



UNIVERSITAS NUSA CENDANA



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# PROCEEDING

**of the 3<sup>rd</sup> International Conference on Science,  
Applied Science, Teaching & Education  
(ICoSASTE)**

organized by  
**THE FACULTY OF TEACHER TRAINING  
AND EDUCATIONAL SCIENCES  
UNIVERSITAS NUSA CENDANA**

The 3<sup>rd</sup> International Conference on Science,  
Applied Science, Teaching and Education 2024

# **PROCEEDING**

**of the 3<sup>rd</sup> International Conference on Science,  
Applied Science, Teaching and Education**

**024**

The Committee of International Conference

**Nusa Cendana University**



The 3<sup>rd</sup> International Conference on Science,  
Applied Science, Teaching and Education 2024

# **PROCEEDING**

OF THE THIRD INTERNATIONAL CONFERENCE ON  
SCIENCE, APPLIED SCIENCE, TEACHING AND  
EDUCATION 2024

(THE 3<sup>rd</sup> ICoSASTE 2024)

THEME :

***‘INTEGRATING TECHNOLOGY AND EDUCATION  
FOR SUSTAINABLE DEVELOPMENT AND GLOBAL  
CITIZENSHIP’***

Committee of the Third International Conference of  
Science, Applied Science, Teaching & Education

Faculty of Teacher Training and Education

UNIVERSITAS NUSA CENDANA

# PROCEEDING

## The 3<sup>rd</sup> International Conference on Science, Applied Science, Teaching and Education 2024

### ‘Integrating Technology and Education for Sustainable Development & Global Citizenship’

First Published in October 2024

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## FOREWORD

First of all, let us give thanks to the presence of God Almighty, as it is only because of His blessings and mercy that the 2024 FKIP International Conference activities can finally be carried out successfully at the Aston Hotel from September 4<sup>th</sup> to 5<sup>th</sup> 2024, Kupang and the proceedings of this FKIP international conference have been completed.

The third ICoSASTE 2024 aims to be a dissemination forum as well as a hub for all figures in the world of education, including lecturers, teachers, educational observers and educational practitioners, so that they can exchange ideas regarding the latest issues in the relevant fields of teaching and education. Here, we invited three *keynote speakers*, (1) Ass.Prof Jennifer Schneider from Oklahoma State University ; (2) Prof. Andy Gao from University of New South Wales and (3) Prof. Dr. Ketut Artawa, M.A from Udayana University. We also involved three *invited speakers*, that is, (1) Prof. Dr. Yantus AB Neolaka, S.Pd., M.Si from the Chemistry Education Study Program, FKIP – Undana ; (2) Santri E.P Djahimo, S.Pd., M.App.Ling., Ph.D., Post Grad.Dip (RMS) from English Education Study Program, FKIP – Undana ; (3) Dr. Hamza H. Wulakada, M.Si from Geography Education Study Program, FKIP – Undana. In this occasion, we sincerely expressed our deep thanks for the figures above for their willingness to appear at the international conference.

The theme of this 3<sup>rd</sup> ICoSASTE 2024 is '***Integrating Technology and Education for Sustainable Development and Global Citizenship***'. Once again, it aims at becoming an intellectual area for various parties such as lecturers, researchers, government officers, education observers and teachers to share their ideas and concepts dealing with how technology already influenced activities in education in many aspects. It also aims at becoming a medium where students, lecturers, researchers, government staffs, and teachers will get inputs and feedbacks for better concepts on changing worlds in education. Moreover, it also aims to stimulate and create collaborative partnerships among researchers, lecturers, teachers and government officers in responding to any educational problems and challenges in the East Nusa Tenggara province for possible solutions.

This international conference was able to be held well thanks to the cooperation and support of various parties and especially from the Committee for the third international conference FKIP 2024. The tasks carried out by the International Conference Committee during the preparation period were (1) creating the 3rd ICoSASTE website; (2) announcing the 3rd ICoSASTE 2024 activities to the general public via social media; (3) selecting incoming articles; and (4) preparations leading up to the international conference are going well.

Finally, we would like to express our sincere thanks to the Chancellor of Undana, the Dean of the Faculty of Teacher Training and Education, the conference committee, the speakers, and the participants of the international conference and all parties who have helped carry out this international conference. Hopefully this proceeding can provide a significant contribution to thinking about the phenomena occurring in the world of education today.

Kupang, 5 September 2024

**International Conference Committee**

## A SPEECH FROM THE COMMITTEE CHAIRPERSON

The honorable the Rector of Universitas Nusa Cendana, Prof.Dr. Max U.E Sanam,M.Si who is represented by the first vice rector for academic affairs, Ibu Prof.Dr.drh. Annytha I.R Detha,M.Si , the honorable the Dean of Teacher Training and Education faculty, Dr. Malkisedek Taneo,M.Si, the honorable vice dean for the financial and general affairs, Dr. Jakobis J. Messakh,M.Si, the honorable one of the keynote speakers who is attending this opening ceremony, Prof. Dr. Ketut Artawa, M.A. I also deliver my deep respects to the whole presenters and participants who are attending this opening ceremony.

Welcome to the opening ceremony of the third International Conference on Science, Applied Science, Teaching and Education 2024.

The name of this international conference, that is, International Conference of Science, Applied Science, Teaching and Education basically reflects the variety of studies and skills under the umbrella of our faculty, the faculty of Teacher Training and Education.

The theme of today's international conference is '**Integrating Technology and Education for Sustainable Development and Global Citizenship**'. We know that everybody today cannot run away from technology. In any kind of life we choose, we always face technology. As people who interact in education world, we can see what will happen when technology and education meet ; what will happen when technology and education collide. As a result, some teachers possess happy stories ; some lecturers have nice experiences with that. However, not all people have the same nice stories. Other teachers are unable to deal with technology. Other lecturers feel blind anytime they face changing technology. That is why we invite all you to come here so we can gather together to share ideas. Who knows after having this conference, there might be some small groups of teachers making further meetings outside there which will end up in publishing their articles in Scopus-based journals.

We also would like to inform that there are 36 presenters join this international conference. Three of them are keynote speakers, that is, Ass. Prof Jennifer Schneider from Oklahoma State University ; Prof. Andy Gao from University of New South Wales and Prof. Dr. Ketut Artawa from Udayana University. Also we have three internal invited speakers, that is, Prof.Dr. Yantus AB Neolaka,S.Pd.,M.Si from Chemistry Education Study Program, FKIP – Undana, Santri E.P Djahimo,S.Pd.,M.App.Ling.,Ph.D.,Post Grad.Dip (RMS) from English Education Study Program, FKIP – Undana and Dr. Hamza H. Wulakada,M.Si from Geography Education Study Program, FKIP – Undana. Outside of that, there are 31 presenters which dominantly coming from the faculty of Teacher Training and Education, that is, about 60% or around 18 presenters, 12 % coming from Java and Bali, and other 28 % coming from Kupang and surrounding areas.

Realising that this international conference is not only the result of works from the committee members, then let me say thank you to these parties :

First, to the vice rector for academic affairs, Prof.Dr. drh. Annytha I.R Detha, M.Si for her generosity to come and open this international conference. We also would thank to the Dean of Teacher Training and Education faculty, Dr. Malkisedek Taneo,M.Si, and to the second vice dean for financial and general affairs, Dr. Jakobis J. Messakh,M.Si for their mental and financial supports so this international conference can possibly be held. I also would like to thank to the keynote speaker who is attending the opening ceremony, Prof.Dr Ketut Artawa,M.A who humbly accepted our invitation in short time to come here and presents his topic to us here. Moreover, I would like to express my deep thanks to my fellow committee members for their supports and works to make all of these happen. Last but not least to all presenters and participants who attend this opening ceremony. Thank you for your good will to join us and make this conference meaningful to all of us.

I am sorry if you find inappropriate things during the preparation until this opening ceremony. I believe that our imperfectness will become perfect when we celebrate that imperfectness wholeheartedly. Finally, thank you for listening this this speech. Again, thank you.

Committee Chairperson,

**Marcelinus Yeri Fernandez Akoli, S.Pd., M.Ling**



## **WELCOMING REMARKS OF THE DEAN OF FACULTY OF TEACHER TRAINING AND EDUCATION**

Thank you.  
Shalom  
Salve  
Assalamu'alaikum Wr.Wb  
Om swastiastu  
Salam kebajikan  
Namo budaya  
Good afternoon to all of you

The honorable vice rector for academic affairs, Ibu Prof.Dr. Annytha Inna Rohi Detha,M.Si ; the honorable my fellow vice dean for general and financial affairs, Dr. Jakobis J. Messakh,M.Si ; The honorable Prof.Dr Ketut Artawa,M.A who presents here together with us as one of the keynote speakers. In brief, I would like to greet all of you here, the presenters, participants and the 3<sup>rd</sup> ICoSASTE 2024 committee members. WELCOME TO THE 3<sup>RD</sup> INTERNATIONAL CONFERENCE OF SCIENCE, APPLIED SCIENCE, TEACHING AND EDUCATION 2024.

After five months preparation, now we are here to open this international conference. Therefore, I would like to express my deep thanks to Ibu Prof. Dr. Annytha Inna Rohi Detha,M.Si who on behalf of the Undana rector who is away for formally opening this international conference. I also would deliver my thanks for Prof. Dr Ketut Artawa,M.A who has attended this international conference. Thank you for your coming, Prof. Artawa. I also would like to thank the committee chairperson and his members for working hard to arrange all of these activities. I really hope that by preparing all of the activites, you can learn how to run an international conference. I believe that next we will need you to arrange similar international event for our faculty or our university. To all of the participants, please accepts my sincere greetings. Please make this international conference as an intellectual space where you can celebrate your academic disciplines and interests. Who knows in the end of this conference, you can taylor better concepts for publishing your articles in an international journal.

However, I also believe that this international conference must have several weaknesses. As the dean of the faculty of teacher training and education, I would like to deliver my deep apology to all the parties here. We never expect bad things happen during the conference but if it happens, it is our positive responses which will distinguish us from those who never appreciate good efforts with thanks and praise.

Therefore, by addressing God Almighty and all of his greatness, allow me to formally open this third international conference on science, applied science, teaching and education 2024.

Dean of the Faculty of Teacher Training and Education,

Prof.Dr. Malkisedek Taneo,M.Si

### THE 3<sup>rd</sup> ICOSASTE 2024 COMMITTEE

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Winda Yolanda Riti

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<b>Organizing Committee Secretary</b>	<b>: Faculty of Teacher Training and Education : FKIP – Undana, Adisucipto St. Penfui – Kupang, NTT</b>
<b>Conference Website</b>	<b>: <a href="https://fnic.undana.ac.id">https://fnic.undana.ac.id</a></b>
<b>Proceeding Link</b>	<b>: International Conference on Science, Applied Science, Teaching and Education (<a href="https://undana.ac.id">undana.ac.id</a>)</b>

#### DAY 1 (September 4<sup>th</sup> 2024)

TIME	AGENDA	PIC
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16.00 – 16.15	Welcome Dance Performance	Dancers
16.15 – 16.20	Welcome Greeting	MC
16.20 – 16.25	Prayer	Committee
16.25 – 16.30	National Anthem : Indonesia Raya	All Participants
16.30 – 16.40	Speech from the Committee	Committee Chairperson
16.40 – 16.50	Opening Speech and Symbolic Opening of the Conference by Rector of Universitas Nusa Cendana	Rector of Universitas Nusa Cendana
16.50 – 17.45	Plenary 1	Rector of Universitas Nusa Cendana
17.45 – 18.00	Dance Performance	Dancers
18.00 - end	Welcome Dinner	Committee

#### DAY 2 (September 5<sup>th</sup>, 2024)

TIME	AGENDA	PIC
8.00 – 8.30	Registration	All Participants
8.30 – 8.35	Welcome Greeting	MC



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Applied Science, Teaching and Education 2024

8.35 – 8.40	Prayer	Committee
8.40 – 9.20	Plenary 2	Keynote Speaker (1) Keynote Speaker (2) Keynote Speaker (3)
9.20 – 10.00	Q & A	Moderator and All Participants
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The 3<sup>rd</sup> ICoSASTE 2024 – Faculty of Teacher Training & Education  
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## Urban Blossoms, Rural Thorns: Exploring Early Childhood Teachers' Perspectives on Technology Integration in Urban and Rural Indonesia

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**Abstract.** Technological advancements present substantial benefits across various domains of educational services, including in early childhood education (ECE) settings in Indonesia. This study examines the integration of technology in ECE environments in both urban and rural settings within the country, framed by socio-cultural theory. Utilizing the Focus Group Discussion (FGD) method with participation from early childhood teachers, the research provides empirical insights into the challenges and advantages of technological integration in these distinct geographical contexts. Findings reveal noticeable disparities between urban and rural ECE institutions, especially in terms of resource availability, operational proficiency, and stakeholder engagement. Urban ECE establishments demonstrate more effective adoption of technology, whereas rural counterparts encounter significant barriers that hinder the optimal utilization of technological innovations. This disparity highlights critical issues in ensuring equitable access to educational resources and opportunities, delivering high-quality education, and facilitating global connectivity. The study highlights the need for further research could investigate how key figures of educational institutions facilitate technology integration in rural early childhood education, thereby promoting inclusive, effective, and high-quality educational services for all children as mandated by the Sustainable Development Goals (SDGs) global framework, especially in Indonesia

**Keywords:** Technology integration, urban, rural, ECEC, FGD, teachers' perspectives, socio-cultural theory

### 1. Introduction

The United Nations (UN) has established several initiatives to advance education as part of the Sustainable Development Goals (SDGs), with Goal 4 specifically focusing on quality education. One effective strategy to achieve this goal is the integration of technology into education (Küfeoğlu, 2022; Msafiri et al., 2023; Thapa, 2022). The notion of technology integration approach, such as Science, Technology, Engineering, and Mathematics (STEM) framework, enhances the quality of education and supports sustainable development (Jamali et al., 2023). Integrating technology is crucial for achieving SDG-4 by improving access to quality education, especially in underserved and marginalized communities, thereby promoting inclusive and equitable education for all (Saini et al., 2023). Digital tools play a significant role in addressing diverse learning needs and fostering equitable educational opportunities, aligning with the objectives of SDG-4 (Balmes, 2022).

The SDG-4 aims to ensure that by 2030 all children worldwide have access to quality early childhood development, care, and pre-primary education, preparing them for primary education in the most suitable manner (The United Nation, 2015). The focus on 'quality' in education emphasizes the importance of making education accessible to all children globally. With the rapid technological advancements in recent years, integrating technology into education has

become increasingly prevalent, including in early childhood education. Recently, digital literacy has emerged as a critical competence and enabling supporting element, including in the field of education for young children (Milenkova & Lendzhova, 2021).

Global studies have consistently demonstrated the significant benefits of integrating technology into Early Childhood Education and Care (ECEC). The most notable point is its potential to enhance various aspects of children's cognitive and social development. Sidgel (2017) emphasizes the positive relationship between children's expertise and technology when it is used carefully, under the professional judgment of teachers. The study emphasizes that technology, when employed wisely, can address educational gaps and solve specific learning challenges. Importantly, Demetriou & Nikiforidou (2019) stresses that technology use in early childhood accommodated the individual needs of children, taking into account their cultural backgrounds and age-appropriate considerations.

Supporting this perspective, Salim (2024) argues that technology can significantly enhance cognitive skills, particularly in areas such as language development and problem-solving. The study reports that technology can serve as a powerful tool to foster cognitive growth when used in a balanced and age-appropriate manner. However, Salim (2024) also cautions that the misuse or overuse of technology can potentially harm a child's social and emotional development, underscoring the necessity of structured and supervised use of technology. This balance is crucial in promoting holistic and healthy cognitive development in young learners. Furthermore, reinforcing these benefits, research by Fernández-Gutiérrez et al. (2020) and Condie & Munro (2007) reveals that Information and Communication Technology (ICT) can lead to higher student outcomes and improved engagement. Similar to studies by Blackwell et al. (2013) and Kewalramani et al. (2020), technology supports early childhood education by providing interactive and engaging learning experiences, which are critical in the formative years. Additionally, Balmes (2022) and Blumenfeld et al. (1991) discuss how technology facilitates project-based learning and fosters transformative innovation in educational practices. Cook et al. (2020) further emphasize the role of assistive technologies in supporting students with disabilities, ensuring that all learners have access to tailored educational experiences. Iancu (2023) asserts that integrating educational software in early childhood education enhances attention, memory, and engagement, ultimately leading to improved learning outcomes.

Accordingly, it is evident that the integration of technology in early childhood education holds immense potential to enhance cognitive skills, foster engagement, and provide personalized learning experiences. When technology is adapted to the developmental needs of children and balanced with traditional learning activities, it can significantly improve outcomes in areas such as language acquisition, problem-solving, and creativity. Moreover, technology can play a critical role in reducing digital inequalities, particularly when integrated into teacher education. However, the effective use of technology requires careful consideration of each child's individual needs, cultural background, and age-appropriate practices to maximize its benefits.

In Indonesia, technology is becoming a key part of early childhood education, helping children get comfortable with digital tools from a young age (Widyawati, 2021). Tatminingsih (2022) points out that children are now becoming more prevalent using tablets and computers for interactive learning, making education more engaging and fun. Supriyadi and Pramudita (2019) add that computer-based tools are great for teaching at basics like the Latin and Arabic alphabets, numbers, and simple math, often using games and visuals to keep kids interested. The importance of technology became even common practice during the COVID-19 pandemic when distance learning made digital tools essential, as technology facilitated children's learning at home (Kumalasari et al., 2024). Overall, technology evidently boosted children's confidence,



curiosity, creativity, and social skills, helping them grow in a well-rounded way (Sulistyaningtyas et al., 2023).

However, despite the numerous benefits of integrating technology into early childhood education, several significant barriers and challenges persist. Çelik et al. (2023) identify a range of obstacles, including a lack of administrative support, teacher beliefs and competencies, educational policies, and insufficient cooperation between parents and teachers. These challenges pose substantial impediments to the effective integration of digital technology in early childhood education settings. Naida (2024) highlights a specific challenge related to the dependency on guidance in play-based learning, which can hinder the effective use of technology. The study suggests that without proper guidance and support, young children may struggle to engage meaningfully with digital tools in a play-based learning environment. Moreover, Komen & Onginjo (2024) points out that the use of technology also require parental involvement, in which among less educated parents or those who have less access to technological tools, it then caused the educational process even more complicated. This disparity in parental engagement can exacerbate existing inequalities and limit the effectiveness of technology integration. While using technology, teachers also face significant challenges including poor internet connectivity and inadequate skills, which can threaten the pedagogical process to be ineffective (Chan, 2023). Furthermore, concerns about excessive screen time and the misuse of children's data raise ethical dilemmas in the digital landscape (Liu et al., 2023; Teichert & Salman, 2023; Vidal-Hall et al., 2020).

It accordingly becomes precise that while the integration of technology offers substantial benefits, several barriers and challenges emerged. Issues such as insufficient support, the lack of related technical competencies among teachers, and parental involvement presented significant obstacles to effective technology use in the educational settings. Additionally, concerns about excessive screen time, data privacy, and the ethical use of technology must be carefully managed. Addressing these challenges requires a more practical efforts from teachers, school administrators, and policymakers to create supportive environments that facilitate the responsible and effective integration of technology into early childhood education.

Given the above exposition, it seems clear that technology has become an integral part of our daily lives the early childhood education sector in Indonesia. Numerous studies have been conducted to explore the extent to which technology can be integrated into ECE institutions to improve the quality of educational process and child development in general. However, one aspect that has not been extensively explored is how geographical context affects the use and integration of this technology. This is crucial because the quality of education in Indonesia is not only assessed by the status of being public or private but also by geographical comparisons. In this regard, studies comparing the use of technology in ECE institutions in rural and urban areas would deliver a significant contribution considering that access to and acceptance of technology can vary greatly between urban and rural areas. Therefore, this research is highly relevant and urgent to understand how geographical context influences the use of technology in education. To guide the study, the research question that we proposed was: *How does the socio-cultural context in urban and rural areas influences the integration of technology in early childhood education?*

## 2. Methods

This study employed qualitative research, which is the approach used to gain a deep understanding of people's experiences, behaviours, and interactions among people (Creswell, 2007; Denzin & Lincoln, 1994; Patton, 2002). More concretely, this inquiry investigated the perspectives of early childhood teachers in Indonesia regarding technology integration in rural and urban settings. Focus Group Discussions (FGDs) were the primary method for data

collection, chosen for their ability to foster dynamic interactions and bring out diverse perspectives that might not be captured in individual interviews (Denzin & Ryan, 2007; Krueger & Casey, 2015). This method was particularly effective given the limited time participants had, allowing for multiple viewpoints to be gathered simultaneously (Fazeeha Azmi, 2023; Hennink & Leavy, 2014; Patton, 2002; Sim & Waterfield, 2019).

To recruit participants in the rural area, I engaged with the kindergarten supervisor in my sub-district, who facilitated the dissemination of invitations through the Association of Kindergarten Teachers (IGRA and IGTK). Consequently, in the rural area of Central Java, the FGD included five teachers (Ana, Bunia, Candra, Darsih, and Erna) representing four ECEC institutions. The location for the FGD was selected by the participants. In the urban area of Jakarta, the recruitment process was supported by the coordinator of the Kindergarten Principal Association, who assisted in spreading the invitation. Five teachers (Arni, Barla, Choirina, Duma, and Essa) from three kindergartens participated in the study. The venue for the FGD was also chosen by the participants. All FGDs were conducted with the participants' consent and were recorded to ensure accurate data capture. Additionally, detailed notes were taken during the discussions to complement the recordings and capture non-verbal hints and contextual situation. For participants' convenience, the session was conducted in Bahasa Indonesia. During the FGDs, we asked several key questions such as: *What types of technology does your institution use? What benefits have you experienced from using those technologies? How has using technology made things different from when you didn't use it? What challenges have you encountered in using these technologies? How key figures in your school support the use of technology?*

Following the FGD, the recorded discussions were transcribed verbatim into textual format. Transcribing FGDs verbatim is crucial for capturing the participants' responses, including non-verbal cues and the dynamics of the discussion (Scheelbeek et al., 2020). The transcripts were then subjected to thematic analysis, a method used to identify, analyse, and report patterns (themes) within the data. Thematic analysis involves familiarization with the data, coding, generating themes, reviewing themes, and defining and naming themes (Braun & Clarke, 2006). From the identified themes, key concepts were extracted to understand the core issues and experiences related to technology integration in early childhood education. This process involved a detailed examination of the themes to collect the most significant and recurrent ideas that emerged from the discussions (Ryan & Bernard, 2003).

