INTERNATIONAL COLLABORATION
BOOK CHAPTER

MOVEMENT
FROM TRADITIONAL
TO MODERN LEARNING



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MOVEMENT FROM TRADITIONAL TO MODERN LEARNING

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MOVEMENT FROM TRADITIONAL TO MODERN LEARNING

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PREFACE

Greetings, dear readers!

We are happy and proud to be able to present a scientific work entitled "International Collaboration Book Chapter: Movement from Traditional to Modern Learning". This work is the result of an international collaboration involving researchers and educational practitioners from various parts of the world, who share their thoughts and experiences about the changes that have occurred in learning from the traditional to the modern.

In the increasingly advanced and developing era of globalization, learning becomes increasingly important and complex. Rapid changes in technology, environment, and societal needs force us to constantly adapt and update our approach to learning. Therefore, this work examines how the shift from traditional to modern learning has occurred, and how international collaboration can help accelerate this process.

This book covers a wide range of topics relevant to global change, such as learning technology, creative teaching, 21st-century skills, curriculum development, and many more. This book will also discuss the authors' experiences in applying modern learning approaches in different countries and cultures, as well as the challenges faced and solutions found.

We hope that this work will provide insight and inspiration for readers to develop more modern and innovative approaches to learning, and to consider international collaboration as a way to accelerate this change. This work will also be beneficial for educational decision-makers, such as teachers, school administrators, and policymakers, to improve learning systems and provide better learning experiences for students.

International collaboration has taken us far in modern learning, and we are confident that by continuing to share knowledge and experience, we can achieve the greater goal of providing quality education for future generations. Hopefully, this work can make a useful contribution to the world of education, and inspire readers to continue to develop better learning approaches. With all the advantages and benefits presented in this book, we highly recommend the book "International Collaboration Book

Chapter: Movement from Traditional to Modern Learning" for anyone interested in education to read. We are sure that this book will provide broad and deep insights into the changes that are taking place in the world of education, as well as provide inspiration and motivation for readers to continue to contribute to advancing education.

Finally, we would like to thank all the authors who have contributed to this book, as well as STIPAS Publishers, who have supported us in realizing this project. Hopefully, this book will be useful for readers around the world.

Greetings,

Dr. Fransiskus Janu Hamu, S.S, M.Sc. Ed

ACKNOWLEDGMENTS

STIPAS is indebted to several people who have helped make dreams come true to complete the project of writing this book. Throughout the journey, reinforcements emerged through friends who have enriched them with the latest and phenomenal insights and learning applications so that the book "**Movement from Traditional to Modern Learning**" is in the hands of dear readers. The following are parties who deserve appreciation in the form of praise and respect, including:

1. Chair and Deputy Chairmen, STIPAS TDP Palangkaraya, who support, guide, and provide direction from planning to the presence of books in the hands of readers.
2. Infinite thanks to the writers, editors, and educational experts who have given their best offerings in creating this captivating book! We are very grateful for the excellent work that our team has created.
3. We would like to express our sincere gratitude to STIPAS PUBLISHER for helping us fulfill our dream of publishing this book. Without their support and help, we would never be able to put our ideas into action.
4. We would also like to express our deep gratitude to our family, friends, and co-workers who have always supported and encouraged us in every step we took to make this book a reality. We are very grateful for all of your support and trust.
5. We cannot forget the contributors to this book. We appreciate the ideas and insights that have been provided to produce a book containing very interesting and useful thoughts for all readers.

6. We would like to thank all of you for your time and attention in reading this book. We hope that the contents of this book can provide inspiration and valuable ideas for all readers in improving and developing more effective and modern learning methods.
7. Special thanks are given to Prof. Dr. Dra. Emiliana Sri Pudjiarti, M.Si., as the initiator of the idea, mentor, and reader of the manuscript, so that this monumental work of the STIPAS International Book Chapter is in the hands of the reader.
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CHAPTER 1

PERSONAL AND SOCIAL EMERGENCE OF STUDENTS: AN INVESTIGATION INTO THE FACTORS OF ENTREPRENEURIAL LEARNING, SELF-EFFICACY, AND ENTREPRENEURIAL INTENTION

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PERSONAL AND SOCIAL EMERGENCE OF STUDENTS: AN INVESTIGATION INTO THE FACTORS OF ENTREPRENEURIAL LEARNING, SELF-EFFICACY, AND ENTREPRENEURIAL INTENTION

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ABSTRACT

This paper explains that learning entrepreneurship can affect self-efficacy, the personal emergence of students, and their entrepreneurial intentions. The theoretical implication of this research is the importance of learning entrepreneurship in the education and personal development of students so that they can acquire the skills and knowledge needed to start and run a new business. In addition, it is also important to strengthen students' emergence as a factor influencing their entrepreneurial intentions. The managerial implication of this research is to assist the development of entrepreneurship education and training programs in educational institutions, such as emphasizing holistic and interdisciplinary learning of entrepreneurship, strengthening support and career development for students, increasing cooperation with industry and companies, and helping to create a young generation who ready to start a new business or join the business world in the future.

Keywords: Entrepreneurial learning, self-efficacy, personal emergence of students, entrepreneurial intention

INTRODUCTION

The Indonesian Ministry of Education and Culture's policy on Free Learning–Independent Campus (MBKM), is a policy that aims to encourage students to master various scientific fields that are useful for entering the world of work, to prepare students to face the social, cultural, world of work changes and rapid technological advances. Students are prepared to become graduates who get decent jobs and gain experience off campus. Both of these are part of the Key Performance Indicators (IKU) that must be achieved by tertiary institutions. To achieve the IKU, higher

education institutions must prepare the competencies of their students so that they are aligned with the needs of the times (Aris Junaidi, 2020).

Link and match not only with the world of industry and the world of work but also with the rapidly changing future. Therefore, tertiary institutions are required to be able to design and implement innovative learning processes so that students can achieve learning outcomes including aspects of attitude, knowledge, and skills optimally and are always relevant (Belmawa Kemendikbud, 2021). The learning process in the Merdeka Campus is one of the most essential embodiments of student-centered learning. Learning in the Merdeka Campus provides challenges and opportunities for developing innovation, creativity, capacity, personality, and student needs, as well as developing independence in seeking and finding knowledge through field realities and dynamics, such as ability requirements, real problems, social interaction, collaboration, self-management, performance demands, targets, and achievements.

To be able to overcome these challenges, entrepreneurship learning is very much needed in tertiary institutions, because by learning entrepreneurship students can develop independence, creativity, and innovation and equip them with the knowledge and skills needed to start and manage a successful business. According to (Naktiyok et al., 2010), entrepreneurial learning is a learning process that focuses on developing entrepreneurial skills, knowledge, and attitudes needed to start and develop a business, as well as increasing the ability to adapt to changes in the business environment (Rae, 2005).

Based on data from the Central Statistics Agency (BPS), the number of unemployed people in Indonesia in August 2022 was 8.42 million people. And the open unemployment rate (TPT) in Indonesia is 5.86%. The

highest number of unemployed was at the education level SMK (13.55%), then SMA (9.86%), Diploma I/III (8.08%), Bachelor Degree (35%) SMP (5.95%) and SD (3.59%). Data from the Ministry of Cooperatives and Small and Medium Enterprises (UKM), in 2021 the entrepreneurial ratio in Indonesia is still low, namely 3.74 percent, below ASEAN countries, such as Thailand the number of entrepreneurs is already 4.2 percent, Malaysia's 4.7 percent, Singapore 8.7 percent. The low entrepreneurship ratio in Indonesia is consistent with the high level of unemployment in Indonesia. Driven by the backwardness of the number of entrepreneurs in Indonesia compared to ASEAN countries and the importance of the role of entrepreneurs in driving economic growth and reducing unemployment, the Government of Indonesia issued Presidential Regulation No.: 2 of 2022 concerning National Entrepreneurship Development for 2021-2024, with the aim of 1). Encourage economic growth; 2). Foster an entrepreneurial spirit; 3). Reduce unemployment; 4). Encourage innovation; and 5). Increase competitiveness

Seeing the importance of the role of entrepreneurship in driving economic growth and the still low ratio of entrepreneurship in Indonesia, entrepreneurship learning needs to be done to foster interest in entrepreneurship for the Indonesian people, so growing interested in entrepreneurship can be done through entrepreneurship learning (Modes et al., 2016), because by Entrepreneurial learning will provide opportunities for individuals to develop the skills and knowledge needed to run a business (Manampiring et al., 2020). According to (Pais Zozimo et al., 2022), entrepreneurial intention is a mental state that reflects an individual's desire and ability to start, develop, and manage a business venture to achieve profit.

Through entrepreneurial learning experiences, individuals can also build self-efficacy and have confidence in their abilities to become successful entrepreneurs (Pihie & Bagheri, 2013). Research (Pihie & Bagheri, 2013) has shown that individuals with high levels of self-efficacy are more likely to engage in self-regulatory behavior, which in turn increases their entrepreneurial interest. Self-regulatory behaviors, such as setting goals, planning, monitoring progress, and self-examination, help individuals manage emotions and impulses, and deal with procrastination and distraction.

The existence of an interest in entrepreneurship will bring out entrepreneurial personality and behavior or personal and social emergence. Personal and social emergence is a process in which individuals grow and develop personally and socially through experiences in an entrepreneurial environment. Higher education is an educational institution that can encourage the creation of new entrepreneurs, through the entrepreneurial learning process, both through practice and theory, which is given to its students. In the entrepreneurship learning process, it means that students are given entrepreneurial knowledge, which can help encourage students' interest in becoming entrepreneurs and shape the mindset of students from job seekers to job creators.

This paper aims to identify entrepreneurial learning and its relation to self-efficacy, personal and social emergence as well as interest in entrepreneurship. The study was carried out by reviewing the scientific literature and the results of research by experts.

LITERATURE REVIEW

Entrepreneurial Learning

Entrepreneurial learning is very important because it can help a person develop the skills and knowledge needed to become a successful entrepreneur. In addition, entrepreneurship learning can also expand networks, build leadership skills, develop business skills, and reduce career uncertainty. Some of the benefits of learning entrepreneurship are increasing creativity and innovation, developing management skills, encouraging independence, increasing career opportunities, and supporting economic growth (Li & Wu, 2019).

Entrepreneurship learning will involve innovation and creativity so that it can motivate someone to seek different solutions and find new ideas. In addition, entrepreneurship learning includes learning business management, which includes planning, organizing, controlling, and making decisions. In entrepreneurship learning, one can develop the management skills needed to start and run a business. Entrepreneurial learning can also form a strong spirit, thus helping individuals understand that failure is part of the learning process and creating a sense of having the ability to overcome it. This can build self-confidence and independence in facing challenges. In addition, learning entrepreneurship can increase one's career opportunities by developing knowledge, skills, and attitudes that enable individuals to identify business opportunities or work in companies that focus on innovation and new product development.

Self Efficacy

Self-efficacy is a psychological concept that refers to an individual's belief in his or her ability to perform an action or deal with a problem

effectively. According to Bandura (1997), self-efficacy is an individual's belief in his ability to carry out certain actions, while (Urban, 2020) defines it as an individual's belief in his ability to carry out academic tasks successfully.

(Jiang et al., 2017) describe self-efficacy as an individual's belief in overcoming challenges and achieving desired results.(Xiaoping & Hua, 2019) define self-efficacy as an individual's belief in pursuing certain career goals and overcoming obstacles to achieving them.(Rachmawan et al., 2015) describes self-efficacy as an individual's belief in his ability to pursue goals and complete the tasks he faces. This concept of self-efficacy has a significant influence on motivation, performance, and results achieved by individuals in various life contexts, such as academics, careers, and health.

Personal And Social Emergencies

Personal and social emergence is the process of individual self-development through understanding and developing personal strengths, such as increased motivation, cognitive abilities, and self-confidence. David Rae's definition of personal and social emergence encompasses the development of an entrepreneurial identity, including early life and family experiences, education, career formation, and social relationships (Meoli et al., 2020).

Personal and social emergence is also defined by Lerner et al as the process of developing personal and interpersonal skills that enable individuals to navigate social environments and relationships effectively. This process can produce positive outcomes such as building healthy social relationships, creating better mental health, and aiding academic and

professional success. The level of one's personal and social emergence skills can be shown from the ability of social interaction, self-understanding, critical thinking skills, adaptability, and communication skills.

Entrepreneurial Intentions

Entrepreneurial intention is an individual's belief to start or become a new business owner. The definitions from (Paço et al., 2015) state that entrepreneurial intention involves a strong desire, feelings of interest and excitement, intent, and inclination to start a new business in the future.

This concept is related to factors such as motivation, perception, knowledge, skills, and environment that affect an individual's decision to start or not start a new business. In this case, understanding entrepreneurial intention is very important for developing programs and policies that encourage and support entrepreneurial development. A better understanding of the factors that influence entrepreneurial intention (Meoli et al., 2020), will enable the development of more effective policies in supporting the development of entrepreneurship and innovation.

DISCUSSION

The generally accepted definition of entrepreneurship is an ability to create or develop new businesses or products, or to introduce innovations in existing businesses. Entrepreneurial experience also involves the ability to take risks, take advantage of opportunities, and build and maintain a successful business.

According to some researchers, entrepreneurship also involves certain mental and psychological attitudes needed to become a successful entrepreneur, such as the ability to think creatively, be innovative, and be

goal-oriented. In addition, entrepreneurship also involves the business management, finance, and marketing skills needed to run a successful business. In this case, entrepreneurship can be interpreted as the ability to develop new businesses, introduce innovations in existing businesses, and maintain a successful business through management skills and the right mental attitude. These definitions show that entrepreneurship involves complex skills, attitudes, and knowledge that are very useful in business and economic development.

The Effect of Entrepreneurial Learning on Self-Efficacy

Entrepreneurial learning is a learning process that focuses on developing entrepreneurial skills and competencies needed to create or develop new businesses. Meanwhile, self-efficacy is a person's belief in his ability to take action or solve problems effectively. Research has shown that there is a significant effect of entrepreneurial learning on self-efficacy. In this context, entrepreneurial learning can increase a person's self-efficacy by allowing them to develop the skills, knowledge, and attitudes needed to create or develop a new business. Entrepreneurial learning can help increase one's self-efficacy in different ways.

1. Entrepreneurial learning can help a person develop the technical abilities and business skills needed to run a new business. This can increase a person's self-confidence and belief in their ability to overcome problems in running a business (Shi et al., 2020).
2. Entrepreneurial learning can help increase a person's motivation and goals in achieving their business goals. By having clear goals and the skills to achieve them, a person can develop self-confidence and increase self-efficacy (Fenech et al., 2019).

3. Entrepreneurship learning can help improve one's ability to overcome failure. Successful entrepreneurs face many challenges and failures on their way, and learning entrepreneurship can help a person prepare to cope better with failure. This can increase one's self-confidence and self-efficacy in facing challenges and overcoming failure (Shirokova et al., 2016).

In conclusion, entrepreneurial learning can make a significant contribution to increasing one's self-efficacy by providing the skills, knowledge, and attitudes needed to create or develop a new business. By increasing a person's self-efficacy, they will have a stronger belief in their ability to overcome problems and achieve their business goals, which can ultimately help them achieve success in their entrepreneurial career.

The Effect of Entrepreneurial Learning on the Personal Emergence of Students

Entrepreneurial learning is a learning process that focuses on developing entrepreneurial skills and competencies needed to create or develop new businesses. Personal emergence of students, on the other hand, refers to the process of self-development of students through understanding and developing personal strengths, such as increased motivation, cognitive ability, and self-confidence. Research has shown that there is a significant influence of entrepreneurial learning on the personal emergence of students. Entrepreneurial learning can increase the personal emergence of students in several ways.

1. Entrepreneurship learning can help increase student creativity and innovation. Creativity and innovation are important for developing new products or services, and entrepreneurship learning can motivate students to seek different solutions and find new ideas. This can build

students' problem-solving skills and improve their cognitive abilities (García-Rodríguez et al., 2015).

2. Entrepreneurship learning can help improve students' management skills. Entrepreneurship learning includes business management learning, including planning, organizing, controlling, and decision-making, so entrepreneurship learning can help students develop the management skills needed to start and run a business (Shirokova et al., 2016).
3. Entrepreneurship learning can help increase student independence. Entrepreneurship learning can form a strong soul, thus helping students understand that failure is part of the learning process and creating a sense of having the ability to overcome it. This can build self-confidence and independence in facing challenges (García-Rodríguez et al., 2015).
4. Entrepreneurial learning can increase student career opportunities. Entrepreneurial learning involves developing knowledge, skills, and attitudes that enable students to identify opportunities, thus enabling them to be able to develop their businesses or work in companies that focus on innovation and new product development. This can broaden the student network and open up wider career opportunities (Santos et al., 2016).
5. Entrepreneurial learning can support economic growth. Entrepreneurship can be a driver of economic growth because it can create new jobs, increase competitiveness, and contribute to the gross domestic product. This can open up opportunities for students to engage in economic development and help them understand the importance of their role in driving economic growth.

In conclusion, entrepreneurial learning can make a significant contribution to the personal emergence of students by providing skills, knowledge, and physical

The Effect of Entrepreneurial Learning on Entrepreneurial Intention

Entrepreneurial learning is a process of learning and developing the skills and competencies needed to become a successful entrepreneur. Meanwhile, entrepreneurial intention is someone's desire to start or become a new business owner. Several studies have shown that there is a significant influence between entrepreneurial learning and entrepreneurial intention. According to (Jiang et al., 2017), entrepreneurial learning can influence someone's entrepreneurial intention by increasing their knowledge, skills, and attitudes toward entrepreneurship. In entrepreneurship courses, individuals can learn about how to start and run new businesses, as well as build leadership, creativity, and innovation skills. It can help individuals understand and develop their confidence in their ability to start and operate new businesses.

Research by (Meoli et al., 2020) also shows a positive relationship between entrepreneurial learning and entrepreneurial intention. This study shows that entrepreneurship learning can increase individual feelings of interest and enthusiasm to take entrepreneurial action. In addition, several studies also show that entrepreneurial learning can mediate the relationship between other factors, such as previous experience, self-efficacy, and subjective norms, with entrepreneurial intention. In this case, entrepreneurial learning can be considered an important factor in turning desires into concrete actions in starting a new business.

In general, the effect of entrepreneurial learning on entrepreneurial intention can be explained as follows: the higher a person's level of entrepreneurial learning, the more likely they are to have strong entrepreneurial intentions and start a new business. Therefore, the development of programs and policies that encourage and support entrepreneurial learning can be considered one of the important strategies in increasing one's interest and inclination to start a new business.

The Effect of Personal Emergence of Students on Self-Efficacy

The personal emergence of students has a close relationship with self-efficacy, which is an individual's belief in their ability to achieve certain goals or tasks. The process of personal emergence influences the development of students' self-efficacy because in this process students develop self-awareness and understand their strengths and weaknesses. This helps students to develop self-confidence and feel able to overcome challenges faced in achieving the goals set. In the process of personal emergence, students also learn to take responsibility for their own decisions and actions. In this case, students who have high self-efficacy tend to be more motivated to take initiative and try to achieve their own goals. They are more confident in overcoming obstacles and difficulties that may occur on the way to achieving goals (Fernández-Pérez et al., 2019).

In addition, the increase in self-efficacy also affects the process of personal emergence of students. When students feel capable of achieving the desired goals, this can strengthen their self-awareness and develop their self-worth. Thus, the processes of personal emergence and self-efficacy reinforce and influence each other. In the context of education, increasing student self-efficacy is very important. As educators, we can provide

support, challenge, and positive feedback to students to help them build self-efficacy. Thus, students will have higher self-confidence in achieving their goals and develop themselves through the process of personal emergence.

Effect of Personal Emergence of Students on Entrepreneurial Intention

The personal emergence of students in the process of self-development of students through understanding and developing personal strengths, such as increased motivation, cognitive abilities, and self-confidence. Meanwhile, entrepreneurial intention is someone's desire to start or become a new business owner. Several studies have shown that there is a significant influence between the personal emergence of students and entrepreneurial intention. According to (Shirokova et al., 2016), the personal emergence of students can affect a person's entrepreneurial intention by increasing their mental resilience and overall well-being. In the process of personal emergence, individuals can learn about themselves, develop self-confidence and interpersonal skills, and overcome obstacles and challenges that may arise in their journey. It can help individuals understand and develop their confidence in their ability to start and operate new businesses.

Research (Li & Wu, 2019) also shows a positive relationship between the personal emergence of students and entrepreneurial intention. This study shows that strong self-understanding, independence, and the ability to deal with stress and pressure can influence a person's tendency to start a new business. In addition, several studies also show that the personal emergence of students can mediate the relationship between other factors, such as self-efficacy and social environment, with entrepreneurial intention.

In this case, the personal emergence of students can be considered an important factor in turning desires into concrete actions in starting a new business.

In general, the influence of the personal emergence of students on entrepreneurial intention can be explained as follows: the higher the level of self-development of a person through personal emergence, the more likely they are to have a strong entrepreneurial intention and start a new business. Therefore, the development of programs and policies that encourage and support the personal emergence of students can be considered one of the important strategies in increasing one's interest and inclination to start a new business.

Effect of Self-efficacy on Entrepreneurial Intention

Self-efficacy and entrepreneurial intention are two important concepts in understanding one's entrepreneurial behavior. Self-efficacy is defined as an individual's belief in his ability to take an action or solve a problem effectively, while entrepreneurial intention is a person's desire to start or become a new business owner. Several studies have shown that there is a significant effect of self-efficacy on entrepreneurial intention. According to (Rosique-Blasco et al., 2018), self-efficacy can influence a person's behavior in trying a task or overcoming a problem. When a person feels confident in their ability to overcome obstacles and achieve goals, they are more likely to act and take risks in achieving those goals. In the context of entrepreneurship, self-efficacy can affect a person's entrepreneurial intention by increasing their confidence in their ability to start and run a new business (Fenech et al., 2019).

Several studies also show that self-efficacy can mediate the relationship between other factors, such as previous experience, knowledge, skills, and entrepreneurial intention. In this case, self-efficacy can be considered the main determining factor in turning desires into concrete actions in starting a new business. For example, research by (Ahmed et al., 2021) shows that self-efficacy has a positive and significant influence on entrepreneurial intention in business students. This research also shows that self-efficacy mediates the relationship between prior experience and entrepreneurial intention.

In general, the effect of self-efficacy on entrepreneurial intention can be explained as follows: the higher a person's level of self-efficacy in entrepreneurship, the more likely they are to have a strong entrepreneurial intention and start a new business. Therefore, the development of self-efficacy can be considered one of the key factors in promoting entrepreneurship and helping individuals achieve their entrepreneurial goals.

