

Fun and E-learning (A Hybrid Teaching Factory Model): Perspectives on Methods and Media for Generation Z Students

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Abstract

Educators must possess the capacity to create engaging instructional sessions that are tailored to specific time periods and generational attributes. Classroom management encompasses the coordination of classroom activities to enhance learning, along with the teacher's proficiency in creating an optimal learning environment through the use of technology, in line with the demands of the digital era, to address any challenges that arise during the learning process. This study explores the concept of an engaging educational setting within the context of the generation Z period. The primary objectives of utilizing technology in classroom management are to enhance the learning quality and maximize the overall learning experience. The literature review method is used to examine the use of the AICEF (Active, Innovative, Creative, Effective and Fun Learning) method in e-learning activities. Attaining educational objectives is essential for guaranteeing the excellence of the learning process. Classroom management abilities encompass educators' capacity to effectively establish and sustain an ideal educational setting by adeptly employing technology in accordance with contemporary trends and the distinctive learning attributes of Generation Z students. Efficiently managing the teaching and learning process requires a systematic approach that encompasses tasks such as planning, organizing, controlling, and supervision. These actions are conducted concurrently, thoroughly, and in an integrated manner. A learning approach using technology carried out in a hybrid according to the teaching factory concept is a good solution for achieving learning objectives.

Keyword: e-learning; generation Z; hybrid teaching; fun learning; student center; teaching factory

1. Introduction

There are a minimum of two legal frameworks that instructors might utilize as the foundation for facilitating a pleasurable learning experience. This encompasses Government Regulation Number 19 of 2005 on the standards of national education and Law Number 20 of 2003 regulating the national education system. As per Article 19 Paragraph 2 of Government Regulation Number 19 of 2005, educational institutions must implement engaging and stimulating teaching methods. Furthermore, the educational process ought to be enjoyable and invigorating, fostering dynamic engagement from students. Furthermore, education should offer abundant avenues for students to engage in practical application, foster ingenuity, and cultivate self-reliance, all while taking into account their unique aptitudes, passions, and holistic growth. As to Article 40 Paragraph 2 of Law Number 20 of 2003, educators are required to establish an educational setting that is defined by being significant, enjoyable, innovative, energetic, and conducive to dialogue.

Comprehending these laws and regulations elucidates the necessity for an educator who have expertise in pedagogy. These educators must possess the capacity to employ a variety of compelling teaching methods, while fostering a flexible learning atmosphere that caters to the overall requirements of participants. Educators with a thorough comprehension of statutory rules often shift their cognitive framework from a teacher-centered pedagogical method to a student-centered learning strategy. Educators who comprehend the elucidation of the contents of the rules and regulations will endeavor to shift their perspective from a pedagogical approach that is focused on the teacher to one that is centered around the needs and interests of the students. Foundational capital for students to cultivate and mature into individuals who are well-equipped to manage the era of globalization, replete with many challenges, encompassing emotions of delight, eagerness, absence of apprehension, and effortless adaptability (Mulyasa, 2007).

Lancaster and Stillman (2002) have classified human cohorts into four discrete generations according to their birth year: 1) The Baby Boomer Generation encompasses those born from 1946 to 1964; 2) Generation X consists of those aged from 1965 to 1980; 3) Generation Y comprises individuals born from 1981 to 1999; and 4) Generation Z refers to those born after 2000. This categorization based on generations can serve as a useful point of reference for educators, signifying that the folks they engage with fall into the Y and Z generational cohorts. Every cohort possesses distinct attributes. Distinctive attributes. Nevertheless, it is important to acknowledge that, on the whole, there are still certain resemblances between generations Y and Z. Barcelon (2010) highlighted that both Generation Y and Generation Z are undergoing the process of maturation during a period characterized by computerization and internet networks.

When examining both Generation Y and Generation Z in depth, we can identify the following traits:

- 1) Technology enthusiast. Individuals belonging to Generation Y and Z have consistently been in close proximity to computers throughout their lives. They are technologically proficient individuals that are well-versed in email, SMS, and computer apps. They possess the ability to swiftly monitor and acquire expertise in technical advancements, surpassing the speed of earlier generations.

- 2) **Social.** Generations Y and Z frequently utilize social networking sites and short messages, leading them to occasionally disregard personal issues and instead seek assistance from unfamiliar individuals.
- 3) **Multitasking.** Due to their extensive exposure to technology, Generations Y and Z possess a plethora of innate abilities. They possess the ability to simultaneously engage in the activities of writing, reading, watching, conversing, and consuming food.
- 4) **Speedy,** given their multitude of talents, Speedy individuals require knowledge to be conveyed swiftly and succinctly in order to ensure rapid comprehension. Generations Y and Z typically experience rapid maturation and exuberance during their upbringing.

