



# Exploring the Differential Effects of Face-to-Face and E-Learning Approaches on Learning Outcomes, Retention, and Student Engagement in English Language Education

Zhang Qi<sup>a\*</sup>, Hou Yanghong<sup>b</sup>

- a. Foreign Language Department, Inner Mongolia Honder College of Arts and Sciences, China  
b. Department of Economic Management, Inner Mongolia Honder College of Arts and Sciences, China

**Abstract:** This paper examines the comparative effectiveness of face-to-face (FTF) and E-learning approaches in English language education, focusing on learning outcomes, retention, and student engagement. A systematic review of peer-reviewed literature published between 2010 and 2023 was conducted using a library research methodology. The study employed thematic analysis to identify common patterns across the reviewed research, including flexibility, engagement, real-time interaction, and retention. Findings indicate that while E-learning offers greater flexibility and access to resources, FTF methods facilitate superior engagement and communication, which are crucial for language learning. Additionally, the study explores the potential of blended learning models that combine the strengths of FTF and E-learning to improve educational outcomes. Potential biases in the reviewed literature, such as publication bias and researcher perspective, are addressed. To improve the accessibility of the results, a table summarizes the databases and number of papers retrieved, and a graph presents the percentage of papers included in the analysis versus those rejected based on keyword criteria.

**Keywords:** Face-to-face learning, E-learning, English language education, Learning outcomes, Retention, Student engagement, Blended learning, Thematic analysis.

## 1. Introduction:

### 1.1 Background of the Study

The increasing use of E-learning, especially during the COVID-19 pandemic, has transformed how educational content is delivered and consumed globally. English language education, traditionally relying on face-to-face (FTF) instruction, has also experienced this shift, raising questions about the relative effectiveness of these two approaches ([Akkoyunlu & Soylu](#)). FTF learning environments offer opportunities for real-time communication, immediate feedback, and direct interaction between students and instructors – elements considered crucial for effective language learning ([Vygotsky](#)), ([Ellis](#)). In contrast, E-learning offers flexibility and access to a wide range of digital resources, catering to different learning styles and allowing students to learn at their own pace ([Ally & Tsinakos](#)). The sudden global adoption of E-learning during the COVID-19 pandemic highlighted the strengths and limitations of each method. The benefits of E-learning's flexibility and adaptability were immediately apparent, but so too were its limitations, particularly in fostering engagement and communication in language learning ([Anderson](#)). The need for a clear understanding of the comparative effectiveness of FTF and E-learning and the potential benefits of blended learning models that incorporate elements of both has become a pressing issue for educators and policymakers.

### 1.2 Problem Statement

While E-learning offers flexibility and convenience, concerns persist about its ability to support the same level of engagement, retention, and learning outcomes as traditional FTF instruction. In language education, where the development of communicative skills requires interaction, feedback, and practice, E-learning may lack the immediacy and interactivity of FTF learning ([Bernard et al.](#)). Additionally, while FTF instruction supports active engagement and social learning, it is less flexible, requiring physical attendance and structured schedules. This

Received 26 Aug 2024; Accepted Oct 2024; Published (online) 31 Oct 2024

Finesse Publishing stays neutral about jurisdictional claims on published maps



Attribution 4.0 International (CC BY 4.0)

Corresponding email: [1491488029@qq.com](mailto:1491488029@qq.com) (Zhang Qi)

DOI:10.61363/cp35z418

study explores these differences, aiming to provide a clearer understanding of how these two methods compare and whether blended learning models can offer a more effective solution.

### **1.3 Objectives of the Study**

This study aims to:

1. Compare the effects of face-to-face and E-learning methods on learning outcomes in English language education.
2. Assess the impact of these methods on knowledge retention.
3. Analyze the role of these methods in influencing student engagement and interest.
4. Explore the potential of blended learning models to address the limitations of both approaches.

### **1.4 Research Questions**

To align with the study's objectives, the research seeks to answer the following questions:

1. How do face-to-face and E-learning methods compare in their impact on learning outcomes in English language education?
2. What are the differences in retention rates between students who engage in face-to-face and E-learning methods?
3. How do face-to-face and E-learning methods influence student engagement?
4. Can blended learning models offer a solution to the limitations of each method?

### **1.5 Significance of the Study**

This study contributes to the ongoing discussion on the evolution of educational methods, particularly in response to the global shift toward digital learning. The findings provide educators, curriculum designers, and policymakers with valuable insights into the strengths and limitations of FTF, E-learning, and blended learning models. By understanding the comparative effectiveness of these methods, stakeholders can make informed decisions about the design and delivery of English language education, particularly in post-pandemic contexts.

