning, are receptive to and courteous of others, establish goals, and demand intellectual integrity as innovative learners. They value culture, context, and community and are cooperative and supportive. They are also aware of how their activities affect others and the environment. Software developers ranked fifth among the top five most popular careers in Malaysia for the fourth quarter of 2022, with 5722 opportunities. According to this statistics, mobile data and internet consumption will fuel future growth. The key question is whether Malaysia has the necessary personnel strategy in place to deal with these rapid changes and maintain the growth pace. The research on professional occupations sought to evaluate the inequalities in the labour market, with many crucial professions experiencing ongoing shortages in the face of rising graduate surpluses shown for some professional positions. Engineers, surveyors, architects, lawyers, accountants, doctors, dentists, veterinary surgeons, ICT experts, and physical, engineering science, and computing support technicians were among the ten categories of professional occupations examined. These occupations were all related to new twenty-first century pedagogy approaches.

The purpose of this paper is to summarise the most recent advancements in cutting-edge instructional strategies and innovative teaching methods, and to look into how teachers and students are interpreting these advancements in the literature that is currently available on these topics. The following are the study's research questions:

1. What are the most popular types of innovative teaching methods used in education?
2. What did research say about the students performances or achievements using innovative teaching methods in the classrooms?

Only a small number of initiatives have been made, nevertheless, to systematically examine the pertinent literature on the use of innovative teaching strategies in the classroom. Few have offered a full examination of the school themes in a holistic picture, despite several attempts to give systematic literature reviews of new teaching approaches in other fields including health and medical, nursing, and engineering.

### **Review Methodology**

Academic research requires a literature review (Xiao & Watson 2019). Fundamentally, new knowledge must be grounded in prior research that was established. To expand the knowledge frontier, we must be aware of it. By analysing important literature and pinpointing research gaps, we are able to comprehend the breadth and depth of the body of work that has previously been generated. By summarising, evaluating, and synthesising a group of linked materials, we can test an existing hypothesis and/or develop new ones. We can also evaluate the reliability and calibre of prior research in comparison to a benchmark in order to spot flaws, contradictions, and inconsistencies (Paré et al. 2015), and we conducted a systematic literature review in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) recommendations. In order to respond to the study questions, it is intended to analyse the content of 30 chosen articles. Only those articles, however, were chosen for inclusion: those that discussed the use of innovative teaching methods in classrooms, were published within the last five years, from 2018 to 2023 (to examine publication trends), were indexed in the Scopus and Web of Science (WoS) databases (for high-quality citations and indexing), and were written in academic journals that have undergone peer review.

In order to accurately identify the articles that were to be targeted, established the following exclusion criteria for the types of documents that were to be considered: conference proceedings, books, book reviews, magazines, short surveys, short communications, correspondences, newsletters, discussions, product reviews, editorials, publisher's notes, and erratum. The chosen articles were read, then evaluated. The PRISMA flow diagram is displayed in Fig. 1.

A quick thematic analysis was conducted to pinpoint the topics connected to the study's research patterns and trends. All 30 papers were analysed for information that would help us with the research questions and were then categorised into eight key categories.

## PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only

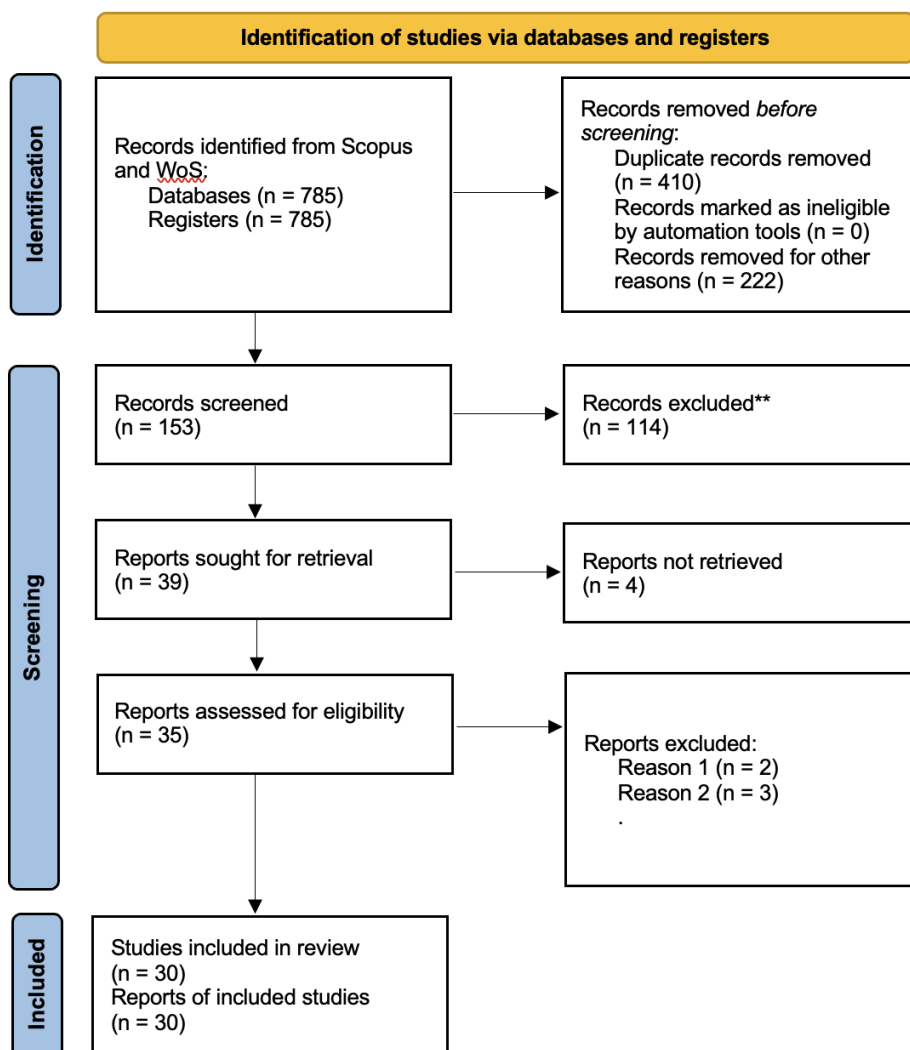


Fig. 1 PRISMA Flow Diagram

\*Consider, if feasible to do so, reporting the number of records identified from each database or register searched (rather than the total number across all databases/registers).

\*\*If automation tools were used, indicate how many records were excluded by a human and how many were excluded by automation tools.

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71

For more information, visit: <http://www.prisma-statement.org/>

## Results And Analysis

### Summary of findings

This study aims to identify the concept of innovative teaching methods in education studies in terms of terms and research methods. Therefore, a systematic literature review was carried out using the PRISMA flow chart (Moher et al. 2009) as a guide to analyze the context of this study. In summary, there are four stages in the PRISMA flow chart, namely, identification, screening, eligibility and inclusion. In the identification process, the researcher set two main

keywords, namely, "innovative teaching method" and "student\* achievement\*". In addition, a Boolean search "OR" was inserted between the two keywords to expand the search directed towards the context of this study. In this study, the Scopus and Web of Science (WoS) databases were used as the main sources in the article search. The rationale for choosing the two databases is that the articles published in them have a high impact and credibility factor. Table 1 shows the keywords used in the literature search from the Scopus and WoS databases.

Table 1

*Keywords Used In The Study*

Database	Keywords used in the study
Scopus and WoS	TITLE-ABS-KEY ( <i>"innovative teaching method*" OR "interactive teaching method*" OR "innovative pedagogy" OR "revolutionary pedagogy" AND "student* achievement*" OR "academic performance*" )</i>

The results of the article search found that there are 292 articles from Scopus and 493 articles from WoS containing keywords that coincide with the study. A total of 153 articles were identified in the first stage. Then, all 153 articles were continued with the screening process. In the first screening, the same or repeated articles will be removed. In the first screening, a total of 114 articles were removed from the total of 153 articles with the remaining 39 articles. Then, the second screening continues based on the criteria considered in the systematic literature review. In general, there are five main criteria that guide researchers in this systematic literature review, namely, literature type, language use, timeline, literature index, database and country. Table 2 and Table 3 shows the criteria considered in this literature review.