Regarding governmental restrictions and advancements in the present day. Educators must possess the capacity to design engaging instructional sessions that align with the specific time period and demographic characteristics. One strategy that instructors might employ is the implementation of the AICEF approach (Active, Innovative, Creative, Effective, and Fun Learning Model) in order to potentially yield a favorable outcome and engage students. Enhancing student creativity through the utilization of interactive media that is both engaging and appropriate for the current generation Z. Active refers to the teacher's role in the learning process, where they actively engage students by asking questions and presenting concepts (Saptaningrum & Kusdaryani, 2010). According to the statement above, it can be inferred that generation Z need pattern learning that is both enjoyable and technology-based (Tamim et al., 2011). This involves using technology (e-learning) to make the learning material more engaging and exciting. The author seeks to undertake research on the topic of Fun and E-learning, specifically focusing on the approaches and media that are effective for engaging Generation Z students.

Prior studies examined the incorporation of technology in the classroom, the design of blended education (Zhou et al., 2019), and individuals' proficiency in using technology (Farjon et al., 2019). In this study work, a Hybrid Teaching-Learning Cloud based system is given to address the digital issues described above. This educational system establishes a viable atmosphere that will expedite its implementation in the manufacturing sector. The digitalization of education was already underway before the pandemic. Nevertheless, the worldwide health emergency has expedited the process of change and compelled educational institutions to pursue remedies that can guarantee uninterrupted learning for every student (Andersson and Mattsson 2021).

2. Literature Review

2.1 Basic Concepts of Fun Learning

Learning is primarily a dynamic exchange between students and their surroundings, leading to positive modifications in behavior. Within this relationship, numerous internal and external forces have influence. According to Mulyasa (2007), teachers or lecturers have the primary responsibility of creating an atmosphere that facilitates changes in behavior and the development of competence in learners. In order to achieve this objective, it is important to establish a favorable atmosphere and stimulate students' inquisitiveness, hence facilitating the efficient progression of the learning process.

Indeed, it is disheartening when children are consistently held accountable for educational failures. They could experience boredom with the teacher or lecturer's discourse due to their sole focus on achieving objectives without regard for comprehension. The measure of learning success is determined by the level of comprehension demonstrated by students during the teaching and learning process. Given the significant requirement for educators to establish a conducive learning environment that fosters optimal student comprehension.

Learning is considered fun when it takes place in a calm and stress-free environment that is safe and stimulating. It should spark curiosity, engage students fully, and capture their attention. The learning environment should be intriguing, enthusiastic, and foster sentiments of joy and high focus. Conversely, learning can become unpleasant when the atmosphere is characterized by depression, a sense of threat, fear, helplessness, lack of enthusiasm, laziness, disinterest, boredom, monotony, and a lack of appeal to students. If students internalize this concept, they will no longer be passive participants in the classroom, burdened by assignment due dates, the fear of failure, limited options, and, naturally, boredom (Nurseto, 2011).

2.2 Fun Learning Strategy

In order to effectively adopt enjoyable instructional methods, educators must possess a comprehensive understanding of students' needs and preferences. Perception should be constructed in accordance with the developmental stage of each individual, in order to avoid dogmatic and indiscriminate treatment of all students. It is essential to take into account and utilize the current trends in their lives as beneficial input for creating enjoyable educational activities. It is crucial to consider various factors, including age group categorization, character traits, learning style, and learning methodologies.

These features pose a challenge for educators who do not adopt instructional methods that utilize advanced technology. In order to align with societal progress, individuals must adjust their lifestyles to accommodate technological advancements. Consequently, the acquisition of knowledge will have significance if educators had a greater level of familiarity and expertise in technology. Reilly (2012) provides a comprehensive explanation of the learning methods exhibited by generations Y and Z, which include:

- 1) Learn from Experimentation.

They have a preference for experiential learning rather than relying solely on explanations or reading static literature. They possess the ability to effortlessly utilize a range of IT tools and navigate the internet. They possess knowledge and experience with contemporary technological devices, including computers, tablet devices, laptops, and similar equipment. Students enjoy the tactile experience and interactive nature of using the instruments.

- 2) Prefer visual learning.

Due to their familiarity with technology, this generation feels at ease in a media-rich atmosphere, surrounded by a multitude of digital gadgets such as computers, tablets, laptops, and others. In this multimedia era, individuals desire to express themselves through interactive computer platforms, such as gaming and movies, both in their personal lives and educational settings.

- 3) Like to work in groups.

They enjoy collaborating with their peers utilizing solutions like Google Apps to enhance teamwork. Typically, students have a preference for studying in an environment that fosters collaborative work. These learning features align with Vygotsky's theory, namely the zone of proximal development theory. Google has built numerous creative tools to cultivate a conducive work atmosphere for these individuals seeking knowledge.