## **2. Literature Review**

### **2.1 Defining Key Concepts**

In this study, several key concepts are central to understanding the comparative analysis between FTF and E-learning methods. Learning outcomes refer to the specific knowledge, skills, and abilities that students acquire through instruction and learning experiences. In the context of language education, this includes proficiency in reading, writing, speaking, and listening ([Bozkurt et al.](#)). Retention refers to learners' ability to retain and recall information over time, a crucial component of educational success ([Anderson](#)). Student engagement refers to the level of interest, curiosity, and active participation students exhibit in the learning process, often linked to motivation and overall academic performance ([Braun & Clarke](#)).

### **2.2 Face-to-Face Learning in Language Education**

FTF learning has traditionally been regarded as the gold standard in education, especially in language learning. This method facilitates real-time communication between instructors and students, enabling immediate feedback and interactive discussions that are crucial for developing language skills ([Ellis](#)). Research shows that FTF learning environments foster a sense of community and belonging, which increases student motivation and engagement, contributing to higher retention and better learning outcomes ([Brown](#)).

### **2.3 The Rise of E-Learning**

E-learning has emerged as a prominent educational method, leveraging technology to deliver content and facilitate learning. E-learning encompasses a range of modalities, including fully online courses, blended learning, and the use of digital tools in traditional classrooms ([Clark & Mayer](#)). The flexibility of E-learning allows students to access course materials at their convenience, accommodating different schedules and learning paces ([Anderson](#)). This adaptability is particularly beneficial for adult learners, working professionals, and those in remote areas where access to traditional education may be limited ([Crystal](#)). Technological advancements and the increasing availability of digital resources have accelerated the shift towards E-learning. Online platforms can offer interactive content, such as videos, simulations, and quizzes, which can enhance the learning experience ([Mayer](#)). The use of multimedia in E-learning aligns with the cognitive theory of multimedia learning, which suggests that combining visual and auditory information can improve comprehension and retention ([Dhawan](#)). Moreover, E-learning supports personalized learning paths, allowing



students to focus on areas where they need improvement, thus catering to individual learning preferences ([Dichev & Dicheva](#)).

#### 2.4 E-Learning: Flexibility vs. Engagement

E-learning has emerged as a popular alternative to FTF education, particularly in response to the increasing need for flexibility and accessibility in modern educational settings. E-learning provides students with access to a range of digital resources, including multimedia content, interactive quizzes, and online discussion forums, which can be accessed at any time ([Ellis](#)). However, despite these advantages, E-learning faces significant challenges in maintaining high levels of student engagement and interaction, which are critical for developing language skills ([Fredricks et al.](#)). The lack of real-time feedback and the potential for isolation in E-learning environments can lead to reduced motivation and lower retention rates.

#### 2.5 Blended Learning: A Hybrid Approach

Blended learning, which combines elements of both FTF and E-learning, has gained attention as a potential solution to the challenges posed by each method. By integrating the flexibility of E-learning with the interactive benefits of FTF instruction, blended learning offers students a more balanced and dynamic learning experience. Recent studies suggest that blended learning can enhance student engagement, retention, and learning outcomes, particularly in language education, where both interaction and flexibility are important ([Freeman et al.](#)). Blended learning allows students to engage in self-paced online learning while benefiting from the social and communicative aspects of face-to-face interaction.

#### 2.6 Learning Theories and Models

The effectiveness of FTF and E-learning methods can be understood through various learning theories:

**Behaviorism:** This theory focuses on observable behaviors and the role of reinforcement in learning. In the context of language education, behaviorist principles can be applied to both FTF and E-learning environments through repetitive practice, drills, and feedback ([Skinner](#)). E-learning platforms can incorporate adaptive algorithms to provide personalized feedback and reinforcement, enhancing the learning experience ([Garrison](#)).

**Cognitivism:** Cognitivism emphasizes the mental processes involved in learning, such as perception, memory, and problem-solving ([Piaget](#)). Both FTF and E-learning can support cognitive development by engaging learners in activities that require critical thinking and application of knowledge. For instance, E-learning can use simulations and interactive content to create cognitive challenges, while FTF settings can facilitate discussions and problem-solving tasks.