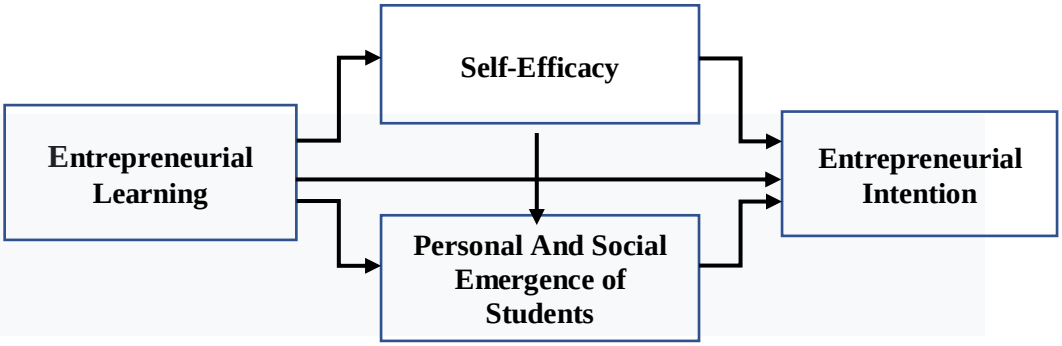


Fig 1: Framework of personal and social emergence of students: An investigation into the factors of entrepreneurial learning, self-efficacy, and entrepreneurial intention

CONCLUSION

This study discusses the effect of entrepreneurship learning on students' emergence as well as the influence of both on entrepreneurial intentions. Entrepreneurial learning focuses on developing entrepreneurial skills and competencies to create or develop new businesses, while personal emergence refers to the self-development of students through understanding and developing personal strengths. The results showed that entrepreneurship learning can increase students' personal, especially in terms of creativity, management skills, and independence. In addition, entrepreneurship learning can also influence entrepreneurial intentions by increasing knowledge, skills, and attitudes toward entrepreneurship. The personal emergence of students also influences entrepreneurial intentions through increasing mental resilience and overall well-being as well as developing students' self-efficacy. Therefore, the higher the level of personal emergence and self-efficacy of students, the higher their entrepreneurial intention to start and run a new business.

These theoretical implications underscore the importance of teaching entrepreneurship in education as it can help students acquire the knowledge and skills needed to start and run new businesses and build confidence and motivation to do so. In addition, it also shows that students' emergence can be a factor influencing their entrepreneurial intentions, so educational institutions need to provide support in students' personal development into entrepreneurial intentions. This paper provides a basis for further research on the influence of entrepreneurship learning and students' entrepreneurial intentions and other factors that can influence it. The managerial implications of this paper help the development of entrepreneurship education and training programs in educational institutions, including:

1. Educational institutions can emphasize entrepreneurial learning which includes developing entrepreneurial skills and competencies, as well as the personal emergence of students through understanding and developing personal strengths.
2. Educational institutions can develop a more holistic and interdisciplinary curriculum to help students develop creativity, management skills, and independence.
3. Educational institutions can strengthen career support and development for students interested in entrepreneurship by helping to increase their self-efficacy and readiness to start and run new businesses.
4. Educational institutions can increase cooperation with industry and companies to provide work practice opportunities for students so that they can broaden their understanding and experience of the world of business and entrepreneurship.

By taking the right actions, educational institutions can help create young people who are more competitive and ready to start new businesses or join the business world of the future.

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CHAPTER 2

GENIUS ENVIRONMENTAL LEARNING: EMPOWERING STUDENTS AS AGENTS OF ENVIRONMENTAL CHANGE

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GENIUS ENVIRONMENTAL LEARNING: EMPOWERING STUDENTS AS AGENTS OF ENVIRONMENTAL CHANGE

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ABSTRACT

This study conducted a literature review on the Genius Environmental Learning (GEL) approach and the factors that influence its effectiveness in increasing environmental awareness and student participation as agents of environmental change. The online search method was carried out on a database of educational and environmental journals indexed on Scopus, Web of Science, and Google Scholar. The results of the analysis show that the GEL approach can increase environmental awareness and student participation. Factors influencing the effectiveness of the GEL approach include participatory, collaborative, and interactive learning methods, support from educational institutions and the community, and student involvement in the decision-making and implementation of environmental programs. Recommendations for developing effective and sustainable environmental education programs include integrating the GEL approach into the curriculum, training teachers and facilitators, and collaboration. This research is expected to provide insights and recommendations for the development of more effective and sustainable environmental education programs to increase environmental awareness and student participation as agents of environmental change.

Key words: *Genius Environmental Learning, Empowering, Change, Agents*

INTRODUCTION

A healthy and sustainable environment is very important for the continuity of human life on this planet. Because of this, countries around the world signed the Paris Agreement which aims to reduce greenhouse gas emissions and combat climate change which can adversely affect human security, safety, and well-being. Responding to these conditions, the Intergovernmental Panel on Climate Change (2018) conducted a study on climate change and found that there had been an increase in global temperatures and extreme weather phenomena. The next study was organized by the International Conference International (COP26) in 2021

on climate change to be held in Glasgow, Scotland, to accelerate global action in tackling climate change. In its latest 2022 study, the United Nations Environment Program (UNEP) released a report showing that investment in renewable energy and environmental protection can create better jobs and economic growth.

The series of meetings held show that attention to ecology is a very relevant and urgent issue in today's life because it is directly related to human health, biodiversity, the economy, and the interests of the future young generation. Worsening environmental problems have become urgent global issues that need to be addressed immediately. This requires the collaboration and participation of all parties, including students as the next generation. Effective environmental education can help produce generations that are environmentally conscious and able to contribute to maintaining environmental sustainability. One effective approach to increasing environmental awareness and student participation in solving environmental problems is to develop an educational program based on the Genius Environmental Learning (GEL) approach. This approach emphasizes interdisciplinary learning and hands-on experience in the outdoors which encourages students to become agents of environmental change.

Several studies have been conducted to evaluate the effectiveness of the GEL approach in instilling and cultivating ecological awareness in students and its contribution to maintaining environmental sustainability. However, further research is still needed to understand more deeply the implementation of the GEL approach in the context of formal and non-formal education. The purpose of this research is to review the literature on the GEL approach and identify the factors that influence the effectiveness of this approach in increasing environmental awareness and student

participation as agents of environmental change. This research is expected to provide insights and recommendations for the development of more effective and sustainable environmental education programs.

LITERATURE REVIEWS

Definition of Environmental Learning

Environmental learning is a concept related to environmental learning, which includes knowledge, understanding, attitudes, and actions needed to protect the environment and promote sustainability. This concept is important in environmental theory, which attempts to explain the relationship between humans and their environment. The following is a more detailed explanation of the meaning of environmental learning in environmental theory. Bowers, (2002) says that environmental learning refers to the process by which people acquire knowledge and understanding of the natural environment and human impacts on it." Environmental learning involves developing a relationship with the natural world, understanding the interconnections between human systems and natural systems, and gaining. Meanwhile, the skills and knowledge are needed to create sustainable communities. Furthermore John D. Aber, 1993: "Environmental learning is a process of developing awareness and understanding of the environment through direct experience and structured education."

Table 1: Definition of Environmental Learning

Authors	Definition
(Sterling, 2004)	Environmental Learning is "a learning process that fosters awareness and understanding of the complexities of natural and social systems, and develops skills and abilities to manage interactions between humans and the environment"

Authors	Definition
(Stapp, WB, & Tucker, 1981)	Environmental Learning is "a learning process that includes understanding, experience, and knowledge about the environment, and the development of skills to address environmental problems".
(Mayer, FS, Frantz, CM, & Bruehlman-Senecal, 2008)	Environmental Learning can also be defined as "a process by which individuals acquire knowledge and understanding of the environment and the environmental problems faced by society, as well as develop skills to address these problems.
Bowers (2002)	Environmental Learning is "the process of understanding and appreciating natural and cultural diversity, as well as developing the ability to take sustainable and wise action in meeting human needs in an increasingly complex and changing environmental context."

Based on the definition above, it can be concluded that Environmental Learning is a learning process that aims to acquire knowledge, understanding, and skills in managing interactions between humans and the environment. This learning process includes understanding, experience, and knowledge about the environment, and environmental problems encountered, as well as developing the ability to overcome these problems. Environmental Learning also helps individuals to understand and appreciate natural and cultural diversity, and take wise and sustainable actions in meeting human needs in an increasingly complex and changing environmental context. In the context of education, Environmental Learning aims to equip the younger generation with the knowledge, skills, and attitudes to become responsible agents of environmental change.

Eenvironmental learning Theoretical Framework

Environmental learning theory is how individuals acquire the knowledge, skills, and attitudes needed to maintain environmental

sustainability through interaction with the physical, social, and cultural environment around them. Following are some of the concepts of environmental learning theory that have been developed:

1. **Human Ecology Learning Theory**

   This theory describes human interaction with the physical and social environment that shapes their learning experiences. According to this theory, learning occurs through experience in a complex and interrelated environment, including economic, political, and social factors (Bronfenbrenner, U., Morris, 1998)

2. **Transformational Learning Theory**

   This theory suggests that learning occurs when individuals experience fundamental changes in their views and attitudes toward the environment. Transformational learning is based on critical reflection and dialogue, and results in actions aimed at increasing environmental sustainability (Peterson, KD & Josses-Bass., 2016)

3. **Community-Based Learning Theory**

   According to (Militz, E., & Shirley, 2017) refers to a learning approach that is based on learning that is centered on a community or social group. This theory emphasizes that learning occurs through social interaction in a community context which is intended to increase student engagement and participation in the learning process.

In this theory, the teacher's role is as a facilitator and mentor in facilitating community-centered learning. So teachers must have a strong understanding of community values and practices, as well as the ability to develop a learning environment that supports student engagement in the learning process. Community-Based Learning Theory also emphasizes the importance of using technology and social media as tools to strengthen

community-based learning. Technology can help students connect with people who share academic interests and goals, and expand their social network through online interactions.

DISCUSSION

Why should you use the Genius Environmental Learning method?

GEL is a learning method that focuses on involving students in a learning environment that can encourage them to think creatively, independently, and productively. This method is based on the concept that a stimulating, varied, and interactive learning environment can increase student motivation and satisfaction in learning. According to McLeod, S., & Driessen, (2015) Genius Environmental Learning offers a more holistic and multidimensional approach to learning, which includes psychological, social, environmental, and technological aspects. This can help students develop various skills and abilities, such as creativity, collaboration, problem-solving, communication, and decision-making.

The GEL also takes into account various factors that influence learning, such as a student's learning style, sensory preferences, and level of intelligence. In GEL, the teacher acts as a facilitator and facilitates an interactive and participatory learning process, by utilizing existing technology and resources. Several studies have shown that GEL can increase motivation, learning achievement, and student satisfaction in learning. For example, a study by (Amro, M., Abualsha'r, A., Al-bzoor, N., & Alshamrani, 2016) found that students engaged in GEL-based learning had higher and more motivating learning achievements compared to students who study with conventional methods.

In addition, GEL can also help students to develop a positive attitude toward learning and the environment around them. A study by (

Chen, CH, Huang, YF, & Yang, 2018) shows that students who are involved in PLG-based learning have a more positive attitude toward the environment and are better able to solve environmental problems.

The Difference between Genius Environmental Learning and Conventional Learning

The environmentally Intelligent Learning Model (GEL) is a learning approach that emphasizes the environment and human interaction with nature. While the conventional learning model refers more to traditional learning approaches which are generally carried out in the classroom using textbooks as teaching materials.

Through the analysis process, it was found that there were differences between the two approaches. There are also differences between the two learning models as follows:

1. Learning Focus The environmentally intelligent learning model focuses more on the environment and human interaction with nature, so it refers more to applied learning. While the conventional learning model refers more to academic and theoretical learning (Sari.DS, 2016)
2. Learning Methods Intelligent environmental learning models use more interactive and practical learning methods, such as field observations, experiments, and outdoor activities. Whereas conventional learning models rely more on instructive learning methods, such as lectures, group discussions, and homework. (Pratiwi, NA, & Hermawan, 2018) , (Kurniawan, A., & Prastowo, 2019)
3. Learning Function The intelligent environmental learning model serves to introduce students to environmental problems and develop skills to solve these problems. Meanwhile, conventional learning models focus

more on developing knowledge and understanding of academic concepts. (Wijaya, AR, & Sugiyanto, 2020)

Table 2: The difference between PSL and conventional learning

Parameter	Conventional learning	Genius Environmental Learning
Learning Focus	The conventional learning model refers more to academic and theoretical learning Using a more active and interactive learning approach,	The environmentally intelligent learning model focuses more on the environment and human interaction with nature, so it refers more to applied learning.
Learning methods	Conventional learning models rely more on instructive learning methods, such as lectures, group discussions, and homework.	The environmentally intelligent learning model uses more interactive and practical learning methods, such as field observations, experiments, and outdoor activities.
Learning Function	Conventional learning models focus more on developing knowledge and understanding of academic concepts.	The environmentally intelligent learning model serves to introduce students to environmental problems and develop skills to solve these problems.

Fundamental Principles of the GEL Approach

Genius Environmental Learning (GEL) is a learning model developed to increase environmental awareness and sustainable skills in students. The basic principles of this model include:

1. Integrated learning:

   The GEL integrates the environmental curriculum into the existing academic curriculum. This allows students to learn about the environment and sustainability in an integrated way, without compromising the academic knowledge they need. (Johnson, 2012)

2. Collaboration:

   The GEL model emphasizes the importance of collaboration between students, teachers, and the community. This collaboration helps students broaden their horizons on environmental issues and learn how to work together to find solutions. (Bartlett, P., 2004)

3. Project-based learning:

   GEL uses a project-based learning approach that allows students to learn environmental concepts through practical and useful activities. These projects often involve local communities and provide opportunities to work as a team. (Sipos, Y., & Battisti, 2008)

4. Holistic approach:

   GEL considers the environment as a complex system, and views sustainable skills as complex skills too. Therefore, this model uses a holistic approach that involves critical thinking skills, ethics, and creativity. (Sipos, Y., & Battisti, 2008)

Table 3: Research Findings Using the **Genius** Environmental Learning Method

No	Author	Finding
1	(Chen, Y., & Xie, 2020)	Use of augmented reality technology for environmentally intelligent learning. This research was conducted to determine the effectiveness of using augmented reality technology in environmentally intelligent learning. The results of the study show that the use of augmented reality technology can improve students' understanding of environmental concepts significantly.
2	Susanto, H., Gunawan, G., & Anwar, (2019)	The results showed that the environmentally intelligent learning model had a significant effect on improving students' environmental attitudes. This study provides evidence that the environmentally intelligent learning model can significantly improve students' environmental

No	Author	Finding
		attitudes. Therefore, this learning model can be used as an alternative to increasing students' environmental awareness and creating a generation that cares about the environment.
3	(Nurhasanah, F., & Fitriani, 2020)	The study was conducted on seventh-grade students of junior high schools in the city of Yogyakarta using a quasi-experimental pretest-posttest control group design. The results showed that the environmentally intelligent learning model had a positive effect on improving students' environmental attitudes
4	(Ningrum, SR, Kurniawan, A., & Yuliani, 2021)	The research was conducted on fourth-grade students at an elementary school in Semarang City using an experimental design with a pretest-posttest control group design. The results showed that the use of environmentally intelligent learning models had a positive effect on increasing students' environmental awareness.

The research findings above show that the environmentally intelligent learning model has a positive influence on increasing elementary school students' environmental awareness. Therefore, the use of environmentally intelligent learning models in learning can be an alternative to increase students' environmental awareness and build a generation that cares about the environment from an early age.

Implementation of Genius Environmental Learning in Education

Environmentally intelligent learning models in education can help increase students' understanding of the environment. This model involves information and communication technology to help students learn environmental topics in a more interactive and involved way. This model has several important implications in the educational context, including:

1. Encouraging students to be more active and participatory in learning In the GEL model, students are allowed to be more active and participatory in learning. They not only listen to information but also engage in practical activities, such as direct observations, experiments, and projects. This can increase students' interest and motivation in learning and develop their social skills and creativity
2. Increasing student awareness about the environment The GEL model also aims to increase student awareness about the importance of protecting the environment. By introducing relevant environmental concepts and providing opportunities to take concrete actions, students can understand the importance of protecting the environment and being responsible for preserving it.
3. Encouraging collaboration between students and local communities The GEL model also encourages collaboration between students and local communities in solving environmental problems. Students are taught to participate in environmental projects that are relevant to the needs of local communities and develop sustainable solutions that suit the local context. This can strengthen the link between school and community and help students develop social and civic skills.
4. Integrating the environment into the primary school curriculum The GEL model also suggests integrating the environment into the primary school curriculum to enhance students' understanding of the environment. This can be done by integrating environmental concepts into various subjects, such as mathematics, languages, and art.

Genius Environmental Learning (GEL) aims to empower students as agents of environmental change by developing the skills, knowledge, and attitudes needed to address environmental issues.

CONCLUSION

The Genius Environmental Learning model is very effective in increasing students' environmental knowledge and awareness and empowering them as agents of environmental change. In this model, students are involved in active and participatory learning through various activities such as observing the environment, checking the quality of water and soil, and planting trees. Through this learning model, students not only gain knowledge and skills to solve environmental problems but also increase their participation in handling environmental problems in schools and the surrounding community. In addition, this model can also improve the quality of life of students by increasing their awareness of the environment and a healthy and sustainable way of life. Therefore, Genius Environmental Learning can be used as an effective learning model in increasing environmental awareness and empowering students as agents of environmental change in elementary schools.

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CHAPTER 3

SOCIALLY ADAPTIVE LEARNING: GROWING DISCIPLINE IN STUDENT LEARNING AFTER THE COVID-19 PANDEMIC

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SOCIALLY ADAPTIVE LEARNING: GROWING DISCIPLINE IN STUDENT LEARNING AFTER THE COVID-19 PANDEMIC

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ABSTRACT

This paper describes the application of socially adaptive learning to improve student learning discipline after the pandemic. Socially adaptive learning (SAL) is a learning approach that aims to enhance students' learning outcomes and social skills by adapting content and learning strategies tailored to their characteristics and social environment. Motivation, interest, self-confidence, and social support can influence student learning discipline in this context. The optimal application of Socially adaptive learning can positively impact student learning discipline by increasing learning motivation and helping reduce undisciplined behavior, such as arriving late to school and leaving class without permission.

KEYWORDS: Socially adaptive learning; Student learning discipline; After the covid-19 pandemic

INTRODUCTION

After the COVID-19 pandemic, many students experienced a decline in study discipline due to various factors that affected the learning situation, such as the transition to distance learning, changes in routines, and the stress caused by the pandemic. This is caused by several things 1) the transition to distance learning can make students feel less organized and disciplined in learning activities. Distance learning allows students to have more flexibility in their study time, but at the same time, this can create problems in time management and learning consistency. 2) changes in routine caused by the COVID-19 pandemic can affect student learning discipline. Many students are used to regular study schedules at school and suddenly have to adapt to different study patterns at home. This can interfere with the consistency and focus of students in learning activities. 3) The stress caused by the COVID-19 pandemic can also affect student learning discipline. Stress caused by lifestyle changes, uncertainty, and social isolation can

impair students' mental health and affect their ability to focus on learning activities.

According to a study by UNESCO, the COVID-19 pandemic has caused a worldwide decline in student learning discipline. The study found that "many students reported difficulties motivating themselves to study, managing their time well, and maintaining consistency in study activities (UNESCO., 2020). The research results of Shao, Y. et al (Shao, Y.; Ranganathan, S.; Ganapathy, H., & Bommakanti, 2021) show that the COVID-19 pandemic is having an impact on student well-being and learning in K-12 schools. The results of this study indicate that students need help motivating themselves to study independently, manage their time well, and maintain consistency in learning activities. Meanwhile, (Sahu, 2020) found that the COVID-19 pandemic impacted students' and academic staff's education and mental health. The results of this study indicate that students need help motivating themselves to study independently, managing time well, and maintaining consistency in learning activities, which decreases learning discipline. In addition, the stress and anxiety caused by the pandemic can interfere with students' concentration and learning motivation, which results in a decrease in learning discipline (Kumar, A.; Nayar, U., & Koya, 2020)

Some research results above show that the COVID-19 pandemic has affected student discipline worldwide at the K-12 and tertiary levels. This is caused by changes in lifestyle and learning situations that are unstable and uncertain, which affect students' motivation, concentration, and consistency of learning. Socially adaptive learning (SAL) is a learning concept that combines technology and social interaction to increase the effectiveness of student learning. In the post-COVID-19 pandemic, online learning has become the norm in many countries, and students face new challenges in their study disciplines. Socially adaptive learning helps students learn in a more organized and disciplined way so that they can achieve better results.

One of the reasons why socially adaptive learning is essential in improving student learning discipline after the COVID-19 pandemic is that students often

have difficulty motivating themselves and maintaining their focus during online learning. With technology that supports social interaction, such as online discussion forums, collaborative learning platforms, and the use of social media in educational contexts, students can engage in learning more actively and take responsibility for their learning outcomes. Social interaction can also help students feel more connected to their classmates and teachers, motivating them to keep learning.

According to a study by the University of Maryland, social interaction in online learning can help increase student motivation and engagement. The study found that "when students feel more connected to their classmates and teachers online, they tend to be more eager to learn and develop the social and cognitive skills necessary for success in the digital age"(Zhang, 2015).

LITERATURE REVIEW

Internal and external factors can influence student learning discipline, so developing a learning environment that supports and builds practical learning skills is necessary. Internal factors such as motivation and interest, as well as external factors such as the learning environment and parental support, to improve student learning and discipline must build a positive learning environment and motivate students to learn (Daryanto., 2019)(Raharjo, 2016). High students, education, and profession will improve their learning achievement (Sari, 2018). Several research results show that the COVID-19 pandemic has significantly affected student learning discipline, which decreased after the COVID-19 pandemic (Adisti, F., & Nastiti, 2021) (Zuhdi, M.; Sari, S.M., & Handayani, 2021) (Puspitasari, 2021). Factors that cause a decrease in learning discipline are due to ineffective learning online, lack of social interaction between students and teachers, and health anxiety (Kurniasih, N.; Rahmawati, D., & Afriyanti, 2021).

Several learning models, such as Problem-Based Learning and Cooperative Learning, have been implemented in schools to increase student learning motivation and discipline. Some research states that the learning model will

influence student learning discipline (Anggraini, N., & Syamsuddin, 2020) (Putra, A. G., & Kartono, 2019).

History of the Emergence of Adaptive Learning

Socially adaptive learning is a learning approach that integrates social interaction and adaptation in the learning process. This approach aims to increase learning effectiveness through interaction between students and their learning environment. The history of why socially adaptive learning emerged can be traced back to the early 2000s when the emergence of computer-based learning approaches called intelligent tutoring systems (ITSs). ITSs provide individual learning experiences tailored to student's needs and abilities. However, at the same time, researchers are beginning to recognize the importance of social interaction in learning and its impact on students' motivation and academic achievement (J. C. Lester et all, 2016).