4) Have short attention spans and multi-task well.

The prevalence of media in the environment of Generation Y and Z has resulted in a decrease in their level of attentiveness. Prolonged engagement in the same task may lead to feelings of overload or frustration. Engaging in multiple tasks simultaneously can enhance their enjoyment of activities, as it allows them to swiftly transition from one task to another. Hence, educators should not be taken aback when they observe their students engaging in activities such as listening to music, browsing the internet, or making phone calls while working on tasks.

5) Edutainment.

The term "Edutainment" is a portmanteau of the words "education" and "entertainment," denoting the concept of blending instructive content with entertaining entertainment. The product content offers consumers targeted skill enhancement or learning reinforcement within an enjoyable environment. Learning is regarded as an interactive endeavor for the digital generation, necessitating the inclusion of soothing activities.

Conversely, learning is regarded as interactive and encompasses enjoyable activities. They desire teachers or educators to incorporate enjoyable games and activities within the curriculum. Nevertheless, the utilization of the internet has not yet become deeply rooted in the educational setting in Indonesia. Handayani in Purwanto (2015) states that the existing learning approaches do not fully exploit the potential of internet technology. Indeed, utilizing internet technology for studying is regarded as advantageous.

2.3 Implications of Fun Learning (AICEF)

Conversely, learning is regarded as interactive and encompasses enjoyable activities. They desire for teachers or educators to incorporate enjoyable games and activities within the curriculum. Promote students' abilities, interests, and physical and psychological growth through fostering initiative, creativity, and independence. This learning activity is conducted methodically and comprehensively through a process of investigation, expansion, and verification. Legally, AICEF-based learning has become compulsory in school education. AICEF is an acronym derived from the words active, creative, effective, and fun, which describe the characteristics of the learning process. Active learning refers to a learning approach where students actively engage in learning activities, such as critical thinking, interaction, experimentation, and the creation of new concepts or work.

Creative learning is an educational process that necessitates instructors to effectively stimulate and elicit students' creativity while they are engaged in learning. The implementation of AICEF from a behavioristic approach to a constructivist one is discussed in the study by Jauhar (2011). Employing diverse techniques and approaches, such as collaborative tasks,

simulated scenarios, and analytical reasoning. Students are considered creative when they can generate novel ideas and transform them into original works through the process of creative thinking. Efficient learning refers to the acquisition of knowledge that is practical and valuable, with a specific emphasis on students, achieved via the implementation of suitable methodologies.

AICEF is an instructional methodology that incorporates specialized techniques and diverse learning materials, together with environmental adjustments, to enhance the learning process by making it more engaging, pleasurable, and efficient. Acquiring knowledge or skills through study, practice, or experience. Applying the AICEF Approach, as proposed by Uno and Mohamad in 2013. AICEF, or the Active, Interactive, Collaborative, Experiential, and Fun method, is employed by educators to foster diverse and impactful learning experiences. AICEF learning facilitates active engagement between educators and students throughout the teaching and learning process. AICEF is based on the principle of learner-centered education and the belief that learning should be enjoyable. This approach aims to motivate students to pursue independent learning without external directives and to prevent them from feeling overwhelmed. The element of enjoyment is a crucial component of AICEF education, aiming to inspire students to engage in creative, exploratory, and experimental learning.

Utilizing AICEF can enhance students' understanding in the affective, psychomotor, and cognitive domains. In addition, the implementation of AICEF enhances students' capacity to comprehend topics. This is seen in the optimistic demeanor of students who approach their studies with diligence and engage in profound problem-solving (Sutomo, 2017). The study conducted by Nurdyansyah and Fahyuni (2016) explores the implementation of the Team Quiz Method, known as Active, Innovative, Creative, Effective and Fun Learning (AICEF), to enhance student motivation and improve learning outcomes.

2.4 Components of the AICEF Learning Model

The AICEF learning approach is influenced by four key aspects: active engagement, innovation, creativity, and enjoyment. AICEF learning is contingent upon the inclusion of these four factors in the learning process. Below is a delineation of these four aspects.

- 1) Active: The actions of doing and thinking, encompassing both physical and cerebral aspects, form an interrelated and inseparable series. Students acquire substantial knowledge through active engagement and firsthand encounters. Directly engaging in the experience enhances its significance, as the offered material is comprehensible and has a longer-lasting impact compared to passive listening.
- 2) Innovative: The capacity to employ innovative resolutions to current challenges and prospects in order to enhance the well-being of individuals. Within the process of education, there exists a necessity for a strong component of creativity to be present in the interactions between educators and students. An effective 2-way relationship between educators and students is crucial for fostering the birth of successful innovation.
- 3) Creative: Creativity is an individual's capacity to generate novel ideas or produce original works that diverge from current creations. In this context, the aim is to equip students with the skills to conceive and develop their own ideas into tangible

creations. This educational exercise facilitates bidirectional contact among instructors and learners, learners and instructors, and even engagement with the surrounding milieu.