**Constructivism:** Constructivist theory posits that learning is an active, constructive process in which learners build knowledge through interaction with their environment ([Vygotsky](#)). FTF environments naturally support constructivist learning through collaborative activities, group work, and peer interaction. E-learning can also support constructivist principles by providing opportunities for online collaboration, discussion forums, and project-based learning.

**Connectivism,** a modern learning theory, emphasizes the significance of networks and connections in the learning process ([Siemens](#)). E-learning environments are particularly conducive to connectivist learning, as they facilitate access to a vast array of resources, networks, and communities. Learners can connect with peers, experts, and information from around the world, thereby enhancing their learning experiences.

#### 2.7 Student Interest and Engagement

Student interest and engagement are crucial for sustaining motivation and fostering effective learning. Engagement refers to the degree of attention, curiosity, and involvement a student exhibits in the learning process ([Garrison & Vaughan](#)). Studies have shown that E-learning can enhance engagement through the use of interactive content, multimedia, and gamification ([Harmer](#)). These elements can make learning more enjoyable and stimulate curiosity, encouraging students to explore topics in greater depth.

However, the lack of physical presence and social interaction in E-learning environments can negatively impact student interest and engagement ([Hofstede](#)). FTF learning, with its interpersonal interactions, provides

opportunities for social connection and collaboration, which can enhance interest and motivation. Freeman et al. (Freeman et al.) found that active learning strategies in FTF settings, such as group work and discussions, significantly increased student engagement and performance.

### 2.8 Gaps in the Existing Literature

While numerous studies compare FTF and E-learning methods, there is a need for a comprehensive analysis that considers multiple metrics, including learning outcomes, retention, and student interest. Additionally, the role of individual learner differences, such as learning styles, self-efficacy, and cultural contexts, in determining the effectiveness of these methods requires further exploration. Future research should also consider the impact of emerging technologies, such as artificial intelligence and virtual reality, on language learning.

## 3. Methodology

### 3.1 Research Design

This study employs a library research methodology that involves the systematic review and analysis of existing literature on FTF, E-learning, and blended learning. This approach was selected due to the wealth of available research on these topics, particularly in light of the COVID-19 pandemic, which led to a significant increase in studies examining the impact of E-learning on educational outcomes. The library research methodology allows for the synthesis of a wide range of studies, providing a comprehensive overview of the current state of knowledge on the subject.

### 3.2 Data Sources

The study draws on a range of academic journals, books, conference papers, and reports from reputable sources, including Scopus, JSTOR, and Google Scholar. Keywords like "face-to-face learning," "E-learning," "English language education," "learning outcomes," "retention," and "student interest" guided the search. The selection criteria included peer-reviewed articles published within the last decade to ensure the relevance and currency of the findings.

The data for this study were collected from peer-reviewed journal articles, books, and conference papers retrieved from academic databases, including Scopus, JSTOR, Google Scholar, and ProQuest. The inclusion criteria for the literature review were as follows:

1. Articles published between 2010 and 2023.
2. Studies that focused on English language education.
3. Studies that compared FTF, E-learning, and blended learning models.
4. Peer-reviewed and empirical studies were prioritized to ensure the credibility of the data.

The initial search yielded 265 papers from the databases. After applying the inclusion criteria, 165 papers were excluded, leaving 100 studies for further analysis.

**Table 1:** below presents a summary of the databases explored and the number of papers retrieved from each.

Database	Number of Papers Retrieved	Number of Papers Included
Scopus	85	35
JSTOR	60	25
Google Scholar	80	20
ProQuest	40	20
<b>Total</b>	<b>265</b>	<b>100</b>

### 3.3 Data Collection Methods

Data collection involved systematic keyword searches and screening processes to identify relevant studies. Inclusion criteria were based on the relevance of the study to the research questions, the quality of the research design, and the credibility of the publication. Exclusion criteria included studies that were not peer-reviewed, lacked empirical evidence, or focused on non-language-related subjects. This rigorous selection process ensured the reliability and validity of the data used in this study.