Socially Adaptive Learning Goals

Socially Adaptive Learning aims to enable social interaction between students and their learning environment, thus increasing learning effectiveness and helping students achieve their learning goals. This approach also seeks to optimize the use of artificial intelligence (AI) to provide learning experiences tailored to students' needs and abilities (S. D. Hammond et all, 2009).

Some Definitions of Socially Adaptive Learning

Socially Adaptive Learning is a learning approach that integrates social interaction and adaptation in the learning process. The aim is to increase learning effectiveness through interaction between students and their learning environment " (Hammond, S. D., & Crosson, 2018a). Socially Adaptive Learning is designing technology-based learning environments in which artificial intelligence techniques create personalized learning experiences that include rich social interactions between students and between students and the environment"(C. Conati et all,

2014). Socially Adaptive Learning is a new research area that aims to improve learning outcomes by enabling personalized learning through technology sensitive to the social context of learning. (J. C. Lester et all, 2016).

Socially adaptive learning has a positive relationship with student academic achievement. Socially adaptive learning enables students to learn in a supportive and adaptive environment, which helps them build study skills and enhances their learning discipline (Liu, H.; Kang, J., & Wang, 2020). Socially adaptive learning platforms are essential in increasing student engagement and achievement in distance learning during the COVID-19 pandemic. The socially adaptive learning platform enables students to learn in an adaptive and supportive environment, increasing their motivation and discipline (Dinda, S., & Roy, 2021). Socially adaptive e-learning has a positive influence on student learning outcomes. Socially adaptive e-learning enables students to learn in a unique and adaptive environment, which helps them build practical study skills and improve their study discipline (Samarakoon, S.; Fernando, T., & Hume, 2018).

Some of the research above shows that socially adaptive learning positively correlates with student learning discipline. Socially adaptive learning helps students learn in a supportive, personal, and adaptive environment, allowing them to build practical study skills and increasing their motivation and discipline in education.

RESULTS AND DISCUSSION

The Socially Adaptive Learning model is suitable for school application (Why must it be Socially Adaptive Learning?)

The Socially Adaptive Learning (SAL) learning model is suitable for application in schools today because it provides a more personal and adaptive learning experience for each student and improves social skills that are important in everyday life. Several reasons why the SAL model is suitable to be applied in schools today are:

a. Distance Learning Challenges

   The SAL model can help facilitate remote learning by providing a more interactive and personalized learning experience for each student, even if they are not in the same classroom.

b. Addressing Student Differences

   Every student has different needs and learning styles. The SAL model pays attention to individual student differences and provides learning experiences suitable for each student to improve learning outcomes.

c. Improve Social Skills

   The SAL model facilitates social interaction between students and pays attention to students' social skills in the learning process, such as cooperation, communication, and interpersonal skills. These social skills are essential in everyday life and can help students in various situations (Hammond, S. D., & Crosson, 2018b) (Chen, B., & Bryer, 2012).

Socially Adaptive Learning is a learning approach that integrates social interaction and adaptation in the learning process. This approach aims to increase learning effectiveness through interaction between students and their learning environment. The features of this approach include using artificial intelligence (AI) to provide learning experiences that are tailored to the needs and abilities of students, increasing social interaction between students and their learning environment to help them achieve their learning goals, and using the data obtained. of social interaction and student performance to improve the learning experience (C. Conati et all, 2014).

Socially Adaptive Learning has several characteristics; the following is an explanation and reference for each of these characteristics:

a. Personalized learning: Socially Adaptive Learning integrates social interaction with artificial intelligence technologies to create personalized learning experiences tailored to the needs of each student (Hammond, S. D., & Crosson, 2018b).

b. Rich social interactions: Socially Adaptive Learning emphasizes rich social interactions between students and their learning environment. This can include interactions with teachers, classmates, and virtual learning environments (C. Conati et al. l, 2014)

c. Adaptive learning: Socially Adaptive Learning enables adapted learning experiences for students based on information about students' learning profiles and progress in the learning process (Hammond, S. D., & Crosson, 2018a).

d. Increased motivation: Socially Adaptive Learning can increase student motivation by providing personalized, engaging, and relevant feedback and creating a more enjoyable learning experience (J. C. Lester et all, 2016).

e. Ability to develop social skills: Socially Adaptive Learning can help students develop social skills such as cooperation, communication, and leadership through social interactions in the learning environment (J. C. Lester et all, 2016).

By implementing socially adaptive learning, students can improve their learning abilities. However, there are several weaknesses besides the advantages of Socially Adaptive Learning.

Advantages and Weaknesses of Socially Adaptive Learning

Socially Adaptive Learning has several advantages and disadvantages; the following is an explanation and reference for each of these aspects:

Superiority:

1. Personalized learning: Socially Adaptive Learning can result in learning experiences that are more personalized and tailored to individual needs. This can increase the effectiveness of learning and accelerate student progress (Hammond, S. D., & Crosson, 2018b).

2. Motivation: Socially Adaptive Learning can increase students' motivation to learn by providing exciting and relevant feedback and creating a more enjoyable learning experience (J. C. Lester et all, 2016)
3. Collaborative learning: Socially Adaptive Learning can facilitate social interaction, increasing student engagement in education and helping develop critical social skills (Dillenbourg, P.; Jarvela, S.; Fischer, 2009).

Weakness:

1. Requires complex technology: Socially Adaptive Learning requires complex technology to capture data about learning and produce personalized learning experiences. This can require significant investments in technology infrastructure and skilled human resources (Dillenbourg, P.; Jarvela, S.; Fischer, 2009).
2. Limitations in recognizing and meeting individual needs: Socially Adaptive Learning still has limitations in identifying and meeting individual student needs, especially if the data obtained about student profiles must be completed or accurate (Hammond, S. D., & Crosson, 2018a).
3. Potential to increase social inequalities: Socially Adaptive Learning can amplify social inequalities when personalized learning experiences are only available to students who can afford them (Dillenbourg, P.; Jarvela, S.; Fischer, 2009).

It is necessary to recognize the learning steps to make the socially adaptive learning model effective and improve student learning discipline.

Learning Steps with the Socially Adaptive Learning Model

Socially Adaptive Learning is a learning approach that pays attention to social aspects and individualization of learning. Here are some learning steps using Socially Adaptive Learning:

1. Collect student profile data: Collect student profile data to understand student learning characteristics and preferences. This data can include learning

preferences, multiple intelligences, learning styles, initial abilities, interests, etc. (Roll, I., Baker, R. S., Aleven, V., McLaren, B. M., & Koedinger, 2005).

2. Generate student profile models: Use student profile data to generate student profile models that can be used to create personalized learning experiences tailored to student needs and preferences (Roll, I., Baker, R. S., Aleven, V., McLaren, B. M., & Koedinger, 2005).
3. Developing personalized learning experiences: Using student profile models to develop customized learning experiences. These learning experiences include learning content, strategies, feedback, etc. (Roll, I., Baker, R. S., Aleven, V., McLaren, B. M., & Koedinger, 2005).
4. Implement adaptive feedback: Provide adaptive feedback tailored to student needs and preferences. This feedback can include measuring student progress, positive reinforcement, and suggestions for improving understanding or skills(Hammond, S. D., & Crosson, 2018a).
5. Encouraging collaboration: Encouraging students to work together and interact with other students, either in person or through technology. This collaboration can increase student engagement in learning and help them develop social skills (Dillenbourg, P.; Jarvela, S.; Fischer, 2009).

Similarities and Differences between the Socially Adaptive Learning Model and the Adaptive Learning Model

Socially Adaptive Learning (SAL) and Adaptive Learning (AL) are two learning models with similarities and differences. The similarities are, 1) both are learning models that pay attention to the individualization of learning and learning experiences tailored to students' needs and preferences. 2) both use technology and algorithms to produce personalized and adaptive learning experiences, and 3) aim to increase the effectiveness and efficiency of learning by taking into account the characteristics of students(Hammond, S. D., & Crosson, 2018a).

Table 1 : Differences between the Socially Adaptive Learning Model and Adaptive Learning Model (Brusilovsky, P., & Peylo, 2003)

Parameter	Socially Adaptive Learning Model	Adaptive Learning Model
Focus	SAL pays more attention to the social aspects of learning	AL focuses on individualizing learning based on a student's abilities and preferences.
Data	SAL uses student profile data and social interaction to generate learning models,	AL uses student profile data and measurements of student progress to produce personalized learning experiences.
Algorithm	SAL uses an algorithm that pays attention to social aspects, such as social network analysis	AL uses algorithms focusing more on individual adaptation, such as reinforcement learning.
Objective	SAL aims to improve social interaction and social skills of students, meanwhile	SAL aims to improve social interaction and social skills of students, meanwhile

Differences in Learning Socially Adaptive Learning with Conventional Learning

The main difference between Socially Adaptive Learning (SAL) and conventional learning lies in the approach and objectives. The following is a more detailed explanation of the differences between the two learning models:

Table 2: Differences in Learning Socially Adaptive Learning with Conventional Learning

Parameter	Socially Adaptive Learning	conventional
Approach	SAL uses technology and algorithms to pay attention to individual student differences and provide a personalized and adaptive learning experience.	Generally, use the same teaching method for all students, regardless of individual student differences.
AaObjective	The objectives of the SAL are more focused on developing students' social skills, such as collaboration, communication, and interpersonal skills, while	CcConventional learning objectives focus more on transferring knowledge or information from teacher to student and pay more attention to academic aspects such as

Parameter	Socially Adaptive Learning	conventional
	also paying attention to academic aspects.	knowledge and skills.
DdSocial interaction	SAL pays more attention to social interaction and student collaboration and uses social interaction data to produce more personalized learning experiences.	Conventional learning is more likely to be individual, students do their work, and interaction with classmates is limited.
Use of Technology	SAL uses advanced technology, such as artificial intelligence and machine learning, to pay attention to individual student differences and provide personalized learning experiences	Conventional learning uses limited technology, such as books and blackboards.

Socially Adaptive Learning Relationship with Student Learning Discipline

Socially adaptive learning (SAL) is an approach that aims to improve student's learning outcomes and social skills by adapting content and learning strategies tailored to their characteristics and social environment. Motivation, interest, self-confidence, and social support can influence student learning discipline in this context. Several studies have shown that the application of SAL can positively impact student learning discipline. For example, a study conducted by Chen et al. High school students in Taiwan found that implementing SAL can increase student motivation and help reduce undisciplined behavior, such as arriving late to school and leaving class without permission (Chen, B., & Bryer, 2012)

CONCLUSION

1. The COVID-19 pandemic has caused a worldwide decline in student learning discipline; a learning model is needed to build student learning discipline after the pandemic. Socially adaptive learning is a learning model that has the advantage of personalizing learning, motivating and collaborative learning

2. Socially adaptive learning allows students to learn in a supportive and adaptive environment, increasing motivation to help them build practical study skills and improve their learning discipline.

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CHAPTER 4

DEMONSTRATION LEARNING: A KEY COMPONENT OF THE CREATIVITY, ACTIVITY, AND SERVICE (CAS) PROGRAM FOR DEVELOPING SKILLS AND KNOWLEDGE IN STUDENTS

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DEMONSTRATION LEARNING: A KEY COMPONENT OF THE CREATIVITY, ACTIVITY, AND SERVICE (CAS) PROGRAM FOR DEVELOPING SKILLS AND KNOWLEDGE IN STUDENTS

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ABSTRACT

Demonstration learning is a teaching method in which the teacher shows students how to do a task step by step, and is particularly effective for skills or procedures that require visual or physical demonstration. The Creativity, Activity, and Service Program emphasizes the development of student's skills and knowledge through various experiences in creativity, activities, and service. By integrating demonstration learning into the CAS program, students can be actively involved in learning to develop new skills and knowledge through hands-on experience and demonstrate learning outcomes. With an effective demonstration learning strategy, students can gain direct experience and more easily understand the skills or concepts being taught.

KEYWORD: Learning Demonstration, Creativity, Activity, And Service

INTRODUCTION

The learning process is a continuous activity whose main goal is for students to absorb the subject matter. Karli (2004) revealed that the task of a teacher is not just teaching but places more emphasis on learning and educating, the learning that students can get while at school should be used for life provisions and survival. Therefore, learning is not only emphasized in science. In high schools, learning is carried out through various learning strategies so that students' hidden potential can be identified and increase student motivation in learning so that learning has a fun and exciting atmosphere.

Traditional learning often only involves passive teaching methods (Ahmed, 2022), such as teachers giving lectures and students taking notes.

This can make students less involved in the learning process and it may be difficult for them to understand and apply the concepts or skills being taught. In addition, when students only observe without being actively involved in the learning process, they lose opportunities to gain hands-on experience and practice the skills they learn.

On the other hand, in demonstration learning, the teacher or instructor shows directly the steps needed to perform a particular task or activity, providing opportunities for students to gain direct experience and be actively involved in the learning process. By being actively involved in the learning process, students can more easily understand the concepts or skills being taught and it is easier to apply them in real situations (Ani Budi et al., 2019). In demonstration learning, students can also get direct feedback from the teacher or instructor, which can help them to improve their skills and gain a better understanding of the concepts being taught. Therefore, demonstration learning can be a more effective teaching method and be actively involved in the learning process.

Based on the description above, the questions that must be answered in this paper are: 1). How do the differences between traditional and demonstration teaching methods affect students' ability to understand and apply the concepts or skills being taught? 2). Why is demonstration learning considered more effective 3). How can demonstration learning strategies increase student motivation in learning and create a fun and exciting learning atmosphere?

LITERATUR REVIEW

Definition of demonstrative learning

Demonstrative learning is a learning method that emphasizes direct experience and practice in learning a concept or skill, by providing direct examples or demonstrations to students. Demonstrative learning involves the use of visual or multimedia media, as well as two-way teacher-student interaction, so students can understand and apply the skills they have learned more effectively. Through demonstrative learning, students can gain hands-on experience and increase understanding and

Table 1: Definition of demonstrative learning and parameters

NO	Author	Definisi
1	Anderson (1977)	Demonstrative learning is a process of teaching a skill or action through observation or imitation. The parameters used are the process of learning and teaching skills.
2	Gagne (1985)	Demonstrative learning is a teaching method that focuses on understanding concepts or skills through observation or demonstration. The parameter used is the teaching method.
3	Kirschner dan van Merriënboer (2013),	Demonstrative learning is a learning process through direct experience and interaction with the environment, teacher observation, imitation, or direct practice in real situations. The parameter used is the learning process.
4	Baddeley (1990)	Demonstrative learning involves giving examples or direct demonstrations of a concept or skill to students. The parameters used are examples or demonstrations.
5	Mayer (2005),	The demonstration is a learning process through the use of visual or multimedia media to convey information interestingly and effectively. The parameter used is the use of visual or multimedia media.

In conclusion, demonstrative learning can be defined as a process of teaching or learning skills or concepts through observation, demonstration, or direct practice in real situations, through the use of visual or multimedia media, or by giving examples or direct demonstrations. The definition of demonstrative learning can vary depending on the perspective and parameters used by each expert.

The Difference Between Traditional Learning and Demonstrative Learning

Demonstrative learning and traditional learning are two different approaches to the learning process. Traditional learning usually involves the teacher giving explanations, while students sit and listen. This approach is based on a knowledge transmission model, where teachers are considered the main source of information, and students are considered recipients of the information. Traditional learning focuses more on theory, concepts, and principles, and provides few opportunities for students to be actively involved in learning. On the other hand, demonstrative learning involves teachers doing demonstrations, and students are actively involved in the learning process. In demonstrative learning, students see and listen to the teacher showing how to do something. Then, students have the opportunity to try themselves, or do similar assignments, with guidance from the teacher. Demonstrative learning allows students to see, try, and practice concepts or skills firsthand, thus strengthening their understanding and learning experience.

Another difference between demonstrative learning and traditional learning is that demonstrative learning places more emphasis on practical experience and skills, while traditional learning places more emphasis on

theory and conceptual knowledge. Demonstrative learning also tends to be more collaborative and facilitates more interactive learning, while traditional learning is more passive and individualistic. So demonstrative learning and traditional learning have different approaches to the learning process. However, demonstrative learning offers a more effective way of increasing students' practical skills and understanding, while traditional learning is more suitable for acquiring conceptual knowledge.

Table 2: Five differences between traditional learning and demonstrative learning

NO	Parameter	Traditional Learning	Demonstration Learning
1	Nature of Learning	Oral and more theoretical	More emphasis on hands-on experience and practice and more practical and concrete
2	Learning Focus	More focus on understanding concepts and theories,	More focus on skill application and practice.
3	Teacher-Student	Teacher-student interaction is one-way,	Teacher-student interaction is two-way.
4	Interaction Instructional Media	The learning media users tend to be audio-visual,	The learning media used are more diverse, such as the tools or materials used in practicing skills.
5	Measurement of Learning Outcomes	Measurement of learning outcomes is done through written tests or exams,	Measurement of learning outcomes is done by assessing the ability of students to apply the skills that have been learned.

Source **:** (Oliver & Herrington, 2003)

Demonstrative learning advantages

The demonstration method is an effective way to enhance students' active learning. In this method, the teacher shows students how to do something, not just tell them about it (Muhajir, 2020). The demonstration method can enhance students' active learning in several ways.

1. **This method encourages students to engage in learning.**
   When students see demonstrations, they are more likely to engage with the material being studied. They can see how the theory learned is applied in practice, making it easier for them to understand and remember the material.
2. **The demonstration method promotes critical thinking.**
   When students watch demonstrations, they are encouraged to think critically about what they see. They may ask questions about why a certain step is needed or what could happen if a certain step is missed. This promotes a deeper understanding and analysis of the material.
3. **This method helps build students' self-confidence.**
   Seeing a demonstration can help students feel more confident in their ability to do a task. They can see how to do the task correctly and then try it for themselves with guidance from the teacher.
4. **The demonstration method facilitates practical learning.**
   Demonstrations can be used to introduce hands-on activities, further enhancing active learning. Students can work in groups to practice what they have seen in the demonstration.
5. **This method provides a visual aid.**
   Demonstrations provide a visual aid that can help students understand the material better. They can see how something works,

so it's easier to remember and apply the concept later. The demonstration method is an effective way to enhance students' active learning. By engaging students, promoting critical thinking, building self-confidence, facilitating practical learning, and providing visual aids, this method can help students understand and remember material better (Hajar et al., 2021).

DISCUSSION

Demonstration learning activity

Demonstration learning activity is a learning method that involves the teacher or instructor in showing students how to do tasks or activities step by step. This type of learning activity is often used to teach skills or procedures that require visual or physical demonstration, such as cooking, woodworking, or scientific experiments. For example, demonstration learning activities to teach students how to make paper airplanes can be done in the following ways (Rizatrisna, 2020):

1. The teacher gathers students around the table and provides materials, such as paper and scissors.
2. The teacher demonstrates how to fold paper to make a paper airplane, step by step, explaining each fold as the demonstration progresses.
3. The teacher lets students try to make their paper airplanes and provides the necessary assistance and feedback.
4. The teacher encourages students to experiment with different designs and modifications, as well as test their paper airplanes to see how far they can fly.

5. The teacher facilitates a class discussion about what worked and did not work and encourages students to reflect on what they learned from the activity.
6. Overall, demonstration learning activities can be an effective way to engage students in active learning and help them develop new skills and knowledge through hands-on experience.

Demonstration learning activity is a learning method that involves the teacher or instructor in showing students how to do tasks or activities step by step. This type of learning activity is often used to teach skills or procedures that require visual or physical demonstration, such as cooking, woodworking, or scientific experiments. Demonstration learning can be linked to the Creativity, Activity, Service (CAS) program because these two concepts emphasize the importance of students showing the skills and knowledge they have acquired through learning experiences.

In the CAS program, students are expected to demonstrate their learning outcomes through various means, such as presentations, exhibitions, or projects. In this case, students demonstrate the skills and knowledge they have acquired while engaging in creative activities, physical activities, and social services. These demonstrations can provide opportunities for students to evaluate their work, improve their skills and knowledge, and provide inspiration for new learning experiences in the future (Cathryn Berger Kaye, 2009).

So, in the context of the CAS program, demonstration learning can be an important part of the student learning process, which can help them develop skills and knowledge and apply learning experiences in real life. creativity, participate in physical activities, and perform social service in their community. Through the CAS program, students are expected to be

able to develop the attitudes and skills needed to become responsible global citizens and be actively involved in society.

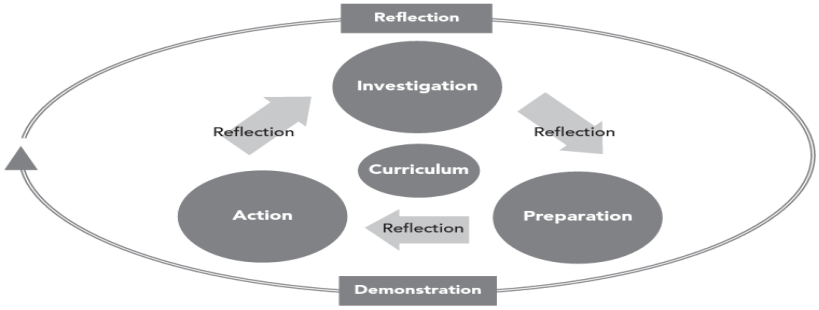


Fig 1: The 5 Stages of service learning: dynamic process (Cathryn Berger Kaye, 2009)

The five stages of CAS are as follows:

1. Investigations

   Students identify their interests, skills, and talents to use in considering opportunities for CAS experiences, as well as areas for personal growth and development. Students investigate what they want to do and define the goals of their CAS experience. In terms of service, students identify a need they wish to address.

2. Preparation

   Students clarify roles and responsibilities, develop a plan of action to be taken, identify specific resources and timelines, and acquire any skills necessary to engage in a CAS experience.

3. Action

   Students implement their ideas or plans. This often requires decision-making and problem-solving. Students may work individually, in pairs, or in groups.

4. Reflection

Students describe what happened, express feelings, generate ideas, and ask questions. Reflection can occur at any time during CAS to further understand, to help revise plans, to learn from experience, and to make explicit connections between their growth, achievements, and learning outcomes for personal awareness. Reflection can lead to new actions.

5. Demonstrates:

   Students make explicit what and how they learn and what they have accomplished, for example, by sharing their CAS experiences through their CAS portfolio or with others informally or formally. Through demonstration and communication, students confirm their understanding and evoke responses from others.

CAS Stages provides a framework that enables students to:

1. Increase self-awareness
2. Learning about learning
3. Exploring new and unfamiliar challenges
4. Using different learning styles
5. Develop their ability to communicate and cooperate with others
6. Experiencing and recognizing personal growth
7. Develop learner profile attributes ib.