The key concepts were then analysed using a socio-cultural perspective. Sociocultural theory, as proposed by Vygotsky (1978), emphasizes the importance of social interactions and cultural tools in the development of cognitive functions and perception. This theoretical framework was applied to understand how the integration of technology in early childhood education is influenced by cultural, institutional, and historical contexts. Sociocultural analysis helps in understanding the relationship between perception and the various cultural and institutional settings in which it occurs (Wertsch, 1997).

### 3. Result

#### 3.1. Advantages of integrating technology

Teachers in urban areas have observed that the use of technology has enhanced the learning dynamics of their teaching and significantly increased student engagement and participation in the classroom.

*Since the switch to online learning, using technology has become a regular part of my teaching. I still use it a lot in my classes today. I try out many different tools, like Kahoot, and the kids always get really excited about it (Barla, a teacher in West Jakarta).*

*Most children in my school have an iPad, tablet, laptop or computer at home. It made me easy to run the learning process when learn something using technological tools in the class (Arni, a teacher in South Jakarta).*

*I put together a video with hundreds of pictures from our outdoor activities using some special apps. When we were discussing the topic about environment, I played the video on the classroom TV. The kids were so excited—they were shouting to each other, “Look, that’s me!” and “Look, that’s you!” They were really delighted (Choirina, a teacher in South Jakarta).*

Another advantage was that the use of technology enabled teachers to provide more individualized learning approach, for example as narrated by Arni:

*One child picked up math concepts really quickly. While other kids were still working on simple addition, like 4+4, he found it too easy and wanted to jump straight into multiplication. So, I used a specific app to help him learn at his own pace and keep up with his advanced skills (Duma, a teacher in West Jakarta).*

Similarly, teachers in rural area found that the use of technology has influence on some aspect of their occupation including children’s enthusiasm to go to school.

*Before we started using laptops and YouTube videos, some children would cry when they arrived at school because they didn’t want their parents to leave. Since we began using these tools, the kids have been much more excited and eager to come to school (Erna, a teacher in rural Central Java).*

Another observation was that, with the assistance of technology, managing administrative tasks and handling document-related issues became significantly easier.

*With the use of google drive, it is indeed I don’t have to bring USB stick to save and manage my data. I can access them wherever and whenever I want (Bunia, a teacher in rural)*

### **3.2. Challenges faced by teachers**

Teachers in urban area mentioned their challenges when integrating technology in educational process.

*Using technology has really pushed us to be creative. The kids learn so quickly and often ask to try things I’m not familiar with. For example, I didn’t know much about virtual reality before, so I had to learn about it to help them out effectively (Essa, a teacher in South Jakarta).*

*In my school, students come from diverse socio-economic backgrounds, though most are from upper-class families. I feel particularly empathetic toward those from lower-class backgrounds, as they often seem shy and may not learn as quickly as their peers, especially when using technology. I make it a point to ensure that no child is left behind and that everyone gets the support they need (Choirina, a teacher from South Jakarta).*

From the above data it seems that the primary challenges identified include the need for teachers to continually update their technological skills, addressing the diverse learning paces of students, and ensuring inclusive education for all students, particularly those from disadvantaged backgrounds.

Moreover, participants in rural area narrated different stories about challenges of utilizing technological tools in their occupation.

*I didn't have a laptop of my own, so when the children asked to watch videos of dancing or singing, I couldn't fulfil their requests immediately. I had to wait for my son, who has a laptop, to come home from university once a month (Bunia, a-55-year-old teacher in Central Java)*

*When we had an intern from a university, they introduced me to tools like Canva and video editors to make our classes more engaging. It seemed interesting, but I felt overwhelmed trying to learn these new tools, especially since I wasn't familiar with how to even turn on the laptop. As a result, I never ended up using those tools in my class (Darsih, a teacher in rural central java).*

*In our kindergarten, each of the three teachers faces distinct challenges. Two of us don't have a laptop, while I do have one but struggle with the high cost of internet data. For instance, when we tried to show a dancing video in class, we all ended up dancing along, only to have the video cut off abruptly. We initially thought it was buffering, but it turned out we had run out of data. As a result, we often stick to conventional methods rather than using technology (Ana, a teacher in Central Java).*

We can see that teachers in rural Central Java encountered a range of challenges, including lack of access to laptops, difficulty learning new technologies, and high costs of internet data. These issues collectively contribute to a reliance on traditional teaching methods and hinder the effective use of technology in their classrooms.

### 3.3. Supports from the key figures in the institution

Some teachers in Jakarta explained about the supports provided by the key figures in their educational institutions.

*I am very lucky that the school owner had enough resources to provide computer and smart tv, in our class. They perceived that such equipment as investment. Money is not a big issue for them. (Duma, a teacher in West Jakarta)*

*In my school internet connection was provided unlimited. The school paid for that. (Choirina, a teacher in South Jakarta)*

*Yeach... in my school too... I meant internet is free to use... (Essa, a teacher in South Jakarta).*

In addition, teachers in rural area also shared their experience regarding the way school owners' (or school foundation figures) perceived the use of technology by teachers in teaching learning process.

*My school has no computer. it is impossible to ask for the school foundation or principal to buy that device. I sometimes used my son's laptop when I wanted to implement specific instruction regarding use of technology (Bunia, a teacher in Central Java).*

*Only during the first month of online learning the principal gave us data connection about 30 Giga bytes. After that they encouraged us to use normal method. As a result, we used that practice only no more than two months. It was too costly for us (Erna, a teacher of an Islamic kindergarten)*

*The school has different priority to spend our financial resources. and it is clear, internet, computer or such was not their priority (Darsih, a teacher in a kindergarten).*

*The school foundation gave us flexibility to do everything we planned, for example we would use laptop, or other devices for teaching learning process. but if it had financial consequence, she said that she could no nothing... I meant she did not want to spend money (Ana, teacher in Central Java).*

As can be seen from the data given above, support of educational infrastructure for teacher technology integration is very diverse in Indonesia between urban and rural. Unlike the case in a big city like Jakarta, where teachers benefit from well-established institutions and access to fast internet that would allow for effective online classes. On the other side, teachers in rural areas have a different problem with limited financial resources and lack of interest to invest on

technology. This discrepancy illustrates the new face of a digital divide that separates urban and rural teachers, while lacking in institutional support to improve their practice with technological resources, they found it difficult to step forward as far as integration into educational practices.

#### 4. Discussion

Teachers across urban and rural areas in Indonesian early childhood recognized the potential of technology to accelerate learning, enhance engagement, and support individualized instruction, as highlighted by Fernández-Gutiérrez et al. (2020), Iancu (2023), and Sidgel (2017), and aligned the previous studies in the country (Istiana & Widodo, 2023; Salim, 2024; Widyawati, 2021). However, this study presents distinct challenges depending on the context. Urban teachers face the challenge of keeping pace with students who are already familiar with advanced technological devices such as iPads and laptops, which they often use at home. This familiarity requires that teachers be highly innovative and creative to maintain student interest and engagement amidst the extensive array of information available outside of school. Urban teachers are thus under significant pressure to develop content that competes with the diverse and engaging experiences students encounter beyond the classroom. In contrast, rural teachers encounter substantial barriers related to technology access, supported previous studies (Ardiana, 2023; Hasanah & Aziza, 2024). High costs for data and limited availability of technological equipment restrict their ability to incorporate technology into their teaching practices. Furthermore, rural teachers often lack the necessary skills (Cholimah et al., 2024) and institutional support to effectively utilize these technologies. These constraints significantly prevented them from sustaining the use of technology and then limited the potential benefits of technology for enhancing students' learning experiences in rural settings.

Vygotsky's socio-cultural theory (1978) offers a useful framework for understanding these differences. In urban contexts, the higher economic status of students typically translates into greater access to technological tools at home, which facilitates their engagement with these tools and supports social interaction and cognitive development (Cicconi, 2014). Conversely, in rural areas, inadequate infrastructure and support structures pose tough challenges to technology integration. The lack of supports in these settings hinders students' opportunities for development related to technology (Whipp et al., 2005).

The integration of technology in education is also influenced by the skill of teachers and supports of educational institutions (Istiana & Widodo, 2023) but also parents' socio-economic backgrounds (Timotheou et al., 2023). In urban areas, students' familiarity with technology enables them to engage with tools like *Kahoot* effectively, reflecting their parents' economic status and setting high expectations for their teachers. In contrast, rural teachers face significant difficulties due to the high cost of technology, limited access, and minimal institutional support, which adversely affects their ability to implement technology effectively, even then preferred to implement the conventional approach, without use of technological tools in pedagogical process.

In addition, the concept of language as cultural tools (Vygotsky, 1978; Vygotsky et al., 2012) further explains these differing experiences between both. In urban settings, technology is perceived as a valuable tool that enhances teaching and learning, that to some extent construct the way teachers perceived it and enabled them easily integrated technological tools in educational process, as Whipp et al. (2005) suggest. Consequently, urban teachers, supported by their institutions' financial resources, view the integration of technology as beneficial, despite the high cost was not a big deal for them. In contrast, rural teachers often view technology as a costly and challenging tool, consistent with Harrel & Bynum's (2018) observations of how inadequate infrastructure and resources impact technology use. The perception of technology as an expensive and impractical tool in rural areas is influenced by the high costs associated with its



implementation, which are beyond the financial reach of their institutions. As a result, the potential advantages and positive impacts of technology are overshadowed by its perceived cost, leading to less sustainable integration of technology in rural settings.

Last, the success of achieving Sustainable Development Goal 4 (SDG 4), which aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, is highly dependent on the local context (Tonegawa, 2023), which to some extent indicating contradictory features between urban and rural areas in Indonesia. Economic disparities play a significant role, as wealthier areas often have better infrastructure, more qualified teachers, and greater access to educational resources, including technology. In contrast, poorer regions may struggle with inadequate facilities and insufficient teaching materials. Cultural and social norms also influence educational outcomes, with some communities supporting educational initiatives more than others (Whipp et al., 2005). Community engagement is another vital factor, as local involvement can ensure that educational programs meet the specific needs of the population and foster a supportive learning environment (Bray, 2003). Additionally, access to technology varies widely, with urban areas typically having greater access to digital tools and the internet, while rural areas may lack the necessary infrastructure (Warschauer, 2003). Tailoring educational strategies to address these local factors is essential for promoting inclusive and equitable quality education for all.

## 5. Conclusion

Based on this study, the integration of technology in Indonesian early childhood education reveals an absolute contrast between urban and rural areas. This divergence, driven by disparities in accessibility and proficiency in using technological tools, has led to a significant gap in the quality of educational services. Urban areas, reinforced by advanced infrastructures, socio economic of parents, and conducive environments, have witnessed a substantial enhancement in educational quality through the successful integration of technology. For urban teachers, technology becomes a blossom, offering numerous benefits and opportunities for enhancing educational practices to obtain optimum outcome. Conversely, rural areas, constrained by limited access to technology and a deficiency in necessary skills, have struggled to keep pace. Despite acknowledging the potential benefits of technology, the problems they faced have proven to be serious obstacles. For teachers in rural areas, insisting on integrating technology into daily pedagogical practices may threaten the sustainability of the educational process due to a lack of resources. As a result, the integration of technology remains infrequent and was not a sustained practices among rural teachers. The advantage of technology even becomes a thorn, as they have very little likelihood of utilizing it effectively due to their socio-cultural context.

These disparities not only widen the gap in educational quality but also threaten the achievement of Sustainable Development Goal 4 (SDG 4), as children in rural areas are less likely to receive equitable and high-quality education compared to their urban counterparts, even though technology is not the only tool to enhance the quality of education. Addressing these challenges is critical to ensuring that all children, regardless of geographical location where they live, could benefit from the transformative power of technology in education.

Further research could be conducted to investigate the role of key figures and educational stakeholders in the educational institutions in facilitating the integration of technology in rural early childhood education. This research could explore how existing actors in the educational institution, social structures, and management can enhance the adoption of technological tools to promote inclusive, effective, and high-quality educational process to facilitate children grow and develop aligned with local, national and global dynamics such as Sustainable Development Goals (SGDs).

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## Terms of Address in Mulan Dialect of Lamaholot Language

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**Abstract.** This paper discusses the types of address terms used in the Lamaholot language, especially the Mulan dialect, and the functions of these address terms. The theory used for the types of address terms is the theory proposed by Kridalaksana while for the functions of the address terms, Wardaugh's theory is used. This research is qualitative research using data collection techniques in the form of interviews and observations. The results show that there are seven types of address terms used in the Mulan dialect, namely persona, personal names, kinship relationships, titles and ranks, nouns plus possessive forms, other nouns, and the zero feature. The functions of these addresses are to attract the attention of the person or interlocutor, show politeness, show identity, show the level of power difference, and show familiarity.

**Keywords:** *Terms of Address, Mulan dialect, Lamaholot Language.*

### 1. Introduction

Lamaholot is one of the indigenous languages spoken on the Flores Islands, primarily by the Lamaholot tribe. This tribe resides in the eastern part of Flores Island (with the exception of those living in Larantuka city, who also speak Larantuka Malay or Nagi), as well as on Solor, Adonara, and Lembata islands (excluding the Kedang area), where various dialects of Lamaholot are used. As part of Indonesia, the people in these regions also communicate in Bahasa Indonesia (Indonesian).

Every language exhibits diversity. Variations in language arise due to its functional role in facilitating interaction in different social activities. Sociolinguistics is the field that studies these language variations, examining how language changes depending on its social context. Language differences are influenced by factors such as time, place, sociocultural background, situations, and the medium of communication. Time causes linguistic shifts across generations, while geography introduces regional language distinctions. Social and cultural factors create variation within different social groups. Situational factors lead speakers to choose certain linguistic features depending on the context. Lastly, the medium of expression distinguishes between spoken and written language (Chaer and Agustine, 1995: 79).

Language also reflects the social relationships between speakers. It serves as a marker of social relations between participants in a conversation, with the choice of language forms influenced by the speaker's relationship with the person they are addressing (Brown and Ford, 1964: 234). This aligns with Chaer's assertion (2010: 39) that communication involves a speaker, an interlocutor, and the message being conveyed, provided that the interlocutor is aware of what the speaker is saying.

In communication, speakers and their conversational partners must utilize an addressing system during interactions. Chaer (1997: 107) defines addressing forms as expressions used to greet, reprimand, or address the second person in a conversation. The speaker must tailor the address to the listener, as the accuracy of the addressing term can impact the success of the communication. Therefore, address terms should be chosen and used carefully.

The choice of address is greatly influenced by factors such as environment, age, occupation, social status, and familiarity. According to Soewito (1983: 3), addressing forms are shaped by social factors like age and gender, as well as situational factors, including who the speaker is, who they are addressing, and the context in which the communication occurs. These factors contribute to variations in the address used for different individuals; thus, each person has their own distinct address.

Given these factors, variations in address are commonly observed in everyday interactions across different languages. One example is the Lamaholot language, which features diverse addressing forms in its various dialects. The Mulan dialect, spoken by the Atakera village community, is one such example. This community, which maintains strong adherence to traditional customs and norms of politeness, applies rules for address in their daily communication

## 2. Research Methodology

This study employed a qualitative descriptive approach. The informants were residents of Atakera Village in the Wulandoni District. Three informants were chosen, each differing in age, social status, and life experiences, which shaped their knowledge and views on the use of the Lamaholot language, specifically the Mulan dialect.

Data collection methods included semi-structured interviews and participatory observation. These two approaches were combined to gather the final data necessary to address the research questions. For data from participatory observation, the researcher used a listening and note-taking technique, acting as a participant in naturally occurring conversations. For the semi-structured interviews, a set of prepared questions guided the discussions. The interview results were documented on prepared sheets and recorded in audiovisual (video) format.

## 3. Result

### 3.1 Types of terms of address in Mulan Dialect according to Kridalaksana

After conducting research and data analysis, the author identified five types of address terms used by the Lamaholot-speaking community of the Mulan dialect, as categorized according to Kridalaksana's theory, as follows:

#### 1. Personae

Personal pronouns, or *persona pronomina*, are determined by the role they play as either the subject or object in a sentence. It is also essential to consider whether the pronoun refers to the first person, second person, or third person.

Table. 1 Singular and Plural Pronouns

Pronouns	Singular		Plural	
	Subject	Object	Subject	Object

<b>First-person</b>	I/ <i>goe</i>	Me/ <i>goe</i>	We / <i>tite/ tite weka</i>	Us/ <i>tite</i> All of us/ <i>tite weka</i>
<b>Second-person</b>	You / <i>moe</i>	You / <i>moe</i>	You (guys) <i>mio/ mio weka</i>	You/ <i>mio, mio weka</i>
<b>Third-person</b>	He/She <i>nae</i> It / <i>nepe</i>	Him/Her <i>nae</i> It/ <i>nepe</i>	They/ <i>rae</i>	Them/ <i>rae</i>

- First-person pronouns refer to the speaker and include singular forms such as *me* or *I*, which are translated as *goe*. *Goe* represents the complete form and can be used alongside the incomplete form *go*. The first-person plural pronouns are *we* (translated as *kame*) and *us* (translated as *tite*).
- Second-person pronouns replace the individual being addressed. The singular second-person pronoun *you* is translated as *moe*, which can also appear as *mo* when the final -e is omitted. *Moe* is the complete form, while *mo* serves as an incomplete form. The plural second-person pronouns are *you* (translated as *mio*) and *all of you* (translated as *mio weka*).
- Third-person pronouns are used to refer to individuals not directly involved in the conversation. The singular third-person pronoun *he/she/it* is translated as *nae*, applicable to both genders. The plural form of the third-person pronoun is *rae*, which often becomes *re* in everyday use, while *nae* can also be shortened to *ne* as an incomplete form.

## 2. Personal Names

A personal name, assigned at birth, serves to establish an individual's identity. Among the Lamaholot people, particularly those in Atakera Village, the typical naming convention includes the following pattern: Saint's name + ancestor's name + tribal name. The Saint's name is selected based on Catholic tradition, the ancestor's name is believed to act as a guardian, and the tribal name functions as an identity marker. Additionally, everyday usage includes nicknames, which may be derived from last names (either ancestral or tribal) or unique names bestowed by parents. Common last names in Mulan include Bare, Tuto, Kewa, Tenuli, and Ose, with tribal last names such as Tukan, Keraf, and Lamabelawa.

Nicknames, assigned by parents, family, or close friends, are used throughout an individual's life. There are also mockery names, which are nicknames that reflect physical characteristics or behavioral traits, often used among familiar individuals to avoid offense due to an existing mutual understanding. Examples of mockery names related to physical attributes include:

- *Lago* for individuals of above-average height
- *Kebete* for those who are above average weight or overweight
- *Kerete* for individuals with curly hair
- *Kemeke* for those who are underweight or thin

Examples of mockery names based on behavior include:

- *Belepake* for very lazy individuals, derived from *belepa* meaning lazy, with the suffix -ke indicating extreme laziness
- *Benengene* for individuals who frequently lie, with *benengene* signifying a habitual liar

### 3. Kinship Terms

The Lamaholot community, including Atakera village, follows a patrilineal system, where lineage is traced through male relatives exclusively. According to KBBI (2005:613), "patrilineal" refers to hereditary relationships that follow the paternal line. Hutasoit (2011:2) elaborates that the term derives from the Latin words *pater* (father) and *linea* (line), signifying lineage inherited from the father's side. Consequently, in this system, the father is considered the primary relative by descent, while the mother is regarded as a relative by marriage.

Kinship is defined as a social unit composed of families connected by blood or marriage. Mahmud (2003:15) describes kinship as a social relationship based on descent (consanguinity) and marriage (affinity). Kinship members include various relatives such as parents, children, siblings, and extended family members like aunts, uncles, and grandparents (Nika Sari, 2013:514).

In social interactions, understanding and using the correct kinship terms is crucial for reflecting social status and relationships accurately. Appropriate kinship terms must be employed when addressing relatives of higher status. Over time, these terms have also evolved to address individuals with whom there is a kinship relationship and to serve as general forms of address for communication purposes.

Table 2 Kinship Terms

No	Kinship Terms	Usage
1.	<i>Bela</i>	It is an address for grandfather. Over the years, <i>bela</i> has been changed to <i>nene bapa</i> . <i>Bela</i> is also often used to address older people when passing each other on the road.
2.	<i>Meme</i>	This is an address e for grandmothers. Over time, <i>meme</i> has been replaced with <i>nene ema</i> . <i>Meme</i> is also used as a favorite address for daughters or women in general if they have a close relationship.
3.	<i>Bapa</i>	This address is intended for fathers. It can also be used as a general address for adult men.
4.	<i>Ema</i>	This is used for mom. It can also be used as a general call for adult women.
5.	<i>Ari</i>	<i>Ari</i> is an address for younger siblings, which can apply to both boys and girls.
6.	<i>Bine</i>	This is an address for a sister. It can also be used for the wife of the person who is <i>maki</i> .
7	<i>Ina</i>	This is an address used for Lamaholot women. What characterizes the Mulan dialect is that this address is changed to <i>nalu</i> . <i>Nalu</i> and <i>Ina</i> have the same meaning. However, <i>Ina</i> can be used as a name to call mom.
8	<i>Ama</i>	This is an address used for men. It can mean father; it can mean brother. <i>Ama</i> can be used to call people (in general) even if they are not related.
9	<i>Bapa bela</i>	This is addressed to the father's brother in the order of first birth. It can be interpreted as a big father. Over time, <i>bapa bela</i> can also be changed to <i>bapa besa</i> .