Table 2

*Criteria Considered In The Second Screening Of The Systematic Literature Review In Scopus*

<b>Criteria aspect</b>	<b>Qualification</b>	<b>Excluded</b>
Year	2018 – May 2023	<b>Before 2018</b>
Subject area	Social Sciences Computer Science Mathematics	Engineering Medicine Bussiness, Management and Accounting Nursing Health Professions Art and Humanities Environmental Science Psychology Decision Science
Document type and Source type	Article Journal	Conference paper Book chapter Systematic Literature Review (SLR) articles Trade Journal
Language	English	Non-English language
Keyword	Innovative Teaching Methods	Experiential Learning Techniques Higher Education Undergraduate Education Course Content Technology In Classroom Teaching And Learning Approaches Teaching Student-centered Learning Student Engagement
Index	Mathematics Citation Index Social Science Citation Index (SCOPUS & WoS) Forward search Backward search	None
Country/territory	All countries	No specific country



Table 3

Criteria considered in the second screening of the systematic literature review in Web of Science (WoS)

Criteria aspect	Qualification	Excluded
Source type	Review Article Early Access Open Access Enriched Cited References	None
Document type	Article	Proceeding Paper Early Access Books Chapters Editorial Material
Language	English	Non-English language
Time line	2018 – May 2023	Before 2018
Citation topics Meso	Education and Education Research	
Citation topics Micro	Self-regulated Learning Science Education Digital Learning Creativity Learning Style Computational Thinking	Medical Education Teacher Education Engineering Education Geography Education Intergenerational Mobility School Leadership
Web of Science Categories	Educational Research	Environmental Sciences Environmental Studies Green Sustainable Science Technology
Countries/ Regions	All countries	No specific country

In the second screening, systematic literature review articles, book chapters, non-English language and publication year before 2018 were excluded. The results of the screening have eliminated 114 articles out of 153 articles with 39 articles remaining. Next, in the qualification process, a further and in-depth examination of the article is carried out to identify the qualification of the article based on the concept of innovative teaching methods in education. In this stage, the review of articles is done in terms of definitions of innovative teaching methods frameworks as well as the research methods implemented will be studied in more detail so that only relevant articles are kept and vice versa. Therefore, the qualification process has removed 9 articles from 39 articles with 30 articles remaining. No database provides a full set of published materials, claim Xiao and Watson (2019). In relation to that, the researcher has done a forward search or known as a citation search and a backward search or known as a reference search (Shaffril et al., 2020). In the forward search, the researcher reviewed articles that had cited 25 articles published in the Scopus or WoS database. On the other hand, for the backward search, the researcher reviewed the references found in 25 articles published in the Scopus or WoS database. The search results have successfully collected 25 additional articles. Finally, a total of 30 articles were included in this qualitative synthesis study. Figure 1 shows the PRISMA flow chart applied in this systematic literature review study. Then, all the articles were analyzed in the form of a table using Microsoft Excel software. Among the components analyzed in the form of a table

include the year of publication, article title, author, country, definition of innovative teaching method, study design, approach and data collection method.

## Data Extraction

### The Process Of Retrieving Articles For The Review

To find relevant publications, the writers separated the search procedure into seven goals. In accordance with each search purpose, a suitable keywords were chosen (see Table 1). This study used two main searching methods: manual searching on four main databases (Scopus, Science Direct, Google Scholars, and Google search engine) and advanced searching (on the specified databases). In their thorough keyword research, the authors additionally used the phrase searching feature and the Boolean operators OR or/and AND to combine terms. The three primary manual search methods employed in this investigation were handpicking, backward tracking, and forward tracking.

In the initial step of the keyword search, 785 suitable articles were found. The writers then chose the following criteria for inclusion: language, publication date, and content of the chosen publications. The chosen articles' content must substantially emphasise innovative teaching-related methods because the paper is heavily related to this topic.

Then, by looking at titles and abstracts as well as the findings and methodology sections, two reviewers independently assessed pertinent papers that fulfil these criteria. The only articles chosen for this study were those on which both reviewers could agree, and any disagreements over the choice of articles were settled through talks. 755 items were eliminated during this process, leaving 30 for quality review.