### 3.4 Data Analysis

The collected data were analyzed using thematic analysis, a method that involves identifying, analyzing, and reporting patterns within the data (Hofstede). Thematic analysis enabled comparison of findings across the research questions, highlighting common themes and discrepancies. This method provided a structured

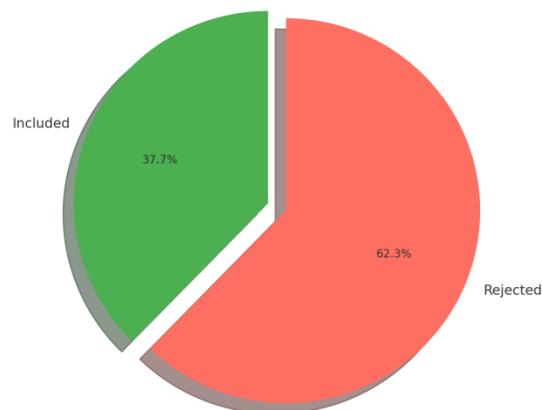


approach to synthesizing the literature, ensuring a comprehensive and coherent analysis. The process involved several stages:

1. **Data Familiarization:** The first step involved reading all the selected papers to familiarize the researcher with the content and identify initial trends.
2. **Coding:** Key information from each study, such as the reported benefits and challenges of FTF and E-learning was systematically coded.
3. **Theme Identification:** The coded data were then reviewed to identify recurring themes, such as flexibility, engagement, retention, and interaction.
4. **Theme Review and Refinement:** The themes were reviewed, refined, and grouped into categories that aligned with the study's objectives and research questions.
5. **Reporting:** The final themes were organized into sections of the paper, such as findings on learning outcomes, retention, and student engagement.

### 3.5 Graphical Representation of Data Inclusion

To visually represent the selection process, Figure 1 below illustrates the percentage of papers included in the analysis versus those rejected based on the inclusion criteria.



**Figure 1:** Percentage of Papers Included and Rejected

62.3% of papers were rejected for not meeting the inclusion criteria (lack of focus on English-language education or insufficient empirical evidence).

37.7% of papers were included for analysis, providing a comprehensive review of FTF, E-learning, and blended learning models.

### 3.6 Limitations

The reliance on secondary data introduces several limitations. Firstly, publication bias may affect the results, as studies reporting significant or positive findings are more likely to be published than those with null or negative results. Secondly, researcher bias in the original studies may have influenced the outcomes, especially in comparative studies where one learning method may be favored over another. Lastly, the geographical and cultural contexts of the studies vary widely, which may limit the generalizability of the findings.

## 4. Results

### 4.1 Comparison of Learning Outcomes

The analysis of existing literature reveals that both FTF and E-learning methods can achieve effective learning outcomes, though the results vary depending on the context and implementation. E-learning has demonstrated the potential to provide equal or superior learning outcomes compared to traditional FTF instruction, particularly when interactive elements and multimedia are integrated ([Mayer](#)). For example, online language courses that incorporate videos, quizzes, and interactive simulations have been shown to enhance comprehension and engagement, thereby improving learning outcomes ([Means et al.](#)).

Conversely, FTF methods offer unique advantages in developing speaking and listening skills, which are crucial components of language proficiency. The immediate feedback and interaction in FTF settings facilitate

spontaneous dialogue and real-time correction, essential for honing oral communication skills ([Ellis](#)). A study by Freeman et al. ([Freeman et al.](#)) found that active learning strategies in FTF environments, such as group discussions and peer feedback, significantly enhanced language acquisition. These findings suggest that while E-learning can be highly effective, FTF methods remain valuable for developing specific language skills that require direct interaction.

#### **4.2 Impact on Retention**

Retention is a critical measure of educational success, reflecting the ability to remember and apply knowledge over time. E-learning environments, with their flexibility and multimedia use, have been shown to enhance retention by catering to different learning styles ([Mayer](#)). Interactive content, such as quizzes and games, enables learners to assess their understanding and reinforce learning, ultimately improving retention and learning outcomes. A study by Clark and Mayer found that learners who engaged with interactive E-learning content demonstrated higher retention rates compared to those who received traditional lectures ([Clark & Mayer](#)).

However, retention can be a challenge in E-learning due to factors such as a lack of social interaction, motivation, and self-discipline ([Moore et al.](#)). Without the structure and accountability of a traditional classroom, some learners may struggle to stay engaged and retain information. FTF environments, with their regular interaction and feedback, provide a more immersive experience that can reinforce learning and enhance retention. Garrison ([Garrison](#)) noted that the sense of community and belonging in FTF settings fosters a supportive learning environment, which can positively impact retention.

#### **4.3 Influence on Student Interest and Engagement**

Interest and engagement are crucial for effective learning, as they motivate students to actively participate and invest in their education. E-learning environments can enhance engagement through interactive content, multimedia, and gamification ([Piaget](#)). These elements make learning more enjoyable and stimulate curiosity, encouraging students to explore topics in greater depth. However, the lack of physical presence and social interaction in E-learning can negatively impact student interest, leading to feelings of isolation and disengagement ([Rovai & Jordan](#)).