10	<i>Bapa tengah</i>	This address is intended for the father's brother with the birth order as the middle child.
11	<i>Bapa ari</i>	This is addressed to the father's brother in the birth order of the last or youngest child.
12	<i>Bapa satu</i>	This is used to call a man who has the status of an only child.
13	<i>Kaka</i>	This is an address used for older sisters. Although it can sometimes be used for older brothers, it is more commonly used for girls.
14	<i>Opu</i>	This is an address for a maternal uncle or brother. It can also be used to call people from other tribes who have <i>opulake</i> status with our own tribe.
15	<i>Maki</i>	This is a return address for <i>opu</i> . If we have been called <i>opu</i> , then the person who called us <i>opu</i> is called <i>maki</i> .
16	<i>Wae</i>	<i>Wae</i> is the address for the wife of an uncle (his partner is <i>opu</i> ). <i>Wae</i> is also an address for the female side of the mother's family. <i>Wae</i> can also mean <i>mama</i> , so it is often replaced with <i>mami</i> .
17	<i>Kene</i>	<i>Kene</i> is an address for someone who is an aunt or a <i>mama kecil</i> , as well as a <i>bapak kecil</i> .

#### 4. Title and Ranks

Moeliono (1991:262) defines a title as an additional name used to denote caste and status, including both noble titles (e.g., *Gede*, *Raden*) and non-noble titles such as academic (e.g., *Professor*, *Doctor*) and religious designations (e.g., *Haji*, *Kyai*). These titles may be used alone or in combination with kinship terms. Rasyad (via Thamrin, 1999:129) notes that addressing terms reflect organizational or rank-related positions, used to signify social or official relations, with examples including *Bupati* and *Lieutenant*. In Atakera Village, religious and customary titles are prevalent in formal settings, while academic and rank-based titles are rarely used in everyday contexts.

Table 3 Title and Ranks

Title			Rank
Nobility	Non-noble		Job
	Academic	Religion	
-	<i>Prof</i>	<i>Pastor</i>	<i>Kepala desa</i>
	<i>Doktor</i>	<i>Suster</i>	<i>Ketua dusun</i>
	<i>Drs.</i>	<i>Bruder</i>	<i>Ketua RT</i>
	<i>Dra.</i>	<i>Frater</i>	<i>Bidan</i>
		<i>Haji</i>	<i>Guru</i>
		<i>Ustad</i>	<i>Kepala suku</i>

Academic titles are infrequently used except in formal contexts such as government offices and educational institutions, including village offices and schools. In contrast, religious titles are commonly employed as everyday nicknames and are often combined with other terms, such as *Bapa Pastor*, *Ema Suster*, and *Ama Frater*, varying based on the speaker's age. Job titles are typically gender-specific, with village chiefs referred to as *Bapa*

*Desa* (with no female chiefs), and heads of hamlets or RTs called *Bapa Dusun/Ibu Dusun* or *Bapa RT/Ibu RT*.

In the health sector, village midwives are addressed as *ibu bidan*, often extended with kinship terms like *nalu bidan* or *wae bidan* in daily interactions. Similarly, in the education sector, teachers are addressed as *Bapak/Ibu Guru* at school, and with kinship terms such as *Wae Ibu*, *Kaka Ibu*, or *Opu Guru* in the community. Outsiders working within the community are addressed by their titles alone, without additional kinship terms.

Customary practices and ceremonies in the community enforce precise usage of kinship and positional titles, with penalties for errors in address terms or sentences deemed disrespectful. For instance, the tribal chief, known as *Kepala Suku*, signifies a special status associated with tribal rights rather than literal birth order.

## 5. Noun + Possessive

A noun is a category of words used to name people, places, animals, things, or any tangible entities. To indicate ownership of these entities, a possessive form is used. This possessive form varies depending on whether it is applied to inanimate objects, animals, or humans.

Table 5 Possessive Pronoun

Person	Number	Possessive Pronoun
1 <sup>st</sup> (first-person)	Singular	Mine/ <i>goene</i>
2 <sup>nd</sup> (second-person)		Yours/ <i>moene</i>
3 <sup>rd</sup> (third-person)		Hers, his/ <i>nae ne'ene/ ne'ene</i>
1 <sup>st</sup> (first-person)	Plural	Ours/ <i>titene</i>
2 <sup>nd</sup> (second-person)		Yours / <i>mione</i>
3 <sup>rd</sup> (third-person)		Theirs/ <i>rae re'ene</i>

Table 6 Example of Possessive Form Added with Noun

The possessive form	Noun		
	Animal	Thing	Person
<i>Goe/goene</i>	<i>Kusi goene/ kusi goe</i>	<i>Labu goene</i>	<i>Go ema</i>
<i>Moe / moene</i>	<i>Kusi moene/ kusi moe</i>	<i>Labu moene</i>	<i>Mo eme/ moe eme</i>
<i>Nae ne'ene/ ne'ene</i>	<i>Kusi nae ne'ene/ kusi ne'ene</i>	<i>Labu nae ne'ene</i>	<i>Nae eme/ ne eme</i>
<i>Re'e/ rae re'ene</i>	<i>Kusi rae re'ene/ kusi re'e</i>	<i>Labu rae re'ene</i>	<i>Re emaha/ rae emaha</i>
<i>Mio/ mione</i>	<i>Kusi mione/ kusi mio</i>	<i>Labu mione</i>	<i>Mio emame</i>
<i>Tite/ titene</i>	<i>Kusi titene/ kusi tite</i>	<i>Labu titene</i>	<i>Tite emake</i>

The table above illustrates the application of possessive forms to nouns. For animals and objects, the possessive form is added directly to the noun, following the pattern: noun + possessive form. In contrast, when the possessive form is applied to personal nouns, the pattern changes to: possessive form + noun. Additionally, the final form of the noun (when referring to a person) may vary depending on the preceding possessive form. Specifically, the suffix *-ne* may be dropped, leaving only the form *goe*. Moreover, the possessive form may



alter depending on the preceding subject, shifting from the previous pattern of noun + -ku to noun + possessive.

## 6. Other Nouns

These terms do not fit into the previously mentioned categories and may refer to abstract concepts, being used across various contexts. For instance, *prewo* is employed in trade to denote a subscription, thereby facilitating a positive relationship between seller and buyer. In contrast, *breune* signifies "friend" and is predominantly used by men. Additionally, young people often incorporate external linguistic influences, such as *bestie*, *reu*, and *konco*, or borrow from English, using terms like *guys* or *bro*. These address terms are specifically intended for peers with whom the speaker has a close relationship.

## 7. The Zero Features

The zero feature refers to the use of address terms where the form of the address is omitted from the utterance. In the Mulan dialect of the Lamaholot language, the zero feature is employed in contexts where speakers have a close relationship, allowing for the omission of explicit address terms. This feature is typically used by older individuals when addressing younger people or peers, especially in informal situations.

For example, the interrogative sentence "*Moe mai gare?*" ("Where are you heading?") exemplifies the zero feature as it lacks an explicit address term, indicating familiarity between the speaker and the addressee. Similarly, "*Dari ale?*" ("Why?") also illustrates the zero feature, where the absence of additional address terms reflects the speaker's familiarity with the addressee.

Additionally, in the Mulan dialect, the term '*otu*' refers to the practice of using words with undefined meanings to attract attention from a distance, such as *uuuuuuuu* or *huuuuuuuuu*. The term *be* is used to capture the attention of someone at a short distance.

### 3.2 Functions of address terms according to Wardaugh

The functions of address terms proposed by Wardaugh (2006: 268-269) are as follows:

1. **Attract People's Attention:** Address terms can capture an individual's attention, particularly in group contexts or when direct attention is necessary. Address types used for this purpose include Personal Names, Kinship Terms, Other Nouns, and The Zero Feature.
2. **Show Politeness:** Address terms play a crucial role in indicating politeness within communication. In the Lamaholot language, selecting appropriate address terms reflects respect and adherence to social norms. Proper use of address terms is essential not only for effective communication but also for maintaining positive interpersonal relationships. Factors such as age, social status, and familiarity must be considered in the selection of address terms, with Pronouns (Pro), Kinship Terms, and Titles and Ranks serving this function.
3. **Reflect Identity:** Address terms also convey the identities of both the speaker and the addressee. The choice of address reveals the speaker's and listener's identities and their

relationship. Address terms that serve to reflect identity include Personal Names, Kinship Terms, Titles and Ranks, Possessives, and Other Nouns.

4. **Show Power Differential:** Appropriate address terms can highlight differences in status and power among speakers. Power differentials manifest through vertical relationships such as age, position, occupation, social status, and kinship. Kinship Terms and Titles and Ranks are used to indicate such power differentials.
5. **Show Intimacy:** Certain address terms, including childhood names or special nicknames, reflect the level of intimacy between the speaker and the addressee. Intimacy is understood as the psychological distance between individuals, aiming to avoid miscommunication. Address terms that indicate intimacy include Personal Names, Kinship Terms, Other Nouns, and The Zero Feature.

Among the seven address term types identified in the Mulan dialect, kinship terms are the most prevalent. This prevalence is attributed to cultural and social factors: the Lamaholot culture emphasizes familial bonds and relationships. Terms such as *ema*, *bapa*, *opu*, and *wae* are frequently used to express affection and connection within the community. Additionally, kinship terms reflect hierarchical and social norms, with terms like *kake* and *ari* signifying differences in status and age, thereby establishing authority and social hierarchy. The use of kinship terms also fosters a warmer, more intimate interaction consistent with the Lamaholot's values of friendliness and politeness.

#### 4. Conclusion

After analyzing and categorizing seven types of address terms using Kridalaksana's theory, along with five functions of these terms based on Wardhaugh's theory, the researcher concludes the following:

Address terms in the Mulan dialect include both singular and plural forms for the first, second, and third persons. Examples of these personas are *goe*, *tite*, *tite weki*, *moe*, *mio*, *mio weka*, *nae*, *nepe*, and *rae*. Personal names in this dialect typically follow a pattern that combines saints' names with ancestral and tribal names. Additionally, family and friends often use given names, while nicknames based on physical attributes or behaviors are sometimes employed.

Seventeen kinship terms were identified, including *bela*, *meme*, *bapa*, *ema*, *ari*, *bine*, *ina*, *ama*, *ari*, *bapa bela*, *bapa tengah*, *bapa ari*, *bapa satu*, *kaka*, *opu*, *maki*, *wae*, and *kene*. These kinship terms are the most commonly used in daily life. Titles and ranks are not limited to formal settings; they are also applied in informal contexts and often paired with kinship terms. Other address terms have been adopted from external cultures due to technological influences, such as *reu*, *besti*, and *bro*. Additionally, a zero feature is used in close relationships where politeness conventions are often bypassed.

The functions of these address terms include capturing the listener's attention, demonstrating politeness, expressing identity, signifying power dynamics, and indicating intimate relationships. Among these, kinship terms are the most commonly used and fulfill all of these functions.

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## **Disparity in Educational Quality in Border Areas (A Reflection on Marginalized Communities in Indonesia's East Nusa Tenggara Province)**

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**Abstract.** Providing inclusive and equitable quality education and promoting lifelong learning opportunities for all is the fourth target of the SDGs, in line with the mandate of the 1945 Constitution. Regional development disparities can affect the quality of education, and this paper aims to capture the socio-cultural conditions of border communities, which have the potential to be used as instruments to bridge the inequality in the provision of education across regions. A literature review approach combined with field observations was employed to confirm secondary data, followed by an analysis of the trends in parameters compared to the results of observations. The study also utilized a qualitative approach to describe the margin data, and content analysis was used to identify trends in the data. The low level of accessibility is not only due to the lack of infrastructure but also to the relatively limited opportunities to access educational facilities. As a result, more out-of-class learning opportunities are needed for students in border areas. Engaging the surrounding community, along with their local wisdom, can boost participation rates in schooling. The concept of inclusive education should not be limited to addressing the physical and mental limitations of learners but should also encompass technical regulations on inclusivity in education for border, remote, and island regions.

**Keywords:** *Disparities, Education Quality, Border Region*

### **1. Introduction**

The mandate of the constitution in the Preamble of the 1945 Constitution of Indonesia asserts that the nation's objectives are to promote general welfare, to enhance the intellectual life of the nation, and to contribute to the establishment of a world order based on freedom, lasting peace, and social justice. These three objectives are interrelated. The first step is to ensure that welfare is achieved independently and with social justice. To achieve welfare, an intelligent society is essential, making education a crucial matter before entering the global community, which is competitive and capable of maintaining world order ([Itasari, 2020](#)). The threats of climate change, environmental crises, inequality, and poverty have become a universal concern for the global community. This is reflected by the 193 member countries of the United Nations, who have continued the transition of the Sustainable Development Goals (SDGs), leading to the adoption of the 2030 Agenda, which comprises 17 goals and 169 targets. One of these goals pertains to quality education, ensuring inclusive and equitable education, and promoting lifelong learning opportunities for all, with 7 targets and 3 derivative action plans ([Bappenas \(Ed.\). \(n.d., 2021\)](#)).

Inclusivity arises due to disparities in the quality of education among individuals and groups, caused by various factors, including uneven development distribution, which fails to reach all segments of society in border, remote, outermost, and island regions. The standardization of education quality needs to be improved to ensure that graduates are competitive in a global society, avoiding marginalization due to unequal educational processes

([King, 2023](#)). Inclusive policies should not only address physical limitations for students with special needs but should also extend to communities in border, remote, outermost, and island regions. Thus, the issue of education quality in these areas becomes a key parameter in regional inequality. Communities in these regions tend to have limited opportunities to access quality education that meets expected standards due to the lack of infrastructure, facilities, and resources needed for the standardization of educational processes.

The Ministry of Education and Culture has established eight (8) standards for educational quality, including content standards, process standards, education assessment standards, educational personnel standards, infrastructure standards, management standards, financial standards, and graduate competency standards. Other quality parameters include the Education Quality Index (Indeks Mutu Pendidikan, IMP), the Educational Quality Assurance Standards (Standar Penjaminan Mutu Pendidikan, SMPI), and the Program for International Student Assessment (PISA) standards. The IMP comprises three (3) dimensions and six (6) indicators: Student (repetition rates, graduation rates, dropout rates), Teacher (percentage of qualified teachers, student-teacher ratio), and School Infrastructure (the ratio of suitable and well-maintained classrooms). The SMPI parameters focus on quality mapping, quality improvement planning, implementation, internal evaluation/audits, and setting educational quality standards. PISA, as an international benchmark, assesses the ability of 15-year-olds to use their reading, mathematics, and science skills to face real-life challenges ([OECD, 2019](#)).

According to [JinJie \(2023\)](#), the eight standards will ultimately converge on a single standard for measuring education quality: the graduate competency standard. Once the minimum conditions for effective learning are established, the competitiveness of graduates can be assured. Global education systems face four major challenges: equity, quality of graduates, efficiency of administration, and relevance of outcomes. Therefore, inequality cannot be assessed solely based on the availability of infrastructure or other input-process instruments. Equalizing quality can only be achieved by setting common general standards, and as part of the global community, Indonesia's graduate standards must also adhere to PISA standards.

Indonesia's 2022 PISA ranking is still at 63rd globally, ranking sixth among ASEAN countries, behind Singapore, Vietnam, Brunei Darussalam, Malaysia, and Thailand. The PISA results reflect Indonesia's educational quality, with scores of 359 points in reading literacy, 366 points in mathematics, and 383 points in science, which are generally lower in rural, border, remote, outermost, and island regions, including parts of Eastern Indonesia. The progress of a region's education sector is measured by several parameters, such as School Participation Rates (Angka Partisipasi Sekolah, APS), Gross Enrollment Rates (Angka Partisipasi Kasar, APK), and Net Enrollment Rates (Angka Partisipasi Murni, APM). In the field of science, this includes the percentage of students using mobile phones, computers, and accessing the internet ([Rokhman Hum & Syaifudin, 2014](#)).

East Nusa Tenggara Province (NTT), which forms Indonesia's southern border, directly adjacent to Timor-Leste and Australia, faces a significant threat, especially due to its geographical characteristics as an archipelago. The risk of low-quality education is highly probable for communities in border, remote, outermost, and island regions. Referring to Presidential Regulation No. 179 of 2014, 88 sub-districts across 12 regencies in NTT are categorized as border areas, as they share land and sea borders with these two countries. This article reflects the disparities in education quality in border areas, particularly several sub-districts in Belu Regency and North Central Timor Regency, which have been prioritized for development in 2023 by the Deputy for Border Area Potential Management. Concerns about



educational issues in both regencies are also confirmed by reports in Pos Kupang ([Tanggur, 2024](#)) and Pos Kupang ([Nong, 2024](#)), indicating the need to assess the quality of education in these two sub-districts based on key education sector development indicator.

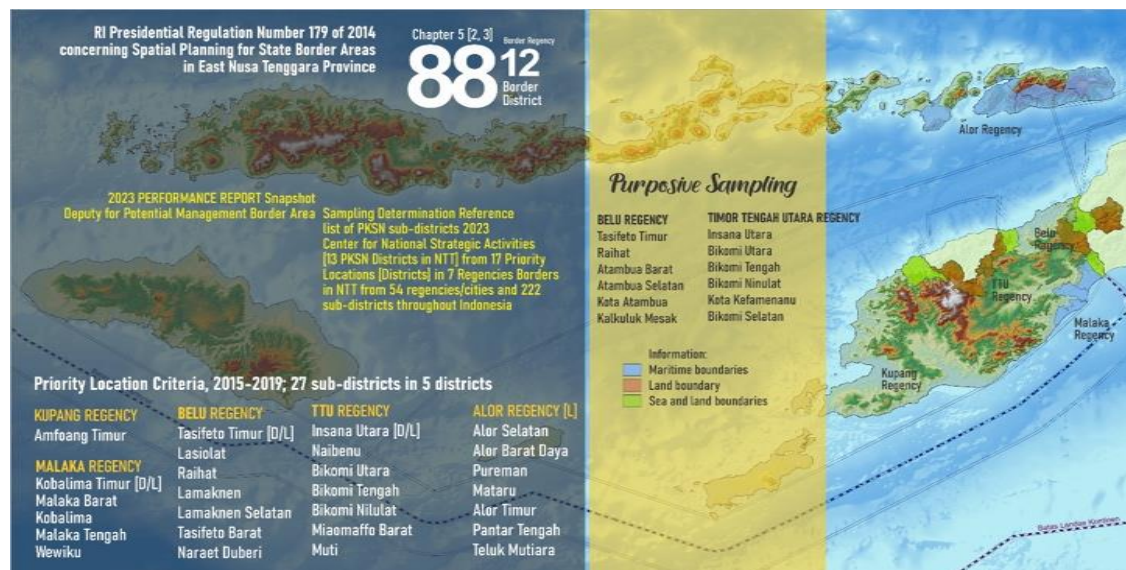


Figure 1. Map of Border Areas in East Nusa Tenggara Province and Its Priority Locations

## 2. Methodology

This article was presented as an invited speaker at the 3rd International Conference on Science, Applied Science, Teaching, and Education (ICoSASTE) at Nusa Cendana University, themed *"Integrating Technology and Education for Sustainable Development and Global Citizenship."* The research conducted in 2015 on the *"Identification of Border Area Development in Region II of East Nusa Tenggara Province"* in collaboration with the Ministry of Village Development and the UNDANA Research Institute, as well as an article presented at the UNDANA National Geography Seminar in 2021, served as initial references. This was followed by field data confirmation in several sample sub-districts in Belu Regency and North Central Timor Regency. The field data confirmation coincided with various news reports on the delivery of education in border regions, published in the *Pos Kupang* daily during the period from January to June 2024. A literature review was then conducted, referring to various documents such as the performance reports of relevant agencies, NTT education statistics, and several relevant scientific articles.

The sample selection was conducted deliberately based on priority locations in the 2023 Performance Report of the Deputy for Border Area Potential Management ([RIB \(n.d.\), 2024](#)), specifically targeting 6 sub-districts in Belu Regency and 6 sub-districts in North Central Timor (TTU) Regency. Data on the educational program's achievements were collected using research instruments, obtaining primary data from the relevant technical agencies to gather information on the schools in the 12 sub-districts. Field observations were then conducted at several nearby schools for sample verification. The field data was compared with NTT education statistics from 2022 and 2023 to carry out a qualitative analysis, focusing on the range of accessibility concerning the availability of facilities, the reach of facilities, and the opportunity to access educational facilities based on School Participation Rates (APK) and information technology literacy. The presentation of results also utilized spatial analysis to map the distribution of



facilities and understand patterns of inequality in access to and quality of education at the sampled locations ([Purwanti, 2022](#)).

### 3. Results And Discussion

#### Educational Challenges in Border Areas

East Nusa Tenggara Province (NTT), comprising 1,192 islands with a sea-to-land ratio of 70:30 percent, features a diverse topography, including hilly terrain (1,439 km<sup>2</sup>), flatlands (246 km<sup>2</sup>), and valleys (1,668 km<sup>2</sup>), which stretch across the two sampled regencies. The population settlement patterns are not fully concentrated, as they follow the distribution of arable land and local natural resources, making it difficult to intervene in regional spatial planning. The total population in the sampled sub-districts is 231,008 people in Belu Regency, with a growth rate of 2.13% and a population density of 100.26 people/km<sup>2</sup>, while in TTU Regency, there are 271,277 people, with a growth rate of 1.58% and a density of 101.61 people/km<sup>2</sup> ([BPS NTT \(n.d.\), 2024](#)). The demographic conditions of the sampled sub-districts are presented in Table 1 below.