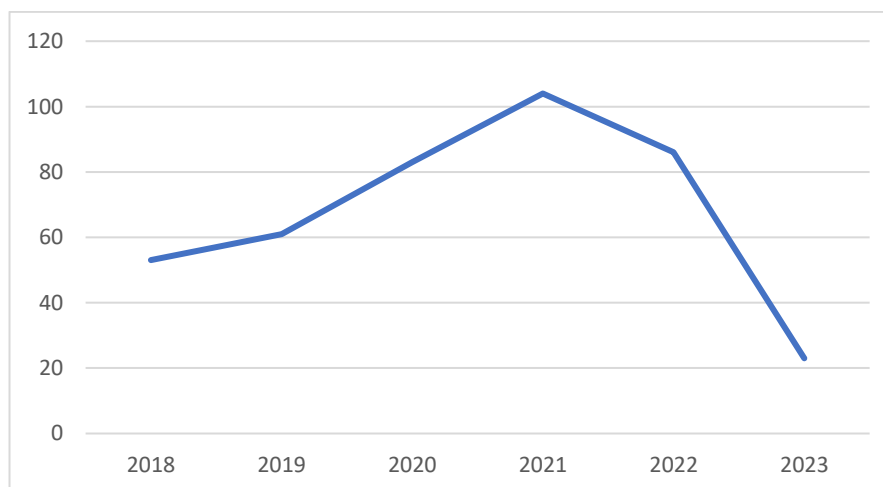


Fig. 2 Number Of Articles By Year

Table 4 shows the list of articles categorized by the researchers' country of origin.

Table 4

List of Articles By Country

<b>No.</b>	<b>Country</b>	<b>f</b>	<b>%</b>
<b>1</b>	United States	6	20
<b>2</b>	Russian Federation	4	13
<b>3</b>	Undefined	3	10
<b>4</b>	Rwanda	3	10
<b>5</b>	Uganda	2	7
<b>6</b>	Slovakia	2	7
<b>7</b>	Ukraine	1	3
<b>8</b>	Sweden	1	3
<b>9</b>	Spain	1	3
<b>10</b>	Poland	1	3
<b>11</b>	Kazakhstan	1	3
<b>12</b>	India	1	3
<b>13</b>	Greece	1	3
<b>14</b>	Ghana	1	3
<b>15</b>	China	1	3
<b>16</b>	Germany	1	3

Table 3 shows the articles that were published by 16 countries. United States and Russian Federation produced the highest number of articles which are  $n = 6$  and  $n = 4$  respectively. Meanwhile, undefined country and Rwanda published three articles and Uganda and Slovakia obtained two articles. The remaining ten countries which is Ukraine, Sweden, Spain, Poland, Kazakhstan, India, Greece, Ghana, China and Germany only published one article each. Figure 3 illustrates the patterns and trends in studies using innovative teaching methods types range from 2018 to 2023, which are:

1. Interactive lessons
2. Using Virtual Reality (VR) technology

3. Using Artificial Intelligence (AI) in education
4. Blended learning
5. 3D printing
6. Use the design-thinking process
7. Project-based learning
8. Inquiry-based learning
9. Jigsaw
10. Cloud computing teaching
11. Flipped classroom
12. Peer teaching
13. Peer feedback
14. Crossover teaching
15. Personalised teaching

and its effectiveness or impact to students' performance.