For a single CAS experience, students can start with investigation, preparation, or action. For a sustainable CAS experience, it is recommended to start with an investigation. In this ongoing experience, the action phase can lead students back into inquiry or preparation as they further develop, expand, and apply new or related ideas.

Strategies in Demonstration Learning

The demonstration learning strategy is a learning method that involves using direct examples to teach a skill or concept to students. This method usually involves educators or instructors showing how to do a task or solve a problem, while students watch and record important things that need attention (Maisarah., 2019). The following are some strategies that can be applied in demonstration learning (Giridharan & Raju, 2016):

1. Good material preparation:

   Before carrying out a demonstration, prepare the material well and make sure that you master the concepts or skills that will be taught. Plan your presentation well, use clear and easy-to-understand language, and make sure that all the necessary tools and materials are available and ready to use.
2. Choose the right example:

   Choose examples that are appropriate and relevant to the material being taught. Choose examples that are easy for students to understand and follow.
3. Provide guides and instructions:

   The teacher provides clear and easy-to-understand guidelines and instructions, so that students can follow along well then gives time to ask and answer questions and provide feedback to students.
4. Provide opportunities for exercise:

   After doing the demonstration, allow students to try themselves and practice the skills or concepts that have been taught. Give feedback and encourage students to keep trying until they master the material.

5. Evaluate student progress:

   Teachers need to evaluate to find out how far students have mastered the material that has been taught. Allow repeating or correcting if there are errors or deficiencies.

CONCLUSION

Demonstration learning in the context of the creativity, activity, and service (CAS) program, which emphasizes the development of student's skills and knowledge through various experiences in creativity, activity, and service. Demonstration learning is a teaching method that involves the teacher in showing students step by step how to do a task or activity, which is especially effective for teaching skills or procedures that require visual or physical demonstration. By integrating demonstration learning into the CAS program, students can be actively involved in their learning, develop new skills and knowledge through hands-on experience, and showcase their learning outcomes through various means such as presentations, exhibitions, or projects. Therefore, demonstration learning can be considered a key component of the CAS program to develop students' skills and knowledge.

By applying a good demonstration learning strategy, students can gain direct experience and it is easier to understand the skills or concepts being taught.

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CHAPTER 5

PROBLEM-BASED LEARNING: AN INNOVATIVE LEARNING MODEL IN THE ERA OF EDUCATIONAL DISRUPTION

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Problem-Based Learning: An Innovative Learning Model in the Era of Educational Disruption

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ABSTRACT

This article describes the "problem-based learning" model as an innovative model for learning strategies in the current era of educational disruption. The main problem to be discussed here is the extent to which the "problem-based learning" model can become an innovative model for learning in the era of educational disruption. The main purpose of writing this article is to describe the substance of the "problem-based learning" model and to prove theoretically that this learning model can be an innovation for learning in the era of educational disruption. The main advantage of the "problem-based learning" model is that it prioritizes the development of cognitive and rational abilities of students to solve problems as one of the main demands of learning skills demanded in the 21st century. Meanwhile, the main weakness is that it often ignores other aspects of developing educational abilities, such as emotional, affective, and psycho-motor aspects. So it is difficult to apply this to students whose intellectual abilities were below average or to a school that has not been properly standardized or accredited.

KEYWORDS: *problem-based learning, innovation, educational disruption.*

INTRODUCTION

This article described a learning model and strategy called "problem-solving learning" as one of the core applications of the "problem-based learning" model and strategy. The main problem described in this article is how "problem-based learning" can be a better means or way to improve learning strategy and model in the current era of educational disruption. While the goal to be achieved through this article is to describe or explain the core understanding and the essence of the "problem-based learning" method as an innovative learning model to improve learning strategies and models in the current era of educational disruption.

There are various learning models and strategies offered in the world of education, as have been developed in the world of education and learning in

Indonesia today (Feida, 2020; Aidah, 2020). Each learning model presupposes a philosophical and psychological concept behind the ideas or ideas that aim to offer a model that is seemed suitable for today's educational needs.

Problem-based learning is a learning method that comes from the model and theory of cognitive learning (Sanjaya, 2006: 213). From the point of view of philosophy and psychology, the model and strategy of "problem-based learning" can be seen as a learning model which is essentially rooted in the constructivist learning model as developed by Jean Piaget (1971). The problem-based learning model presupposes the basic thinking skills or intellectual abilities of students in processing and analyzing a problem in the learning process to produce a solution that can be accounted for scientifically.

The concept and term "disruption" has only just begun to emerge as public opinion in the context of technology, business, and financial investment after being popularized by Clayton M. Christensen and Francis Fukuyama (Ohoitimur, 2018; Kasali, 2017). Even though the two initiators of the concept of "disruption" have different backgrounds and perspectives, both of them have the same opinion about "disruption", namely as a "disruption" or "attack" to the order of human social life that occurs massively, quickly and is very influential through advances in modern information technology. Changes in social conditions that occur very quickly certainly affect all areas of human life, including the field of education and learning, especially higher education, as explained in an article written by Christensen (Ohoitimur, 2018: 7). With the continuous and alternating changes in various dimensions of human life, including the world of education, the patterns and strategies of instruction and learning are naturally disrupted. The world of education and learning, especially the world of higher education, will experience changes rapidly along with the development of changes that occur in the world of science and information technology (Christensen, 2008). Old patterns and strategies of instruction and learning must be changed into better education and learning innovations, in line with the changing needs and challenges of society in the 21st century which are getting faster and more massive. So problem-based

learning patterns and strategies can be seen as one of the innovations in the field of learning in the era of educational disruption.

LITERATURE REVIEW

The Influence of Cognitive Psychology on the Nature of "Problem Based-Learning"

The main ideas of the problem-based learning model and strategy emerge from the concept of cognitive learning psychology as developed by Jean Piaget, Jerome Bruner, and Ausubel (Warsita, 2008:69-74; Komarudin & Sukardjo, 2009:50-54). The main idea of cognitive learning theory is to emphasize the understanding that learning is a process of "change" that occurs or is experienced in each individual through changes in the way of thinking that occurs gradually and goes according to each individual's experience. Adherents of cognitive learning theory believe more that the authenticity and essence of "learning" are not merely determined by rigid and persistent external stimuli, but by a change in mindset that gradually leads to cognitive and intellectual maturity.

The concept of cognitive learning psychology also emphasizes the ability of each individual to process and process the information received, whether descriptive or problematic, through cognitive stages as described by von Glassersveld and Piaget (Suparno, 1997) in the theory of cognitive development. Through the formation of a "scheme" of thinking for each different person, each student is ultimately able to compile and process the data and information that he or she obtains, to where the "construction" of knowledge is created or built. That "construction" of knowledge might be an answer or a new way out of the problems offered in the scientific learning process.

Educational and cognitive psychology experts believe that humans have reasoning abilities or rational competencies that can be used to overcome or solve the problems of life they were facing. That is the reason why this problem-based learning model and strategy was created to be able to answer the needs of the

world of education today through the ability to think creatively and analytically to produce learning innovations that continue to develop through science and technology. Therefore, Christensen (2008: 10-11) argues that every learning innovation is required to be able to overcome the actual problems faced today, and always improve and change each other along with the development and progress of science in a world that is changing more and more. fast and global.

Three Main Perspectives in "Problem-Based Learning"

1. *Psychological Perspective*. This is the first perspective underlying the idea of the emergence of a "problem-based learning" model. Philosophers and psychologists with a cognitive psychology background generally believe that each individual has cognitive abilities in processing and processing data and information to produce new knowledge constructions and find symbolic representations in the learning process (Komarudin & Sukardjo, 2009:50). These abilities can be used by students in solving various problems offered by teachers or those that are encountered outside the school environment.
2. *Educational Perspective*, educational institutions must be able to train and educate students to deal with various actual problems found or encountered in concrete life. The provision of knowledge and skills that are taught or trained must be in line with or in line with the challenges and developments in society and the world so that they are useful in finding solutions or ways out of various life problems (Sanjaya, 2006: 214). Improving or developing learning patterns and strategies such as "problem-based learning" might be a better response to the needs of the world of education today which tends to prefer instant solutions in overcoming obstacles or problems encountered.
3. *Restorative Perspective*. This means that problem-based learning strategy and model can be used as a choice of learning strategy and model that perfect or improve other learning strategies and models, especially in the context of the learning process in the post-covid-19 pandemic. Problem-based learning strategy and model can be used effectively to revive the rational and scientific

intuitions of students who have decreased and seemed to "disappear" or "decrease" during the covid-19 pandemic in the last three years (Lintong, 2022: 2). The phenomenon known as "learning loss" during the covid-19 pandemic mainly decreased rational abilities and eliminated the development of the personality characteristics of students who only studied from their own house by using *online* learning.

Two Characteristics of "Problems" in the "Problem-Based Learning" Model

1. The characteristics of the "problem" understood in the context of problem-based learning are “opened problems”. The "problem" raised in this learning strategy and model is not exactly like mathematical problems as it is understood in the context of inquiry-based learning. "Problems" in this problem-based learning are more abstract and analytic in nature so they require more flexible and creative reasoning and rational intuition from teachers and students (Trianto, 2017:66). So the role of the teacher should be that of a facilitator and companion for students so that they are provoked to think creatively and innovative, so finally they find ways and answers to the "problems" posed or faced in the learning and teaching process.
2. Another characteristic of "problem" is the notion of "problem" as it is often used in **research problems** or **scientific problems**. The "problem" in this case referred to a kind of "**difference**" or "**gap”** that existentially occurs between what is ideally or theoretically expected and what happens in public society (Sanjaya, 2006:216). In detail, the "gap" referred to various forms such as discrepancies, turmoil, chaos, anxiety, uncertainty, and complaints in the world of education and learning. Therefore educational institutions need to prepare and select teaching materials that contain “contextual or actual” problems.

Stages of the "Problem-Based Learning" Strategy

Theoretically, many educational experts explain the ways and forms of application of problem-based learning strategies. One of the experts that the author

uses here is John Dewey (in Sanjaya, 2006: 2017) who defined six steps for implementing "problem-solving learning" as follows:

1. **Formulate the problem**. At this first stage, students are led to be able to distinguish between “matter” and "problem". Students must be able to distinguish the situation or condition they are facing as a "matter" that is still open to the possibility of becoming a "problem" or not. So, teachers need to guide and help students to formulate what are categorized as "matters" and which are seen as "problems".
2. **Analyze the problem**. In this second stage, students need the ability to find the source or root of a "problem" that occurs by asking critical and analytical questions that are causal in nature. In addition, students must begin to learn to see or dissect a "problem" by using several points of view.
3. **Set the hypothesis.** In this third stage, students are expected to be able to construct a scientific "hypothesis" of the "problem" that has been formulated and analyzed together. Students must be able to make assumptions as well as to predict possibilities that may occur in the future and formulate it into precise statements.
4. **Collect data.** At this stage, students are given the task of finding various scientific information that can support or answer the research hypotheses that have been proposed. The data referred to here can be either quantitative data or qualitative data. The data can be obtained through literature studies, studies of sources of information via the Internet, interviews, field observations, and simple statistical processing.
5. **Test the hypothesis**. At this stage, students must be guided seriously by teachers who at least understand the basics of scientific research methods or scientific ways of thinking through the methods of deduction and induction. The goal is for students to be able to test the hypotheses they propose based on scientific method formulation.

6. **Formulate problem-solving recommendations**. In this last step, students must be able to compile or submit recommendations in the form of solutions or solutions for solving the problem under study. How to formulate recommendations for solving this problem depends on scientific research methods used previously.

RESULTS AND DISCUSSION

"Problem-Based Learning": Innovation Beyond Creativity

We all know that today there are many learning strategies and models offered in the world of education and learning. Of course, each learning strategy and model has its background, strengths, and weaknesses when applied in a concrete context and situation. Therefore, every time a new learning strategy and model emerges, it will improve or perfect a previous learning model. This has long been explained by Jean Piaget, one of the developers of the "constructed" learning theory and model (Piaget, 1950:15).

"Problem-based learning" appears as an innovation in the world of education and learning by emphasizing the main role of students as the subject of the learning process, while other learning models still emphasized the role of the teacher. Historically "problem-based learning" was introduced in the early 1970s at Mac Master University at the Canadian Faculty of Medicine, as an effort to find solutions to diagnosis by making questions according to the conditions faced at that time (Rusman, 2012:242). It turns out that such a learning model does not answer the needs of the world of work today which prioritizes creativity and innovation in dealing with and responding to problems and challenges in the world of work.

In this case, the teacher is required to be able to intelligently and correctly choose a learning model that can stimulate the spirit of learning and the growth of students' curiosity in facing and answering the "problems" they face (Nurdyansyah, 2018: 5). So an alternative and innovative learning strategy and

model that is capable of covering students' abilities and skills in reasoning, analyzing and solving "problems" using scientific research methods is the "problem-based learning" model.

Responding to the Need for Innovative Learning Model in the Era of Educational Disruption

As we understand nowadays, the current era of "educational disruption" has changed one of the social goals of education, which is not just looking for a job or social welfare, but also eliminating several types of old jobs and professions and being replaced with new jobs and professions based on digital technology. (Kasali, 2017). The measure of success of an educational system or model is no longer measured by how many graduates are absorbed by the job market or companies, but by how far it creates independent technological innovations that further reduce the absorption of human labor. This is marked by the spread of advances in information technology which results in the application of "answering machines" to all human questions through "artificial intelligence" based robots. The reality of today's human ability to create various informative and robotic applications based on "artificial intelligence" has proven the answer to questions and problems in the past about whether humans can create robots with an intelligence level "beyond" the average human.

The "problem-based learning" model that underlies learning patterns using scientific research methods is proven to be able to answer several problems and difficulties in the field of information and data retrieval through innovations and breakthroughs in information technology that are increasingly sophisticated and practical. Thus, this "problem-based learning" can be seen as an opportunity for learning innovation and creativity that helps the world of higher education in the current era of educational disruption as reviewed by Christensen (Ohoitimur, 2018). One of the entry points for the important contribution of the "problem-based learning" model to higher education is to provide the basics of introduction and practice of applying scientific research patterns and methods in the learning

process in secondary schools. In this way the "problem-based learning model" applied in secondary schools trains students from an early age to recognize scientific ways of thinking, how to conduct research simply and to be more sensitive or open to the contextual problems that surround them. The more students are accustomed to thinking and learning scientifically, the better the academic atmosphere and learning environment will be created.

Problem-Based Learning Steps

The steps that must be taken by the teacher in implementing the "problem-based learning" model as described by Rusman (2104:243) are as follows:

Table 3: Steps of "Problem Based-Learning" Implementation

Phase	Student Action Indicators	Teacher Actions
1	Orientation and introduction of students to the problems posed or faced	Explain the learning objectives, explain the logistics needed, and motivate students to be involved in problem-solving activities
2	Organizing students to learn to analyze problems	Helping students formulate and organize learning tasks related to problems
3	Guiding individual/group experience	Encourage students to collect appropriate data and information, carry out experiments to get explanations, and solve problems
4	Develop and present the results of scientific work	Assist students in planning and preparing appropriate works such as research reports or scientific data processing reports
5	Analyze and evaluate the problem-solving process	Helping or facilitating students to reflect or evaluate the results of the research and the research process carried out

Based on the steps of "problem-based learning" as described above, we can analyze the role of teachers and student work indicators in implementing this problem-based learning model. The teacher's role is primarily to be a *facilitator* and mentor who accompany and guide students according to the steps set. In other words, the teacher should not dominate or instead provide problem-solving. The

teacher facilitates students' efforts by serving or giving direction, instructions, and assistance as necessary according to the research method used to solve the problem posed. While students are required to follow scientific procedures or systematic steps offered.

Advantages and Limitations of "Problem-Based Learning"

1. Advantages:

- The problem-based learning model trains students to be active, creative, and even innovative through actual "problem" stimuli that are offered to be examined in a simple but critical and analytical manner.
- The problem-based learning model trains students' thinking and reflective skills through recognizing and processing "problems" and challenging their curiosity and scientific intuition to solve the "problems" offered in learning.
- Is one of the innovative learning models that improve other learning models, especially useful in facing the wave of "educational disruption" in the world of learning and education in general.
- Problem-solving models can also encourage or motivate students to carry out self-evaluations or self-reflection both on the learning process and on the results of their research.

2. Limitations:

- The problem-based learning model presupposes application to a school environment where students have a good and selected basis of cognitive or intellectual abilities by default. Because of this, this learning model is more effectively applied to schools with higher and more advanced quality standards. The fact proves that equal distribution of quality and accessibility of schools in urban and rural areas is still far different.
- The problem-based learning model also requires quality and professional teaching staff so that they can provide facilities and assistance that are truly effective and efficient to achieve the goals of problem-based learning itself.

So schools that still use teachers who are not standardized and professional will experience many difficulties if they apply this learning method.

- ✧ Experience in the world of education proves that most teachers are less interested in using problem-based learning methods because it takes longer time and emphasizes mastery of standardized scientific procedures to achieve maximum and truly quality learning outcomes.

CONCLUSION

Based on the description in the literature review and supported by the results and discussion regarding "problem-based learning" as an innovative learning model in the era of educational disruption, the following conclusions can be drawn:

1. Problem-based learning is one of the innovative learning models offered in the era of educational disruption. This learning model requires well-established educational conditions and an atmosphere with quality teachers and students who are certified and professionally selected as academic guarantees for the application of problem-based learning models.
2. Problem-based learning bases its learning models and patterns on scientific approach procedures and methods through simple research. The goal is to find conclusions in the form of solving problems offered or faced together in the learning process through measurable and evaluated stages or steps.
3. The main advantage of the problem-based learning model is that it prioritizes the development of students' cognitive and rational abilities to solve problems as one of the main demands of learning skills demanded in the 21st century.
4. The main weakness of the problem-based learning model is that it often ignores other aspects of developing abilities such as emotional, affective, and psycho-motor dimensions, making it difficult to apply to students who have below-average intellectual abilities.

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CHAPTER 6

HUMANIST-RELIGIOUS APPROACH AS STUDENTS' CHARACTER FORMATION IN THE CATHOLIC RELIGION LEARNING CONTEXT

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HUMANIST-RELIGIOUS APPROACH AS STUDENTS' CHARACTER FORMATION IN THE CATHOLIC RELIGION LEARNING CONTEXT

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Abstract

This article describes the critical role of Catholic religious learning in forming students' character holistically by developing all aspects of students' self, both physically, emotionally, intellectually, socially, and spiritually. Therefore, the right approach is needed in learning Catholicism to shape students' humanist-religious character. The humanist-religious process views humans as beings who have spiritual values that must be developed in everyday life. This approach teaches students to understand Catholic religious values, which can help shape character for the better. More than that, this approach promotes humanist and spiritual values, such as caring, empathy, tolerance, humility, honesty, love, critical thinking, and the ability to appreciate differences and have genuine brotherhood. This approach includes three aspects of learning the Catholic religion: developing spiritual, social, and academic values. In Catholic religious learning, the humanist-religious process can be implemented through various learning methods, such as Problem-Based Learning, Cooperative Learning, Flipped Classrooms, and Problem-Solving Approach.

Keywords: *humanist-religious approach, student character, Catholic Religion learning.*

Introduction

The revitalization of character education has been proclaimed by the Ministry of National Education (Kemdiknas) of the Republic of Indonesia starting in 2011. Character education aims to build and equip the nation's generation as the golden generation of Indonesia in 2045 with the spirit of Pancasila and good character to face the dynamics of change in the future. In building the golden age of 2045, the younger generation is equipped with 21st-century skills, such as character qualities, to adapt to a dynamic environment. These character qualities include being religious, nationalist,

independent, integrity, cooperation, tolerance, responsible, creativity, and caring for the environment (Wahyuni in the 2021 Character Education Day Seminar).

One of the government's concerns related to the decline in the character of the nation's young generation is the decline in morals and ethics among the people. The government sees that the increasing number of violence, corruption, drugs, pornography, and other negative behaviors shows that moral and ethical values are no longer upheld, as well as a lack of nationalism and love for the motherland among students. Most students are more interested in global issues than local problems. As Indonesian citizens, students should be responsible toward their people and contribute to advancing their nation and country. Lack of character with integrity is one of the characteristics that is much needed in the world of work. However, unfortunately, many students still do not have the character of integrity, such as honesty, responsibility, and discipline. This is very detrimental because a character with integrity is the basis of one's success at work.

The government has taken various ways to address concerns about the declining morale of the nation's young generation. Here are some of them (Setiawan, Iwan. (2021): (a) Implementation of Character Education. The government has implemented Character Education to overcome the moral decline of the nation's young generation. Character Education is an educational program that focuses on building the character of students who are covering moral, religious, ethical, social, and citizenship aspects, (b) Family Development Program The government has also implemented a family coaching program as an effort to assist parents in educating their children, including counseling and training for parents in educating children

-children morally and religiously, (c) Formation of a Cultured Generation The government has established a Cultured Generation program as an effort to increase the love of the younger generation for the nation's culture, this program includes learning arts, culture, and regional languages, (d) Establishment of a Center Moral Education Studies.

One of the ways to build the character of the younger generation can be pursued through a religious humanist approach which is an approach that can be applied to religious studies on campus. Religion is vital in shaping a person's character, including students. Religion introduces moral and ethical values, which are the basis for developing good feelings in the younger generation. This approach combines humanist and religious approaches to develop quality student character regarding morality, ethics, and spirituality. Specifically in learning Catholicism, this approach emphasizes the development of student spirituality through religious experiences, self-reflection, and activities that strengthen relationships with God and others. The religious humanist approach in teaching Catholicism also prioritizes moral and ethical values essential to human life. Students are taught to understand moral and ethical values in Catholic religious teachings and are allowed to apply these values in everyday life.

By applying a religious humanist approach, students are expected to be able to develop strong characters in terms of morality, ethics, and spirituality. This strong character will be an essential capital for students to become individuals who contribute positively to society and build harmonious relationships with others and God.

Studying Catholicism means developing universal Christian values, faith, hope and love, forgiveness, humility, justice, truth, and social responsibility, and understanding and appreciating the values of the

Catholic faith and doctrine. This helps them understand church teachings better and prepares them to become mature Catholics responsible for the Nation and the Church. This paper aims to understand better how Catholic religious learning can holistically shape student character.

Literature Review

The Nature and Significance of Character

In the view of Catholic theology, character or morality is an integral part of one's spiritual and moral life. Character is influenced by faith (religion), habits, social environment, genetics (heredity), life experience, and education (CCC 1992). According to Catholic teaching, the excellent character must be based on virtue. These virtues are described in the Catechism of the Catholic Church as the theological virtues (faith, hope, and charity in CCC Articles 1812-1829), cardinal virtues (wisdom, courage, justice, and decency in CCC Articles 1803, 1844-1849), as well as other virtues such as patience, humility, and generosity (Articles 1829-1836). These virtues are believed to form good character, help one live well in society, and carry out one's duties as a Catholic.