Table 1. Population Conditions in Sampled Sub-districts in 2023

Regency/District Area	Total Population (Persons)	Population Growth Rate (%)	Population Density Level (Persons/Km2)	Sex Ratio (%)
<b>BELU REGENCY</b>	<b>231,008</b>	<b>2.13</b>	<b>166</b>	<b>100.26</b>
Tasifeto Timur District	28,275	2.92	112	100.86
Raihat District	14,897	1.35	198	100.36
Atambua Barat District	25,358	1.75	1,508	102.38
Atambua Selatan District	27,733	2.17	1,710	102.19
Kota Atambua District	32,747	2.21	1,309	99.73
Kalkuluk Mesak District	23,806	2.93	138	98.47
<b>TTU REGENCY</b>	<b>271,277</b>	<b>1.58</b>	<b>102</b>	<b>100.66</b>
Insana Utara District	10,715	1.93	199	101.75
Bikomi Utara District	6,514	1.50	92	99.20
Bikomi Tengah District	7,941	1.55	129	100.83
Bikomi Ninulat District	4,992	1.44	61	97.23
Kota Kefamenanu District	49,589	1.37	670	101.14
Bikomi Selatan District	11,717	1.69	241	103.67

**Source: BPS NTT Statistics, 2023 ([BPS NTT, n.d., 2024](#))**

The population density is uneven because some areas consist of urban sub-districts while others are rural sub-districts located in the outer border regions. However, there is a relatively high growth rate in several sub-districts in Belu Regency compared to the relatively low and equal growth in TTU Regency. The sex ratio among the population varies, generally showing more males than females, except in rural sub-districts of TTU Regency and urban sub-districts of Belu Regency.

Local geographical and demographic conditions may create disparities in education sector services due to uneven population distribution at the lowest density levels in hilly terrain. Accessibility between villages tends to be low, although connectivity is good, even though the road and bridge infrastructure is inadequate to support mobility in rural areas. Consequently, educational issues are not solely a matter of educational policy but are also influenced by the availability of other public infrastructure. Efforts to meet various education quality standards are not solely dependent on educational sector policies but also require support from other sectors,

both in terms of infrastructure and superstructure from the government, as well as the socio-cultural conditions of the local community ([Doriza, Purwanto & Maulida, 2012](#)).

According to [Erianjoni, Beri & Yusra \(2023\)](#), common problems in the education sector include: equal opportunity, relevance to needs, availability of physical facilities, high costs, teacher welfare standards, and the quality and quantity of teachers, along with public support and participation. Field identification revealed several sub-issues and their causes, such as: unequal opportunities due to accessibility, low relevance of education levels to needs because of the availability of educational facilities, high supporting costs for education processes due to difficulties in meeting basic and supplementary needs, the quality and quantity of teachers due to the lack of incentives for education graduates to settle in rural areas, low welfare for teachers and educational staff due to budget constraints, and socio-cultural support and participation from the community being oriented towards domestic work.

The initial picture of these issues requires multi-sector policy interventions that are synergistic across various policy levels, involving inclusive public participation based on the limitations of physical infrastructure and local socio-cultural constraints in the form of superstructure. The experience of educational delivery during the Covid-19 pandemic in both sampled sub-districts has seen interventions in education sector policy; however, the capacity of the providers and social cultural support could not sustain e-learning patterns due to relatively low adoption and adaptation capabilities post-Covid. This situation has resulted in inadequacies in input and process standards, thus lowering the quality and competence of graduates during that period, which has lagged for more than three educational periods. This means that both the government and educational providers need specific stimulation to address quality disparities exacerbated by Covid, so any policy interventions being pursued are merely part of the recovery of post-Covid standards.

### **Quality Standardization and Inclusive Education in Border Areas**

[Demetriou & Spanoudis \(2018\)](#) emphasizes the importance of accountability and continuous improvement in the education system so that it must simultaneously focus on evaluating input, process and output. [King \(2023\)](#), broadening the perspective on quality that can be seen from various perspectives, such as excellence (*excellence*), match (*fitness for purpose*), added value (*value added*), and customer satisfaction (*customer satisfaction*) so that the final results that are competitively superior and useful that users expect must be prepared from the initial stages of input, process to output, so standardization of graduate qualifications is needed. Quality assurance (*quality management*) determined by *quality control* to control test results/*assessment* and *quality assurance* to ensure input and process arrangements are useful and efficient so that the curriculum, facilities and methodology are as *tools* the operator ([Benavot, 2016](#)).

The various quality standards presented previously have been known and mutually agreed upon by the parties, are well defined and articulated and have graduate competency standards per subject, not just defining process standards so that the input and process aspects are sufficient. *minim condition for good learning*. Competencies for graduates from the Indonesian national education standards are available per level and educational unit category which includes the dimensions of attitudes, knowledge and skills but not yet per subject which is an input and process standard. This context is currently being developed through an independent learning curriculum that is competency-based, flexible learning and has a Pancasila character so that schools and regional governments have the authority to manage their own education in accordance with the conditions of their respective regions. The problem is that the commitment

and resource capacity of regional education managers and administrators are not able to articulate it at a practical and comprehensive level oriented towards graduate output. Such conditions are often found in border, outermost, remote and island areas because they are unable to articulate the concept of independent learning appropriately *minim condition for good learning*.

Limited facilities and infrastructure are the initial conclusion that makes the paradigm of regional education managers and administrators tend to prioritize the provision of physical infrastructure needs and ignore the main elements of education administration, namely the quality and welfare of teachers and the initial conditions of students. That the suitability of buildings and infrastructure supporting the provision of education is an important aspect in the process but its use can be optimized with and under minimum conditions for the continuity of good learning. This is confirmed by various field cases where several schools have adequate building conditions and supporting facilities but have minimal teacher availability, and even teacher welfare guarantees in border areas are still below eligibility standards. In other conditions, there are still several schools that do not have standardized facilities but are able to produce competent graduates according to graduation standards so that this reality becomes an anomaly if the problem is mapped.

Several other measurable standardization systems such as the Education Quality Index (IMP), Education Quality Assurance System (SPMP) and the international scale, PISA, almost all apply overlapping parameters. IMP is a measuring tool for assessing and comparing the quality of education at various levels by combining indicators of aspects of access, quality and educational outcomes so that accurate data validity is needed as a comparison between countries so that it does not only reflect academic results but also how education can encourage socio-economic development as well as relevant to future needs ([Kennedy, 2019](#)). While the SPMP approach emphasizes the importance of the involvement of all stakeholders (government, schools and the community) in the quality assurance process so as to use the CIPP evaluation model (*Context, Input, Process, Product*) to identify areas that need improvement and develop effective improvement strategies because constructive feedback occurs ([Widiputera & Agung, 2023](#)). This context is in the spotlight because the scope of standardizing the quality of education in border, outermost, remote and island areas is still a mechanistic institutional matter for schools and the government without considering participation and collaboration from the community. Community involvement is only open through the School Committee which is not activated and is merely formalistic without any collaborative mechanism for the local community in realizing quality education.

Referring to the Inclusive Education Implementation Guide ([Arriani \(n.d.\), 2024](#)), in its introduction that the National Education System Law classifies children with special needs into 3 categories, namely; (1) children who have physical, emotional, mental, intellectual and/or social disabilities; (2) children who have special intelligence and talent potential, and (3) children in remote and underdeveloped areas. In reality, specifically the third point is not technically explained in the derivative regulations and technical rules so that it escapes policy and is therefore not implemented in the field. The focus of inclusive education is only seen as the personification of humans because the paradigm that is built only highlights the pluses and minuses of each individual student without looking at the external aspects of the environment, especially the backwardness caused by disparities in development between spaces and regions. Children and students in border, outermost, underdeveloped and island areas only go about their routine of going to school without any serious efforts from stakeholders who systemically think about what kind of future these children will be delivered in the input and process of providing

education to realize their own future for development. area. The results of the review of policy documents in the sample areas show that there is no medium-long term education sector policy planning that systemically orients the quality of graduates based on the qualifications of children's interests to address the competitiveness of future graduates and contribute back to the progress of regional development.

The support system for implementing inclusive education requires the roles and responsibilities of various stakeholders (the government, the community, parents, and educational institutions), both directly and indirectly. The community, in this case, includes the business and industrial sectors (DIDU), Non-Governmental Organizations (NGOs), professional organizations, and others, which oversee the process up to the output stage. Meanwhile, parents are actively involved during the input-process phase through their membership in the Inclusive Education Program (PPI). PPI plays a role in making educational decisions for participants and addressing issues such as eligibility, evaluation, program development, and the placement of students with special needs in inclusive education. Support from educational institutions involves collaboration among key parties (principals, special education teachers, general teachers, peers, and student councils) to meet the needs of learners. This context tends to focus on individuals with special needs (students with mental disabilities and/or exceptional abilities), rather than being oriented around socio-economic disadvantages in border, outermost, remote, and island areas. Field conditions show challenges such as limited numbers and capacities of teachers, the absence of special education teachers (similar to guidance counsellors), a lack of peer education, and inactive student councils in accommodating the intended program. Therefore, it can be concluded that inclusive education policies have not yet been implemented for students and communities in border, outermost, remote, and island areas.

### **School Participation Rate Trends in Border Areas**

This study focuses on the School Participation Rate (SPR), which serves as an indicator of educational progress in a region according to BPS standards. Although its components are limited to quantitative data and do not reflect the quality of students, SPR can still be used as a reference since qualitative assessments can only begin with quantitative percentages. A high participation rate indicates that the community values education, while a low participation rate suggests barriers to accessing education, requiring contextual analysis from social, economic, cultural, and educational policy perspectives.

[Wijayanti, Suwartono, and Kusuma \(2022\)](#) highlight the availability and adequacy of educational facilities (buildings, classrooms, learning tools), supporting infrastructure (electricity, internet access, water, and roads), as well as teacher resources and school management, as factors that either encourage or decrease community participation rates. The social, economic, and cultural backgrounds that shape the community's mindset are external factors that are often overlooked, even though students come from the surrounding community.

The SPR and its derived indicators are used as parameters of success or failure in a region, not only in the education sector but also in other supporting policies, such as household per capita income, regional finances, poverty levels, and the overall well-being of the community. These factors either drive or hinder the urgency for children in border, outermost, remote, and island areas to attend school. The availability and adequacy of infrastructure, accessibility, and the opportunity to reach educational facilities are concrete reasons why the community may not prioritize schooling. The following figure shows the trend and projection of SPR at every educational level in Indonesia, accumulated from the SPR conditions across all regions of Indonesia ([BPS NTT \(n.d.\), 2024](#)).

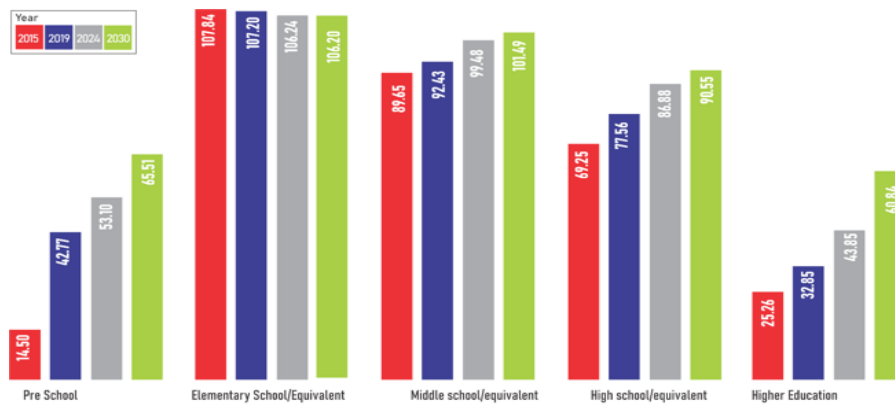


Figure 2: Trends and Projections of School Participation Rates in Indonesia, 2015 to 2030

Figure 2 above shows a significant increase in public awareness regarding the importance of preparing their children for preschool education from 2015 to 2019, driven by the implementation of Government Regulation No. 13 of 2015, which mandates the minimum age to start formal education, though preschool before elementary school is still not obligatory. Participation in elementary education, however, has slightly decreased over the past decade, which is a positive trend as children are now entering elementary school at the ideal age of seven and graduating before turning 13, a condition reflected in the increasing School Participation Rates (SPR) for junior high, senior high, and higher education over the past ten years.

There has been a stagnation among junior high school-aged children who do not graduate at the expected age. Despite this, participation in senior high education has shown a relatively steady increase over the last decade and is expected to stabilize by 2030. This projection suggests that by 2030, only 9% of the population aged 16-18 will not be enrolled in school at the appropriate age, and most of those who complete high school will continue to higher education.

Projection data shows that by 2030, more than 40% of preschool-aged children will not attend preschool, instead starting directly with elementary education. Despite this, the proportion of elementary school students exceeds 106%, as there are still children aged 7-12 in elementary school, but 6.76% of them do not continue to junior high school. The 2024 SPR data indicates that school age ranges across educational levels have stabilized, with growing awareness of the importance of preschool education as a prerequisite for early childhood development and compliance with starting formal education at the correct age and graduating on time. The 12-year compulsory education policy, starting from elementary school through high school, has resulted in relatively stable SPRs during the elementary to high school periods. Therefore, by 2030, it may be considered to extend the compulsory education standard to include 1 year of preschool, followed by 6 years of elementary education, 3 years of junior high, 3 years of senior high, and less than 4 years of higher education. The 2030 projection also indicates that college participation will continue to rise due to the increasing demand for degree qualifications in the job market.

Meanwhile, the trend data for the School Participation Rate (SPR) in NTT over the past five years shows fluctuating patterns across all education levels, with relatively small variations each year. The data indicates a positive trend in the School Readiness Rate (SRR) for the people of NTT, where more than 50% of first-grade elementary students have attended preschool, thanks to the Early Childhood Education (PAUD) program. However, over 25% of students do not continue their education from junior high to senior high school.



The traditionally patriarchal culture in NTT, which favors sending boys to school over girls, has seen a significant shift over the past 12 years. The trend in school readiness among girls is now 6.94 points higher than that of boys. Girls are considered more diligent and disciplined in following the educational process, often achieving success and graduating with higher honors than boys. Meanwhile, the difference in SPR between urban and rural areas is only a marginal 0.66 points, indicating that the issue of gender equality in access to preschool education is far more concerning than the disparity between regions.

Education Level	Year				
	2019	2020	2021	2022	2023
Elementary School/Equivalent	53.05	53.98	54.02	53.22	54.59
Middle school/equivalent	98.47	98.57	98.42	98.59	98.62
High school/equivalent	95.11	95.25	95.32	94.83	94.89
Higher Education	75.36	75.52	75.77	75.55	75.93
Perguruan Tinggi	31.48	31.47	32.41	32.12	33.03

Table 2. School Participation Rate (SPR) of NTT Province, 2019 to 2023

Source: NTT BPS Statistics, 2023 ([BPS NTT \(n.d.\), 2024](#))

Gender issues in school participation in NTT apply to all education levels, while regional disparities have decreased from senior high school to higher education levels. This is due to the relative difficulty in accessing senior high school and higher education services, resulting in a drop in school readiness by 26% at the senior high school level and more than 78% at the higher education level.

The drive to continue education beyond high school is higher among urban females, while in rural areas, males are prioritized for schooling. This suggests that urban communities place more emphasis on the quality of education and academic achievement for their children, whereas rural communities prioritize education for boys mainly to ensure they receive a basic level of education.

The School Participation Rate (SPR) margin at each education level over the past five years has not seen significant changes. However, there is a large margin drop when transitioning to higher education. This indicates that the motivation to complete a child's education is influenced by socio-cultural factors but faces economic challenges, as the cost of higher education is relatively high. Rural communities are prepared to continue their children's education, but the investment in higher education is expensive due to the limited availability of higher education institutions in the region, high tuition fees, and the cost of living during college. These factors have led to a significant decrease in the number of students pursuing higher education, with an average margin drop of 78.3% over the past five years.

Other participation parameters, such as APM and APK, also indicate several aspects when assessing the level of school participation in the community of East Nusa Tenggara (NTT), namely: [1] Girls in both rural and urban areas tend to start school on time and are able to complete their studies at each educational level punctually, [2] Boys tend to be undisciplined in starting school at the appropriate age and often fail to complete their studies at certain educational levels on time, [3] The dropout rates at the elementary and secondary education levels are higher among girls in rural areas, while at higher educational levels, the dropouts predominantly occur among boys, [4] Although the proportion of girls attending school is smaller than that of boys, they tend to be more consistent in completing their education up to higher education. This reality indicates that girls are more likely to successfully navigate the



critical period of school dropout at the high school level; once they graduate from high school, they are more likely to continue their studies to higher education. Meanwhile, boys face a critical phase of school dropout threats starting from junior high school, necessitating strengthened motivation for boys aged 13 and above to continue their education.

The data on APS and other related parameters in NTT Province ([BPS NTT, n.d., 2024](#)) illustrate the conditions across 22 districts/cities in NTT. However, in the sample areas (Belu and Malaka districts), the situation remains within a tolerable range when comparing the ratios among districts across all types of parameters at each educational level, as neither of the sample districts falls among the three districts with the lowest APS, AKS, APM, and APK. The TTU district shows more progressive participation levels compared to the Belu district at nearly every educational level, especially in the border regions of Belu, where access to education and components of educational input-process are still very limited. The APS for preschool and elementary education in Belu and TTU districts is above the NTT average, indicating that the awareness of the communities in Belu and TTU regarding education is generally higher than in other areas, although this applies only to preschool and elementary education.

School participation in the communities of Belu and TTU districts declines as they progress to junior high school and beyond, as evidenced by the relatively lower margins each year for the senior high school and higher education categories. The population aged 13 and above in TTU and Belu districts is increasingly at risk of not being able to continue their education to the next level, facing a significant threat of dropout, particularly at the senior high school level, and tending not to pursue higher education. In TTU and Belu districts, girls exhibit higher school participation at the preschool and elementary levels, despite limited educational opportunities. Conversely, boys in rural areas show increased participation in elementary education but decline when transitioning to high school and higher education. Opportunities for pursuing higher education are more broadly offered to boys in rural areas; however, participation rates decrease, contrasting with girls who have limited opportunities yet relatively higher graduation rates.

Girls tend to complete their studies at each educational level, coinciding with an increase in participation rates; however, they have limited opportunities to continue their education. In contrast, boys, who are given broader opportunities to pursue higher education, often fail to complete their studies, with a margin of 3.17 points. This situation aligns with the shifting societal paradigm, where investment in children's education has begun to shift from boys, who were traditionally seen as more responsible for their futures, to girls, who are understood to leave the nuclear family after marriage to follow their husbands.

The availability of educational facilities and supporting infrastructure in urban areas significantly encourages school participation among urban communities. Conversely, limited access to educational infrastructure and low opportunities for schooling contribute to the low school participation rates in rural areas, border regions, remote areas, and islands. The margin in school participation rates between border regions and the outermost regions reaches 7.15 points, primarily due to limited opportunities for children in rural areas, who often have to engage in family economic activities. A summary of the comparison of APS, APK, and APM for each educational level in East Nusa Tenggara Province, Belu District, and TTU District in 2023 is presented in Table 3.

Table 3: APS, APK, and APM in East Nusa Tenggara Province, Belu District, and TTU District for Each Educational Level in 2023

School Participation Rate (SPR)	Gender		Region		Total
	Man	Women	Urban	Rural	
Pre School					
SPR NTT	24.61	27.24	26.53	26.74	26.63
Belu	24.94	34.4	33.75	30.18	31.99
TTU	29.91	33.61	35.39	29.61	32.71
GER NTT	34.83	33.89	30.13	35.72	34.38
Belu	54.8	41.01	34.11	52.07	47.55
TTU	40.02	39.98	29.63	44.45	40.01
NER NTT	33.78	32.96	30.13	34.41	33.39
Belu	52.19	38.82	34.11	48.88	45.16
TTU	36.19	35.79	29.63	38.76	36.02
Elementary School/Equivalent					
SPR NTT	99.65	98.29	98.36	98.88	98.62
Belu	97.81	97.83	99.3	96.35	97.83
TTU	100	98.68	99.46	98.38	98.9
GER NTT	112.4	110.29	111.24	111.38	111.35
Belu	109.31	115.13	116.44	110.73	112.22
TTU	125.13	107.05	141.43	110.6	115.83
NER NTT	95.99	95.97	96.12	95.83	95.98
Belu	96.99	95.31	97.55	93.93	95.75
TTU	99.55	95.61	97.65	94.98	96.28
Middle school/equivalent					
SPR NTT	97.38	94.01	93.31	96.51	94.89
Belu	93.31	92.19	87.72	97.22	92.51
TTU	85.12	98.14	93.29	97.74	95.4
GER NTT	89.64	90.67	87.61	93.29	90.41
Belu	76.5	80.81	82.65	76.59	79.61
TTU	75.65	90.89	87.18	88.23	87.68
NER NTT	74.11	73.24	71.14	75.87	73.47
Belu	65.07	64.6	66.21	63.28	64.73
TTU	59.87	70.81	64.4	73.04	68.51

School Participation Rate (SPR)	Gender		Region		Total
	Man	Women	Urban	Rural	
High school/equivalent					
SPR NTT	79.91	74.32	75.24	76.61	75.93
Belu	65.95	61.79	65.88	60.52	62.91
TTU	77.88	73.44	78.04	71.02	74.32
GER NTT	101.63	83.43	86.94	90.37	88.66
Belu	78.14	70.29	72.4	72.4	72.4
TTU	93.75	78.52	89.22	74.71	81.54
NER NTT	64.62	55.53	56.55	59.74	58.15
Belu	48.11	46.89	48.94	45.84	47.22
TTU	60.09	54.21	52.5	57.94	55.38
Higher Education					
SPR NTT	48.17	26.22	31.61	34.59	33.03
Belu	13.23	16.66	20.79	10.39	15.72
TTU	46.53	29.39	29.38	34.62	31.76
GER NTT	52	23.95	30.27	35.28	32.65
Belu	8.72	7.68	10.91	4.87	7.97
TTU	65.26	29.04	24.26	45.83	34.04
NER NTT	34.91	14.45	19.48	22.24	20.79
Belu	4.29	5.53	10.13	23.38	5.19
TTU	23.96	19.25	10.89	30.77	19.9

The availability of higher education institutions in TTU District significantly impacts the high participation of TTU residents in pursuing higher education, even though it remains relatively low compared to the NTT average; it is still better than the participation rates of residents in Belu District. The close geographical position of the two districts should ideally attract interest in pursuing higher education among Belu residents, yet the presence of state universities in TTU does not significantly stimulate this interest. This situation illustrates that accessibility to higher education does not solely determine the desire to pursue it; rather, environmental support factors and the partnership between the two districts need to be improved to encourage Belu residents' interest in attending university. The APS for higher education in Belu District is only 5.19 points, with a margin of 14 points compared to TTU District, supporting this argument. Interestingly, participation among girls from rural areas in Belu is higher than that of boys.