- 4) Fun: Fun learning is an educational process that occurs in an enjoyable and remarkable environment. An engaging and unforgettable educational environment will captivate students' attention and encourage their active participation, thereby maximizing the attainment of learning goals. Engaging in learning activities enables students to reflect on their actions and experiences, as an enjoyable process leaves a lasting impact on students (Asmani, 2010). In order to determine the magnitude of accomplishments during the learning process, it is necessary to engage in a process of reflection.

In general terms, AICEF encompasses the following aspects:

- 1) Educators employ diverse stimuli, encouragement, and teaching tools that are pertinent to students, captivating, and pleasurable.
- 2) Educators organize the classroom in a manner that showcases captivating books and resources made by students.
- 3) Educators employ collaborative learning techniques to foster a more cooperative and engaging learning environment.
- 4) Educators inspire students to independently resolve problems, articulate their viewpoints, and engage students in the process of selecting or constructing a learning environment.

Factors to be taken into account when applying AICEF. There are several factors that need to be taken into account when applying AICEF learning, as outlined by Istiyanti (2011):

- 1) Comprehend the attributes of students.
- 2) Familiarize oneself with each pupil on an individual basis.
- 3) Applying student behavior in learning management.
- 4) Cultivate the ability to think critically and creatively, enabling effective problem-solving.
- 5) Transforming the classroom into a captivating educational setting.
- 6) Employing the environment as an educational asset.
- 7) Offer constructive criticism to enhance the teaching and learning process.
- 8) Differentiate between individuals who engage in physical activity and those who engage in mental activity.

2.5 Advantages and Disadvantages of the AICEF Learning Model

This learning style possesses both benefits and drawbacks in fostering the potential of students. The AICEF learning paradigm has several advantages, including the following:

- 1) Engaging students in the autonomous processing of information.
- 2) Presents a significant opportunity to enhance the availability and proficiency of cognitive skills in students.

- 3) Encouraging students to utilize diverse learning materials, such as books, the internet, and other sources, instead of relying solely on educators as the exclusive providers of knowledge.

In addition to the benefits, there are some drawbacks associated with the AICEF learning paradigm, outlined below.

- 1) Modifying the learning approach of students to encourage active engagement and self-discovery is challenging due to their accustomed reliance on instructors for the delivery of educational content.
- 2) The autonomy granted to students by instructors is not consistently utilized to its fullest potential; occasionally, students choose to engage in leisure activities instead. From the aforementioned explanation, it can be inferred that AICEF is an educational framework that requires students to actively engage in the learning process. By incorporating many learning methods, the learning process can become more efficient, diverse, creative, and enjoyable.

2.6 Instructional Media

The word "media" is derived from the word "median," which refers to the middle, intermediary, or introductory position. Media, in the context of Arabic, refers to the transmission of messages or information from the sender to the recipient. Media in the teaching and learning process refers to visual or spoken resources, such as graphics and photographs, that are utilized to capture, process, and recreate knowledge. Learning media refer to the different methods and resources used in the learning process. (Arsyad, 2011).

According to experts, learning media are tools utilized in the educational process to communicate thoughts, concepts, or ideas in the form of instructional materials from teachers to students.

2.7 Benefits of Using Digital Media in Learning

Utilizing digital media in schooling offers a minimum of four advantages. Initially, the lessons imparted would captivate the students' attention. Furthermore, the instructional content will be more comprehensible for students. Furthermore, instructional methods are diversified to prevent the lecture approach from becoming monotonous. Furthermore, it is essential to not only attentively heed the teacher's explanation but also actively engage in additional activities such as watching, demonstrating, or other related tasks.

The learning media should align with the learning material, be functional, adaptable, and enduring, in accordance with the intended objectives and tailored to the students' characteristics, while considering the teacher's proficiency and the availability of supporting resources for utilizing the learning media. Teachers possess knowledge on the utilization of technology as a medium for enhancing education, sometimes referred to as e-learning (Cavanagh & Koehler, 2013; Kopcha et al., 2014).