In Catholicism, excellent character must also be based on affirming human nature and dignity. Humans must be valued and respected as creatures created in the image of God and have pride. Good character must also be built with spiritual growth and moral perfection. This can be pursued through prayers, sacraments, love services, and a community of faith that strengthens and guides a person in a harmonious life. Character is a series of characteristics or traits distinguishing one individual from another. These traits usually include beliefs, values, and individual behavior from life experiences and social interactions.

In sociology, the character has significant meaning because a person's character dramatically influences the social behavior of his life. Sociology views the character as the result of intense social interaction and environmental influences on a person (Giddens, 2018). The character can also be influenced by factors such as social groups, family, culture, and value systems that exist in society. Therefore, a person's character can be seen as part of a social construction that continues to change and develop along with societal social changes. In addition, sociology also views the character as an essential factor in shaping the whole community. Strong and positive character in individuals in a community can help create a stable and harmonious society (Giddens, 2018)

Emile Durkheim, a French sociologist who is very well known for his contributions to building the discipline of sociology as an independent science, sees the character as a product of the social environment and collective human experience (Durkheim, 1964). According to him, the surface is not innate in humans but is formed by social interactions and life experiences. Therefore, texture can vary depending on the social environment that affects the individual. Social solidarity is also emphasized in shaping individual character, which refers to the social ties that unite individuals. In a society with high social solidarity, individuals tend to have more robust and consistent characters because they feel connected to the shared values and goals adopted by that society.

Character is essential in life because good character can form the basis of a mature personality and determine how a person acts and responds to situations in life (Niemiec & McGrath, 2019). People with strong and positive characters will become more confident, friendly, and empathetic and dare to face challenges. In addition, they have a strong internal

motivation to move forward and strive, can build healthy and harmonious relationships with others, set an example for others, pay attention to the needs of others, and achieve happy life goals.

Character building

Character building is developing values, self-confidence, skills, attitudes, and behaviors that function effectively in society. This process begins early and is influenced by the social environment, life experiences, education, religion, culture, and other factors. Character building aims to form a strong, responsible, ethical personality, able to contribute positively, discipline, hard work, empathy, and skill, and reduce negative things. According to Frans Magnis Suseno, the character must be formed because it is a source of human behavior and the basis for developing a healthy and strong personality. Good character is also essential to creating a sound and civilized society. Character building requires awareness, commitment, effort, and self-discipline to follow actual values.

A person's character is formed through life experiences, environmental influences, and espoused values, such as family, education, and social environment, life experiences, and espoused values. The formation of good character has a vital role in human life because it can shape morality, behavior, achievement, personality, and social relations. However, there are challenges in character building, such as cultural pressures, role models, the physical environment, technology and social media, moral crises, and psychological barriers. Therefore, a humanist-religious approach has been carried out in building students' character.

Table 1: Research Results on Character Building

Education level	Study	Researcher/year
Elementary school,	The effectiveness of applying the religious humanist approach in increasing understanding of Islamic religious concepts.	Naimah, Iswahyudi, & Wulandari (2020)
	The effectiveness of applying the religious humanist approach in increasing spiritual and moral intelligence in understanding the teachings of Islam.	Asmara & Kurniawan (2021)
	The effectiveness of Catholic religion learning with a humanist-religious approach to students' social attitudes.	Amelia (2021)
Junior high school	It increases students' understanding of religious values and morality in everyday life and helps them understand the meaning of various Catholic religious services and rituals.	Susanti dan Setyawan (2021)
	Developing an Islamic learning model can help students understand and internalize Islamic values oriented toward personality and character development.	Judiawati, Asnawi, N. N., & Nurlatifah. (2021)
	A humanist-religious approach is an alternative approach to learning Catholicism that is more effective and relevant to students' conditions.	Sibagariang dan Siregar (2021)
High School	The importance of a humanist-religious approach in building student character based on Catholic values and providing a practical example of how this approach can be applied in a Catholic high school education environment.	Supriyadi (2020)
	The concept of character education based on Catholicism uses a humanist-	Widiastuti dan Siregar (2021)

Education level	Study	Researcher/year
	religious approach.	
	A humanist-religious approach can be used as a model for character building in secondary schools.	Nurjanah (2020)
College	Development of teaching materials based on a religious humanist approach that can improve the spiritual intelligence of students in Islamic tertiary institutions.	Nuraida & Rofiaty (2021)
	Catholic religious education in tertiary institutions does not only focus on theological aspects but also on humanist and moral aspects, which are essential for the formation of student character.	Setiawan & Sutrisno (2020)
	The concept and implementation of religious humanist-based Catholic religious learning in tertiary institutions.	Ratnawati (2021)
	Development of religious learning in Catholic tertiary institutions, with a spiritual humanist approach.	Pranowo (2020)
	The humanist-religious approach can be used to shape the character of students in Islamic tertiary institutions.	Sari dan Astuti (2020)
	Forming student character through a humanist-religious approach can help develop better character education in tertiary institutions.	Handayani & Fattah (2021)

Catholic Religious Studies have several characteristics, such as the confession of faith in the Triune God, the existence of the seven sacraments, respect for Mary, prayer for the dead, belief in the conversion of bread and wine into the body and blood of Christ, confession of sins to a priest, recognition of the Pope's authority as leaders of the Catholic Church, liturgy or order of worship that is neatly arranged, as well as respect and

protection of human life. Frans Magnis Suseno emphasizes the importance of moral and ethical teachings in Catholicism, such as love, justice, example, humility, and patience in forming good moral character. By understanding and applying the values of the Catholic religion in everyday life, a person can become a person who is responsible and has a positive impact on society and the environment.

Discussion

Effective learning is not only about transferring information from lecturers to students but also involves the active role of students in the learning process, known as student-centered learning (Patton, 2018). The essence of this learning model is that students must become active subjects in building their knowledge, and lecturers must become facilitators in the learning process. Its main essence is empowering students to gain a better understanding through a reflective and critical learning process. This can be achieved through active learning methods, such as group discussions, project assignments, problem-solving, and simulations, which allow students to take an active role in the learning process. Another essence of learning that involves the part and involvement of students is the development of students' critical and logical thinking skills. This can be achieved through a challenging teaching approach, which encourages students to question their assumptions and views and develops their ability to evaluate information critically and logically.

One of the learning methods that can be used and is suitable for facilitating student involvement is a problem-based learning (PBL) approach. This method allows students to solve problems or challenges encountered in an actual or simulated environment (Barell, 1997). In the

PBL method, students learn subject matter through questioning and looking for answers. The lecturer only acts as a facilitator and guides students in finding solutions to their problems. The PBL method also facilitates the development of critical thinking skills, creativity, and collaboration among students. Apart from PBL, Cooperative Learning, Flipped Classrooms, and Problem-Solving Approaches are other methods that can facilitate student involvement. All of these methods emphasize the active role of students in the learning process and can strengthen their critical and collaborative thinking skills. These methods are implemented based on a humanist-religious approach.

The humanistic (humanistic) approach focuses on developing human potential, recognizing individuals as beings with potential and abilities, and respecting each individual's uniqueness and values (Rogers, 2012). According to Carl Rogers, the humanist approach to character building focuses on acceptance and respect for individuals as unique and complex human beings. This approach emphasizes the importance of understanding individual experiences and perspectives in shaping positive character. Rogers also emphasized the importance of positive interpersonal relationships in shaping personality.

Meanwhile, the religious approach is the way or method used to view and practice religion or spirituality. In Catholic teaching, this approach refers to how people interact with God and seek to understand and experience His presence. This approach includes religious practices such as prayer, meditation, scripture reading, participation in the sacraments, and cultivating virtues such as compassion, loyalty, and mercy. Within the Catholic Church, the religious approach also involves a community of faith, where people support and inspire one another in their journey toward God.

The Catholic Church teaches that the proper spiritual path must include confession, repentance, and reception of the sacraments of Confession and the Eucharist to strengthen our relationship with God and gain the strength to live faithfully to Him (CCC).

Several ways to base learning on the religiosity of the Catholic religion and emphasize the humanist side (Sweeney, 2021) include (a) using a holistic learning approach so that it can help students integrate religious values with everyday life, which is done by involving students in group discussions, personal reflection, and creative activities such as art, etc.; (b) making classes open and inclusive so that students feel comfortable sharing experiences and views on life and religion to help students understand that religious values can be applied in everyday life and can help them find ways to apply these values in their lives. Modern context; (c) using creative teaching methods such as drama or simulations that can help students experience the application of religious values in everyday life by choosing topics related to social problems, developing social skills such as building positive relationships, and encouraging empathy for others.

In Catholic religious learning, this approach can be used as a powerful weapon to shape students' character because, in the humanist-religious approach, students are seen as unique individuals and have great potential to develop holistically moral human beings and have good personalities. Intact. This method focuses on developing students' physical, mental, emotional, and spiritual aspects. Through this approach, students integrate religious values with life to strengthen student character by integrating religious values in all aspects of daily life. The humanist-religious approach in teaching Catholicism focuses on developing positive personality qualities, such as sincerity, loyalty, honesty, caring, and love.

By strengthening these qualities, students can become better individuals and build better relationships with others. This approach prioritizes religious values as a foundation for shaping students' character who have love, forgiveness, peace, justice, and simplicity.

In addition, a humanist-religious approach can also be applied through learning that prioritizes interpersonal relationships between students and educators. Learning that focuses on interpersonal relationships can help students to understand religious values in a more personal context and can increase students' sense of empathy and concern for others. To form good student character, the humanist-religious approach also prioritizes the development of a critical and reflective attitude. Students are taught to question the values they learn and how these can help them deal with various life situations, reflect in the light of faith, and find the truth that is the basis of their life.

Conclusion

Character formation is developing the qualities and values that shape personality, influenced by the social environment, family, life experiences, education, religion, culture, and other factors. The goal is to form a person who is tough, responsible, ethical, able to contribute positively to society, disciplined, hard-working, empathetic, skilled, has a strong faith, has principles in life, and loves the country. Character needs to be formed because it becomes a source of human behavior, which will determine the quality of human life itself and the basis of human behavior becomes the basis for the formation of a healthy and strong personality, as well as helping humans to make the right decisions in their lives. Good

character can be obtained through heredity or environment, effort, and self-discipline.

One of the ways to build the character of the younger generation can be pursued through a religious humanist approach which is an approach that can be applied to religious studies on campus. Religion has a vital role in shaping a person's character, including that of students, because religion introduces moral and ethical values that form the basis for developing good feelings in the younger generation. This approach combines humanist and religious practices to build quality student character regarding morality, ethics, and spirituality. Through learning the Catholic religion using a humanist-religious method, special characters can be formed with integrity, independence, courage, humility, caring, discipline, creativity, cooperation, patience, positive contribution to society, and responsibility to the Nation and the Church.

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Author Profile



Sr. M. Paula Suwarni, OSF, was born in Semarang on March 16, 1966. In 1989, she entered the OSF Sisters' Convent in Semarang. In 1999, he graduated with a bachelor's degree in the pastoral-catechetics department at the Indonesian Pastoral Institute (IPI) in Malang. From 2002 to 2017, she became a companion for prospective OSF Semarang sisters. She has become a resource person at INSPIRE (Institute for Spirituality Empowerment), for Marsudirini Lecturers and Employees and has also become a resource person on the spirituality of the OSF Sisters for doctors-nurses-employees of the Santa Elisabeth Hospital in Semarang and Bekasi. In 2020, she graduated with a Master in Sociology, from the Faculty of Social-Political Sciences, Sebelas Maret University, Surakarta. From August 2020 to September 2022, she will be the Director of the Marsudirini Santa Maria Secretariat Academy in Semarang and also become a lecturer. From November 2022 until now, she has been the Director of ASM Marsudirini Santa Maria Yogyakarta, Indonesia.

CHAPTER 7

THRIVING IN TURBULENT TIMES: ORGANIZATIONAL LEARNING STRATEGIES FOR NAVIGATING THE VUCA LANDSCAPE

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THRIVING IN TURBULENT TIMES: ORGANIZATIONAL LEARNING STRATEGIES FOR NAVIGATING THE VUCA LANDSCAPE

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ABSTRACT

The role of the organization focuses on more than external organizational issues. However, it emphasizes how the internal organization can survive and learn amidst environmental turbulence. Organizations that continue to explore the VUCA environment will be able to gain situational understanding to sense and seize opportunities and threats. The more frequently and continuously an organization explores a turbulent climate, the greater the chances of success. The A learning organization aims to develop a relatively sustainable organization that adapts to turbulence (VUCA). The essence of this problem is how the learning process of individuals and organizations continues to expand abilities, consequently improving individuals' problem-solving skills and the organization's success.

Keywords: Learning Organizational, VUCA, knowledge, Organization Sustainability

INTRODUCTION

The world faces rapid and difficult-to-predict environmental change. Volatility, Uncertainty, Complexity, and Ambiguity, the acronym VUCA, is an era of turbulence full of uncertainty, complication, and confusion (Nandram & Bindlish, 2017). VUCA causes many changes that occur quickly and widely in various aspects of life. Changes that occur are not only in the domestic and regional spheres but also in the global sphere, which directly or indirectly impacts changes in the order of life both individually and organizationally.

The ability of the organization to respond to changes in the environment around the organization will be a provision to have the ability to deal with VUCA (Casey, 2014) because organizations not only adapt to changes in the environment that are currently happening but are also required to be able to develop unique capabilities that enable the organization to respond to potential future changes. The unique capability in question is a capability that refers to internal capabilities or expertise obtained through individual difficult-to-imitate imitation knowledge possessed by the organization. With this knowledge, the organization can develop unique skills or abilities different from those owned by other organizations.

This ability will provide an advantage in clarifying turbulence (Rasheed & Ibrahim, 2015); a systemic understanding of organizational life explains organizational lead corporate visual and social aspects in organizational learning theory that organizations that continuously develop, produce, and enhance their capacity to create the future, organizations can survive and be adaptive and will be more successful than organizations that do not (Cousins, 2018). One of the critical characteristics of organizational learning is that organizations must commit to knowledge. The characteristics of learning competence are having knowledge, capabilities and attitude, initiative, and innovation in various dimensions of work (Akwaowo & Kalio, 2021).

The purpose of this study is to explain the position of organizations in the VUCA era and explain the relationship of organizational learning in navigating the VUCA environment through a search of the literature and the results of research by previous researchers.

REVIEW OF LITERATURE

Organizational Learning in Organizational Theory

The organizational learning approach as a repertoire of organizational theory does not seem to be a new concept, but this concept is constantly updated and developed, especially with attention to how learning can assist leaders in building strong and healthy organizations; even some experts assume that the idea of organizational learning shifts old confides such as management by objective (MBO), strategic misdirection various practices implemented in Japan such as quality circles, kaizen, and others which were implemented around the 1980s, even though learning in organizations is only a concept of development not a substitute for management concepts that are still useful to apply (Yeung et al., 2007).

Organizational learning is a view or conceptual framework that views the organization as a complex and continuously evolving system, influenced by internal and external factors and determined by interactions between individuals, groups, and the organizational environment. One of the grand organizational learning theories is the theory of Argyris and Schön, which was developed in 1978. According to this theory, organizations learn through the process of developing and solving problems involving a process of observation, reflection, and action that is adapted to environmental conditions.

This process involves rational decision-making, learning from past experiences, and collaboration between individuals within the organization (Nandram & Bindlish, 2017). Other experts, such as Peter Senge (1990), further developed this organizational learning theory, emphasizing the importance of individual and group learning skills and capacities in organizations to deal with change and innovation. Kolb et al., (2014)

developed a learning theory through experiential learning theory, emphasizing the importance of direct experience and reflection in individual and organizational learning. Senge's (1990) ough "The Fifth Discipline" states that increasing organizational capacity can be achieved through a learning process.

> *…where people continually expand their capacity to create the desired result, new and expansive thinking patterns are nurtured, where collective aspiration is set free, and where people often learn how to learn together.*

Organizational learning is when individuals and groups actively seek, create, and exchange knowledge and information to improve overall performance (Yeung et al., 2007). Organizational learning occurs through interactions between individuals, groups, or work units, including transferring knowledge and skills, implementing strategies and policies, and evaluating performance results. Argote & Miron-Spektor, (2011) state that organizational learning is a process of sharing and using knowledge and information to achieve organizational goals. Meanwhile (Baeten et al., 2013), organizational learning is the acquisition, exchange, and integration of knowledge and experiences among individuals, teams, and units that work together in educational institutions.

Argote & Miron-Spektor, (2011), organizational learning is a continuous process of knowledge creation, sharing, and application within and between groups and units in educational organizations, to protect. Based on the description above, it can be concluded that organizational learning is an organization that continuously and planned facilitates its members so that they constantly develop and transform themselves both collectively and individually to achieve results and follow the following between the organization and the individual in it, because organizational

learning each learning, facilitated within ethnonational scope, and using the knowledge gained for organizational goals.

DIMENSION OF ORGANIZATIONAL LEARNING

Table 1: State of the art Learning Organizational and Dimension

No	Author/Year	Indicator	Description
1	Akwaowo & Kalio, (2021)	Innovation	Organizations with a strong innovation culture tend to be more successful in creating innovative new products and services.
2	Kanwal et al., (2017)	Study capacity	Organizations with a higher learning capacity tend to be more able to adapt to environmental changes and improve performance.
3	Saadat & Saadat, (2016)	Employee develop-ment	Organizations that proactively develop their employees tend to be better able to retain talented employees and improve performance.
4	Bartscht, (2015)	Technolo-gy use	Using the right technology can increase the efficiency and effectiveness of the organization.
5	Wang & Wang, (2012)	employee engagemen t	Employees involved in organizational learning processes are more satisfied with their jobs and contribute more positively to organizational performance.
6	Hutchins, (2020)	Disseminat ion of knowledge	Organizations that disseminate new knowledge effectively are more innovative and successful in creating new products and services.
7	Chen et al., (2018)	Learning culture developme nt	Organizations that actively promote a learning culture tend to adapt better to changing environments and improve performance.
8	Wang & Wang, (2012)	Creativity:	Organizations that can improve employee team skills are better able to work together to achieve organizational goals.
9	Geleta & Tafesse, (2017)	Team skills	Organizations that can improve employee team skills are better able to work together to achieve organizational goals.
10	Zgrzywa-Ziemak,	Employee participa-	Organizations that can encourage employee participation in the

No	Author/Year	Indicator	Description
	(2015)	tion	organizational learning process are better able to improve performance and retain talented employees.
11	Obrenovic et al., (2015)	Data-driven decision making	Organizations that can use data effectively in decision decision-making are more able to improve performance and achieve organizational goals.
12	Raghurama patruni & Shanmukha Rao Kosuri, (2017)	Leadership involve-ment	The involvement of leaders in the organizational learning process can improve performance and create a more positive work environment.
13	Akhtar et al., (2011)	Employee developme nt	Organizations that can develop employees effectively can improve performance and retain talented employees.
13	Chang & Lin, (2007)	Collaborati on between teams	Organizations that can increase collaboration between teams are better able to achieve organizational goals and retain talented employees.
14	Ismail et al. (2013).	Use of informatio n technology	Organizations that can use information technology effectively tend to be more able to improve performance and achieve organizational goals.
15	Nonaka (2000)	Knowledge sharing	Knowledge sharing is part of knowledge management to create ideas and innovations that contribute to the sustainability of an organization.

DISCUSSION

Volatility, Uncertainty, Complexity, and Ambiguity, an acronym for VUCA, defines the competitive environment of the digital economy (Bennett & Lemoine, 2014), in which organizations seek to adapt past structures to suit changes in the current environment (Cousins, 2018). In VUCA, organizations can no longer focus on internal learning but instead

on co-creative and collaborative learning (Vasilchenko et al., 2020) outside the organization's boundaries.

Bartsch, (2015) proposes that if an organization continues to explore the VUCA environment, it can gain a situational understanding to sense and capture opportunities and threats. Volatility means the world changes fast, turbulent, unstable, and unpredictable without any predictable pattern. Traditionally, in a stable environment, organizations rely on experience, routine, learning, and scale, where these traditional models are not sufficient to handle volatility in a turbulent environment (Bennett & Lemoine, 2014). Therefore, organizations must engage with stakeholders beyond their boundaries and engage them in innovative organizational learning processes. Change is likely to occur in a volatile environment, but the timing and extent of the change are unknown. Therefore, (Bennett & Lemoine, 2014) suggests that organizations try to be more flexible to increase the organization's ability to detect and take advantage of great opportunities in a volatile environment. The more often and continuously the organization explores a volatile environment, the greater the chance for success (Raghuramapatruni & Shanmukha Rao Kosuri, 2017).

Uncertainty means that the future is full of uncertainties, and history from experience is no longer relevant in predicting the future or something that will happen (Bennett & Lemoine, 2014). Uncertainty is unclear about the frequency and significance of environmental changes (Casey, 2014). In uncertain situations, the timing and magnitude of changes are unknown and difficult to predict; organizations can overcome uncertainty by investing in gathering, interpreting, and sharing knowledge and carrying out activities that seek knowledge outside existing networks (Rasheed & Ibrahim, 2015). To understand an uncertain environment, organizations must proactively

explore the cause-and-effect factors that impact the situation. The lack of knowledge can be overcome by gathering more information through knowledge sharing (Saadat & Saadat, 2016).

Complexity means that the modern world is more complex than before; problems and consequences are more layered, intertwined, and influence each other. Increasingly complicated (Bennett & Lemoine, 2014). Complexity in an organizational environment is defined as a complicated network of interconnected parts (Casey, 2014). Organizations redesign themselves to the environment by adapting structures to adapt to and take advantage of complexity rather than struggling with it (Yuan & Chayanuvat, 2021). Organizations are adopting a knowledge-based strategy to deal with this complex situation and getting closer to the environment and its stakeholders to facilitate immediate decision-making.

Ambiguity means that the environment is increasingly confusing, unclear, and difficult to understand because, in every situation, it can lead to multiple interpretations and perceptions (Bennett & Lemoine, 2014). Ambiguity is a lack of knowledge of cause and effect where there is no president on which to base predictions. Ambiguous situations, such as strategy, product, market, or technological innovation, often involve novelty. Gathering information is essential in ambiguous situations, but the challenge is knowing how to value the information collected because it is unclear what information is helpful. Organizations must change the paradigm from continuous improvement and instead focus on adaptability to be proactive in learning new knowledge to innovate and make better decisions (Chang & Lin, 2007).