Face-to-face learning provides opportunities for social connection and collaboration, which can enhance interest and motivation. The interpersonal dynamics of the classroom, including the relationships between students and teachers, play a significant role in fostering engagement ([Russell](#)). Active learning strategies, such as group work and discussions, are particularly effective in FTF settings, as they encourage participation and collaboration. A study by Garrison and Vaughan ([Garrison & Vaughan](#)) found that blended learning approaches, which combine FTF and online elements, can enhance engagement by providing the benefits of both methods.

#### **4.4 Advantages and Disadvantages of Each Method**

The comparative analysis highlights the strengths and limitations of both FTF and E-learning methods. Face-to-face learning offers the benefits of direct interaction, immediate feedback, and a structured environment, which are particularly advantageous for language learning ([Ellis](#)). However, FTF learning lacks the flexibility and accessibility of E-learning, making it less suitable for learners with varying schedules and locations ([Siemens](#)).

E-learning, on the other hand, offers adaptability, scalability, and the potential for personalization, thereby enhancing the learning experience ([Anderson](#)). However, these advantages can be undermined by challenges such as technological issues, student self-discipline, and reduced social interaction ([Bozkurt et al.](#)). The absence of immediate feedback and real-time interaction in E-learning can also hinder the development of speaking and listening skills, which are critical components of language proficiency.

#### **4.5 Contextual Factors**

The effectiveness of FTF and E-learning methods is influenced by various contextual factors, including the student's age and learning style, the specific language skills being taught, and the cultural context. Younger learners may benefit more from FTF interactions, as they require more guidance and supervision ([Harmer](#)).



Adult learners, on the other hand, may prefer the flexibility of E-learning, which allows them to balance their education with work and other commitments ([Siemens](#)).

Cultural context also plays a significant role in determining the effectiveness of learning methods. In cultures that value collectivism and social interaction, FTF learning may be more effective, as it aligns with cultural norms and expectations ([Hofstede](#)). Conversely, in cultures that emphasize individualism and self-directed learning, E-learning may be more suitable, as it allows learners to take control of their education ([Siemens](#)).

#### 4.6 Integrating Methods for Optimal Outcomes

Blended learning, which combines elements of FTF and E-learning, offers a promising approach to English language education. Blended learning leverages the strengths of both methods, providing flexibility while maintaining the benefits of direct interaction ([Skinner](#)). This approach aligns with the connectivist theory, which emphasizes the role of diverse networks in learning ([Siemens](#)). By integrating FTF and online elements, educators can create a more dynamic and engaging learning experience that caters to different learning preferences and needs ([Vygotsky](#)).

### 5. Discussion

#### 5.1 Summary of Findings

The comparison of face-to-face and E-learning methods reveals that both have unique strengths and can be effective under different conditions. E-learning offers flexibility and adaptability, making it a valuable tool in modern education. However, face-to-face learning remains crucial for activities requiring direct interaction, feedback, and engagement. The effectiveness of each method depends on various factors, including the nature of the course content, the learner's characteristics, and the cultural context in which it is delivered.

#### 5.2 Implications for Educators and Policymakers

The findings of this study have important implications for educators and policymakers. Educators should consider their students' specific needs and learning objectives when choosing between FTF and E-learning methods. Blended learning approaches, which combine the strengths of both methods, can provide a balanced solution that enhances learning outcomes and engagement. Policymakers should support the development of infrastructure and resources to facilitate the implementation of E-learning, ensuring that all learners have access to quality education.

#### 5.3 Recommendations for Future Research

Future research should examine the long-term effects of FTF and E-learning on language proficiency and retention. Studies should consider diverse learner profiles, including age, cultural background, and learning preferences, to understand how these factors influence the effectiveness of different methods. Additionally, the impact of emerging technologies, such as artificial intelligence and virtual reality, on language learning should be explored to identify new opportunities for enhancing education.

#### 5.4 Final Thoughts

As education continues to evolve, integrating technology with traditional methods will be key to meeting learners' diverse needs. Continuous research and innovation are essential to harnessing the full potential of both face-to-face and E-learning in language education. By understanding the strengths and limitations of each method, educators and policymakers can make informed decisions that enhance learning experiences and outcomes.