2.8 Teaching Factory (Hybrid-Model) Fun and E-Learning

The Teaching Factory Concept (TEFA) is founded on the principle of the knowledge triangle (Chryssolouris et al. 2006; Chryssolouris et al. 2016). The origins of this concept can

be traced back to the field of medical sciences, particularly in the teaching hospitals paradigm. The TEFA idea facilitates the exchange of knowledge between industry and the classroom through the use of Information and Communication Technologies (ICTs). The Teaching Factory facilitates knowledge transfer through two distinct modes: 'factory-to-classroom' and 'lab-to-factory' (Mourtzis et al., 2018). Stavropoulos et al. (2018) explored the impact of CPS and Industry 4.0 technologies on manufacturing training within the Teaching Factory (TEFA) framework. Their research highlights how these advancements can meet the demand for trained people in the industry. The paper by Mavrikios et al. (2013) introduces a framework called TEFA that aims to facilitate collaborative education and training for engineering students and offer engineering solutions to firms. Moreover, the Teaching Factory Network aims to connect industrial factories with academic classrooms, enabling the initiation of collaborative production training programs that are mutually beneficial for businesses (Mavrikios et al., 2018).

3. Research Method

3.1 Design Study

This research will be conducted by adhering to the steps outlined in the Figure 1 below:

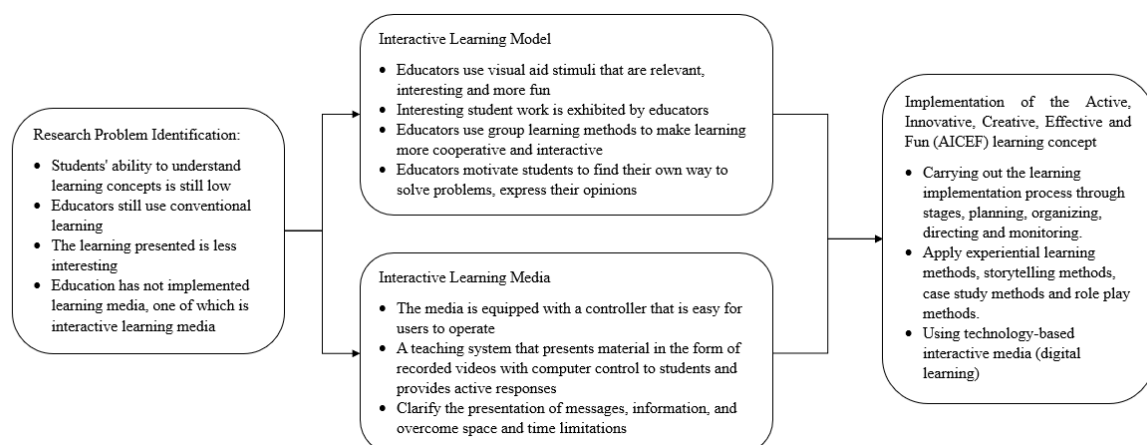


Figure 1. Research Model

3.2 Data Analysis

The objective of this study is to develop a novel instructional methodology to enhance the process of acquiring knowledge. The primary objective of this research is to employ books and previously gathered research via library searches and other pertinent literature sources to generate helpful annotations and descriptive data pertaining to the subject matter under investigation. Hence, the research methodology employed in this study is known as the literature review method.

This research process entails undertaking a thorough analysis of the pertinent literature, with a specific emphasis on theoretical works pertaining to the topic or issue addressed in this article. A literature review is an extensive written compilation of scientific papers, books, and other pertinent sources that elucidate historical and current theories and information. Its purpose is to systematically organize the existing knowledge into specific subjects and identify significant documents (Creswell, 2014). During the implementation phase, seven distinct activities must be executed. These activities encompass the identification of the writing's

objective, the selection of suitable data sources from databases, the identification of pertinent keywords for the database search procedure, the execution of a comprehensive literature search, the establishment of inclusion criteria for articles to be utilized, the selection of references based on specific criteria, and ultimately the synthesis of the obtained results (Fink, 2010).

The literature search conducted in this study encompassed journal articles acquired from several digital platforms, such as the Google Scholar database, Garuda, and other pertinent sources. The articles included in this review only comprise publications sourced from the three specified databases, spanning the period from 2005 to 2022. The acquired data was subsequently assessed utilizing descriptive analytic techniques. The descriptive analysis method entails the presentation of objective information, followed by a comprehensive analysis that goes beyond mere description. This technique not only provides a summary of the subject but also strives to offer a thorough comprehension and explanation (Setyowati, et al., 2017).

4. Result

The aforementioned literature study findings indicate that relying alone on the AICEF idea (active, innovative, creative, effective, and enjoyable) for learning is insufficient. The integration of AICEF principles with digital era concepts that align with the characteristics of contemporary students is essential for an enjoyable learning experience. Generation Z individuals that possess a fondness for acquiring knowledge and skills in utilizing technology. The utilization of educational technology and digital media is becoming increasingly significant in science education on a global scale. Undoubtedly, educational technology possesses the capacity to assist and augment student learning (Hillmayr et al., 2020). In order to fully harness this potential, educators must possess a thorough understanding of technology and effectively implement it (Keengwe et al., 2008). In order to effectively incorporate digital media or educational technology into their teaching, teachers must possess the intention and motivation to do so (Backfisch et al., 2021). Additionally, it is widely recognized that a strong professional knowledge base is a necessary requirement for the meaningful and enjoyable utilization of digital media in education (Backfisch et al., 2020; von Kotzebue, 2022).