The description above explains that VUCA is a challenge that must be faced by every organization, which involves disruption, market shifts,

changes in behavior, and increasingly fierce competition. Traditional leadership is outdated, slow, and ineffective in a volatile and changing environment. Therefore, organizational leaders need a new, agile leadership model to deal with the four VUCA threats. In a book on leadership, Leaders Make the Future: Ten New Leadership Skills for an Uncertain World, Robert Johansen suggests that in situations like this, a leader can counteract VUCA with VUCA. However, this second VUCA comes from Vision, Understanding, Clarity; the application is more or less like this.

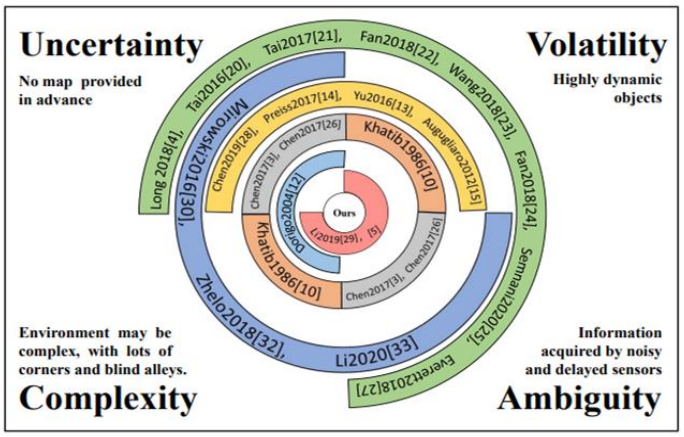


Fig. 1. A simple classification of typical works using VUCA as a metric. Previous works have solved partial challenges in the VUCA environment

1. Volatility, accommodated by implementing a clear vision. What is to be achieved in the future is determined today.
2. Uncertainty, anticipated with a good understanding of what causes it.
3. Complexity, overcome by the willingness of all organization members to respond, not be reactive, and clarify any existing problems to create clarity in making decisions.
4. Ambiguity can be resolved with the agility of all organization members by looking at existing solutions, including the awareness to move, move and move.

In the most actual and factual context, the application of VUCA in an organization is one of them by changing the paradigm of thinking, understanding the road map, and seeking effective organizational learning and learning organizations, namely forms of an organization that contains systems, mechanisms, and processes that are used continuously to strengthen organizational capabilities and work with and for organizations in achieving sustainable goals.

The creation of organizational knowledge occurs when members of the organization can carry out their duties, solve specific problems encountered, or even make decisions through the organizational learning process (Nandram & Bindlish, 2017). At that time, the organization's members apply the newly transferred and integrated knowledge, resulting from the organizational learning process. Learning is not only related to obtaining information but also to capacity building and creating something that cannot be created at first (Bratianu, 2015). Therefore, from an organizational learning and knowledge transfer/sharing point of view, it is stated that the main requirement for successful organizational learning or knowledge sharing is if there is a knowledge exchange mechanism created within the organization (Napiet & Ghospal, 1998), by establishing a mechanism of knowledge exchange. Knowledge flows smoothly within the organization to achieve organizational goals, namely, creating organizational knowledge.

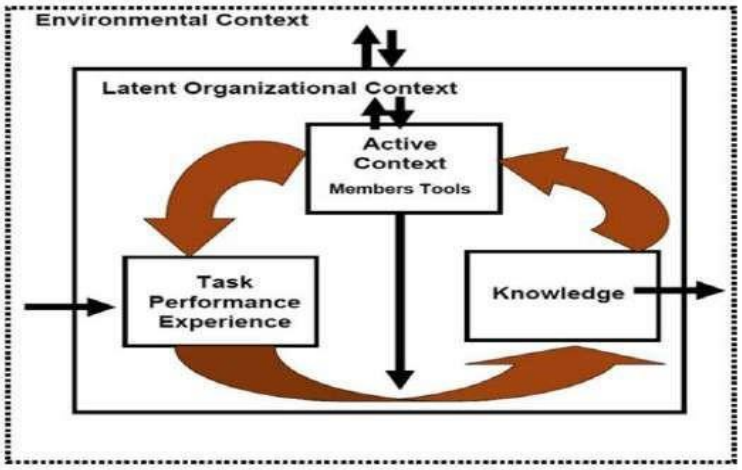


Fig 2 : Kerangka teoritis untuk menganalisis pembelajaran organisasional (Argote & Miron-Spektor, 2011)

Thus the knowledge that each individual has turned into knowledge that all individuals in the organization own and essential knowledge that is an advantage of the organization does not disappear along with the end of the term of office or the transfer of individuals who have that knowledge to another place. So a learning organization is a concept in which an organization is deemed capable of continuously carrying out an independent learning process so that the organization has the speed of thinking and acting in response to the various changes that arise due to VUCA.

There are several critical words regarding organizational learning, including continuously improving abilities and capacities; new and broad thinking; the opportunity to grow; and shared aspirations that are free to develop.

CONCLUSION

The organization's role is focused on external issues and how the internal organization can survive and learn amidst existing competition. However, implementing a learning organization is not an easy task. The

learning process in the organization must be accepted and supported by all elements, not only management but also the involvement of everyone in the organization. Moving from a traditional organization to a learning organization requires changes in policies and views on various matters, including a) organizational stability; b) tiered bureaucracy; c) control through rules is changed to control through vision and values; d) the organization changes the paradigm from secure and confidential information to an organization that shares information; e). the organization of accepting only what is certain but also something still doubtful; f). the organizational paradigm shifts from reactive to avoiding risks to being proactive and willing to take risks; g). Organizations change from competing in existing markets to competing in the contemporary future.

A learning organization aims to develop a creatively sustainable organization that adapts to turbulence (VUCA). The essence of this problem is how the learning process of individuals and organizations continues to expand learning abilities and consequently improve the skills to solve problems of the individuals and organizations themselves. 10 (ten) strategies for building learning subsystems: a). develop learning programs throughout the organization; b). improve the individual ability to learn; c). develop the discipline of dialogue within the organization; d). develop a career plan for employability; e). establish a self-development program; f). it is building team-learning capabilities; g). encourage and practice systems thinking; h). scan and scenario planning for anticipatory learning; i). increasing diversity, multicultural and global mindsets, and tastes; j). It was changing mental models relative to learning**.**

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CHAPTER 8

UNLOCKING TEACHER SUCCESS IN THE DIGITAL AGE: THE POWER OF LEARNING AGILITY

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UNLOCKING TEACHER SUCCESS IN THE DIGITAL AGE: THE POWER OF LEARNING AGILITY

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Abstract

Learning agility is a capability approach that enables teachers to quickly adapt to changing times, identify patterns in complex data, generate new solutions to problems, and effectively retrieve relevant information from any situation. This ability then plays a vital role in helping teachers to be more effective and efficient in choosing interesting learning methods for their students. Learning agility also encourages teachers to continue to be flexible in adapting to changes and to think creatively, effectively, and efficiently to produce engaging, relevant, and varied learning methods.

Keywords: Learning Agility, Digital Era, Teacher challenges

INTRODUCTION

The necessary transformational initiative is building learning agility and involving the critical transformational initiatives to make learning agility consists of all organization members in a continuous, constant learning and transformative loop. Schools are also faced with environmental changes due to technological changes, the global economy, and demography, which are expected to encourage improvements in the teaching and learning process. However, the resistance of the academic world to change can be an obstacle in facing this challenge.

Significant changes in the world of education due to advances in digital technology in the digital era require teachers to have learning agility or learning abilities that are adaptive, flexible, and fast. So far, teachers are still accustomed to conventional teaching and learning patterns such as discussions and lectures. They tend to be textbooks, so they are less proficient when faced with computer-based technology. Thus, teachers need to have responsive learning skills and easily adjust to situations to help them deal with changes that occur quickly and develop new abilities needed in the digital era. Therefore, efforts are required to strengthen

teacher learning agility to improve the quality of learning in the digital age. Research and literature that examines learning agility and the use of digital technology in learning in the digital age can provide guidance and strategies for teachers to strengthen their learning agility skills (Georgiou et al., 2019). Learning agility is considered a learning culture by some schools. Several studies have shown a significant relationship between learning agility and teacher performance.

This study aims to study learning agility and find the essential steps to becoming agile in developing agile learning. Information is collected from several pieces of literature related to education and agile learning from several experts.

LITERATURE REVIEW

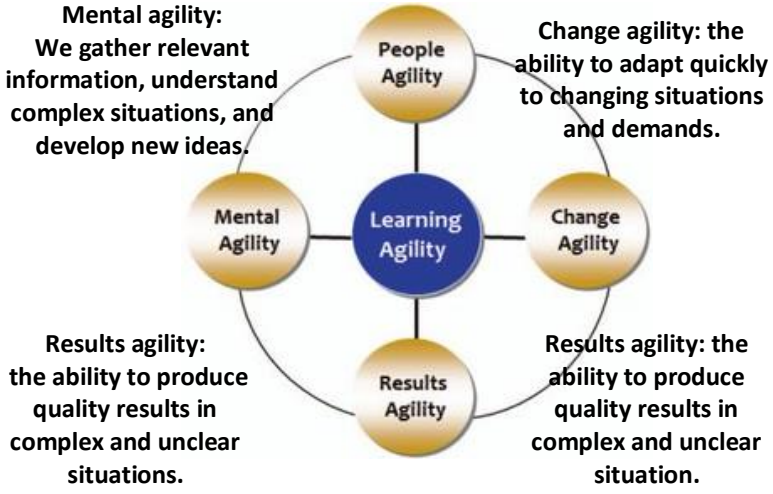
Learning Agility concept

Table 1: Definisi Learning Agility

No	Author	Definition
1	De Meuse et al., 2020	One's ability and desire to learn from experience and apply it for better progress in the future
2	Silzer & Church, 2020	The ability to learn and adapt quickly to a condition
3	Chan, 2020*	Ability to quickly acquire new knowledge and skills and apply them effectively
4	Edwards et al., 2021	Ability to learn quickly and adapt to new information and challenges
5	Kroner & Highhouse, 2021	Ability to quickly and effectively adapt to new situations, learn from experience, and transfer that learning to new contexts.

Based on the five definitions above, it can be concluded that Learning Agility is the ability and willingness of individuals to learn from experience and apply it in new situations or for the first time. It also involves the ability to quickly learn and adapt to conditions, identify patterns in complex data, generate new solutions to problems, and effectively extract relevant information from situations. In addition, learning agility involves the ability to interact well with others, understand different types of people, recognize personal strengths and weaknesses, and know how they affect performance and interactions with others. From the conclusions

above, Learning Agility is the ability to adapt and learn quickly, interact with people, and recognize personal skills. Thus, learning agility itself has four dimensions which are described as follows.



(Swisher, 2004)

Factors that influence learning agility

1. Work experience: The more diverse and extensive a person's work experience, the more likely he is to have high learning agility.
2. Emotional Intelligence (EQ): The ability to manage emotions and communicate effectively with others can enhance a person's ability to learn and adapt quickly.
3. An enabling learning environment: Peer support, recognition of accomplishments and mistakes, and access to training and learning resources can increase learning agility.
4. Openness to change: Someone who is open to change and willing to try new things tends to have higher learning agility.
5. Self-reflection: The ability to reflect on experiences and learn lessons from previous situations can increase learning agility.

Benefits of Learning Agility for Teachers in the Digital Age

1. Improve teaching effectiveness: Learning agility enables teachers to quickly learn and master new technologies and tools that can be used to increase teaching effectiveness and enrich student learning experiences.
2. Facilitate collaboration and knowledge sharing: The ability to adapt quickly and learn new things allows teachers to keep up with the latest developments in education and technology and facilitate peer-to-peer collaboration and knowledge sharing.
3. Increase competitiveness and relevance: Learning agility helps teachers maintain and increase competitiveness in the rapidly changing digital era. Teachers with learning agility can quickly learn and master new technologies, teaching methods, and relevant curricula.
4. Improve teaching quality: Teachers with learning agility can more easily adapt their teaching style to students' needs and preferences, improving teaching quality and student satisfaction.
5. Increase job satisfaction and career success: Teachers with learning agility feel more confident and ready to face changes and challenges in the future. This can increase job satisfaction and open up better career opportunities in the future.

Roush, W. (2016) says the digital era is marked by the rapid development of information and communication technology, especially in computing, the internet, and social media. According to him, the Digital Era can also be interpreted as the extensive use of digital technology in almost all aspects of life, including business, education, communication, and entertainment. Undeniably, digital technology at all levels has changed how people interact, work, learn, and live. The presence of digitalization in the field of education also has a very significant impact, such as, among other things, teaching and learning processes can be carried out anywhere and anytime (Tambouris et al., 2019), the area of coverage for interaction and

collaboration is also wide open because it is connected to all corners of the world (Hew & Cheung, 2020), learning methods are more varied starting from videos, games, and simulations (Drosopoulos & Siakas, 2019) as well as the changing role of the teacher from being a teacher to being a learning facilitator (Abu-Al-Aish & Love, 2013).

The changing role of the teacher also brings challenges for teachers, including the ability to use alien technology, the availability of network access from schools to technology such as internet networks and computer equipment that is by the demands of the times, not to mention the inclusion of thousands of information which must then be filtered and summarized and readjust existing learning methods to the latest conditions (Chen & Chen, 2020). Given that the challenges that arise and are faced above also vary, learning agility can be one of the solutions and the key to teacher success in this digital era (Sari & Syaharuddin, 2022).

Teacher challenges in the digital era

Teachers in the digital era face several unique challenges related to the integration of technology into the learning process in the classroom. One of the biggest challenges is dealing with technical issues that may arise during lessons. Teachers must be familiar with the tools and platforms they use and be able to solve technical problems quickly to maintain the flow of assignments. In addition, teachers are also required to stay up-to-date with new technologies that continue to emerge to ensure that they provide the best learning experience for students. Keeping students engaged is also very important in the digital age, as students can easily get distracted by the many online distractions.

Balancing study time is another challenge, as teachers must find a balance between technology-based learning and other types of learning activities. Ensuring digital equity is also important because not all students have equal access to technology outside the classroom. Cybersecurity concerns are becoming increasingly important for teachers, as they must protect students' personal information and prevent unauthorized access to the school system. Some teachers

need to receive sufficient training on using technology effectively in the classroom, which can make it difficult for them to integrate it into lessons. In addition, some schools may need more resources to provide ongoing support and training for teachers.

The challenges teachers face in the digital era can affect their success in teaching. Therefore, the ability to learn quickly and flexibly, or what is known as learning agility, is essential for teachers to overcome these challenges. Teachers with learning agility can learn and adapt rapidly to technological changes and the ever-changing learning environment. They can also develop new capabilities to overcome challenges in the digital age.

A study conducted by Ertmer and Ottenbreit-Leftwich (2010) found that learning agility is a significant factor for teachers in integrating technology into learning. In addition, researchers also found that teachers with learning agility are better able to explore new technologies and develop innovative learning strategies. The study by Cropley and Jost (2018) found that learning agility can help teachers deal with uncertainty and improve their ability to make the right decisions. This is very important in facing challenges in the digital era, where changes in technology and learning situations can occur quickly and unexpectedly.

The concept of "learning agility" and its importance for teachers in the digital age

Learning agility" refers to an individual's ability to learn and adapt quickly in a changing environment. In the context of education, learning agility is essential for teachers who are in the digital era. Teachers must be able to face new challenges that arise due to technology integration in learning, including changes to curriculum and new learning methods. Learning agility can enable teachers to accelerate their knowledge and develop new skills needed in the digital age. Teachers who have to learn agility will find it easier to adapt to changes that occur and find creative solutions to overcome the challenges they face.

According to research by De Meuse, Dai, and Hallenbeck (2010), learning agility consists of four dimensions: mental agility, people's agility, change skill, and agility results. The cognitive dimension of agility includes the ability to master new concepts quickly. The people's agility dimension includes cooperating with others and building good relationships. The change agility dimension includes adapting to change and proactively dealing with new situations. While the results agility dimension consists of the ability to make the right decisions and achieve the desired results. In the digital era, teachers with learning agility will be better able to face challenges related to technology integration in learning. They will find it easier to adapt to changing technologies and find new solutions to problems.

How to Increase "Learning Agility" for Teachers Facing Challenges in the Digital Age

To increase learning agility for teachers to face challenges in the digital era, several ways can be done:

1. First, teachers can attend training and courses related to technology and its use in learning. According to Goh and Kang (2015), training and professional development can help improve teacher competence and skills in integrating technology into education.
2. Second, teachers can seek help and support from peers and technology specialists in dealing with technical problems that arise during lessons. Collaboration between teachers and technology specialists can also help improve teachers' understanding and skills in using technology in learning (Chen et al., 2018).
3. Third, teachers can develop the ability to adapt to technological changes and the learning environment. This can be done by following technological developments and obtaining the latest information through literature and online resources (Koenig et al., 2016).

4. Fourth, teachers can utilize various learning strategies to maintain student involvement in learning, such as project-based learning, group discussions, and cooperative learning. According to Wijaya et al. (2019), various learning strategies can help increase student involvement in education.
5. Fifth, teachers can create an inclusive learning environment and ensure all students have equal opportunities for learning technologies and resources. This can help minimize the digital divide and ensure all students have equal learning opportunities (van Braak et al., 2018).
6. In increasing learning agility, it is also essential for teachers to have a positive attitude toward change and learn continuously. According to Koenig et al. (2016), teachers with an open attitude toward change who are willing to continue learning and developing tend to have higher learning agility.

Development of "learning agility" in teachers and its impact on performance

Learning agility is an individual's ability to learn quickly and adapt to new or complex situations. This ability is essential in the world of work, including in the profession of a teacher. A teacher with good learning agility will find it easier to develop in facing the challenges and demands that continue to grow in the education profession. The following are several ways to develop learning agility in teachers:

1. Increase openness to new ideas and different points of view. Teachers can develop learning agility by expanding their insights and knowledge on various topics and perspectives through reading, attending seminars or workshops, or discussing with colleagues in the same field.
2. Dare to take risks and try new things. Teachers who have learning agility will look for new ways to teach and learn from different experiences. This can be achieved by trying new teaching techniques, training in other classes or with students with special needs, and trying new technologies in the classroom.

3. Prioritize self-reflection and feedback. Teachers with learning agility will constantly check their performance and seek feedback from colleagues, students, and observers. From this feedback, teachers can evaluate their practices and identify areas for improvement.
4. The impact of developing learning agility on teacher performance can be very significant. Teachers who have high learning agility abilities will:
5. More adaptable to changes in curriculum and new demands in the education profession.
6. Quickly adapt to changes in student needs and choose appropriate teaching methods.
7. More effective in overcoming problems in class and completing assignments efficiently.
8. Be more open to feedback and suggestions from colleagues, students, and observers and use them to improve their future performance.
9. Better prepared to face challenges and competition within and outside the educational profession.

Strategies to Strengthen Learning Agility for Teachers in the Digital Age

According to Cahyono et al. (2021) mention strategies to strengthen Learning Agility in the Digital Age, including:

1. **Develop technological capabilities**

   Teachers have to upgrade their technology skills to operate the tools and applications used in online learning. Teachers must also broaden their knowledge of technology related to educational fields such as e-learning and edtech.

2. **Improve collaboration skills**

   Teachers should learn to cooperate with their peers online to increase collaboration and get helpful feedback to improve their learning.

3. **Improve critical thinking skills**

   Teachers must learn to evaluate information critically and make decisions. They should also help students develop their necessary thinking skills by teaching them to evaluate information and perform analysis.

4. **Maintain motivation and creativity**

   Teachers must maintain their inspiration and creativity to develop effective and exciting learning strategies. They must also learn how to motivate students and help them increase their creativity.

CONCLUSION

Based on the description above, it can be concluded that learning agility is an approach and the key to teacher success in carrying out the teaching and learning process in this digital era. Learning agility can help teachers quickly adapt to changing times, identify patterns in complex data, generate new solutions to problems, and effectively retrieve relevant information from every situation. This ability then helps teachers to be more effective and efficient in choosing interesting learning methods for their students.

In conclusion, learning agility is very important for teachers in overcoming challenges in the digital era and ensuring their success in teaching. Teachers who know quickly and flexibly can more easily adapt to technological changes and the ever-changing learning environment.

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CHAPTER 9

THE POWER OF PROACTIVE LEARNING: ENHANCING RETENTION AND ENGAGEMENT IN EDUCATION

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THE POWER OF PROACTIVE LEARNING: ENHANCING RETENTION AND ENGAGEMENT IN EDUCATION

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Abstract

Proactive learning is a learning approach that provides an active role to students in the learning process. In proactive learning, students can take the initiative and be responsible in the learning process to obtain better learning outcomes and develop valuable skills. Proactive learning can also increase student motivation, improve information retention, and provide a more positive learning experience. Requirements that must be met in implementing proactive learning include adequate learning facilities, relevant and varied learning resources, planning and developing good learning programs, developing teacher abilities, understanding the characteristics and needs of students, support from the learning environment, and monitoring and evaluation, which is continuous.

Keywords: Proactive learning, Retention, Engagement, Strategy, Implication

INTRODUCTION

Student needs have changed along with technological developments and demands for an increasingly complex work environment. This encourages the development of a more proactive and adaptive learning approach. Some problems in educational learning that often occur are a need for student motivation, student involvement in education, and difficulties understanding the concepts being taught. Conventional learning methods that are often teacher-centered and emphasize memorization can also make students lose interest in learning. Therefore, proactive education is critical in promoting more effective and meaningful education. Proactive learning involves students learning actively, enabling them to engage more

deeply in learning and build a deeper understanding of the concepts being taught (Routledge, 2020).

Proactive learning is based on the idea that students can learn more effectively when they are actively involved in the learning process, self-motivated, and take the initiative to seek and process information. In passive or reactive learning, students tend to become recipients of information presented by the teacher or learning materials without much reflection. Conversely, proactive learning encourages students to actively participate in the learning process, such as solving problems, collaborating with colleagues, and planning and monitoring their learning pros (Denti, 2016).

Some questions that can be raised from this text are 1). What does proactive learning mean, and how can this approach help students? 2). How do the development of technology and the increasingly complex demands of the work environment affect the needs and learning styles of students? 3). What are the common problems in educational learning, and how can a proactive learning approach help to overcome these problems? 4). What is the difference between passive or reactive learning and proactive learning, and why is the proactive learning approach preferred?

Proactive Learning Definition

The Proactive Learning Model is a student-centered pedagogical approach that aims to increase student engagement, understanding, and mastery of the material. In the proactive learning model, students play a more active role in the learning process by preparing before class. Educators try out goal-oriented pedagogical work throughout the semester. This proactive learning model incorporates several predefined

methodological approaches, including collaborative and cooperative-based learning. Each method promotes practical learning and practice education in the learning process, increases learning autonomy, and helps teach successful knowledge. The proactive learning model can improve thin-improved classroom activities' innovative potential and motivate the use of educational techno; Logic can help educators to increase student engagement and motivation and students with different preferences or learning styles in the same learning process (Köpeczi-Bócz, 2020).