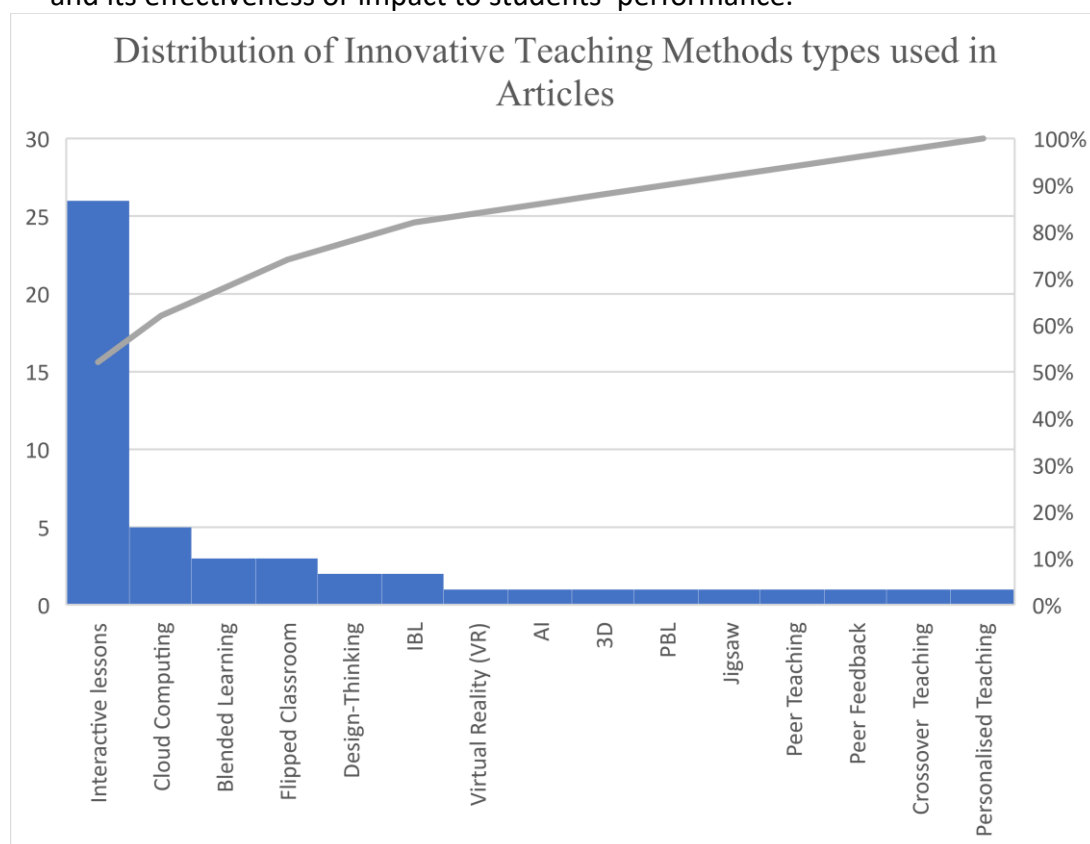


Figure 3 Distribution of Innovative Teaching Methods types used in Articles

### Innovative Teaching Methods Types

Research question 1: What are the most popular types of innovative teaching methods used in education?

The introduction of novel strategies and techniques has had a significant effect on the educational system. Technology's inclusion in education has revolutionised it in more ways than one. We'll be looking at some cutting-edge teaching techniques today that instructors may utilise to infuse more purpose and interest into their courses. The most difficult task for any educator is to win over the attention of each individual student and communicate concepts in a way that leaves a deep and abiding imprint on the minds of the pupils. In order to properly address this issue, educators should adopt cutting-edge teaching strategies that

make the classroom much more enjoyable for the kids. The survey has found that the top 15 innovative teaching methods for inspiring young brains and fostering creativity are used among educators. Table 5 shows the frequency of articles that fall into this innovative teaching methods.

Table 5

*Innovative Teaching Types In Articles*

Innovative Teaching Types	f
Interactive lessons	26
Virtual Reality (VR)	1
AI	1
Blended Learning	3
3D	1
Design-Thinking	2
PBL	1
IBL	2
Jigsaw	1
Cloud Computing	5
Flipped Classroom	3
Peer Teaching	1
Peer Feedback	1
Crossover Teaching	1
Personalised Teaching	1

Majority of the researchers using integrated or combination methods of innovative teaching such such as interactive lessons and cloud computing or blended learning in their study. In light of favourable feedback on student performance, the first publication utilised it to support new scientific education standards (Lombardo et al. 2021). Without the limitations of the single-method of the innovative teaching methods, learners can study, explore, and arrange the pertinent knowledge using an integrated approach to the multidirectional research domains of knowledge. Nevertheless, despite the heated discussion that has occurred in recent years (Jerneck et al. 2011; Kaufman & Brooks 1996; Stock & Burton 2011; Summers et al. 2005), the successful integration has not yet fully achieved its goal in the many scientific domains. While avoiding the repetition of study-related arguments, a modern teaching strategy focused on the integration of many disciplines encourages students to find connections among the various curricular areas. In another study by Veneri (2007) in her dissertation paper intitle "Computer Assisted Learning in Physical Therapy Neurological Rehabilitation Education" n.d., the possibility exists for computer-assisted learning (CAL) to augment traditional classroom instruction. Rieger et al. (2023) evaluated the potential of using virtual reality (VR) technology for learning content for tenth-grade students in a Germany. The use of peer learning or peer teaching according to Lastner et al. (2021), is a method of teaching whereby students are paired to actively help one another acquire a certain skill or subject. In many academic subjects, it has long been employed as a fruitful addition to more traditional teaching methods. This approach has been shown to decrease learning-related stress, boost student engagement, and benefit both the tutor and tutee to a degree that is roughly equal (Lastner et al. 2021; Gallardo-Guerrero et al. 2022; Joy et al.