Similarly, with regards to the implementation of technology in schools (Dexter et al., 2016). This can be augmented by recent research indicating that the utilization of digital technology to facilitate passive, active, and interactive learning experiences leads to students reporting higher levels of motivation compared to when these learning activities are facilitated without digital technology (Wekerle et al., 2022). Hence, assessing the frequency with which teachers employ digital technology to promote passive, active, constructive, and interactive learning activities among students appears especially suitable for capturing additional dimensions of technology integration beyond mere technology usage frequency. This conceptualization of technology integration aligns with the perspectives of Backfisch et al. (2021) and Fütterer et al. (2022) that encompass additional dimensions beyond the frequency and applications of technology. These dimensions pertain to the competence of teachers who employ digital technology, particularly the cognitive activation dimension. This dimension encompasses instructional strategies that stimulate students' cognitive involvement in the classroom.

Amid challenging circumstances, there was a particular focus on utilizing digital technologies to ensure the seamless continuation of the process. The technology known as Digital Twin (DT) is a fundamental component of Industry 4.0 and plays a significant role in

the new educational models (Stavropoulos and Mourtzis, 2022; Rüßmann et al., 2015). Meenakumari (2021) states that simulation-based learning (SBL) has been beneficial for students in two main areas: heightened motivation and a sense of self-accountability for learning, as well as peer learning. Consequently, SBL has enhanced the transmission of educational material and the utilization of technology for instructional purposes, facilitating the demonstration process and assisting teachers in evaluating student performance. Moreover, SBL facilitates the restoration of the communal classroom atmosphere by means of spontaneous classroom interactions.

5. Discussion

5.1 Experimental Learning Method

The AICEF learning approach, which incorporates the principles of innovation and enjoyment, appears to be insufficient in generating optimal learning outcomes. The utilization of experiential learning in conjunction with AICEF is deemed more suitable for contemporary Generation Z students (Kolb, 1984; Blought et al., 1958; Mosik, 2009; Majid, 2016; Fithriyah, 2019; Suryatini, 2020).

Effective classroom management employs the principle of experiential learning, wherein students actively participate in the learning process, transforming them from passive recipients of knowledge into active participants in their own learning, rather than relying solely on teachers for lesson content. Examples of implementing experiential learning include:

1) Paired Story Telling

Lie (2005) defined "Paired Story Telling" as a pedagogical technique that facilitates interactive engagement among students, teachers, and instructional resources. According to Isjoni (2010), "paired story telling" is a method that can be employed to teach reading, writing, listening, and storytelling. It involves an interactive process between students, teachers, and instructional materials. Feedback will be valued to foster students' motivation in pursuing further education. Isjoni (2010) states that Paired Story Telling was created as a participatory method involving students, teachers, and teaching materials. In 2005, Lie proposed that the Paired Story Telling methodology is applicable for instructing reading, writing, listening, and speaking. The optimal learning materials utilized with this strategy are narrative and descriptive materials. The Paired Story Telling approach is employed as a learning activity to increase students' thinking skills. The outcomes of their thinking are valued, which in turn enhances their motivation to study. Huda (2015) further elucidates that the Paired Story Telling cooperative learning method involves students collaborating with their peers in a mutually supportive environment, providing many opportunity for processing diverse material and enhancing their communication abilities. According to various definitions of Paired Story Telling provided by multiple experts, it can be inferred that the Paired Story Telling learning model is a method that allows students to exchange their ideas and learning experiences with their peers in order to enhance learning activities and achieve desired learning objectives and outcomes.

2) Case studies

A method is a systematic procedure used to achieve a specific purpose. The case study approach is an active learning method that utilizes a case study or descriptive

problem to facilitate discussion of the lesson. The method of studying a case involves active learning. Identify a real-world circumstance, case, or example that requires students to take action and explain the benefits they can gain from it. According to Sari (2018), the results of his research indicate that the use of case study as a research approach has a significant impact on enhancing students' motivation to learn. It is straightforward for students to comprehend the available material.