## Digital Literacy of Students in Border Areas

[Demetriou & Spanoudis \(2018\)](#) argue that digital literacy skills are not just about the technical ability to use and operate digital devices; they also encompass critical thinking and collaboration skills in digital environments. The ability to evaluate information sources and assess their validity through critical thinking, supported by rational arguments, is essential for the younger generation and students in utilizing information technology. The availability of technological devices along with information system networks can facilitate students in accessing a vast array of knowledge freely from the internet. However, without the protection of critical and systematic thinking skills, students may fall victim to the negative impacts of the internet.

Support from information system networks should be utilized in a limited and controlled manner for students' learning activities in schools, serving as an instrument for enriching knowledge from the outside world. Information available on the internet can be a valuable source of knowledge when used to obtain various scientific references, assist in the teaching and

learning process, facilitate communication with the outside world, and ease the evaluation of learning achievements. Restrictions on access and the categories of information appropriate for different ages and educational levels should also be aligned to prevent disparities in capturing, analyzing, and consuming relevant information or knowledge ([Benavot, 2016](#)).

The capacity for literacy among students and university students can be measured by the parameters of opportunity and the technical ability to utilize information and computer technology, which have significantly increased after COVID-19. A series of learning activities shifted from face-to-face (offline) learning to online meetings (online), becoming mandatory across all educational levels throughout Indonesia. Students in NTT, especially those in border areas, remote locations, and islands, experienced similar shifts, despite still facing significant limitations in internet access and technology. National policies for post-COVID recovery in the education sector include stimulating the provision of ICT equipment for online learning activities; however, conditions in border, remote, and island areas are hindered by technical electricity support, internet accessibility, and teachers' ability to educate their students ([Mamengko et al., 2023](#)). Additionally, the role of family and community environments must adapt to these changes in the learning process, shifting some of the educational responsibilities that were previously concentrated in school management to families and communities.

This situation continued throughout the COVID-19 pandemic but was only effective for two years. After the pandemic, school learning activities resumed with face-to-face approaches, although some new habits from the pandemic, such as the use of ICT devices, persisted. Data from the NTT Education Statistics (BPS NTT, n.d., 2024) show that the percentage of students accessing the internet, using computers, and mobile phones significantly increased in 2021 (post-COVID-19) but then declined after 2022. The use of computers and mobile phones decreased between 2022 and 2023, while internet utilization rose by 2%, from 51.30% in 2021 to 53.44% in 2023. The decline in the use of computers and mobile phones became more pronounced after the return to offline learning; however, the internet remains utilized for various educational services.

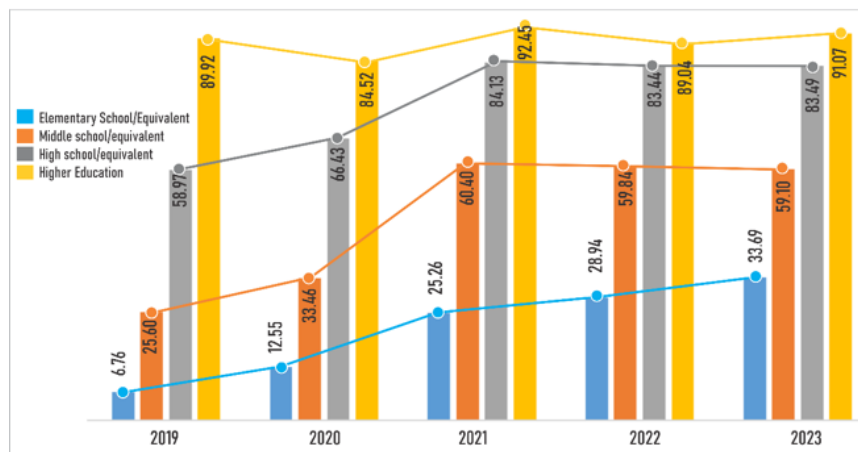
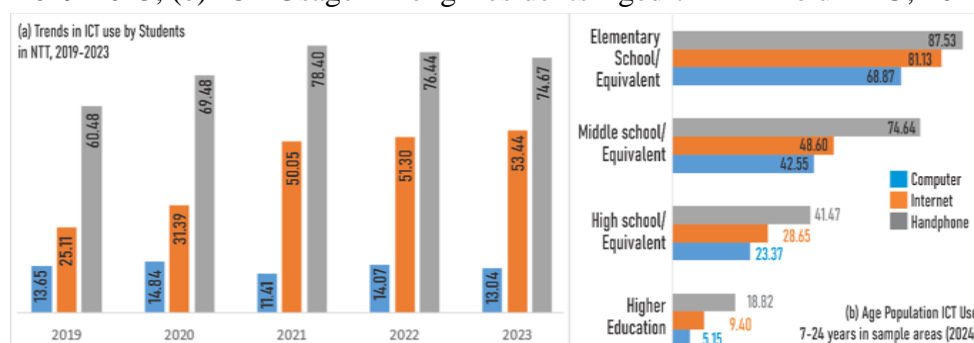


Figure 3: Internet Usage Trends Among Students in NTT, 2019 to 2023  
(Source: NTT Education Statistics, 2023)

[Wulakada \(2021\)](#) outlines various challenges faced by students in remote, isolated, border, and island areas during the implementation of learning activities amid the COVID-19 pandemic, particularly the limitations of telecommunication networks. The central government, through post-COVID recovery programs, has encouraged improvements in internet services for

all NTT residents to break the isolation from internet access and information systems. The region's topography and the dispersed settlement patterns result in low accessibility to internet networks because the ratio of Base Transceiver Station (BTS) towers does not meet the standard relative to the number of potential users. Data show that the number of BTS units in NTT was limited to 421 before COVID-19, which was then increased by 120 units in 2021, reaching a total of 541 units by 2023, with standard 4G capacity. Under these conditions, it is expected that more than 85% of the NTT Province will be accessible, although the network coverage remains inadequate for educational activities.

Table 4: Digital Device Usage; (a) Trend of ICT Usage Among Residents Aged 7-24 in NTT, 2019-2023, (b) ICT Usage Among Residents Aged 7-24 in Belu-TTU, 2024



Source: (a) Education Statistics, 2023 (processed), and (b) primary data

Table 4 illustrates the percentage of residents aged 7 to 24 who use technology devices such as computers, access the internet, and use mobile phones in NTT Province over the past five years, along with similar conditions in 2024 in the sampling locations. This condition indicates that computer usage (PC/laptop) is limited, with less than 54% of students/university students in NTT using them. While internet access is relatively accommodating, students prefer to use mobile phones for learning needs because they are more practical and multifunctional. Computers are not used intensively in the learning process since assignments can often be completed using mobile phones, which have effectively replaced their function. However, university students show a significant dependency on laptops, nearly equal to their use of mobile phones.

Table 4 (b), taken from the sampling locations (72 schools in Belu and TTU districts), shows that the optimization of computer usage remains relatively low, despite adequate internet access and capacity. Students prefer using mobile phones for learning activities due to their practicality and lack of personal computers, except were provided by schools, which often limit their usage time for educational purposes. The availability of internet access is not optimally utilized by schools to facilitate the learning process with computers, while the high allocation of mobile phone usage is largely diverted to non-educational activities. In contrast, university students use computers more frequently for their studies, supported by internet availability and mobile phone ownership, but this represents only a small fraction of the total number of students and university students in Belu and TTU districts. The data reflect only ownership, mastery, and utilization of digital devices, and do not assess the content and knowledge disseminated. Therefore, the ideal assessment of digital literacy cannot yet conclude the extent of digital literacy among students/university students in border, remote, and island areas

### Educational Accessibility in Border Areas

The final section of this article discusses the parameters of educational participation rates influenced by the accessibility and utilization of educational facilities, as well as the opportunities to reach them in the border areas of Indonesia and Timor Leste. The term "accessibility" refers to the social, cultural, and psychological encouragement from individuals and their families to participate in educational activities at specific educational levels. The approach used is an analysis of locational accessibility, which indicates how easy or difficult it is to reach one location from another, determined by travel distance, travel time, costs, and geographical obstacles, thereby influencing the attractiveness of school participation.

Early childhood education facilities, such as PAUD and TK, are evenly distributed across every village and are increasingly available in urban areas, with a participation margin of 3.34 points higher for girls compared to boys, attributed to better access to educational facilities. Children aged 5-6 years in urban areas have higher participation rates than their rural counterparts, with a margin of 0.82 points, due to the relatively high costs associated with early education, which is not yet a mandatory part of the 12-year formal education system. The reach of preschool children in urban areas is increasingly extended, not due to a lack of nearby TK/PAUD facilities, but rather because of school location choices based on other considerations, such as time efficiency and transportation opportunities.

In Belu District, elementary schools (SD) are sufficiently available and strategically located for access from residential areas. In urban areas, there are more than two SD units in each village or sub-district, providing varied options for schooling based on proximity or school quality. The travel distance for children aged 7-12 in rural areas is much shorter compared to their peers in urban areas, as urban residents have more opportunities to choose their preferred schools, even if they do not follow zoning regulations. Both girls and boys have equal opportunities to access primary education, as awareness of the importance of schooling begins at the age of 8. Thus, the vulnerable period for school dropout occurs early in their education, but once they feel comfortable in the school environment, they tend to continue their education until the age of 12.

For children aged 13 to 15 in both districts, although the data shows a decline in the participation rate (APS), the potential for school dropout is relatively small, except for rural children at age 15, making the risk of dropout particularly pronounced at the end of junior high school (SMP). Facilities are sufficiently available, though not evenly distributed to all residential bases, adequately meeting the needs of children of that age group, despite moderate accessibility and relatively low opportunities in rural areas. Junior high school students must travel more than 3 km to reach their schools due to a lack of alternatives, while in urban areas, students often travel more than 5 km to select their desired schools.

The availability of senior high school (SMA) facilities in both districts remains limited and uneven, with low accessibility and low opportunities for reaching them. In urban areas, facilities are sufficiently representative and easily accessible, particularly if schools have large class sizes to accommodate local students. In contrast, rural students often need to leave their villages for extended periods to access SMA facilities located more than 10 km away from their homes. The participation rate for rural children aged 17 at the end of their schooling is lower due to increasing saturation, coupled with limited access opportunities for girls.

The conditional description above suggests that the availability of educational facilities is relatively sufficient for all educational levels in both urban and rural areas. However, accessibility remains relatively low due to challenges related to the alternative choice of school locations based on residence and the domestic demands of transportation. Although the distribution of school units has been balanced according to the needs of school-aged children, the



limited capacity and availability of supporting facilities continue to hinder the learning process. It is hoped that this issue will gradually be resolved as opportunities for access improve.

Community support around schools is crucial to creating a comfortable environment for students outside of school hours, so schools and educational providers should collaborate to achieve this, not only through school committees. The culture of schooling has become a driving force that keeps the community consistently sending their children to school, leading to an increase in participation rates each year. However, gaps in school participation rates (APS) between educational levels are influenced by external factors. Thus, attention needs to be given to the vulnerable phases when students are most at risk of dropping out, particularly at the end and beginning of each educational level.

#### **4. Conclusion And Suggestion**

Based on the discussion in the results and analysis section, several conclusions have been formulated, along with the following recommendations:

1. Educational infrastructure disparities exist in border, remote, and island areas, but they are conditional and can support the minimum conditions for effective learning. It is hoped that local education managers can accelerate teachers' creativity to maximize the limited potential in their regions.
2. Low accessibility levels are due to the strict enforcement of school hours, which tends to disrupt students' domestic routines. There should be inclusive policies in the education system in border, remote, and island areas to develop a flexible curriculum that allows students more opportunities to engage in activities outside of school.
3. The availability of educational facilities should not only focus on schools and their supporting infrastructure but also include the availability and adequacy of auxiliary infrastructure, such as roads and bridges, that facilitate access to educational services. This requires synergy in non-educational sector planning to enhance the attractiveness of schooling and increase participation.
4. While the ratio of schools to student demand is currently sufficient, it may become inadequate as school participation rates continue to rise. It is recommended to anticipate future needs for the availability, adequacy, and accessibility of primary and supporting educational facilities. A limited zoning system can be used to accommodate schooling opportunities for communities living near educational facilities.
5. An often-overlooked factor in evaluating the quality of graduates is the socio-cultural support from the community around the school. This support must be consolidated both within the school and through local government initiatives to foster a social and digital literacy culture that is conducive to students' social life.
6. The local community in border, remote, and island areas already values the importance of education due to positive experiences observed in their surroundings. Therefore, local governments and schools must be bold in building strategic partnerships with local stakeholders to encourage greater community participation.
7. The 12-year compulsory education policy, which does not include pre-school as part of compulsory education, should be reconsidered. It is recommended to incorporate a 14-year compulsory education program to include early preparation before school and address stunting issues for pre-school-aged children.



8. Inclusive education policies should not only address physical and mental disabilities among students but also consider the disparities in resources that support education in border, remote, and island areas. It is recommended that the government provide technical guidelines for implementing inclusive education in these areas.
9. The location of schools has not yet considered the long-term prospects of regional development and spatial planning. This is important due to the potential for population spread, which requires the availability and accessibility of supporting infrastructure for education in border, remote, and island areas. In the medium to long term, there is a need to synchronize plans for residential spaces with the provision of educational, health, economic, and cultural facilities in a unified zoning system.
10. Key components such as teachers and curriculum play a vital role in achieving quality educational outcomes. However, these variables were not analyzed in this article. It is recommended that future research consider these important parameters.

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## UNDERGRADUATE PHYSICS EDUCATION STUDENTS' PERCEPTION ON SOIL POLLUTION: AN ACTION RESEARCH IN INDONESIAN UNIVERSITIES

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**Abstract.** The aim of the research is to find out the Indonesian undergraduate Physics education students' perception on soil pollution and climate change through watching a Netflix documentary about the first viable, low-cost way to reverse climate change through soil. Action research was conducted in Physics Education study program at two universities in East Nusa Tenggara Province, Indonesia. University 1 is a public university and university 2 is a private university. The number of students involved in university 1 and 2 were 36 and 7 students respectively. The research was conducted in the setting of Environmental Physics unit which was offered in both universities during February to June 2024. At university 1, the unit was offered for first year (second semester) students while the students enrolled for the unit at university 2 was second year (fourth semester) students. This paper focused on the 8<sup>th</sup> class meeting when students learned about soil pollution. The qualitative content analysis shows some points as follows. First, most students at university 1 and all students at university 1 felt worry, afraid, guilty about and angry at the people who cause soil pollution and climate change after watching the movie. Next, most students at university 1 and half of the students at university 2 do not feel bored when discussing about the soil pollution and climate change. Most students at university 1 and all students at university 2 felt hopeful that soil pollution and climate change can be minimized and felt empowered to take action to minimize soil pollution and climate change. When it comes to commitment to take personal action, most students at university 1 and all students at university 2 committed to make lifestyle choices that have minimal negative impacts on land pollution and climate change, to find out which products and services have minimal impact on soil pollution and climate change, to talk to friends and family about issues related to climate change so that we can all become aware of what needs to be done to address soil pollution and climate change, and to challenge politicians and businesses to do more to tackle soil pollution and climate change. In terms of taking group action, most students at university 1 and all students at university 2 stated their willingness to become member of local or national youth forums that promote to solve soil pollution and climate change issues, to seek opportunities to participate in national and international decision-making on soil pollution and climate change issues, and to participate in public demonstrations (e.g., climate strikes) to support movements to address soil pollution and climate change. However, it was very challenging for most students in both universities to elaborate their willingness to take group action since only very few students stated it. The process of using a documentary movie in teaching and learning activity for Physics education students was powerful to some degree since it encourages students to voice their mind and show their reaction.

**Key words:** soil pollution, climate change, students' perception, physics education, climate change education

## 1. Introduction

Human induced climate change is one of the most important problems facing humanity. Climate change is a change in temperature and rainfall over a period of time (usually at least 30 years). Natural processes like volcanoes or the Sun's radiation can cause climate change but human activities have influenced climate change through the atmosphere (e.g., increased carbon dioxide) and land use (e.g., deforestation). Although climate change has long been a question of interest in a range of fields, in recent years, there has been increasing interest in climate change related to adaptation (Ibrahim & Johansson, 2021; Pemberton et al., 2021), mitigation (De Giusti et al., 2019; Moerkerken et al., 2020), vulnerability (Adhikari et al., 2020; Lapola et al., 2020), extreme weather (Demski et al., 2017; Mann et al., 2017), denial (McDevitt, 2020; Petersen et al., 2019), and impacts (Karam et al., 2022; Raymond et al., 2020).

As human population have grown and living standards have risen, the requirements for agricultural products have increased enormously. More land has been brought under cultivation and vulnerable to degradation by such processes as erosion, pollution and salination. Soil pollution is the reduction in the productivity of soil due to the presence of soil pollutants. Soil pollutants have an adverse effect on the physical chemical and biological properties of the soil and reduce its productivity. Changes in the quantity of carbon stored in the soil can affect the global carbon cycle and alter carbon dioxide levels in the atmosphere. Thus, decreases in soil carbon may raise greenhouse gas levels in the atmosphere, thus contributing to climate change.

Education plays a crucial role in addressing climate change issues in the wider community, especially the next generation. Climate change education in schools and higher education is important because it can help young people to become aware of climate issues, look at them critically, respond to challenges in a meaningful and effective manner and make informed decisions (UNFCCC, 2023). Australian climate change education researchers (Stevenson et al., 2017) emphasized the importance of educating for change in behaviour rather than only focusing on science knowledge. Students are not exposed to hands-on and outdoor activities related to climate change even though teachers may have a good understanding of climate change concepts (Karim et al., 2022). Tolppanen et al. (2022) introduce a theoretical approach to climate change education in universities where it is not only the science of climate change but also students' knowledge, values, attitudes and willingness to mitigate actions. At some universities, such as the University of Barcelona in Spain, there has been a change in the paradigm of university education where all undergraduate and postgraduate students and academic staff have to take courses and training programmes related to climate change issues starting from 2024 (Burgen, 2022). Climate change curricula in schools in Turkey, South Africa, the Philippines, Malaysia, Finland and Hong Kong have also been focusing on both students' and teachers' knowledge, attitudes, and behaviour, as well as teaching approaches that impact students' knowledge and motivation (Chang & Pascua, 2017). In the latest Indonesian curriculum that is called "Merdeka" curriculum for junior high schools, climate change topics are covered in grade 7<sup>th</sup> science textbooks and are presented in the form of case studies that integrates the application of science and socioeconomics (Antika et al., 2022).

Due to its proneness to natural disaster and climate change impacts, the Indonesian government has been calling for the integration of climate change mitigation and adaptation into the school and university curriculum since 2010 (Dewi & Khoirunisa, 2018; Nugroho, 2020; Sofiyani et al., 2019). However, there is no exact model to be used as a guide for climate change education. Climate change education in Indonesia needs to be developed in universities for undergraduate students to support the curriculum that has been available for the last decade. In Indonesian universities, climate change education is taught to first-year undergraduate students

through courses named “Climate Change Adaptation and Mitigation” for non-STEM students, “Climatology” for Agricultural students (FapertaUM, 2022) and integrated into “Environmental Physics” or “Knowledge of the Environment” course for STEM students (Sofiyani et al., 2019). These courses are mainly about knowledge and neglect how the students should understand the impact of climate change and become actors of change in their communities. The topics covered in the Environmental Physics unit are contamination in water, air, soil and sound; weather and climate; natural disaster and renewable energy (Malau, 2019). These topics taught in Indonesian universities are mainly knowledge with few case studies and implementation.

The theoretical bicycle model for the climate change education developed in Finland (Cantell et al., 2019) has the potential be used to develop a curriculum for Indonesian undergraduate students, especially to undergraduate physics students. The scope of climate change is broad and so a holistic model is represented as a bicycle to portray one entity. The word ‘holistic’ means that a bicycle as a symbol for climate change education requires all of its parts to function together. The model was evaluated through group discussion by climate and sustainability educators, and through questionnaires by sustainability and climate change education researcher, schoolteachers, climate educators and environmental artists.

Each part of the bicycle in the ‘bicycle model’ represents an essential aspect of climate change education. To move forward, ‘wheels’ are needed so they represent knowledge and thinking skills. The bicycle’s ‘chains and pedals’ depict the practical actions needed to mitigate and adapt to climate change. The foundation for climate change education is students’ identity, values and worldview which are pictured by the ‘frame’. The ‘saddle’ represents the learners’ motivation and participation. Students can relate to climate change issues that are close to their life. The ‘brakes’ depict the many challenges and barriers coming from society that discourage students to take action towards climate change mitigation. Despite so many uncertainties and fears linked to students’ learning and capacity building, there is hope and positivity in climate change education. This is symbolised by the ‘lamp’. The ‘handlebar’ shows students’ practice in decision-making to envision a possible positive future. In Finland, the bicycle model was implemented in a multidisciplinary course named *Climate.now* course and taught in three universities. In this particular paper, a teaching strategy was used to explore “the lamp” which is about the students’ feelings towards climate change, such as worry, fear, sadness, guilt, hatred and hopelessness. Emotions have a significant impact on learning. Instead of negativity, climate change education should stimulate hope and compassion in people.

Perception is psychological processes through the experience gained by the five senses, individuals can process responses into positive or negative perceptions. Obtaining responses is obtained through the stages of selection, interpretation, and reaction. Otter described perception as a process of actions for acquiring information. That acquisition can stem from the environments to which students are exposed. Fieldman (1999) stated that perception is a constructive process by which we go beyond the stimuli that are presented to us and attempt to construct a meaningful situation. Whereas Morgan (1987) stated that perception refers to the way the work, sound, feel, tastes, or smell. In other works, perception can be defined as whatever is experienced by a person. This paper addresses a research question: “What is Indonesian undergraduate Physics education students’ perception on soil pollution and climate change?”. Students’ perception acquired through watching a Netflix documentary that explores the first viable, low-cost way to reverse climate change through soil. A disruptive group of scientists, farmers, ranchers, activists, and government types are banding together in a global movement toward a new type of agriculture called “regenerative farming” that increases soil life, stores



water and sequesters CO<sub>2</sub>. These people come from diverse backgrounds, but they share a common commitment to heal the world's soils before it's too late.