2023). A blended learning method called flipped classroom replaces traditional didactic lectures with hands-on activities. The current trend is to move lectures outside of the classroom and instead use class time for projects and active participation and it is a cutting-edge approach to learning anatomy (Joy et al. 2023). Nock (2020) said, a competitive game named "Let's Bid!" is used as an interactive learning tool in a modular activity that promotes interest and knowledge of engineering economics principles in a complicated context. A new approach by Rahe et al. (2023), this uses an interactive jigsaw approach to educate in order to unravel the riddle of androgogy's neuroanatomy and encourages students to develop professional competence, self-directed learning, and peer interaction.

### **Impact of Students' Performance**

Research question 2: What did research say about the students performances or achievements using innovative teaching methods in the classrooms?

In a recent article, Lombardo et al. (2021) identify that classroom engagement and learning outcomes can be enhanced through the cultivation of innovative teaching strategies for conveying and mastering complex scientific concepts. In this regard, the creation of particular research methodologies based on interdisciplinary research and innovation exploration is a key component of contemporary teaching (Kaufman & Brooks 1996). Rieger (2023) points out, virtual reality (VR) learning maximises the sensation of spatial presence by establishing a VR learning environment over the course of multiple microcycles and assisting students in simulating an actual, out-of-school learning environment. In a report on the variety of students' performance, Naz & Murad (2017) showed the beneficial effects of creative teaching approaches. According to research by Joy et al. (2023), flipped classrooms have been used in a medical college in Chennai to present anatomy of the larynx using a variety of models. This shows that the students strongly agreed that flipped classrooms were a fun way to learn and they were able to go through the lecture prior to the presentation. His groundbreaking study, which increases students' involvement with their learning growth, is relevant to faculty members in the field of sports, claim (Gallardo-Guerrero et al. 2022). In order to explore how uncertainty affects investments in generation capacity and business pricing strategies, as well as the relationship between technological characteristics and supply and demand equilibrium in electricity markets, interactive learning methods such as modular activity were determined to be the best methods for students (Nock 202). This innovative instructional strategy was used in contexts such as middle school, high school, and undergraduate college. While encouraging student participation, the jigsaw technique of interactive education by (Rahe et al., 2023) improves self-directed learning and peer-assisted learning in neuroanatomy for androgogy methods. Almost every article has discussed the use of cutting-edge teaching techniques in the teaching of social studies and mathematics, particularly interactive learning. In particular, 26 articles highlighted three key benefits, including increased academic performance and achievement, the growth of student confidence and understanding, and the creation of more meaningful learning experiences.

### **Discussion and Limitation**

#### **Discussion**

This review aids in comprehending a systematic and thorough examination of the previous five years of research on creative teaching strategies in the field of education. In addition, it offers an updated analysis that identifies the technological and educational requirements for future, more in-depth research.

### Limitation

This study is limited by the search terms used. The analysis was limited to Scopus and Web of Science (WoS) published articles only. Other databases like Google Scholar, may provide research articles on the educational applications of innovative teaching methods. Secondly, only included journal articles that were released between 2018 and 2023 were reviewed. The review methodology heavily influenced and constrained on review results. Therefore, if any of the following are changed: the review process (identification, screening, eligibility), the conceptual approach, the selection criteria (inclusion or exclusion), or the research objectives, our findings may be different from those of other reviews.

### Conclusion and Future Works

This extensive review of the literature's main result is that innovative teaching strategies are becoming more popular in the field of education. A list of difficulties connected to the research issues was also included. Therefore, the two main study topics are focused on the most popular types of innovative teaching methods and how they affect students' academic achievement. Additionally, this study offers a new perspective on the trends in the use of cutting-edge teaching techniques in the classroom. The comprehension of novel teaching strategies, research and development, and learning trends has been lacking until now thanks to this thorough review. As a result, this condensed review on implementing innovative teaching approaches in education may be helpful to scholars and educators, providing new opportunities for study.

In order to direct future and larger studies on a systematic overview of innovative teaching methods utilisation in education research, the following research questions are presented:

- i. What changes in the Industrial Revolution 4.0 (IR 4.0) may be connected to new educational innovative and creative teaching methods in schools?
- ii. What are the elements that influence students' achievement with the use of innovative teaching methods in cross-curricular elements?

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