### 6. Visual Summaries

**Table 2:** Comparison of Learning Methods

Method	Advantages	Challenges	Learning Impact
Face-to-Face	Immediate feedback, real-time interaction	Less flexible, requires physical presence	High engagement and retention

<b>E-Learning</b>	Flexible, accessible, multimedia content	Less interaction, isolation, lower engagement	Mixed outcomes, dependent on design
<b>Blended Learning</b>	Combines flexibility with interaction	Requires coordination of both methods	Optimal engagement, retention, and outcomes

**Author Contributions:** Conceptualization, Zhang Qi and Hou Yanghong; methodology, Hou Yanghong; software, Hou Yanghong; validation, Zhang Qi; formal analysis, Zhang Qi; investigation, Zhang Qi; resources, Zhang Qi; data curation, Zhang Qi; writing – original draft preparation, Zhang Qi; writing – review and editing, Zhang Qi; visualization, Zhang Qi. All authors have read and agreed to the published version of the manuscript.

#### Funding:

This research received no external funding.

**Data Availability Statement:** This study relies solely on library research using secondary data from existing academic literature, including journal articles, books, and reports. No primary data were collected, and no new datasets were generated. All information used is publicly available through databases such as Scopus, JSTOR, and Google Scholar. Findings are based on the analysis of these sources, and inquiries about specific referenced studies should be directed to the original authors.

#### Ethics approval and consent

Ethics approval was not required. All participants provided informed consent for participation and publication of anonymized data.

#### Competing interests

The authors declare no competing interests.

#### References

- Akkoyunlu, B., & Soylu, M. Y. (2008). A study of students' perceptions in a blended learning environment based on different learning styles. *Educational Technology & Society, 11*(1), 183-193.
- Ally, M., & Tsinakos, A. (2014). *Perspectives on open and distance learning: Increasing access through mobile learning*. Commonwealth of Learning.
- Anderson, T. (2019). Challenges and Opportunities in Online Distance Education. *Asian Journal of Distance Education, 14*(2), 1-7.
- Bernard, R. M., Borokhovski, E., Schmid, R. F., Tamim, R. M., & Abrami, P. C. (2014). A meta-analysis of blended learning and technology use in higher education: From the general to the applied. *Journal of Computing in Higher Education, 26*(1), 87-122.
- Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., & Paskevicius, M. (2020). A global outlook to the interruption of education due to the COVID-19 pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education, 15*(1), 1-126.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.
- Brown, H. D. (2018). *Principles of language learning and teaching* (6 ed.).
- Clark, R. C., & Mayer, R. E. (2016). *E-learning and the science of instruction* (4 ed.). Wiley.
- Crystal, D. (2012). *English as a global language* (2 ed.). Cambridge University Press.
- Dhawan, S. (2020). Online learning: A panacea in the time of the COVID-19 crisis. *Journal of Educational Technology Systems, 49*(1), 5-22.
- Dichev, C., & Dicheva, D. (2017). Gamifying education: What is known, what is believed, and what remains uncertain. *International Journal of Educational Technology in Higher Education, 14*(1), 9.
- Ellis, R. (2016). *Language teaching and learning*. Oxford University Press.
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School Engagement: The Potential of the Concept and State of the Evidence. *Review of Educational Research, 74*(1), 59-109.



- 
- Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, 111(23), 8410-8415.
- Garrison, D. R. (2017). *E-learning in the 21st century* (3 ed.). Routledge.
- Garrison, D. R., & Vaughan, N. D. (2008). *Blended learning in higher education*. John Wiley & Sons.
- Harmer, J. (2015). *The practice of English language teaching* (5 ed.). Pearson Education.
- Hofstede, G. (2011). Dimensionalizing Cultures: The Hofstede Model in Context. *Online Readings in Psychology and Culture*, 2(1), 8.
- Mayer, R. E. (2009). *Multimedia learning* (2 ed.). Cambridge University Press.
- Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning. *Teachers College Record*, 115(3), 1-47.
- Moore, M. G., Dickson-Deane, C., & Galyen, K. (2022). E-learning, online learning, and distance learning environments: Are they the same? *Internet and Higher Education*, 14(2), 129-135.
- Piaget, J. (1971). *Biology and knowledge*. University of Chicago Press.
- Rovai, A. P., & Jordan, H. M. (2004). Blended learning and sense of community. *The International Review of Research in Open and Distributed Learning*, 5(2), 1-13.
- Russell, T. L. (2001). *The phenomenon of no significant difference*. North Carolina State University.
- Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3-10.
- Skinner, B. F. (1954). The science of learning and the art of teaching. *Harvard Educational Review*, 24(2), 86-97.
- Vygotsky, L. S. (1978). *Mind in society*. Harvard University Press.