## 2. Methods

It is a part of an action research conducted in Physics Education study program at two universities in East Nusa Tenggara Province, Indonesia. University 1 is a public university and university 2 is a private university. The number of students involved in university 1 and 2 were 36 and 7 students respectively. The research was conducted in the setting of Environmental Physics unit which was offered in both universities during February to June 2024. At university 1, the unit is offered for first year (second semester) students while the students enrolled for the unit at university 2 is second year (fourth semester) students.

This paper focused on the 8<sup>th</sup> class meeting when students learned about soil pollution and land degradation. The following were the activities in the classroom in each universities.

### University 1

Students at university 1 were watching a movie titled "Kiss the Ground" on Netflix. All students (36 students) were present at the class meeting. They came to the class not knowing that they will be watching a movie. All they know was the topic for today's class is about soil and land pollution. The researcher sent the learning material in the form of a PowerPoint presentation a day before the class meeting so the students could read it. There was also a pre-class meeting activity that students should do before attending the class. However, none of the students do the pre- activity. So, the lecturer and the researcher remind the students to do the activity as the post-class meeting activity.

The lecturer opened the class meeting for a few minutes. After that, the lecturer and researcher handed over worksheets to each student and the lecturer asked the students to read the 4-page worksheet to understand the questions need to be answered after watching the movie. The lecturer then informed the students that they will be watching a movie about soil and its pollution titled "Kiss the Ground". He also mentioned the duration of the movie and the platform used to watch it (Netflix). The lecturer asked the students once again about their understanding about what to do today. Once everything is ready, the researcher played the movie. During the screening, the researcher saw some students recording some parts of the movie. But overall students were really into the movie. Some were taking notes while others showed some expression. When the movie finished, all students were really impressed, and a few female students even found crying. They were really into the movie. The lecturer then asked some students to give their comment about the movie. Three female students were explaining about what the movie is about and advice their classmates to protect the soil. One male student (the one who lead the opening prayer) asked a very interesting question. He tried to relate how soil pollution and land degradation as seen in the movie affect the agricultural (crop) production in his hometown. He tried to find scientific answers to his questions. The lecturer then gave feedback to the students and also made some key points that the movie delivers. He also answers the student's questions clearly. The researcher was also given the opportunity by the lecturer to respond to the student's comments and questions. The researcher was adding some detail explanation to answer the student's questions.

After the QnA session, the students were told to fill out the worksheet and submit it to the researcher after the class finished. The lecturer then made some conclusions about soil and land pollution.



## University 2

Class activity at university 2 was similar to activity at university 1. There were about 6 students watching the “Kiss The Ground” movie. The key points of the movie “Kiss the Ground” are as follows:

- 1) Our top soils are disappearing  
Since chemical agriculture ramped up in the 70's, we have lost 1/3 of the world's topsoil. The rest is projected to be lost within 60 years. Unless we save our soils, we have 60 harvests left! No topsoils; no food! We need to act.
- 2) The planet is desertifying (more land is becoming desert)  
With topsoils disappearing and temperatures rising, about 2/3 of the world is desertifying. Every year 40m people are displaced as their farmlands become desert. By 2050, it is estimated that 1bn people will be refugees of soil desertification.
- 3) Carbon is not the bad guy!  
We are made of carbon (16%) and it's the element that life is based upon! It's the misbalance of carbon that is the issue. There is too much in the air now and too little in the earth (released by tilling and soil degradation and burning fossil fuels and plants/trees) causing global temperatures to rise.
- 4) Our modern farming methods are killing the soils  
Our modern farming methods are not concerned with soil longevity or quality and are significantly to blame for the destruction of the soils. There are also clear spikes in the CO<sub>2</sub> levels in the atmosphere during the ploughing/tilling months with the lowest levels coinciding with maximum plant coverage before harvest.
- 5) Nature has invented the most sophisticated carbon capture method – photosynthesis  
Nature strives for balance, and has a system for reversing the carbon released into the atmosphere using the growth of plants and their relationship with soil microbes.
- 6) Soils are a huge potential carbon store  
By taking carbon dioxide from the air, and sending it down to soil microbes in exchange for nutrients, plants can not only remove carbon from the atmosphere, but store carbon in the soils. This is how the natural carbon cycle should work. Tilling and chemical agricultural methods have disrupted this cycle and increased the rate of carbon release. Healthy soils can store more carbon than all the trees and plants combined, so is more important than saving the rainforests or the ocean phytoplankton in reversing climate change!
- 7) Regenerative farming restores soils  
Regenerative farming restores soils; storing carbon and reducing the need for chemical help to improve yields by harnessing natural processes. The basic principles are: minimal tilling/ploughing, using cover crops, involving livestock in managed grazing, organic practices avoiding chemicals, composting, crop diversity and using trees and perennials as protection.
- 8) Regenerative farming can reverse climate change  
If we adopt regenerative farming practices, we can reverse carbon release into the atmosphere and stabilise the climate, and it won't take long! If we restore all the degraded land, we can return the earth to paradise, making room for biodiversity and feeding the world's population (with lowered animal protein consumption).

In the worksheet, students were given questions to explore their environmental concern and willingness to take personal and group action. The questions are open ended questions and was analysed using qualitative content analysis approach.

## FINDINGS

The perception of the Indonesian Physics students in two universities regarding soil pollution can be analysed as follows:

### 1. How worried are you about soil pollution and the climate?

#### *University 1*

Data analysis revealed that 100% students worried about soil pollution after watching the movie. 64% students stated their reasons why they feel worry as follows:

- Soil pollution could damage the soil and will affect the climate.
- The microorganisms in the soil will decrease and cause the soil to be unhealthy.
- Land provides protection for us humans.
- Land pollution and climate change have a huge impact on the survival of humans, animals and even the earth itself.
- Land pollution and climate change which will cause or harm humans in their daily lives.
- If the land is polluted so much, it causes climate change that can have a negative impact on human life.
- If there is continuous soil pollution then the soil is unhealthy. Unhealthy soil makes me worry because if we plant plants they won't survive.
- Land pollution and climate change are very dangerous for the environment and the survival of humans and the ecosystem on earth.
- If there is soil pollution then the plants we plant will not be healthy plants.
- Land pollution and climate change can cause various disasters that are dangerous for human survival.
- How land pollution and climate change affect the civilization of living creatures, which brings negative impacts such as dust storms, hunger, drought, etc.
- If the land is not healthy then of course our lives are threatened because disasters could occur, there could also be famine and drought.
- Land itself is very important and very influential in the lives of living creatures so it needs to be used well so as not to cause new problems in climate change.
- Humans cultivate the land and it will cause environmental damage such as natural disasters.
- This land pollution is caused by humans so that climate change occurs and the consequences that occur in humans themselves are felt.
- If the land experiences pollution then it will also have an impact on human life and also the climate.
- In the future if land damage continues to increase it will cause disasters such as floods, tsunamis and so on.
- Land pollution and climate change have a big impact on our lives. Land pollution and climate change can cause many disasters that harm us, such as floods, tsunamis, droughts, dust storms and others.
- If we as humans cannot protect the soil then pollution/dust will occur and it can cause us as humans to get sick from soil dust.
- Land that was processed using modern tools with fertilizer actually made the soil more damaged and experienced land degradation, this could make a difference. Apart from that, open soil actually releases CO<sub>2</sub> which further damages the earth. When the soil becomes dust where the soil releases CO<sub>2</sub>, in this event we can or get a good harvest and this is not only us who feel this but all creatures on earth, in this case the animals we care for (livestock).

- This land is where living creatures live. From the soil, food from water, iron from processing the soil.
- The climate is interconnected, pollution in the land can make the plants planted become infertile and cause carbon to be released and become dust, making the land barren and dry, making the place very cold at night and very hot during the day.
- What would happen if the soil which is our main source of oxygen can no longer function? What if most of the land producing healthy plants was reduced to desert? Automatically, drought, global warming will increase, hunger, poverty, disease and suffering will hit the world very frighteningly.

## University 2

All students are worried about soil pollution and the climate for these reasons:

- Bad soil will produce bad plants, bad plants will have an impact on the living creatures that eat them, especially us humans. So soil plays a very important role in our health and life. Healthy soil, healthy plants, healthy animals, healthy humans, healthy water and healthy climate.
- Land pollution has serious consequences for ecosystems and human survival.
- Soil pollution is a serious environmental problem that can cause various negative consequences including loss of soil fertility and crop damage.
- Land pollution and climate change and I will take whatever action I can to help overcome environmental challenges.
- When land that has been treated using pesticides will kill the bacteria in the soil and make the land dry or barren.
- If the methods used by farmers can damage the soil microbes and the ecosystem in the soil, making the soil infertile and if humans consume food from the soil, for example corn, rice and others, it can cause diseases such as cancer and disability.
- If we don't control land pollution it will be problematic and cause climate change.

## 2. How afraid are you of soil pollution and climate change?

### University 1

97% students feel afraid of the soil pollution and climate change and 61% of them stated their reasons as follows:

- in the film, it was even predicted that around 2050, many people would flee.
- Soil pollution can damage the soil ecosystem in the environment.
- land becomes unavailable for growing food crops.
- soil that is exposed to pollution will kill the microorganisms in the soil.
- land pollution and climate change will continue to increase.
- in the film, it was predicted that it would be around 2050 before people would flee as refugees.
- the impact of soil pollution on life is extraordinary.
- if we consume land incorrectly, it will have a negative impact on the lives of living creatures.
- land pollution and climate change will cause natural disasters such as tsunamis, floods and soil erosion.
- when there is land pollution in the places we live in, like deserts, land pollution will result in changes to the climate.

- There will be natural disasters that are not environmental, such as dust storms, damage to agricultural land, rivers and declining health. If this continues then humans will get sick and the earth will be damaged.
- land pollution and climate change can cause drought, environmental damage, decreased soil fertility, resulting in climate change.
- when soil pollution happens, it will affect the plants we plant.
- land pollution can cause dust storms, soil erosion and so on and land pollution can cause climate change.
- if the soil is not healthy there will be a disaster. If we pollute the land and use it incorrectly then our life and earth will be polluted and threatened.
- Soil pollution can cause damage and will also be a disaster for us humans.
- Soil pollution can have an impact on ecosystem life and also the climate on earth.
- Soil pollution has a very negative impact on water quality, soil fertility and also the health of the environmental ecosystem will become extinct.
- if soil pollution and climate change continue to increase, it will damage the earth and could also result in extinction on earth.
- the temperature could increase, and we won't be able to plant.
- if the land is not well looked after then there will only be 60 years left for the land to produce and the quality of the land does not really affect human health. One day, we will not change our way of dealing with climate change and land pollution. We will be sad about getting nutritious food from healthy soil and this will have an impact on our bodies which can cause chronic disease, when we cultivate the soil in a way that involves good plants.
- soil pollution can affect the plants planted because it contains unhealthy chemicals and can have an impact on our bodies and soil that is exposed to these substances will prevent carbon dioxide from entering the soil and cause irregular climate changes to cause disasters. natural conditions such as floods due to excessive rain and droughts because the groundwater cycle stops.

#### *University 2*

All students feel afraid of the soil pollution and climate change for these reasons:

- land pollution has a direct impact on human life. For example, pesticides cannot be used on plants because pesticides contain poison which can actually cause cancer.
- land pollution is very dangerous for the ecosystem.
- land pollution is very dangerous, for example contamination of ground water, ecosystems and soil fertility.
- soil contamination can enter groundwater and pollute drinking water sources. Climate change creates extreme weather events such as storms, floods and droughts.
- I realize that my health has been affected because the rice I consume is processed using pesticides to get large yields.
- land damage caused by human activities cannot be repaired, such as barren land, drought and that can be minimized again by replanting trees on barren land and grazing livestock around the barren land so that the manure from these animals can help fertilize the land.

### **3. How guilty are you about soil pollution and climate change?**

#### *University 1*

97% students feel guilty of the soil pollution and climate change and 42% of them expressed their reasons as follows:

- consuming the wrong food.
- humans always damage the soil such as using fertilizer on the soil.
- throw rubbish carelessly without thinking anything.
- destroying the land, not using the land properly, throwing rubbish into the house.
- still throw plastic on the ground.
- throw rubbish carelessly so that it pollutes the environment and affects the soil.
- ignore the trash in my environment.
- gave red and black fertilizer
- throw away plastic rubbish
- pulling out grass by the roots actually damage soil fertility and have an impact on climate change, this is due to a lack of education regarding soil.
- most farmers use chemicals to fertilize plants even though this has a bad impact.
- the leftover trash and food that is thrown away is not recycled but burned.
- throw rubbish everywhere even though this rubbish can still be processed.
- use chemicals and pesticide fertilizers.
- throw inorganic waste into fertile soil.

#### *University 2*

All students feel afraid of the soil pollution and climate change for these reasons:

- the use of plastic. Plastic cannot be broken down by soil and is able to kill microbes in the soil.
- often throw plastic waste carelessly, for example when I run out of snacks, I don't throw the trash in the trash.
- often throw rubbish carelessly, for example when I finish my snack, the rubbish is not thrown in the rubbish bin.
- daily activities also cause soil pollution, namely cleaning the grass in the surrounding yard so that it looks clean even though grass plays an important role in capturing CO<sub>2</sub>.
- use plastic items and other things, throwing them away carelessly and destroying the quality of the land and land ecosystem and the impact will return to humans.

A student could not express the reason of feeling guilty of causing land pollution.

#### **4. How angry are you at the people who cause soil pollution and climate change?**

##### *University 1*

97% students feel angry at the people who cause the soil pollution and climate change and only 42% of them expressed their reasons as follows:

- the use of substances or fertilizers that damage the soil.
- many people still pollute the environment.
- not processing waste to minimize the causes of land pollution and climate change.
- People polluted the soil without thinking about what would happen in the future and the impact it would have on their lives.
- People dumped much of the waste into rivers which can be harmful to the land and the environment.
- people still produced chemicals and pesticides that causes the land to become damaged and climate change occurs.
- Soil pollution will make the land infertile, causing drought and plants not growing well and resulting in climate change.

- actions taken can cause land pollution and climate change which causes damage and very fatal consequences.
- people who cause land pollution and climate change because these actions can affect fertile soil.
- People's actions can harm other people.
- actions that could damage the land and cause climate change.
- people who cause land pollution and climate change.
- the people who misuse the land, many of whom use the land even more by destroying the land for personal gain.
- people who cause land pollution and climate change because they cultivate all the land so that it has no burden and can cause helpless disasters.
- Fertilizer could have a negative impact but instead more and more people are using it.
- people who cause land pollution and climate change that they do this without thinking about what impacts it will have.
- people cause pollution through the use of pesticides which actually destroy soil fertility.
- people who cause land pollution and climate change that they don't think about what would happen if they broke the carbon cycle.
- many people who cause land pollution and climate change who don't know the impact, therefore people will continue to do the same things.
- do things like pulling out grass and improving the soil before planting seeds. Therefore I am also angry with myself.
- human behavior which continues to be selfish will be the impact, even though nature is a paradise which, when we cultivate it well, we will live a healthy, prosperous life away from all disasters.
- people who cause land pollution and climate change and I'm even angry at myself.
- not only are people destroying the land but they are also destroying the microorganisms in the soil. They are only concerned with their income without looking at/researching the land and also by polluting their land they are causing disaster for many people and their agriculture.

64% students pointed out that human behaviour is the main cause of soil pollution and climate change and this sparked anger in them.

### *University 2*

All students feel angry at the people who cause the soil pollution and climate change for these reasons:

- human activities cause the most land pollution, deforestation can cause land pollution and climate change because 40% of the carbon is held so if many trees are cut down it will hinder the transpiration process which is important for life.
- Angry to myself who is the actor of polluting the soil.
- the problems people cause by polluting my land can have a significant impact on human health and the environment.
- when I see people who cause land pollution and climate change. Because without realizing it, they are polluting the surrounding environment and having a negative impact on the health of the people around them.
- people who cultivate agriculture using lots of pesticides which are said to be poisonous to microorganisms in the soil, causing the land to become infertile and dry.



- people who, after using plastic waste, throw the rubbish out of place and farmers who always use pesticides to fertilize the soil even though pesticides are actually poisons that can kill microbes in the soil.

1 student angry at him/herself while the rest of the students angry at the people's behaviour.

## **5. How bored are you of discussing soil pollution and climate change?**

*University 1*

92% students do not feel bored when discussing the soil pollution and climate change and 42% of them expressed their reasons as follows:

- learn how to take good care of the soil and protect against climate change.
- can gain new understandings to prevent more serious land pollution.
- have a big influence on our lives.
- the things being discussed are also for our good.
- Looking at the facts about plants and plants on the ground that build cycles in order to overcome land pollution and climate change, it turns out that the soil and even feces that are considered dirty have a big impact in rebuilding the environment and even better than that.
- closely related to our human lives.
- can find out what has happened and is happening due to land population and climate change.
- talking or discussing about land is very important for us.
- land has a big influence on my life, I think land is my life because it is our food supply
- by obtaining information about land pollution and climate change, we can increase our insight or knowledge so that we as one of the causal factors can be part of the way to minimize this.
- Topics very interesting for our lives.
- these two things because they have an impact on our lives.
- it is part of the knowledge that can increase my knowledge and insight.
- can increase insight and understanding of the importance of land.
- closely related to human survival.
- can understand more clearly and more deeply about land, how to maintain soil fertility, the function and benefits of land for our life on this earth.
- exchanging ideas about this can help make people aware who are still often destroying the land and don't care about the problem of climate change.
- gain more insight into the nature in which we live and know what to do to prevent it.
- exchange opinions to find solutions to reduce land and climate change.
- discover the impact of this land pollution and also the solutions for caring for the land.
- can change or improve our views on what to do and find solutions so that land pollution and climate change do not occur.
- this is interesting material where soil is something extraordinary for life on earth. Healthy soil contributes to a healthy body.
- this is related to our lives. I myself also like to plant and help my mother when cleaning the garden.
- fertile soil will affect our survival because soil is the largest reservoir of carbon dioxide.
- this is what is happening, has happened and will happen in the future so that it can be prevented later.

#### *University 2*

Half of the students feel bored when discussing about the soil pollution and climate change. The other half who do not feel bored when discussing the land pollution and climate change expressed their reasons as follows:

- always think about solutions and how to overcome them but each person maintains their ideas.
- this brings awareness to environmental problems caused by human actions so that there needs to be sustainable action. The opportunity to discuss these topics helped me build a better understanding and drive appropriate solutions.
- we need to care for and protect our land from pesticides and plastic waste because it can damage the soil ecosystem because human life is supposed to depend on the soil.

### **6. How hopeful are you that soil pollution and climate change can be minimized?**

#### *University 1*

94% students feel hopeful that soil pollution and climate change can be minimized and 75% of them expressed their hope as follows:

- in the future we can pay more attention to issues regarding land pollution and climate change so that disasters can be avoided.
- Soil pollution can be minimized for the survival of living creatures.
- can cultivate the land well.
- many efforts that can be made to minimize this.
- protecting soil or collecting rubbish so that it can become fertile soil.
- recycling waste to produce natural fertilizer.
- humans must protect and care for our land so that damage and other things don't occur.
- minimize soil pollution so human life can get better.
- not to take land for granted because we are very dependent on land. Good soil will produce all good things.
- Soil pollution can be minimized or soil restored to normal.
- can share the information with the community or local friends regarding this matter.
- in the coming days there will be more and less land pollution because more and more dry land will cause harm to humans.
- soil pollution and climate change can be minimized so that life can slowly change from previously very worrying to become safe again.
- don't create chemicals for us to use in our daily lives. If it's like this, the earth will remain naturally healthy.
- pollution can be minimized so that the land becomes healthy, people become healthy and the climate on earth runs well.
- humans must be able to manage or maintain this land in order to achieve these results.
- Soil pollution and climate change can be minimized so that it does not have a huge influence or impact on the environment and the survival of humans and the earth's ecosystem.
- Soil pollution and climate change can be minimized so that the land we live on now can be fertile and healthy again.
- By minimizing land pollution and climate change we can save the earth from various disasters.
- taking simple actions that do not bring new problems.

- reduce the use of chemicals on the soil so that our soil remains healthy and allow our soil to recover and develop naturally.
- humans must protect and preserve the soil well so that Pollution doesn't happen again.
- processing agricultural materials by not mixing chemicals but using compost to make it more fertile and also never leaving the land empty.
- using humus or using compost from garbage and food waste which is directly recycled. There is also the use of fertilizer from livestock manure (organic waste).
- using compost from food waste, animal waste, human waste because compost can minimize good soil changes.
- The soil will return to life and be fertile because of the making of compost, selection of organic waste, growers of various types of cover crops leave livestock to grazing. These things are simple steps we can take for the soil.
- the regional government can find out about this so that it can be explained to the public or that the public can learn about this because it is very important for future or current generations.

#### *University 2*

All students feel hopeful that soil pollution and climate change can be minimized and they explained their understanding as follows:

- improving lifestyle, having awareness of the importance of soil health, this can lead to land pollution and climate change.
- the government and individuals can take steps starting from the behavior of each individual. Even though the challenges are great, with increased awareness and strong cooperation we can create a cleaner future.
- increase awareness, share responsibility and develop new technologies, for example new technologies emerge that promise to help clean up contaminated land and prevent soil pollution in the future.
- People around the world are increasingly aware of land pollution and climate change and they are demanding action. There is significant technological hesitation in the development of new energy sources and energy-saving technologies. There is a growing global movement to address land pollution and climate change. This movement includes individual organizations and governments working together to find solutions and take action.
- increasing awareness and appropriate action, collaboration is needed starting from ourselves, government and industry to achieve this goal. Even though the challenges are great, with hard work and commitment positive change can occur.
- People will not throw plastic waste carelessly and reduce the use of pesticides on plants and soil.