Table 1: Definition of Proactive Learning

Author	Definition
(Denti, 2016)	An approach to education that emphasizes student involvement and empowerment, using innovative methods to create a dynamic and collaborative learning environment
(Barret, 2017)	An instructional design model that emphasizes student-centered and student-driven learning experiences. In this approach, students actively learn, take ownership of their education, and seek new information and experiences.
(Liu et al., 2019)	The learning approach is student-centered and designed to develop abilities to learn independently, solve problems, and become critical thinkers.
(Barret, 2017)	Learning concepts that emphasize active and creative learning, the interaction between students, and the use of student-centered learning methods, such as group discussions, simulations, or projects
(Carolyn Rhodes Teacher, 2019)	A learning approach that places students as the main actors in the learning process, where they are given the freedom to choose topics, determine learning objectives, and explore material independently.

Based on the five definitions above, it can be concluded that proactive learning is a learning approach that places students as the main subject in the teaching-learning process. It gives students the freedom and active involvement to explore materials and determine their learning goals. The aim is to strengthen students' abilities to learn independently, solve problems, and think critically. Moreover, in the process, proactive learning emphasizes using student-centered learning methods, such as group discussions, simulations, or projects, as well as the active involvement of students in the learning process (Carolyn Rhodes Teacher, 2019).

Advantages of Proactive Learning

Technological developments and increasingly complex work environment demand significantly impact students' needs and ways of learning. With the development of digital technology, students are now more open to various types of media and information sources. This means their attention is shorter, and they need more engaging and interactive learning materials to stay interested. In addition, today's job market requires students to possess academic knowledge and various practical skills such as critical thinking, problem-solving, and collaboration. Therefore, students need to be equipped with the necessary skills to adapt to the changing demands of the job market.

Technological developments have also made students learn differently, such as through online and combination learning. This learning mode offers greater flexibility and convenience, allowing students to study at their own pace and time. Technological developments and the demands of a complex work environment have required changes in how students learn. Students need more interactive, engaging, and practical learning experiences to help them develop the skills they need to succeed in their

future careers. In an era of increasingly advanced technology, proactive learning can help students obtain information more quickly and effectively and help them develop the technical skills needed in the world of work. Thus, proactive knowledge is critical in promoting a more effective and meaningful education for students, especially in facing the challenges of an increasingly complex work environment. Proactive learning has several significant advantages for students and the learning process in general, including (Liu et al., 2019):

1. Increase student learning motivation: Proactive learning can increase student motivation by providing opportunities to participate actively in the learning process. This can trigger students' interest in education and provide a more positive learning experience.
2. Improve information retention: Proactive learning can assist students in obtaining and retaining information better because students are actively involved in learning and finding answers to their questions. This can help students learn to remember information better and for longer.
3. Improve critical and creative thinking skills: Proactive learning can help students develop critical and creative thinking skills because they are asked to solve problems and think critically about the information obtained. This can help students develop the ability to analyze data and develop creative solutions to a given problem.
4. Improve interpersonal skills and teamwork: Proactive learning can help students develop interpersonal and teamwork skills because they are often asked to work in groups or teams. This can help students acquire better communication skills, learn to work with others, and respect individual differences.

5. Improving learning outcomes: Proactive learning can help students get better learning outcomes because they are actively involved in learning. This can help students better understand the material studied and develop skills to apply the information in real-life situations.
1. Thus, proactive learning can benefit students and the learning process in general and help students obtain better learning outcomes and develop valuable skills. Another advantage is increased retention and engagement.

Increase Retention

Proactive learning can encourage student retention in several ways, such as (Barret, 2017):

1. Problem-based learning: Proactive learning teaches students to find out, solve problems, and make decisions on their own. This can help students understand and remember information better because they are actively involved in learning.
2. Metacognition: Proactive learning also engages students in self-reflection and assessing their performance. This can help students understand how they learn and remember information, so they can develop more effective learning strategies to increase retention.
3. Collaborative learning: Proactive learning also engages students in collaborative learning and teaching each other. This can help students deepen their understanding and help them remember information through discussion and exchange of ideas (Benjamin et al., 1998).

Increase Engagement

Some problems that often occur in educational learning are a lack of student motivation, lack of student involvement in education, students' difficulties in understanding the concepts being taught, and conventional

learning methods, which tend to be teacher-centered and emphasize memorization. A proactive learning approach can help overcome these problems by actively involving students in the learning process. In this approach, students are more involved in issue-solving, thinking, and reflection. Proactive learning also encourages students to actively participate in the learning process, such as collaborating with colleagues and planning and monitoring their learning process. With proactive learning, students are more involved and better understand the concepts. This can help increase students' motivation and involvement in education and assist them in understanding and remembering the concepts being taught. In addition, a proactive learning approach can help students to develop the social, collaborative, and problem-solving skills needed in increasingly complex work environments.

Proactive learning encourages learners to engage with the material actively. This includes asking questions, seeking out new information, and connecting what they already know and what they are learning. By actively engaging with the material, learners are more likely to retain information and stay engaged in the learning process. Proactive learning can encourage student engagement in several ways, such as (Barret, 2017):

1. **Encouraging student activities:**

   Proactive learning encourages students to be actively involved in the learning process, for example, by inviting students to ask questions, discuss, and participate in class activities. This can increase student involvement in learning.

2. **Increase student ownership of learning:**

   Proactive learning also engages students in planning, organizing, and managing their knowledge. This provides a greater sense of

ownership of learning and makes students feel more responsible for their education.

3. **Increase student motivation:**

   Proactive learning can increase student motivation by allowing them to choose topics or methods and provide challenges and constructive feedback. This makes students more passionate about education and increases their involvement (Alikaj et al., 2021).

Proactive Learning Strategy

Proactive learning is a learning approach that places students as active subjects in the learning process. They are invited to understand the subject matter actively and encouraged to take the initiative to learn (Hou et al., 2018).

Table 2: Difference between Proactive learning and Conventional Learning

Parameter	Passive Or Reactive Learning	Proactive Learning
Learning orientation	Tend to be teacher or material oriented	Student oriented
	The teacher is considered the primary source of information and authority in the classroom.	Students are considered the main actors in the learning process.
.Student interaction	Student interaction is often limited to discussion or questions from the teacher.	Encourage student interaction and collaboration, where students can learn from one another, exchange ideas, and work together to complete assignments.
Learning methods	Use passive learning methods such as lectures, reading textbooks, or writing notes.	Using. Ore active and creative learning methods, such as group discussions, simulations, or projects

Parameter	Passive Or Reactive Learning	Proactive Learning
Learning objectives	Often the aim is to complete the curriculum or test student knowledge.	It aims to develop students' ability to learn independently, solve problems, and become critical thinkers.

Sumber : (Juang et al., 2018; Köpeczi-Bócz, 2020; Roy et al., 2020)

Proactive learning differs from conventional learning by focusing on student-centered and student-driven learning experiences and avoiding learning approaches that only focus on unilateral teaching from the teacher. From this, it can be concluded that proactive learning is an innovative approach, placing students as the main subject and strengthening students' abilities to learn independently, solve problems, and think critically (Routledge, 2020). 5 (five) Proactive learning strategies that can be applied in the learning process:

1. **Problem-based learning**

   This strategy emphasizes using real-world problems as the starting point of the learning process, where students are asked to find creative and innovative solutions to these problems. Thus, students not only gain new knowledge but can also develop problem-solving skills and critical thinking (Barret, 2017).

2. Cooperative Learning (Cooperative Learning)

   This strategy emphasizes student cooperation and collaboration in developing new understanding and knowledge. Students are grouped into small teams, where each member is responsible for helping and supporting one another in the learning process. Thus, students can gain a more interactive and meaningful learning experience (S. Kaymak et al., 2021).

3. **Project-based learning**

   This strategy emphasizes using projects to develop students' skills and understanding of specific topics. Students are required to create a project from start to finish, during which they must identify a problem, design a solution, and present the results of their project. Thus, students can get a more enjoyable and practical learning experience (Lopez-Gazpio, 2022).

4. **Simulation-based learning**

   This strategy emphasizes using simulations or games to develop students' problem-solving and critical-thinking skills. Students are asked to play specific roles in a simulation or game, making decisions and solving the problems given. Thus, students can get a more interactive and enjoyable learning experience (Experiential Learning Hub - Queen's University, 2021).

5. **Experience-based learning (Experiential Learning)**

   This strategy emphasizes using real experience to develop students' understanding of specific topics. Students are asked to gain hands-on experience through field trips, internships, or collaborative programs with industry or the community. Thus, students can gain learning experiences that are more practical and relevant to the world of work (Dieu & Kim, 2018).

Cases

Proactive learning is a concept that places students as active subjects in the learning process to develop independent learning skills and think critically. Here are 5 cases that can be used as examples of implementing proactive learning in the learning process:

1. **Application** of problem-based learning in mathematics lessons: A mathematics teacher uses problem-based learning in the learning process, where students are asked to solve real-world problems using mathematical concepts. In this process, students can develop the ability to solve problems and think critically and actively.
2. Application of cooperative learning in English lessons: An English teacher uses cooperative learning in the learning process, where students are grouped **into** small teams and asked to help and support each other in the learning process. Students can gain a more interactive and meaningful learning experience in this process.
3. Application of project-based learning in history lessons: A history teacher uses project-based learning in the learning process, where students are asked to develop projects related to the studied historical topic. Students can gain a more enjoyable and practical learning experience during this process.
4. Application of simulation-based learning in science lessons: A science teacher uses simulation-based learning in the learning process, where students are asked to play specific roles in simulations or games related to the science concepts being studied. Students can gain a more interactive and enjoyable learning experience during this process.
5. Application of experience-based learning in art lessons: An art teacher uses experiential learning in the learning process, where students are asked to gain hands-on experience by making field trips to art galleries or museums. In this process, students can gain learning experiences that are more practical and relevant to the world of art.

Implications

The use of proactive learning has significant implications for teachers and students, including:

1. **Implications for teachers:**
    a. Encourage teachers to adopt a student-centered approach and avoid focusing solely on one-sided teaching from the teacher.
    b. Encouraging teachers to give freedom and active involvement to students in the learning process.
    c. Encourage teachers to choose student-centered learning methods, such as group discussions, simulations, or projects, and facilitate students' active involvement in learning.
2. **Implications for students:**
    a. Providing freedom and active involvement in students determining their learning goals and exploring material independently.
    b. Improving students' ability to learn independently, solve problems, and think critically.
    c. Increase student involvement and motivation in the learning process.
    d. Thus, proactive learning has positive implications for teachers and students in improving the quality of education and creating a more meaningful and enjoyable learning experience for students. However, implementing proactive learning requires a change in the learning paradigm, so teachers and students must be prepared to adapt and face challenges in the learning process.

Conclusion

Based on the description above, it can be concluded that proactive learning is a learning approach that focuses on the active involvement of students in the learning process. Proactive learning can help students to obtain better learning outcomes and develop skills that will be useful in their future lives, such as critical thinking, creative, interpersonal, and teamwork skills. Proactive learning can also increase student motivation, improve information retention, and provide a more positive learning experience. Therefore, proactive learning can be a practical learning approach for students and help improve the quality of learning. Several requirements need to be met in the implementation of proactive learning:

1. Adequate learning facilities like information and communication technology (ICT), libraries, and laboratories.
2. Availability of relevant and varied learning materials and resources, such as books, journals, articles, videos, and learning software.
3. Planning and developing excellent and systematic learning programs, which include clear learning objectives, effective learning strategies, and appropriate assessments.
4. Developing the ability of teachers to design, implement, and evaluate proactive learning programs, including the ability to develop students' social, creative, and critical thinking skills.
5. A good understanding of students' characteristics and needs so relevant and effective learning programs can be designed.
6. Support from the learning environment, including support from parents and students' families, support from peers, as well as support from management and school administrators.

7. Continuous monitoring and evaluation of learning programs, including measuring student performance and improving learning programs as needed.

By fulfilling the above requirements, implementing proactive learning can benefit students and improve the overall quality of education. In conclusion, proactive learning is a powerful tool for enhancing retention and engagement in education. By encouraging active engagement, increasing motivation, enhancing problem-solving skills, improving memory retention, and fostering independence, proactive learning can help learners achieve their learning goals and develop a love for learning.

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CHAPTER 10

BLENDED LEARNING IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET): STRATEGIES AND IMPLEMENTATION

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BLENDED LEARNING IN TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET): STRATEGIES AND IMPLEMENTATION

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ABSTRACT

The Technical and Vocational Education and Training (TVET) program in Indonesia has undergone significant development in recent years as the government recognizes the role of TVET in supporting economic growth. However, challenges such as improving TVET's image and ensuring graduates can find jobs remain. Blended learning, a mix of traditional classroom-based and online learning, can effectively implement vocational programs in Indonesia, supporting individual and flexible learning and providing students with various learning experiences. To further enhance TVET in Indonesia, the government and TVET providers should strengthen industry partnerships, increase work-based learning experiences, enhance TVET's image, development policies that support blended learning, and continuously monitor and evaluate the program's effectiveness. These measures can help develop a skilled and competitive workforce that contributes to Indonesia's economic growth and development.

Keywords: TVET, Industry Partnership, Center of Excellence, Blended Learning

INTRODUCTION

The TVET (Technical and Vocational Education and Training) program has its roots in the medieval European apprenticeship system, where young people learned a trade through on-the-job training. As industrialization occurred in the 19th century, vocational education and training became more formalized, and schools were established to provide technical skills training. Indonesia has made significant progress in developing a TVET system in recent years. The government has realized

the importance of TVET in supporting economic growth and has implemented various policies and initiatives to improve the quality and relevance of TVET programs (Ali et al., 2020).

Today, TVET programs are designed to provide students with the skills and knowledge they need to succeed in specific jobs. TVET programs focus on hands-on learning and developing practical skills to prepare students for the world of work. TVET programs are offered at various levels of education, from secondary education to post-secondary education and training. TVET is offered through vocational schools, community colleges, technical institutes, and other educational institutions. TVET programs cover a wide range of industries and trades, including fields such as construction, manufacturing, hospitality, healthcare, and information technology, as well as internships, work-based learning, and classroom-based teaching. The dual vocational training system is designed to provide students with hands-on experience in their chosen field, which can help students develop the practical skills and knowledge essential for success in the workplace and help companies train and develop skilled workers with the skills needed to succeed in their respective industries.

Some of the problems faced by TVET in Indonesia include (Utari et al., 2021): 1). Many students still prefer formal education, such as higher education, rather than vocational education. This resulted in low student interest in the TVET program, resulting in fewer graduates skilled in certain occupations. 2). Several TVET programs in Indonesia still need to improve regarding curriculum quality and relevance to the needs of the labor market. In addition, the infrastructure and facilities at several TVET institutions still need to be improved. 3). Many people still think that vocational education is only for students who cannot excel in formal education, thus causing a

low image and recognition of TVET graduates. 4). In some cases, the TVET program does not fully meet the needs of the labor market, so TVET graduates need help finding jobs that match their skills and competencies. 5). Implementation of a quality TVET program requires substantial costs. Unfortunately, the Indonesian government has not been able to meet the budget requirements fully

The Indonesian government has implemented various policies and initiatives to promote TVET and dual vocational training. For example, National Competency Standards (SKKNI) ensure that TVET programs meet industry standards and equip students with the skills and knowledge necessary to succeed in the workplace. The government has also provided funds and support for vocational schools to improve their facilities and curricula. Dual vocational training is an important aspect of TVET in Indonesia, providing students with practical experience and helping to address skills gaps in various industries. With continued support from the government, TVET and dual vocational training will significantly prepare the Indonesian workforce for the future.

TVET Indonesia faces several problems, including:

1. Lack of match between industry needs and workforce competence produced by the TVET system.
2. There needs to be a clear national standard to measure the quality of TVET programs, which makes it difficult for the community to choose the right program.
3. Lack of financial support from the government for TVET program development.

4. There needs to be more internship and field practice opportunities for TVET students, depriving them of the practical experience needed in the world of work.
5. Lack of public awareness and understanding of the importance of TVET education as an alternative to quality education and can produce a competent workforce.
6. Limited infrastructure and adequate educational facilities in some areas make it difficult for students to access quality TVET education.

This paper aims to explain the meaning of TVET and analyze the partnership between TVET organizers and the industry, Blended Learning in TVET, the TVET Center of Excellence, and the Implementation of Blended Learning in TVET.

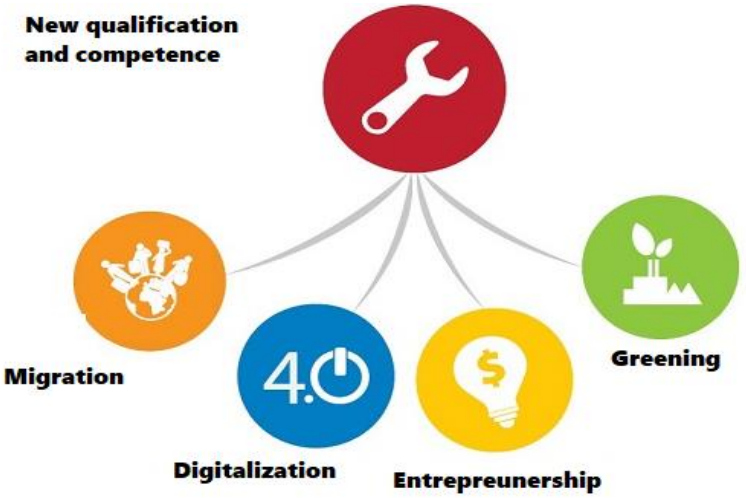
LITERATURE REVIEWS

What is TVET?

TVET stands for Technical and Vocational Education and Training, which refers to the education and training provided to individuals to equip them with the practical skills, knowledge, and competencies required for a particular job or profession (Tra Nguyen & Chi Diep, 2021). In Indonesia, TVET is provided through various institutions such as vocational high schools, polytechnics, and training centers. The Indonesian government has focused on improving the quality of its TVET programs to address skills gaps in the labor market and support the country's economic development.

Some of the initiatives taken by the Indonesian government to strengthen TVET include implementing competency-based training, establishing industry-led vocational training centers, and developing a national qualifications framework. Additionally, various scholarship

programs and funding opportunities are available to support students pursuing a TVET education. Despite these efforts, challenges remain in increasing the perception of TVET as a viable career option, increasing private sector participation in TVET, and ensuring that TVET programs align with labor market needs (Ali et al., 2020).



TVET programs are important today because they provide individuals with the skills and knowledge necessary to succeed in various trades and skilled occupations. However, several trends and phenomena have influenced TVET programming and shaped its evolution. These trends and phenomena are shaping the evolution of vocational programs as they adapt to meet changing workforce needs and prepare individuals for successful careers in a variety of skills and occupations: 1). Rapid technological advances are driving the need for new skills and knowledge, particularly in information technology, manufacturing, and healthcare. TVET programs adapt to these changes by incorporating new technologies and digital tools into their curricula. 2). The TVET program partners with the industry to ensure curricula are aligned with the workforce's needs. This collaboration

enables the TVET program to equip students with the specific skills and knowledge employers demand. 3). Green economy increasingly recognized the need to shift to a green economy, and TVET programs have responded by developing curricula that address environmental sustainability and energy efficiency (Fawaid et al., 2016).

TVET characteristics

Following are some of the characteristics of TVET education (Omar et al., 2022):

1. Focus on practical skills:

   TVET education places more emphasis on practical skills than theoretical knowledge. Students will be equipped with the fundamental skills needed in certain jobs.

2. Structured and measurable:

   TVET education has a structured and measurable curriculum to guarantee quality to students. In addition, the TVET program also has qualification and certification standards that can increase the competitiveness of graduates in the labor market.

3. Adaptable to the needs of the labor market:

   The TVET program is designed with the needs of the labor market in mind. This gives TVET graduates relevant skills that can be directly applied in the world of work.

4. Industry oriented:

   TVET education has close links with industry and often involves the direct participation of companies and industry practitioners in curriculum development and implementation of TVET programs.

5. Available for different levels of education:

TVET programs are available for various levels of education, from secondary vocational to tertiary education. This allows students to choose a program that suits their interests and abilities.

DISCUSSION

Industry Partnership

The government has strengthened the partnership between TVET providers and industry to ensure that the TVET program is aligned with workforce needs. These partnerships help ensure students acquire the specialized skills and knowledge employers demand (Voctech, 2020).

1. Industry partnerships are essential in Indonesia's Technical and Vocational Education and Training (TVET). This partnership allows TVET institutions to align their programs with industry needs, equipping students with practical skills and knowledge that will prepare them for the world of work. Following are some examples of industry partnerships in Indonesia's TVET sector:
2. Government and Industry Collaboration: The Government of Indonesia has implemented various programs to enhance industry partnerships in the TVET field. One such program is the Indonesia Dual Vocational Education Training (ID-VET) program, which aims to forge partnerships between vocational schools and the industry to provide students with practical training and work experience.
3. Collaboration between TVET agencies and industry associations: Many TVET agencies in Indonesia partner with industry associations to ensure their programs are aligned with current industry needs. These partnerships enable learning from industry

experts and gaining hands-on experience through apprenticeships, apprenticeships, and training programs.

4. Partnerships between TVET institutions and multinational companies: Multinational companies such as Siemens, Bosch, and ABB have partnered with TVET institutions in Indonesia to equip students with industry-relevant skills and knowledge. These companies provide training, mentoring, and internship programs to help students prepare for the workforce.
5. Collaboration between TVET institutions and local businesses: Many TVET institutions in Indonesia partner with local businesses to provide students with practical training opportunities. These partnerships allow students to gain valuable work experience and develop industry-relevant skills.

Industry partnerships are critical in Indonesia's TVET sector as they help bridge the gap between education and industry needs. By working together, vocational institutions and industry partners can create a skilled and competent workforce that contributes to Indonesia's economic growth and development.