The strategy employed by lecturers to assist students in comprehending and mastering material is known as objective learning case study. In order to engage students and promote active learning, the most effective approach is through the use of case studies and problem-solving activities (Misnah, 2020). In addition, the utilization of activity-based learning methodologies can enhance learning engagement and foster student autonomy, whether in solitary or collaborative settings. The objective of the technique learning instances study, as stated by Sari (2018), is:

- a) Assist students in comprehending and managing the process of acquiring knowledge. Utilizing case studies as a strategy for learning objectives can greatly assist students in comprehending and mastering the subject matter. This approach allows students to directly confront and resolve problems within a real-life study scenario.
- b) Enhance student engagement and autonomy in studying. This study utilizes the method of case studies to achieve independence. The increase in student study is due to students taking responsibility for their own study difficulties.
- c) Analyze and resolve the problems encountered in order to achieve the defined competition goals.

3) Role playing

Role playing is a method of acquiring mastery of educational content by fostering students' imagination and enjoyment. Students cultivate their imagination and foster their appreciation by assuming the roles of living beings or inanimate objects. This game is typically enjoyed by multiple participants. The answer to this question is contingent upon the specific activity being engaged in (Ahmadi, 2011). The learning experience acquired through this approach encompasses the skills to cooperate, communicate, and comprehend occurrences (Amri and Ahmadi, 2010). Mulyasa (2007) posited that role-playing learning is grounded on three underlying assumptions that are comparable to other teaching approaches. These assumptions aim to foster the development of behavior and social values.

There are three assumptions:

- a) Role playing facilitates experiential learning by directing the lesson's focus towards a present issue. This paradigm posits that a collective of students has the capacity to generate parallels pertaining to real-life scenarios. In the context of role playing, kids have the ability to exhibit emotional reactions as they learn from observing the responses of others.
- b) Secondly, role acting enables pupils to articulate emotions that might otherwise remain concealed without engaging in introspection about others. The primary objective of psychodrama, a form of role-playing that focuses on

healing, is to alleviate emotional burdens by expressing one's feelings. Nevertheless, there exists a distinction in the focus placed on role playing in a learning setting as compared to psychodrama.

- c) The role playing approach posits that emotions and ideas can be elevated to a conscious level and then enhanced through a collaborative group process. The answer is not solely derived from an individual, but rather can emerge from the observer's response to the problem being enacted. By learning from the experiences of others, students can acquire valuable insights on problem-solving techniques, enabling them to enhance their personal development to the fullest extent.

5.2 Interactive Learning Media

The word "media" originates from the Latin word "*medius*," which denotes "middle," "intermediary," or "introduction." The media serves as an intermediary or facilitator in transmitting information between different parties. Arsyad (2011) described media in the teaching and learning process as instruments, such as graphics, photographs, or electronics, that are used to capture, process, and compile visual or spoken information. The media should facilitate the acquisition of knowledge, skills, and attitudes aligned with the intended learning outcomes for students.

The media has a crucial role in conveying knowledge during learning activities. Arsyad (2011) provides an elucidation on the fundamental attributes of educational media:

- 1) Educational media encompasses tangible things, commonly referred to as hardware, that may be perceived through the five senses of sight, hearing, touch, taste, and smell.
- 2) Educational media refers to the intangible aspect of software, specifically the message content that is stored in the hardware and intended to be communicated to students.
- 3) Educational media primarily focuses on the utilization of visual and auditory elements.
- 4) Educational media refers to instruments that facilitate the process of acquiring knowledge, both within and beyond the confines of the classroom.
- 5) Educational media facilitates communication and interaction between educators and learners during the process of acquiring knowledge.
- 6) Educational media can be employed on a broad scale, such as through the use of radio and television. It can also be utilized for both big and small groups, such as through the use of films, slides, videos, and overhead projectors. Additionally, educational media can be used individually, for instance through the use of modules, computers, radio tapes/cassettes, and video recorders.
- 7) Attitudes, actions, organization, strategy, and management pertaining to the utilization of knowledge. In order to facilitate the study of physics, it is important to utilize educational resources that enable students to conduct experiments or engage in firsthand experiences related to the concepts being studied. The teacher must procure experimental tools or props in order to conduct this learning activity. Frequently, the challenges of conveying teaching aids, experimental instruments, and the underlying concepts directly to students pose a significant hindrance to the learning process.

Video-based media is more effective in enhancing the capacity to comprehend, apply, and analyze. According to Purwono (2014), the utilization of audio-visual media by teachers resulted in an improvement in learning results. The enhancement of learning outcomes is accompanied by a corresponding augmentation in pupils' capacity to absorb lessons. Therefore, audio-visual (video) material is highly effective for integrating into the learning process. Not all physics topics can be effectively conveyed by video, particularly those that include imperceptible phenomena such as gravitational fields, magnetic lines of force, electric currents, and the like. This constraint can be surmounted by employing media that rely on graphic visualization or animation. According to Trindade (2005), graphic visualization has been found to be beneficial in enhancing student comprehension and addressing any earlier misconceptions. According to Sakti (2013), the use of animated learning media has a substantial impact on learning, with courses that utilize animated learning media achieving superior learning results compared to those utilizing conventional media. Interactive learning media is a sort of ICT-based learning media display. According to The Big Indonesian Dictionary, the term "interactive" is defined as having the characteristic of mutual activity or being mutually active.