### **7. How empowered are you to take action to minimize soil pollution and climate change?**

#### **University 1**

69% students feel empowered to take action to minimize soil pollution and climate change and 42% of them put forwarded what they can do as follows:

- throwing rubbish in its place.
- protect or collect waste.
- start letting wild plants at home and Using leftover food, animal feces to make fertilizer.
- using appropriate organic waste in the environment I live in.

- to plant trees and reduce using pesticides.
- recycling rubbish into compost.
- plant lots of trees so that the soil is healthy and don't throw rubbish carelessly by throwing it away in the right place.
- reforestation, reducing the use of pesticides, sorting organic and inorganic waste and carrying out regenerative agriculture.
- separating inorganic and organic waste
- sorting organic waste that is thrown away to be used as animal feed.
- using natural resources more efficiently
- utilizing organic waste for recycling and producing fertile soil.
- throwing rubbish in the right place and not throwing rubbish on the ground
- recycling organic waste at home and only mowing the grass without removing the roots so that the soil remains loose/fertile
- Using organic waste in the right place, after some time, plant several small trees or useful plants in the front yard and back yard.

*University 2*

83% students feel empowered to take action to minimize soil pollution and climate change and half of students put forwarded what they can do as follows:

- raise awareness
- provide tips/ways on how individuals and businesses can reduce their carbon footprint and also help people find ways to get involved in environmental activities.
- disposing of rubbish in places and being able to maintain and produce healthy food.

**8. Will students make lifestyle choices that have minimal negative impacts on soil pollution and climate change? Explain your answer**

*University 1*

92% students committed to make lifestyle choices that have minimal negative impacts on land pollution and climate change. However, only 11% students can explain what the choices are as follows:

- not to litter.
- throwing away rubbish and not sorting it, using chemicals, cutting down trees, etc. It can affect the land as well as climate change.
- choose an environmentally friendly lifestyle such as organic fertilizer.
- reducing meat consumption because now the meat we consume comes from many industrial processes which can potentially cause diseases because some are unhealthy.

*University 2*

All students committed to make lifestyle choices that have minimal negative impacts on land pollution and climate change and 67% students can explain what the choices are as follows:

- reducing the use of plastic waste.
- planting trees (trees help absorb carbon dioxide from the atmosphere and slow climate change) and recycling (recycling can reduce the amount of waste thrown into landfills)
- not using single use products
- throwing rubbish in its place.
- Not disposing rubbish not in the right place

**9. Will students find out which products and services have minimal impact on soil pollution and climate change? Explain your answer**

*University 1*

97% students committed to find out which products and services have minimal impact on soil pollution and climate change. However, only 8% students can explain how to do it as follows:

- search on the internet.
- looking for fertilizer that is good and beneficial for the soil and the lives of us and the farmers.
- look for more information from the internet and other sources to help me participate in minimizing soil pollution.

*University 2*

All students committed to find out which products and services have minimal impact on soil pollution and climate change and only 33% students can explain how to do it as follows:

- Choose products that have a lower carbon footprint than imported products because they don't need to be transported as far. Apart from that, choose local products. We support businesses in the community.
- conduct research and seek information about production practices, raw materials and company policies to understand the environmental impact of the products and services they use.

**10. Will students talk to friends and family about issues related to climate change so that we can all become aware of what needs to be done to address soil pollution and climate change? Explain your answer**

*University 1*

94% students committed to talk to friends and family about issues related to climate change so that we can all become aware of what needs to be done to address soil pollution and climate change. However, only 47% students can explain what they will talk about as follows:

- the impact of land pollution so that it does not damage the land system.
- not to do negative things that have an impact on land pollution and climate change.
- more aware of what must be done to overcome land pollution and climate change.
- protect the environment together.
- planting more trees and not cutting down trees carelessly.
- have awareness within ourselves to protect the soil
- the negative impacts of soil pollution on humans.
- consequences of land pollution and climate change.
- plant more trees and not litter.
- actions in caring for plants and not giving excessive chemicals.
- Raise awareness
- work together to protect and care for the soil and also do what is good and avoid actions that are detrimental and pollute the soil.
- Raise awareness
- not cultivating the soil carelessly
- what to do to overcome soil pollution resulting from the use of synthetic fertilizers.
- telling dangerous things about soil pollution to raise awareness when we don't take good care of this environment.
- Farmers should reduce the use of chemical fertilizers.

*University 2*

All students committed to talk to friends and family about issues related to climate change so that we can all become aware of what needs to be done to address soil pollution and climate change. All students can explain what they will talk about as follows:

- Impact of soil pollution
- Desire to take action and Belief that they can make a difference
- reducing greenhouse gas emissions and effective waste management.
- share knowledge and raise awareness in the related environment to expand understanding and effective action to overcome these challenges.
- Raise awareness
- protect the land and preserve the environment from rubbish and excessive use of pesticides so that society can overcome the problem of climate change pollution.\

**11. Will students challenge politicians and businesses to do more to tackle soil pollution and climate change? Explain your answer**

*University 1*

58% students committed to challenge politicians and businesses to do more to tackle soil pollution and climate change. However, only 17% students can explain how they will do it as follows:

- represent community complaints and aspirations to influence policies and business practices that are more environmentally friendly.
- held a large-scale demonstration against the government
- participate in the business world to be able to overcome the problems we are currently experiencing.
- not buying products that damage the land and making petitions.
- not using products that can pollute the land and being someone who can oppose it with petitions regarding actions that can reduce climate change.
- participating in the political world and fight for the right things.

*University 2*

All students committed to challenge politicians and businesses to do more to tackle soil pollution and climate change. However, only 1 student can explain how they will do it as follows:

- organizing campaigns and demonstrations to pressure governments and companies to take stronger action on environmental issues and also through social media and other platforms to raise public awareness and increase pressure on political leaders to act.

**12. Will students become member of local or national youth forums that promote to solve soil pollution and climate change issues? Explain your answer**

*University 1*

97% students stated their willingness to become member of local or national youth forums that promote to solve soil pollution and climate change issues. However, none of the students can mention what the forums are.

*University 2*

97% students stated their willingness to become member of local or national youth forums that promote to solve soil pollution and climate change issues. Even though none of the students can mention what the forums are, 2 students explained the activities they carry out if they are a member of a youth forum:

- a volunteer in activities that tackle the problems of land pollution and climate change.



- carry out various methods such as social action, raising funds for environmental projects and even volunteering in environmental cleaning activities because through these activities students can learn from other people and together create a positive impact in efforts to overcome these problems.

**13. Will students seek opportunities to participate in national and international decision-making on soil pollution and climate change issues? Explain your answer**

*University 1*

94% students stated their willingness to seek opportunities to participate in national and international decision-making on soil pollution and climate change issues. However, only 1 student can explain how they will do it as follows:

- learn more from people who are more experienced or look for internet networks that exist in the world of soil and climate change.

*University 2*

94% students stated their willingness to seek opportunities to participate in national and international decision-making on soil pollution and climate change issues. However, only 2 students can explain how they will do it as follows:

- involved in public consultation and participation in drafting regulations.
- involved in student organizations, environmental advocacy groups or political campaigns which aim to influence public policy regarding the environment. Apart from that, students can also join non-governmental organizations that participate in international conferences and meetings that discuss environmental issues.

**14. Will students participate in public demonstrations (e.g., climate strikes) to support movements to address soil pollution and climate change? Explain your answer**

*University 1*

92% students stated their willingness to participate in public demonstrations (e.g., climate strikes) to support movements to address soil pollution and climate change. However, none of the students can explain how they will do it.

*University 2*

All students stated their willingness to participate in public demonstrations (e.g., climate strikes) to support movements to address soil pollution and climate change. However, only 1 student can explain how they will do it as follows:

- working together to clean up an environment full of rubbish and limiting the use of pesticides and fertilizers on the soil.

**3. Limitation**

Some limitations of this study warrant mentioning. The lecturer and researcher did not really equip the students with the definition of each feelings (worry, afraid, guilty, angry, bored, hopeful and empowered) so the students interpret the questions related to the feelings individually.

There was no deep discussion before filling out questions in the worksheet so the answers was purely relied on students' focus and memory while watching movie. Since the worksheet was handed out just before watching the movie, it could be assumed that some students probably did not really look into the question.

#### 4. Conclusion

Soil pollution and climate change are a very serious and complex issue. In general, this study reveals that most students feel worry, afraid, angry, guilty, bored, hopeful and empowered to take action after watching the movie. Most students show their concern on the soil pollution. Furthermore, they can express their reasoning behind their feelings. However, when it comes to their willingness to take personal and group action, most students tend to make a strong statement, but they could not back up their willingness by not explaining clearly what they are trying to do.

The process of using a documentary movie in teaching and learning activity for Physics education students was powerful to some degree since it encourages students to voice their mind and show their reaction. There is difference in answers between university 1 and 2. It is revealed that students at university 2 which is second year students had more deep understanding to the topic reflected in their strong answers than students at university 1 which is first year students. This is an interesting note to the policy maker regarding in which semester the topic and the unit can be offered by the study program to the students.

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## EFFECTIVENESS OF CASE-BASED LEARNING IMPROVING STUDENTS' CRITICAL THINKING: META ANALYSIS

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**Abstract.** This meta-analysis aims to summarize results of research on the case-based learning method improving students' critical thinking in science learning. The effect of large size (ES) on the average proportion of influence-based learning on the greatest criticism and the relationship between variables on increasing students' critical thinking in science. The research method used is descriptive with form survey research. Within these studies, studies that could be meta-analysis against predefined criteria were examined and 12 studies that met these criteria were identified. The results of the data analysis yielded an effect size of  $2.954 \geq 0.80$ . It was explained that there was a difference in effectiveness between the experimental class using the case-based learning and the control class without using the case-based learning to increase students' critical thinking. From the results of the value of  $p < 0.001 < \alpha (0.05)$  then  $H_0$  is rejected. So, it can be concluded that there are significant differences in students' critical thinking learning with the case-based learning. In the future, it is hoped that the results of this research can become a reference for studying the application of the case-based learning to improve students' critical thinking skills in science.

**Keywords:** Meta analysis, case-based learning, critical thinking

### 1. Introduction

The skill of concern in 21st century learning is critical thinking. Critical thinking was conceptualised to include cognitive skills and affective dispositions by the American Philosophical Association (APA) (Facione, 1990). Critical thinking is the use of skills and strategies to improve outcomes according to individual goals and values. evaluate our own and others' ideas without prejudice. Critical thinking involves scientific thinking, formal and informal logic, probabilistic thinking, evaluating the quality of information, generating and selecting alternatives and goals, and analysing arguments for conclusions. According to Ennis, critical thinking also involves the ability to assess the credibility of sources, identify inferences, reasons, and assumptions, assess the quality of arguments, develop and defend a position on an issue, ask appropriate clarifying questions, plan experiments and assess experimental designs. Define terms correctly. appropriate to the context, open-ended (Ennis, 1993). Critical thinking is very important to be applied to students, one of the benefits is to prepare individuals to become independent lifelong learners as one of the long-term educational goals.

The case-based learning learning model is a learning model that uses previous cases and is forced to occur today to be used as a medium for students to play a role with the aim that students can solve and be free from the problems/cases experienced (Chen et al., 2006). The

teacher acts as facilitator, initiator, director, participant and motivator in the case based learning learning process. The case based learning was chosen to be applied in overcoming student problems regarding student activeness and learning outcomes. Danilin (2021) reported in his research that the case based learning can develop analytical skills, critical thinking, creative thinking, practical skills, communication skills, social and reflexive skills. Case based learning can be used to improve students' activities and cooperation character.(Nugroho & Bramasta, 2019). Another study revealed that all levels of thinking in Bloom's Taxonomy can be achieved by using case based learning learning (Rugh, 2021).

Case based learning has been recognised as a progressive, student-centred active learning approach where unstructured problems (real-world or simulated complex problems) are used as a starting point for the learning process. In the case based learning model, students work in small collaborative groups and learn what they need to know to solve the problem. Case based learning objectives include content learning, acquisition of process skills and problem-solving skills, and lifelong learning. The term lifelong learning emphasises skills such as self-learning, independent information mining, collaborative learning, and reflective thinking. The steps of case based learning learning consist of introducing problem-based learning, identifying problems, brainstorming and generating ideas, identifying problems learning from hypotheses, self-learning, peer tutors and the role of "experts", synthesis and application, reflection and feedback.

Research has examined the use of case based learning learning as a teaching model to improve critical thinking skills, but in addition to critical thinking skills case based learning learning also improves scientific and information literacy, oral communication. However, some research results report that case based learning learning when compared to conventional classroom learning does not improve critical thinking skills. However, many researchers have found case based learning learning to be more effective in fostering students' critical thinking skills.

A meta-analysis conducted in 2020 (Anggit, 2020) studies conducted in the field of nursing between 1965 and December 2020 showed that the case based learning has an effect on the development of critical thinking of nursing students compared to other teaching methods, with keywords guided in the search are problem-based learning, critical thinking, nursing, and effect. Based on the research that has been done before, it is necessary to study the effectiveness of the case based learning on critical thinking in both higher education in Indonesia. So the purpose of this article review with meta-analysis is to see the effectiveness of the case based learning on student critical thinking. This meta-analysis research combines various kinds of existing research results, focuses on the accumulated impact of previous research results, and can answer questions about the gap in the results that occur from the dependent variable critical thinking.

To find out and verify the success of the application of a learning model can be done by using various methods, one of which is by analysing various studies that have been conducted by previous researchers, then interpreted and then drawn conclusions. This method is often called meta-analysis. The results of the research analysis will then be used as a basis or reference to accept or even support the hypothesis, and can also be used to reject or abort the hypothesis that has been proposed by several other researchers before.

Meta-analysis research can also be said to be a technique of combining several results from 2 or even more similar studies, so as to obtain quantitative data results. This meta-analysis technique can also be carried out with various other types of studies to get conclusions from combining several research results. (Phasa, 2020). In general, meta-analysis does not have a research basis, so the value of the effect size incorporated into the meta-analysis research will be



the same as the articles combined. Effect size is the difference of the effect between control groups using certain statistics. The effect that will be contained in the meta-analysis in medicine can be ordinal, ratio, number and interval scales.

## **2. Methodology**

This meta-analysis research method consists of several steps, namely problem formulation, data collection (study), data coding, and data analysis and interpretation. Meta analysis is a form of research, using data from other existing studies. Therefore, meta-analysis is a quantitative research method by analysing quantitative data from previous studies to accept or reject the hypotheses proposed in these studies. (Retnawati et al., 2018). The procedure for this meta-analysis method is as follows:

### **2.1. Literature search procedure**

The studies analysed in this research were conducted using several approaches. Searches were conducted on electronic databases using the keywords case based learning, critical thinking. The first search was conducted using electronic databases, including google scholar, ERIC, DOAJ, Sciencedirect, and Reseachgate, both in the form of national and international journals. The overall database of literature came from secondary schools and some universities in Indonesia. Inclusion criteria was done by synthesising studies that investigated the effectiveness of case based learning learning in higher education. The studies included in this analysis were experimental and quasi-experimental studies that compared students taught with the case based learning learning model and students taught conventionally.

### **2.2. Data Coding**

A code sheet was prepared to translate the information into coded form. Using this sheet, variable and effect size information was coded for each study with respect to the variable, learning strategy (model or approach or case-based learning), dependent variable (critical thinking), treatment duration (less than or equal to four weeks, more than four weeks), school level (college, high school), publication year (20015-2023), sample size (more than or equal to 30 people), publication source (journal article, ERIC document), measurement tool (test).

### **2.3. Metrics for Expressing Effect size**

The metric used to estimate and describe small group effects is the standardised difference effect size (d-index). For two-sample analyses, the effect size is calculated by subtracting the mean score of the control group from the mean score of the experimental group and dividing by the mean difference of the two standard deviations. (Karada Ğ, 2015). This study used a random effect size with the aim of producing research results to a population.

## **3. Results**

Data from case based learning articles to improve critical thinking were collected and systematically analysed based on inclusion and exclusion criteria. (Karada Ğ, 2015). The results that were processed by summarising the results of the case based learning model that had an experimental research design were analysed to determine the required research results in the form of posttest mean scores on the case based learning learning model to improve critical thinking. Twelve studies were quality assessed by the coder using Microsoft Excel and also provided an assessment of the twelve studies. The coding data for the twelve studies analysed are as follows.

AUTOR (TH)	Research	EXPERIMENT			CONTROL		
		N	M	SD	N	M	SD
(Hamiyati et al., 2022)	Study 1	58	72,1207	2	58	44,3278	2
(Fauzi et al., 2023)	Study 2	29	84,31	5,46	29	45,17	8,39
(Lia et.al., 2019)	Study 3	40	322,82	29,07	40	269,58	31,44
(Haryanti et al., 2019)	Study 4	35	70,02	19,4	35	59,35	19,4
(Rivas & Saiz, 2023)	Study 5	110	18,93	1,775	110	20,14	2,929
(Dharmayanthi, 2023)	Study 6	40	63,3	16,16	40	43,77	16,46
(Citrawathi & Adnyana, 2023)	Study 7	24	86	1,94	24	70	1,21
(Rahayu & Zutiasari, 2022)	Study 8	36	80,56	4	36	75,03	4,03
(Rihadatul, A. G., & Nani, 2022)	Study 9	36	75,11	5	36	72,22	5,24
(Yusnidar & Syahri, 2022)	Study 10	25	89,11	5,96	25	72,33	1,62
(Mahdi et al., 2020)	Study 11	42	4,74	0,12	42	3,4	0,75
(Suwono et al., 2017)	Study 12	33	86,79	4	29	49,87	4,24

Table 1. Data Coding Research study

From the data above, it is found that all the number of respondents (N) is more than 30 respondents, this means that all the articles to be analysed are adequate research for the number of respondents. Judging from the Mean, SD, all articles have complete mean and SD data so that they can be continued to be analysed to get the effect size of all these articles. Furthermore, the authors analysed the data to get the effect size results. The following data is the result of the analysis for effect size.

STUDY NAME	EFFECTIZE	SD
(Hamiyati et al., 2022)	14,249	3,775
(Fauzi et al., 2023)	5,455	2,336
(Lia et.al., 2019)	1,741	1,320
(Haryanti et al., 2019)	0,544	0,738
(Rivas & Saiz, 2023)	1,605	1,267
(Dharmayanthi, 2023)	1,186	1,089
(Citrawathi & Adnyana, 2023))	9,734	3,120
(Rahayu & Zutiasari, 2022)	1,363	1,167
(Rihadatul, A. G., & Nani, 2022)	0,558	0,747
(Yusnidar & Syahri, 2022)	3,782	1,945
(Mahdi et al., 2020)	2,472	1,572
(Suwono et al., 2017)	8,862	2,977

Data above was then analysed using the JASP application to analyse the meta-analysis of the *case based learning* to improve *critical thinking*. The following are the results of the effect size analysis.

Coefficients					95% Confidence Interval	
	Estimate	Standard Error	z	P	Lower	Upper
<b>intercept</b>	2.954	0.827	3.572	< .001	1.333	4.574
<b>Notes.</b> Wald test.						

The magnitude of the effect size is classified as large if it has an effect size value of  $2.954 \geq 0.80$  (Lipsey & Wilson, 2001). It is concluded that there is a difference in effectiveness between the experimental class using the case-based learning model and the control class without using the case based learning in improving students' critical thinking.

Residual Heterogeneity Estimates			
		95% Confidence Interval	
	Estimate	Lower	Upper
<b><math>\tau^2</math></b>	5.252	2.171	47.312
<b>T</b>	2.292	1.473	6.878
<b>I<sup>2</sup> (%)</b>	75.248	55.682	96.477
<b>H<sup>2</sup></b>	4.040	2.256	28.387

Data collected in this study are presented in Table 2,  $I^2 = 75.248\% > 25\%$ , meaning that heterogeneity is reported to be high so that the selection of the random effect model fulfils the criteria.

File Drawer Analysis			
	Fail-safe N	Target Significance	Observed Significance
<b>Rosenthal</b>	168.000	0.050	< .001

Since  $K=12$ , so  $5K+10 = 5(12) + 10=70$ . The Fail-safe N value obtained was 168, with a target significance of 0.05 and  $p < 0.001$ . Fail-safe N value  $>5K+10$ , namely  $168 > 75$ , it can be concluded that there is no publication bias problem in the meta-analysis study.

Forest Plot

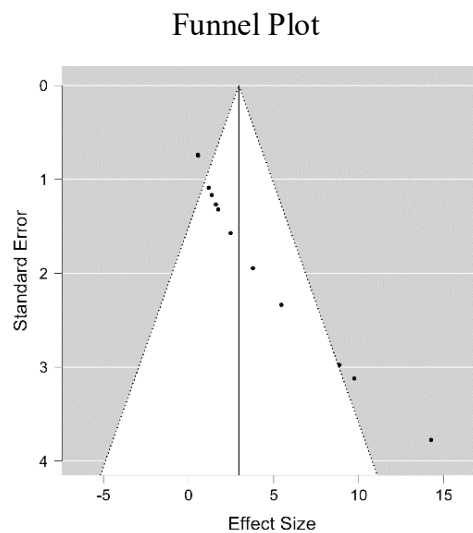
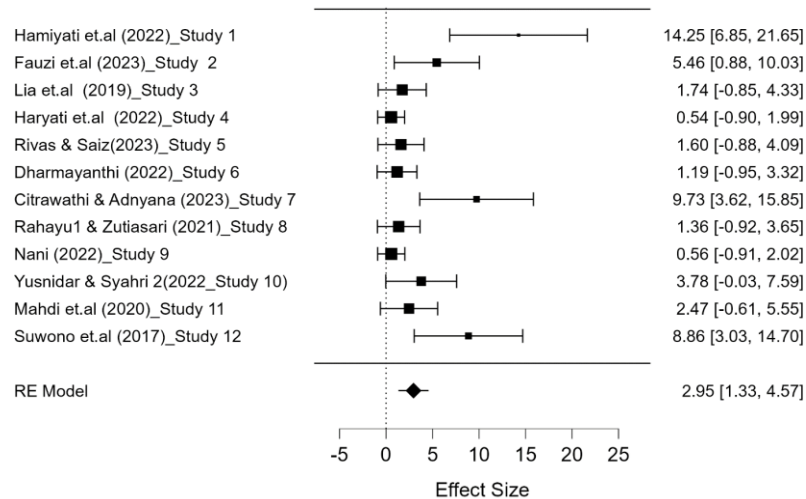


Figure 2 shows that there are no open points in the funnel plot with the random effects model. Its appearance suggests that no missing (unpublished) studies were found. To strengthen this argument, the results of the initial forest plot in Figure 1 will be compared with the forest plot using the Trim and Fill method. The results of the forest plot analysis using the trim and fill method show exactly the same picture as Figure 2. There is no difference in the selected sample data intervals between the initial forest plot picture and the forest plot picture using the trim and fill method. This comparison reinforces the previous argument that there is no indication of bias in the meta-analysis. Thus, the conclusion that the case based learning enhances critical thinking effectively.