TVET Center of Excellence

Indonesia has established several TVET centers of excellence which provide high-quality training and are equipped with modern facilities and equipment. These centers help raise the bar for TVET programming across the country. TVET centers of excellence in Indonesia provide high-quality vocational education and training programs to meet industry and labor market demands. These centers of excellence aim to produce skilled and professional workers ready to work in various sectors. Here are some examples of TVET centers of excellence in Indonesia:

1. Sepuluh Nopember Institute of Technology (ITS) is a state university in Surabaya, East Java. Offers a variety of vocational education and training programs in engineering, science, and technology. Bandung State Polytechnic (POLBAN) - POLBAN is a polytechnic in Bandung, West Java. It offers vocational education and training programs in engineering, business, and management. Vocational Training Centers (BLK) - BLK is a job training center under the Ministry of Manpower and Transmigration. It provides training programs in various fields, including construction, agriculture, and tourism. Telkom Jakarta Vocational School - Telkom Jakarta Vocational School is a vocational high school focusing on information and communication technology (ICT). It provides vocational education and training programs in software, network, and multimedia engineering. Stikom Surabaya Institute of Business and Informatics - Stikom Surabaya is a private university in Surabaya, East Java. It offers vocational education and training programs in information technology, business management, and creative industries.
2. Polymarine, or the Indonesian State Maritime Polytechnic, is a Semarang, Central Java, Indonesia maritime polytechnic. It is one of TVET Indonesia's centers of excellence specializing in maritime education and training. Polimarin provides vocational education and training programs in maritime fields, such as marine engineering, sea transportation, and maritime management. This institution aims to produce highly skilled and competent professionals who can meet the demands of the maritime industry. Polimarin is also equipped with modern training facilities and equipment, such as simulators

and laboratories, to ensure its students receive practical and hands-on training. In addition, it also has partnerships and cooperation with various organizations and institutions in the maritime industry, both locally and internationally. Polimarin is an important center of vocational excellence in Indonesia that plays a vital role in producing skilled and competent professionals in the maritime field.

The government has increased funding for TVET programs in recent years, focusing on increasing the programs' quality and relevance. Technical and Vocational Education and Training (TVET) is an essential aspect of education that equips individuals with practical skills and knowledge to prepare them to enter the world of work. Increasing TVET funding in Indonesia can provide several benefits, including:

1. Facility upgrade:
   Increased funding for TVET agencies in Indonesia could improve their facilities and equipment. This could include modernizing workshops and classrooms, providing up-to-date tools and equipment, and improving the learning environment.
2. More opportunities for students:
   Increased funding can help TVET institutions in Indonesia expand their programs and offer more opportunities for students to study and develop skills in various fields. It can also help increase enrollment and encourage more students to pursue vocational education.
3. Improving the quality of education:
   With increased funding, TVET institutions can attract highly qualified instructors, invest in teacher training programs, and develop and

implement quality assurance measures to ensure students receive a high-quality education.

4. Better job prospects:
   Equipping students with the practical skills and knowledge that employers demand, increased funding for TVET can help increase their job prospects and earning potential. It can also help tackle skills shortages in the labor market.

Increased funding for vocational education in Indonesia can play an important role in preparing individuals for the workforce, improving the quality of education, and contributing to the country's economic development. Nevertheless, Indonesia's TVET system is progressing in developing a more responsive and effective system that meets labor requirements and supports economic growth. However, challenges remain to be overcome, such as improving TVET's image and ensuring graduates can find jobs.

Blended Learning in TVET

Blended learning is an educational approach that combines traditional classroom-based learning with online and digital learning activities. It is a flexible approach that allows learners to engage in various online and offline learning activities and provides opportunities for individual learning and personalized feedback. The concept of blended learning has been around for decades. However, it has become more prominent in recent years with the widespread availability of digital technologies and online learning platforms. Blended learning can take many forms, depending on the specific needs and goals of the learner and the context of the learning environment.

Some common features of blended learning include; A combination of online and offline learning: Blended learning typically involves a mix of face-to-face instruction and online learning activities, such as video lectures, discussion forums, and interactive simulations, Flexibility, and personalization: Blended learning provides flexibility and opportunities to personalize their learning experience, such as choosing a pace and their study time. Technology integration: Blended learning often involves using digital technologies, such as learning management systems, video conferencing, and mobile devices. Emphasis on active learning: Blended learning often emphasizes active learning strategies, such as problem-based learning, group projects, and peer-to-peer collaboration. Personalized feedback: Blended learning provides students with final feedback from instructors and peers, which can help support their learning and progress. In the end, blended learning can support a more effective and interesting learning experience for students. This can be very useful when traditional classroom-based instruction is not feasible or effective (Hashim & Hamidon, 2022).

The TVET (Technical and Vocational Education and Training) program blended learning combines traditional and online classroom-based learning. This educational approach combines the best aspects of both methods to provide students with a more comprehensive and effective learning experience. In the blended learning TVET program, students attend regular classes where they can interact with instructors and their peers in a physical classroom. However, they can also access online resources, such as video lectures, interactive simulations, and other multimedia materials, which they can use to supplement their learning outside the classroom. Blended

learning TVET programs are becoming increasingly popular because of the many benefits they offer, such as:

1. Flexibility: Students can access course materials and lectures online at any time, allowing them to study at their own pace and according to their schedule.
2. Personalization: The blended learning TVET program allows students to choose the style that best suits them through traditional classroom-based or online self-directed learning.
3. Increased engagement: Online resources and interactive multimedia materials can increase student engagement and motivation.
4. Cost-effective: Using online resources, blended learning TVET programs can reduce the costs associated with traditional classroom-based learning.

Blended learning in TVET programs can provide students with a more dynamic and effective learning experience by combining the best aspects of traditional and online classroom-based learning.

Implementation of Blended Learning at TVET

Blended learning can effectively implement TVET programs. It can provide students with traditional classroom-based instruction and online learning activities supporting individualized and flexible learning. Blended learning TVET programs are becoming increasingly popular because of the many benefits they offer, such as (Hashim & Hamidon, 2022):

1. Flexibility:

Students can access course materials and lectures online at any time, allowing them to study at their own pace and according to their schedule.

2. Personalization:

   The blended learning TVET program allows students to choose the learning style that best suits them through traditional classroom-based or online self-directed learning.

3. Increased engagement:

   Online resources and interactive multimedia materials can increase student engagement and motivation.

4. Cost-effective:

   Using online resources, blended learning TVET programs can reduce the costs associated with traditional classroom-based learning.

Blended learning in TVET programs can provide students with a more dynamic and effective learning experience by combining the best aspects of traditional and online classroom-based learning (Latchem, 2017). The following is an example of implementing blended learning in the TVET program:

1. Online module:

   TVET programs may develop modules covering key concepts and skills related to a chosen trade or occupation. These modules can be made available to students before or after a face-to-face training session, allowing them to review and reinforce their learning.

2. Video lecture:

   These programs can provide students with videos that cover specific topics or skills related to a trade or work. These videos can be created

by instructors or experts in the field and are available online or on mobile devices.

3. Virtual simulation:

   The program may incorporate virtual simulations, which allow participants to practice and apply their skills in a safe and controlled environment. These simulations can be accessed online or via mobile devices, providing feedback and support to learners to improve their performance.

4. Collaborative learning activities:

   This program may incorporate collaborative learning activities that require students to work together on projects or assignments. This activity can be facilitated online through discussion forums or video conferencing, enabling students to learn from and support each other.

5. Work-based learning:

   The program may incorporate work-based learning experiences, such as apprenticeships or apprenticeships, which allow participants to apply their skills in the real world. These experiences can be supported by online learning activities, such as reflective journals or online mentoring, which help learners connect their work-based experiences to their learning goals.

Applying blended learning in the TVET program can provide students with various learning experiences that support their skill development and career readiness. It can also provide instructors with new tools and approaches to support teaching and learning and develop more flexible and responsive TVET programs.

CONCLUSION

In conclusion, the development of the TVET program in Indonesia has significantly progressed in recent years. The government has realized the importance of TVET in supporting economic growth and has implemented various policies and initiatives to improve the quality and relevance of TVET programs. However, challenges remain to be overcome, such as improving TVET's image and ensuring graduates can find jobs.

Blended learning can be an effective approach to implementing vocational programs in Indonesia. By providing students with a mix of traditional classroom-based teaching and online learning activities, blended learning can support individual and flexible learning and provide students with various learning experiences that support their skills development and career readiness. Blended learning can provide instructors with new tools and approaches to support teaching and learning and develop TVET programs that are more flexible and responsive. To further enhance TVET in Indonesia, the government and TVET providers could consider the following suggestions:

1. Strengthen industry partnerships to ensure that TVET programs align with the workforce's needs and that graduates have the skills and knowledge employers demand.
2. Increase the availability of work-based learning experiences, such as internships or apprenticeships, to provide students with opportunities to apply their skills in real-world situations and to help them transition into the world of work.
3. Enhance TVET's image by highlighting the value and importance of technical and vocational skills and promoting successful TVET graduates as role models.

4. Develop policies and initiatives that support the use of blended learning in TVET programs, such as providing funds to develop online modules or virtual simulations.
5. Continuously monitor and evaluate the effectiveness of the TVET program to ensure that it meets the needs of learners and the workforce and identify areas for improvement.

Efforts made by the government to overcome TVET problems in Indonesia include:

1. Improving the quality of the TVET program by developing a curriculum more relevant to the needs of industry and the world of work.
2. Establishment of the National Professional Certification Agency (BNSP) to issue professional certification for adequately competent workers.
3. Increased financial support from the government for the development of TVET programs, including scholarship programs and incentives for TVET students and institutions.
4. Increased internship and field practice opportunities for TVET students by strengthening cooperation between TVET educational institutions and the industry.
5. Campaign to raise public awareness about the importance of TVET education as an alternative to quality education and to produce a competent workforce.
6. Development of adequate educational infrastructure and facilities throughout Indonesia to ensure that TVET students can access quality education.

By implementing these recommendations, Indonesia can continue to strengthen its TVET system and support the development of a skilled and

competitive workforce that can contribute to the country's economic growth and development.

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CHAPTER 11

THE ROLE OF BRAIN GYM EXERCISES IN ENHANCING LEARNING AND ACADEMIC PERFORMANCE: A CRITICAL REVIEW OF THE LITERATURE

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THE ROLE OF BRAIN GYM EXERCISES IN ENHANCING LEARNING AND ACADEMIC PERFORMANCE: A CRITICAL REVIEW OF THE LITERATURE

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Abstract

This literature study aims to conduct a critical review of the role of Brain Gym exercises in enhancing learning and academic performance. In this research, we evaluate the evidence from various studies that discuss the effectiveness of Brain Gym in improving students' learning abilities and academic performance. We analyze the most recent studies that have been conducted in this field, including studies conducted in several countries. This research shows that consistent Brain Gym training has a positive impact on improving academic performance, including reading, writing, and math skills. In addition, this study also discusses the various methods used in Brain Gym exercises and how these exercises work to improve learning abilities. As such, this research provides a better understanding of the effectiveness of Brain Gym exercises in enhancing learning and academic performance and provides directions for further research in this area.

Key words: *Brain Gym Exercises Learning, Academic Performance*

INTRODUCTION

In education, there is a need to understand the relationship between physical exercise and students' academic performance. Previous research has shown that physical exercise can improve academic performance and learning, but not many studies have considered Brain Gym Exercises as physical exercises that can improve student academic performance.

Previous studies have shown that physical exercise can improve academic and learning performance. However, research considering Brain Gym Exercises is still limited. For example, research by (Pössel, P., Horstkotte, F., & Baeriswyl, 2016) shows that Brain Gym Exercises can improve learning and concentration in students, but research by

(Denk, F., Kudielka, BM, von Dawans, B., & Wüst, 2018) showed inconsistent results in terms of the effect of Brain Gym Exercises on students' academic performance. So the gap phenomenon that appears is comparing the effect of physical exercise on academic and learning performance. Currently, there are not many studies that consider Brain Gym Exercises as physical exercises that can improve academic performance.

This research is important because the results can help educators and parents decide whether Brain Gym Exercises can be used as a strategy to improve students' academic performance. The problem of this research is to evaluate the effectiveness of Brain Gym Exercises in enhancing learning and academic performance. There is also a gap phenomenon in research that compares the effect of physical exercise on academic and learning performance. Currently, there are not many studies that consider Brain Gym Exercises as physical exercises that can improve academic performance.

The purpose of this research is to provide a better understanding of the effectiveness of Brain Gym Exercises in enhancing learning and academic performance. The results of this study can help educators and parents decide whether Brain Gym Exercises can be used as a strategy to improve students' academic performance.

This study will use the literature review method to examine previous research on Brain Gym Exercises and academic performance. The results will provide a better understanding of the effectiveness of Brain Gym Exercises in improving academic performance. The difficulty one might encounter in this study is the limitation in the amount of recent research available on Brain Gym Exercises and academic performance.

This study hopes to provide a better understanding of the effectiveness of Brain Gym Exercises

LITERATURE REVIEWS

Definitions of Brain Gym Exercises Learning

Brain Gym Exercises are a series of physical movement and cognitive exercises designed to improve brain function and learning abilities. According to Dweck, Brain Gym Exercises are “physical exercises that target brain function and help facilitate learning”. According to Zimmer, Brain Gym Exercises are “physical and mental exercises designed to enhance learning abilities and strengthen the connections between the brain, body and emotions”. According to Jensen, Brain Gym Exercises are "physical exercises designed to strengthen the connection between the brain and body, and help improve academic and social skills".

According to, the learning model "Brain Gym Exercises Learning" is a learning approach that emphasizes the use of certain physical movements to increase brain involved in learning. This approach includes a series of physical exercises designed to improve coordination between the eyes, hands, and body, and stimulate better and more efficient brain activity. This learning model was inspired by the psychomotor concept developed by the American psychologist and author, Paul Dennison in the 1980s (Dennison, PE, & Dennison, 2006) Several studies have shown that the use of physical exercises focused on Brain Gym Exercises Learning can improve concentration, creativity, and academic performance in children.

Table 1: DefinitionOf Brain Gym Exercises Learning

Author	definition	Parameter
(Chen, 2016)	Brain Gym Exercises are a series of simple movements that stimulate the nervous system and help improve learning, concentration, and memory."	1. Study ability 2. Concentration 3. Memory
(Liu, J., & Lo, 2020)	Brain Gym Exercises are physical exercises that involve movements that integrate left and right brain functions to improve learning abilities and academic performance."	1. physical training 2. Integration of left brain and right brain
(Dellavalle, 2015)	Brain Gym Exercises Learning is a learning technique that involves physical movement to help improve brain function and facilitate the learning process."	1. Study technique 2. Physical movement

Based on several definitions from the experts previously mentioned, it can be concluded that Brain Gym Exercises Learning is a learning method or technique that involves simple physical movements designed to stimulate the brain and improve learning ability, concentration, memory, and academic performance. This technique aims to integrate left and right brain functions using coordinated physical movements. Therefore, Brain Gym Exercises Learning can be used as an alternative way to help improve individual learning effectiveness and academic performance.

BRAIN GYM EXERCISES LEARNING THEORETICAL FRAMEWORK

The theoretical framework of Brain Gym Exercises Learning is based on the theory that specially designed physical movements can stimulate the brain and improve learning abilities and academic performance. The following concepts are part of the theoretical framework of Brain Gym Exercises Learning:

1. Brain integration: The concept of brain integration states that the human brain consists of two hemispheres (left and right) that have different functions, and coordinated physical movements can help integrate left and right brain functions (Dellavalle, K., 2015).
2. Educational kinesiology: An educational kinesiology is an approach that involves physical movement in the learning process. This approach assumes that proper physical movement can help improve concentration, attention, and learning abilities (Liu, J., & Lo, Y., 2020).
3. Neuropsychology: Neuropsychology is a field that studies the relationship between the brain and behavior. Brain Gym Exercises Learning is based on neuropsychological principles, namely that physical movement can stimulate the brain and improve learning ability and academic performance. (Jarraya, S., & Jarraya, 2017)

DISCUSSION

Why should you use the Brain Gym Exercises Learning method in education?

There are several reasons why using the "Brain Gym Exercises Learning" learning model can be useful in an educational context. Some of these reasons include:

1. Improves focus and concentration: Brain Gym Exercises Learning is designed to help improve student focus and concentration. This can help students more easily understand and process the information provided. Chen, C. (2016).

2. Improve learning ability: The coordinated physical movements in Brain Gym Exercises Learning can help improve brain function and facilitate the learning process. This can help students more easily understand and remember information. Jarraya, S., & Jarraya, M. (2017).

3. Improve academic performance: Brain Gym Exercises Learning can help improve students' academic performance by facilitating the learning process and improving cognitive abilities. Liu, J., & Lo, Y. (2020).

The difference between Brain Gym Exercises Learning and Conventional Learning

The learning model "Brain Gym Exercises Learning" is a learning approach that involves body movement to improve brain function and learning performance. Whereas the conventional learning model is a

learning approach that is usually carried out in the classroom with teaching methods that are more focused on academic activities such as reading, writing, and arithmetic. Following are the differences between Brain Gym Exercises Learning and Conventional Learning along with their citations and references:

1. Learning approaches

   Brain Gym Exercises Learning uses a learning approach that emphasizes physical movement to increase brain activity and learning concentration. Whereas Conventional Learning uses a learning approach that focuses more on teaching methods such as lectures and class discussions. (Hill, 2015)

2. Learning focus

   Brain Gym Exercises Learning focuses more on increasing student involvement in the learning process and increasing the ability to focus. Whereas Conventional Learning is more focused on achieving academic goals and mastering subject matter. (Bouffard-Bouchard, 2013)

3. Technology use

   Brain Gym Exercises Learning does not rely on technology to carry out learning activities. Whereas Conventional Learning uses technology such as computers and the internet as a tool in the teaching and learning process. (Horn, 2013)

4. physical activity

   Brain Gym Exercises Learning emphasizes physical movements such as brain exercises and breathing exercises to improve brain activity and concentration. Whereas Conventional Learning tends to be more passive and places less emphasis on physical movement in the learning process. (Brinks, 2015)

Table 2: The difference between BGEL and CL

Parameter	**Conventional learning**	**Brain Gym Exercise Learning**
Learning focus	The conventional model is more focused on academic activities.	Brain Gym Exercises Learning emphasizes the importance of physical movement and sensory activity in learning,
Learning methods	The conventional model relies more on verbal and visual teaching methods.	Brain Gym Exercises Learning uses specific physical movements to stimulate the brain and improve learning abilities
Learning objectives	The conventional model aims to provide academic knowledge and skills.	Brain Gym Exercises Learning aims to improve brain function and learning performance,

Fundamental Principles of Brain Gym Exercises Learning Approach

The brain Gym Exercise Learning model is based on five fundamental principles as follows:

1. Movement is the key to effective learning: Physical movement can help strengthen the connection between the brain and body, thereby helping to improve learning ability and concentration.

2. Everyone learns uniquely: Individuals have different learning preferences, such as visual, auditory, and kinesthetic. Brain Gym pays attention to the uniqueness of each individual in learning and provides training according to their learning preferences.
3. Suitable challenges will strengthen learning abilities: Brain Gym provides suitable challenges according to the ability of each individual, thereby helping to improve their learning abilities.
4. Active engagement increases learning engagement: Individuals learn better when they are actively involved in their learning process. Brain Gym encourages active engagement in learning through physical movement and cognitive exercises.
5. Variable differences help improve learning performance: Brain Gym understands that individuals have varying differences in learning speed and performance. Therefore, this learning model provides different exercises, to help improve the learning performance of each individual.

Teachers should know and understand the basic principles related to the Brain Gym Exercise Learning model in teaching and learning activities at school. Good understanding allows for implementation correctly.

Table 3: Research Findings Using the Transformative Learning Method

No	Author	finding
1	(Alghazo, MA, & Mousa, 2016)	The results of this study indicate that Brain Gym Exercise Learning can improve reading and writing skills in elementary school students.
2	(Lien, YH, & Tsai, CL in Taiwan. Reference: Lien,	This research shows that Brain Gym Exercise Learning can improve concentration and fine motor skills in

No	Author	finding
	YH, & Tsai, 2017)	early childhood.
3	(Vintiadis, A., & Tsitskari, 2018)	This study shows that Brain Gym Exercise Learning can improve mathematics achievement in elementary school students.
4	(Nishitani, N., & Sakamoto, 2019)	The results of this study indicate that Brain Gym Exercise Learning can improve concentration and memory in high school students
5	(Sharma, S., & Malhotra, n.d.)	This research shows that Brain Gym Exercise Learning can help improve creativity and concentration in junior high school students.

The Dynamics of Brain Gym Exercises Learning Approach

Brain Gym Exercises Learning Approach is a learning model based on physical movement designed to help improve brain function and improve academic performance. Following are the dynamics of Brain Gym Exercises Learning, among others:

1. Improved learning ability: According to some experts, the Brain Gym Exercise Learning learning model can improve learning ability by integrating body and brain movements. The body movements selected are based on observations of how the brain and body interact and help activate areas of the brain associated with learning.
2. Increased concentration: One of the goals of the Brain Gym Exercise Learning method is to increase student concentration. By doing body movements that are synchronized with thoughts and

emotions, students can reduce stress and anxiety that can interfere with their concentration.

3. Improved coordination: The body movements performed in Brain Gym Exercise Learning can also improve coordination and fine motor skills. This can help students to be better prepared in carrying out academic and non-academic tasks.
4. Improved balance: Some of the movements in Brain Gym Exercise Learning involve body balance and coordination. This can help students to improve their physical and mental balance.
5. Increase student engagement: Brain Gym Exercise Learning can be a fun and engaging way for students to learn. Physical activity and body movement can help students to stay active and involved in the learning process.

However, some experts also highlight that there is not enough scientific evidence showing the effectiveness of Brain Gym Exercise Learning as a learning method. Therefore, before implementing this method, it is best to consider its effectiveness first and consult with related experts.

Iimplementation of Brain Gym Exercises Learning Approach in Education

Brain Gym Exercise Learning is a learning model that involves simple physical movements that aim to improve brain performance and students' learning abilities. Following are the steps for implementing the Brain Gym Exercise Learning model in the world of education:

1. Educators must understand the principles and objectives of Brain Gym Exercise Learning. They must understand that the physical movements carried out by students have a positive effect on the brain and students' learning abilities, Dennison, P., & Dennison, G. (2015).
2. Educators must make a lesson plan that includes physical exercises from Brain Gym Exercise Learning that are relevant to the topic being taught. (Hyatt, 2016)
3. Educators must ensure that students understand the physical movements and the purpose of each movement. They also have to ensure that students perform the movements correctly and regularly. (Ağlamış, 2017)
4. Educators must pay attention to the safety and health of students during physical exercise. They must ensure that students do not make moves that are dangerous or cause injury. (Khatun, 2018)
5. Educators must evaluate the effectiveness of the Brain Gym Exercise Learning model. Evaluation can be done using academic performance tests and observations of students' learning abilities. (Agbo, CJ, & Omekwu, 2022)

CINCLUSION

Brain gym exercises have gained popularity as a way to enhance learning and academic performance. Through a critical review of the literature, it is clear that while some studies show positive results, there is still a lack of conclusive evidence to support the effectiveness of these exercises. Nonetheless, brain gym exercises can still be a valuable tool

for individuals seeking to improve their cognitive function and academic success.

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