Interactive learning media refers to educational materials that need active participation from both the users and the media itself. Interactive media has the capability to present information to the user based on the input they provide. Interactive learning media enables users to not only passively consume the content offered, but also actively engage in running the media. Akbas and Pektas (2011) asserted that utilizing interactive media for learning yields superior learning outcomes in comparison to traditional media. Additionally, it enhances student engagement in the classroom, fosters a more enthusiastic environment, and generates more entertaining courses.

5.3 Digital Media (e-learning)

In Indonesia, the integration of internet usage in the education system is not yet firmly established. Handayani in Purwanto's study in 2015 states that Present learning methodologies fail to fully exploit the potential of internet technology. Technological advancement might provide challenges for certain individuals. Hence, in order to effectively cater to the learning preferences of the present generation, the tactics employed must be flexible and responsive to their requirements. Ahmad (2015) argues that there is a mindset in the digital age that challenges the notion that great things must be heavy. Instead, small things can have a significant impact. When there is a scarcity of educational media, particularly visual assistance, the internet world offers a solution through animation programs. In Japan, the distant education system utilizes cellphones instead of doing face-to-face lessons. Initially, the internet served primarily for espionage and military purposes. However, it has since expanded its presence to classrooms and telephone networks, and has become accessible to individuals through their mobile phones.

Multi-media programs that can engage and activate all students' five senses in the classroom, and can thereafter be replicated at home or any location and at any time. According to Herawati (2012), "edutainment" is a blend of many categories that prioritize visual content, storytelling, game forms, and informal teaching methods. The objective is to captivate and sustain students' attention for a longer duration by engaging their emotions through the use of computer technology with vibrant and dynamic multimedia.

This learning encompasses elements of interactive teaching and also underscores the notion that learning is undeniably enjoyable. In order to cultivate an engaging learning environment, instructors modify their teaching methods by implementing the following strategies: developing Web quests, utilizing technology-driven simulations, minimizing lecture duration, fostering more interactive discussions, offering readily accessible internet resources, facilitating group collaboration, implementing inquiry-based learning models, emphasizing critical thinking over rote memorization, and incorporating blogging or Wikipedia into the curriculum.

6. Conclusion, Implication, and Recommendation

The creation and execution of a captivating classroom setting should not be dependent exclusively on the viewpoint of the educator. When creating educational experiences, it is crucial to take into account the characteristics and preferences of students. Today's pupils are generally inclined towards technology due to their extensive exposure to the digital era. The approaches employed to enhance one's educational experience have been significantly influenced by technological advancements. Moreover, technology has afforded individuals supplementary possibilities to establish and cultivate social bonds. Ultimately, these modifications necessitate instructors to adjust and assist students in enhancing their academic achievement by connecting their learning encounters with current requirements.

From the aforementioned description, multiple inferences can be made:

- 1) Classroom management encompasses the coordination of classroom activities to enhance learning, together with the teacher's capacity to establish an ideal learning atmosphere and proficiently address any disturbances that may occur throughout the learning process.
- 2) The primary objective of classroom management is to enhance the overall educational experience by maximizing the quality of learning. Attaining learning objectives is crucial to guarantee the excellence of education.
- 3) Classroom management competency refers to instructors' ability to create and sustain an optimal educational setting by effectively deploying technology that aligns with the modern era and the distinct learning traits of Generation Z students.
- 4) Teaching and learning process management involves the systematic execution of planning, coordinating, controlling, and supervising activities that are conducted concurrently, comprehensively, and in an integrated manner. According to the research conducted by Backfisch et al. (2021) and Backfisch et al. (2020), and in line with the model proposed by Baumert and Kunter (2013), teacher motivation is seen as a crucial aspect of teacher professional competence in the field of teaching.
- 5) The COVID-19 epidemic has accelerated the process of digital transformation in educational institutions, leading to an unparalleled increase in automation. The primary objective of automation in education is to minimize the need for manual labor in repetitive tasks, so enabling teachers and administrators to dedicate their attention to teaching and their pupils. The following are areas in which automation is unable to replace higher education instruction (Fourtané 2022, 2021): a) Mentorship and leadership, b) Innovation and creativity, c) Socialization, d) Teamwork and collaboration, and d) Reputation and accomplishment. The utilization of digital

technology in the teaching factory learning strategy might serve as a viable alternative in the current day.

7. References

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