Coefficients						
					95% Confidence Interval	
	Estimate	Standard Error	z	p	Lower	Upper

<b>intercept</b>	2.954	0.827	3.572	< .001	1.333	4.574
<b>Notes. Wald test.</b>						

Hypothesis testing results,  $H_0$  = there is no significant difference in critical thinking of students learning with case based learning and  $H_1$  = there is a significant difference in critical thinking of students learning with case based learning. From the table above, it can be seen that the p value is  $<0.001 < \alpha$  (0.05), so  $H_0$  is rejected. So it can be concluded that there is a significant difference in critical thinking of students learning with the case based learning.

#### 4. Discussion

Case based learning is a constructivist learning approach where problems are presented in case. Case based learning is often defined as a teaching method requires students to actively participate in real or hypothetical problem situations, which reflects the type of experience naturally experienced in the discipline being studied. The situations presented in case based learning must be directly related to students' daily experiences, so that the connection between CBL learning and its use in students' lives is visible.

Case-based learning provides the opportunity to analyze content first introduces core knowledge domains and encourages students to search for other knowledge domains may be relevant to the problem given in this case. A case is the definition of problem scenarios that are realistic and relevant to the part of the material. Case based learning contains problems related to the environment, conditions, situations, or picture of the student's future. Cases are stories with a message that students can analyze and consider solutions to the story.

Critical thinking ability is an intellectual thinking process in which thinkers deliberately assess the quality of their thinking, thinkers use reflective, independent, clear, and rational thinking. When students get used to thinking critically, students can be rational in determining and choosing the best alternative choices for themselves. Critical thinking is thinking rationally in assessing something by gathering information before making decisions on certain issues. This supports the application of the character value-based case method learning model because the case based learning model makes it possible to find cases and students focus on solving these focuses by having critical thinking skills and are also able to increase the final grade which is greater than the conventional method (Djawa, et al 2022; Nantara, 2022).

Based on the results of the research conducted, namely: the effectiveness of the case based learning on students' critical thinking. In general, the articles that have been analysed have an effect size value with a very high category. For effect size with a very high category  $2.954 \geq 0.80$ . Based on these data, we can know that the case based learning model has a very high impact on critical thinking. This is in line with what was stated by Yosiwita et al (2013) which stated that the results of critical thinking increased by 32.57% by using the case based learning model. The same statement was also stated by Ayuningrum (2015), learning using the case based learning model in the experimental class increased critical thinking more than the control class. The effectiveness of the case based learning model on student critical thinking based on learning materials, the results of meta-analysis show that the highest effect of using the case based learning model on student critical thinking is obtained. This is in line with what was stated by (Riyadi et al., 2015) that the application of the case based learning model can have a positive effect on students' critical thinking.

#### 5. Conclusion

Based on the results and discussion, it can be concluded that the application of Case based learning has a positive impact in improving students' critical thinking from the synthesis of

12 relevant primary studies. Publication characteristics are one of the factors that affect heterogeneous effect size data, therefore this 8 meta-analysis study provides information to lecturers that Case based learning is an alternative learning that effectively solves problems related to student critical thinking. Lecturers can consider case based learning as an alternative solution to improve students' critical thinking. From these conclusions the researcher has suggestions, namely; (1) It is hoped that teachers can make materials, media and teaching materials well (2) Students must participate in learning actively to improve creative thinking (3) Schools are expected to support learning activities by providing complete materials used for learning so that learning objectives can be met . (4) Researchers should study learning models case based learning recommendations to teachers regarding effective learning models to apply in learning.

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## The Correlation Between Local Cultural and Students' Negative Attitude in Rural English Classroom

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**Abstract.** Students' low quality in English subjects at the Senior High School level in Indonesia especially in rural areas proves that there are still problems that hinder the English learning process. The issues that inhibit English classrooms are the local cultural context and students' negative attitudes. This study aims to describe the correlation between students' and teachers' experiences in dealing with those aspects in ELT classrooms in rural areas. The qualitative approach and the case study were used in the study with the interview and observation as the instruments of the research. The participants were 26 students, and 3 teachers of SMA Negeri Benlutu So'e - East Nusa Tenggara. The study results indicated that students and teachers found it difficult to learn English in rural areas since there was a strong correlation between the local cultural influences and students' negative attitudes in ELT classrooms. This can be seen from the results that the rural environment left the students behind in their English education background and lack of learning resources and facilities. The local cultural factor affected the student's ability to use the local language more often. Besides that, students' negative attitudes also caused them students not motivated to participate in English class. The study concluded that the schools and governments should review their policies in applying English learning in rural schools. It is expected that teachers and students can get the solution to avoid the problems in learning English to achieve the main goal of learning.

**Key words:** *local culture, negative attitude, rural area.*

### 1. Introduction

English as an international language has become a part of the curriculum in Indonesia. The importance of English has made English as a mandatory subject at almost every level in schools, from the lowest level in kindergarten to college level. Since English become a required subject in Indonesia, the government views this as a necessary skill for students' present and future needs, so it is needed to require all the skills in English such as reading, writing, speaking and listening, (Fithrotunnisa, et al, 2023). English is a foreign language in Indonesia as a result students who enrolled in Elementary, Junior, and Senior High Schools as well as college students may experience a variety of experiences learning English in the classroom. For example, the pronunciation, the meaning of a term that changes depending on the sentence's context, the many grammatical structures, and the verb usage which constantly changes depending on the incident's timing all demonstrate the foreignness of the text. The aforementioned factors will make learning English challenging. Furthermore, even after students have studied English for a long time, mastering the language in some Indonesian schools has not yielded very positive results, especially for schools in rural areas. When students are asked to talk in English, they students

still find it difficult to do so because of the lack of vocabulary or have only learned a small portion of the language. This does not match the length of time kids have to learn English.

The fact that the learning processes in the classroom are intended as a process towards developmental changes in learning activities, it occurs for the wish to make a change in students' self-learners in the form of knowledge, skills, or attitudes and behavior performed with the interaction between learners with teachers in a learning environment. However, in learning English some factors caused the process of English teaching-learning process in rural environments to not go well. Those aspects are the local cultural context and students' negative attitudes. The first factor that inhibits the English teaching-learning process is the local cultural context which is related to Indonesian students' custom. (Sudartini, 2012) describes local culture as the manifestation of society's personality which is reflected in the orientation of the society's ways of life and beliefs that are commonly used to see and face the outside world manifested in their daily behaviors. The reality in East Nusa Tenggara shows that people are commonly friendly and polite to one another, especially toward older people. This can be seen in the attitude of students who are always polite and obedient to their teacher. However, such obedience habits cause students to be afraid to ask questions or express opinions to teachers in the teaching and learning process. As a result, students tend to be passive. The same idea comes from (Setiono, 2004) in (Masduqi, 2014) argues that it is not easy to expect the students to openly challenge and criticize their teacher's opinions. They might feel uncomfortable to disagree with their teacher or feel uneasy to talk about controversial matters.

The other issue related to the local culture is the use of local languages. When talking about the language it means talking about culture as well. However, when it comes to the English teaching-learning process, the use of local languages can have a negative influence on the student's progress in learning English. Take for example, in learning English, if the students use more the local language in their daily English class then the way the students will pronounce the English words will be affected by the local language accent or dialect. As a result, the student can mispronounce the English words. Besides that, the use of the local language will also require teachers and students to translate the material into *Bahasa* first where the excessive Indonesian language usage will make the students not practice English in the classroom so their ability to speak English will not improve. It is in line with the perspective from (Atkinson 1987:246 as cited in (Agustin, et al, 2015) that overuse of the mother tongue is dangerous. Too much employment of students' native language can cause some problems for both teachers and students. When L1 is used more than needed, it may cause dependence on linguistic transfer, failure in observing L2 equivalence, oversimplification in translation, and reluctance to speak English even when they can.

The previous problem is related to the student's negative attitude which also became one of the problems in the English teaching-learning process. (Telaumbanua, 2023) mentioned that a negative attitude can limit and even prevent learning, growth, and positive transformation. Adverse mindsets can hinder the process of acquiring a language. Student personalities in rural areas that tend to be shy have a very negative influence in the classroom. This can be seen where there is no participation in teaching and learning English between teacher and students or student

to student. According to (Exley in Suryanto,2014), Indonesian students are culturally passive, silent, and shy in class. They tend not to participate in the class activities although they are asked by the teacher to take part. In this respect, a question may be raised whether these behaviors are culturally embedded characteristics or only the impacts of a lack of English language skills.

(Hosain,2016) did a study about problems in English language teaching in the rural area. This study investigated 300 secondary-level students, 30 English subject teachers, and 50 parents as well as other documentary evidence to get to know the actual picture of the rural area of English achievement at secondary level schools. Also, it investigated the factors affecting students' performance in the English language in rural areas. Here, the result mentioned that many factors contribute to the differences in performance in the English language between students in rural and urban areas. Such as family factors, financial factors, logistic support, and less qualified teachers which made the teacher not teach the students in proper teaching method and caused the students not interest to learn English. (Restunintyas, 2019) investigated how passive learners learn from active learners to avoid speaking anxiety. Interviews were conducted with six active and six passive Salatiga vocational high school students who had previously experienced anxiety when speaking English. The results showed that speaking anxiety in foreign language learning was caused by distinct common reasons and strategies for active and passive learners. The results made clear that the effective tactics that active learners possessed such as a positive attitude toward English, avoiding making direct eye contact with others, and engaging in relaxation could benefit passive learners. Some things distinguish this study from the previous studies that can be used as the research novelty. In the first study, the researcher has established the focus of the research scope which is the problem that occurred in rural areas. Here the previous researcher wants to know whether there will be any problems or not that cause English education outcomes to be low in rural areas. In this research, the researcher has listed the rural area as one of the problems that cause the English teaching-learning process not to run well for the students and teachers. For the second study, the previous research wants to see the differences in learning strategies between active students and passive students in learning English. In this research the researcher will see how the correlation between the local cultural context affects the students' negative attitude in connection to the rural environment. To sum up, the novelty of the research is to see how the relationship exists between the local cultural background and the students' negative attitudes in the rural environment while learning English.

## **2. Methods**

This research utilized a qualitative approach and a case study design to gather data on English teaching-learning processes in a rural area. The study used an interview guide and field observation checklist to collect data, with structured interviews conducted to understand the inhibition aspects of English teaching-learning processes. Field observations were conducted to observe the behavior and actions of English teachers and students in the classroom.

Data collection procedures involved meeting the headmaster, conducting interviews, and recording the responses. The researcher analyzed the data qualitatively, transcribed the data, and categorized the results based on the participants' opinions. Classroom observations were

conducted to observe how teachers taught and students interacted with one another. The data was then analyzed using a content analysis method, which included transcription, rereading, classification, and interpretation. The observation checklist result was listed based on facts in the field to complete missing data and complement the interview results. The data collected were collected by observing the classroom environment and focusing on the target of the research.

### 3. Finding and Discussion

#### 3.1 Finding

In the part of findings from students' and teachers' perspective, there is a relation between local cultural context and students' negative attitude as a barrier for students and teachers in learning English. It is questioned in purpose that students and teachers can provide answers so that they can discover whether the five things are related or give a cause and effect or not in the English teaching-learning process. The question is *"In your opinion how does the correlation between rural environment, local cultural context, and students' negative attitude influence the English teaching and learning process?"*

From the interview results, most of the students and teachers answered that the rural environment, local cultural context, and students' negative attitudes do correlate to influencing their English teaching-learning process. One of the students' responses can be seen in the section below.

*(1) In my opinion, there is a correlation between those things.* I can see the correlation of the rural environment which has had effects on the lack of supporting facilities which caused us less knowledge about English from the beginning of our education and made us not understand anything about English. The rural environment is also related to the local cultural context where people in the village tend to use local languages in daily communication. This habit is carried to schools where we stay to speak the local language even though we are learning English. So it causes our speaking quality to still be very low. This made it very difficult to learn English in class because when the teacher explained to us in English I did not understand at all, except she translated again into Indonesian or the local language. This is the problem that makes me not very fond of learning English. I rarely speak English in class because I am not confident. Maybe this negative attitude makes the teacher difficulty in teaching about preparing the proper material for us. Maybe that's what makes us just always taught to read text no other thing. And she always encourages us to keep trying and studying at home. (Student 1)

The same opinion was also proposed by the teachers which was quite the same as the students' reaction that they all agree that those inhibit aspects are related to one another in influencing the English teaching-learning process. One of the teacher's answers is presented below.

*(2) In my opinion the relationship between those aspects here is the rural environment greatly affects the students and our teachings in the learning process, because the students in rural environments are very low in their English ability and are also affected by the local cultural context, where the students are more hold on their local culture from home where they*



*must behave to be polite, always feel embarrassed to talk to others and it makes the students have passive attitude. (Teacher 2)*

From the results obtained above, it can be concluded that the local culture and students' negative attitudes are related to one another in obstructing the students from learning English. As seen in the sample answers above, most of the students mentioned that the rural environment harms the students' English background. They said so because the school site in the rural environment makes the students almost left out of English education. The reason is from their early education, they rarely get English lessons in class. This happened because of a lack of teachers who did not want to teach in the village. Besides that, the minimum support facilities to study English are also still a major problem for students such as books, dictionaries, language lab, and school distance that is far from home often makes students lazy to go to school. The rural environment also impacts the students' language use which is related to the local cultural context. Because the students are staying in the village, they are accustomed to speak in the local language. These habits cause problems for them to continue to use the local language even though they learn English in class. Therefore their English skills are hard to improve because the local language influences them in their speaking ability. The other thing that is influenced by the rural environment is the student's attitude toward learning English. Since they have less English background, the students tend to show a negative attitude in learning English. Such as being unmotivated, passive in class discussions, feeling afraid and shy to speak English, speak more local languages in class discussions. All of these problems ultimately affect teachers' professional competence and pedagogical competence. This happened because according to the teachers' results, the teachers have difficulty in preparing materials and teaching them because of the students' limitations in English. This is due because of the things mentioned by the students such as the influence of the rural environment which caused the students to have low English ability. The local cultural context where the students tend to speak with local language and not English, and the influence of students' negative attitudes that always look unmotivated in learning English and it gives an impact on the teachers' professional competence and pedagogical competence. Not only that but also it affects the teachers' ability to teach because of the student's constrained negative attitudes in class and also their teaching skills where they rarely develop their teaching skills.

### **3.2 Discussion**

Since language is one part of the culture, therefore it is never detached from any language learning as well as learning English. A local language is a part of the culture in its region, but its presence in a foreign language learning environment will badly affect the development of the learner itself. Such as the results obtained in the problems caused by local culture, both students and teachers mentioned that local language as a local culture greatly provides significant problems in their English learning. Students said that the local language prevented them from understanding English well. Students found it difficult if in learning the teachers use English continuously and do not translate into *Bahasa* or the local language. Not only that, but the use of the local language also had negative effects on their English pronunciation and made them misinterpret the English words from the local language. The same problem also found by

Manrique (2013) mentioned that the most common problems that are caused by students in using the local language are mispronunciation and grammatical errors between the mother tongue and the target language. The teachers also said that the students would look confused if they explained the materials without explaining and giving examples in the local language or *Bahasa*. This happens because the students are accustomed to using the local language and do not practice speaking English.

Not only that but the students' character that is still strongly bound to the local culture causes them to become shy person and passive students. This caused them to tend to be passive in class and afraid to interact with teachers and students too. Therefore the teachers always need to encourage the students to dare to speak English without relying on the local language and shame culture.

The data found that there are still many students' negative attitudes that have a bad impact on both students and teachers in the English learning process. The common students' negative attitude that is often shown is students' low interest in learning English. Even though the students mentioned that their interest feeling toward English is important they still did not show it while they were learning English. This resulted in them being unmotivated to learn English and the teachers had to go the extra to encourage them to learn. Ahmad, Abdullah and Ghani (2014) stated that students' negative and low motivation to learn English can cause students weak in English, which will make the student education quality low. The teachers mentioned that in the learning classes, students always tend to be quiet and do not want to participate. Here, the students' self-confidence is the one main reason why they felt afraid to speak. They fear that their friends will laugh at them if they make a mistake. Mistakes here are when they may pronounce a vocabulary incorrectly to make correct sentences in English.

Lastly, this final part of the discussion talked about whether there is any relationship between the local cultural context and students' negative in influencing the English teaching and learning process in rural areas. From the results of both students and teachers, there are common opinions that those aspects have a related relationship in influencing in the English teaching and learning process. They said that the school environment in the rural environment has a huge impact on students and teachers. The rural environment makes the students retarded in terms of education so their English skills become very low. This makes teachers difficult to teach students. Not only that, the use of the local language as one of the local cultures greatly harms students and teachers in learning English. Students who are used to speaking the local language always find it difficult to speak or understand English. Besides that while the teachers have to explain the materials, they have to translate it so that the students understand, otherwise, they will not understand anything. This is very detrimental because by doing that, the teacher lets the students get used to the local language or *Bahasa* and it will improve their English skills.

Besides making the students accustomed to using the local language, the rural environment life also affects the students' nature of learning English. It makes the students have a shy personality and fearful attitude to interact in class. This is what makes the student's negative attitude rise in learning English. Students seem to be silent in the discussion and always feel hesitant when the teacher asks them to answer questions. Therefore teachers always

encourage them to participate even if they make mistakes to build their confidence. The observation result shows that the teachers' motivation managed to make students participate in class while trying to answer questions. However, when the teachers give the motivation to students, they still do it the hard way such as scolding or by warning them.

#### 4. Conclusion

From the results of this study, it is concluded that the local cultural context and students' negative attitudes do correlate with the English teaching-learning process in rural classroom environments. The students' English competence is still below standard for Senior High School students becomes an obstacle for both teachers and students too. The reason is that the students do not get enough English lessons since in the beginning of their education. As a result, the teachers have difficulty adapting the materials that match their English ability. Not only the English language skills but also the use of the local language, lack of supporting facilities, and far school distance also caused the English teaching-learning process not to work properly. The local language use habits make the students only understand the materials if the teacher translates them into *Bahasa* or the local language. The presence of local language as part of local culture makes the students accustomed to using local language in their daily conversations even in class. As happens in factors that discourage students and teachers in rural settings, the local language prevents them from understanding English well. Students find it difficult to understand the teacher's explanation in English and always assisted the teacher in translating the material into *Bahasa* or local language. Teachers also get used to always translating the material for the students so that students are accustomed and not trying to train themselves to speak English.

The conclusion that can be drawn from how students' negative attitudes inhibit the English teaching-learning process is there are still some negative attitudes that harm their English-learning process. Some of the students' negative attitudes which are often shown in learning English are students' low motivation, lack of confidence, and fear of making mistakes in the learning process. Therefore, teachers have to go the extra to encourage them such as providing the right support so that students can improve their English skills.

The last conclusion is about whether there is a relationship between the rural environment, the local cultural context, and students' negative attitudes. Based on all the findings this can be concluded that all of these aspects do have a casual relationship in the English teaching-learning process. The relationship can be seen in the rural environment that makes students left behind in terms of English education and also makes them accustomed to using the local language as one of the local cultures. Not only that, but the rural environment life also affects the students' attitude in learning English. It makes students have a shame culture and fear feeling to interacting in the classroom. This is what makes the students' negative attitudes increase in learning English.

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## Cognitive Complexity in Junior High School English Textbooks: A Comprehensive Analysis of Tasks and Instructional Questions

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**Abstract.** This study uses content analysis to examine how well the activities and instructional questions in the Maestro English textbook for Eighth Grade Junior High School match with the cognitive stages of Bloom's Taxonomy. It is a descriptive qualitative study. The textbook consists of six chapters and includes a total of 55 activities and 441 questions. The results indicate that tasks are distributed over several levels of Bloom's Taxonomy, with a primary emphasis on the understanding category. The questions mostly correspond to the areas of remembering, comprehending, and applying. The study seeks to uncover patterns and trends in the cognitive difficulty of exercises and questions, offering insights for the instructional design of the textbook. The findings enhance our comprehension of the cognitive requirements imposed on learners within the realm of junior high school English instruction, providing significant insights for educators and curriculum designers.

**Keywords:** *Cognitive Complexity, Textbook, Questions, Task*

### 1. Introduction

The level of cognitive complexity plays a crucial role in educational materials, impacting both the consequences of learning and the cognitive processes involved. The cognitive complexity included in instructional materials has the potential to influence cognitive load, engagement, and comprehension. Merriënboer & Sweller, 2005 marked the importance of cognitive load theory in comprehending the intricacy of learning activities and its influence on students' academic achievement. The authors stress that the cognitive burden produced by instructional materials has a direct impact on the difficulty of learning activities. In addition, Sweller et al. (2019) explore the utilization of cognitive architecture in instructional design, highlighting the significance of minimizing cognitive load to improve learning outcomes (Sweller et al., 2019). These findings indicate that instructional materials should be created in a way that reduces mental effort and increases mental sophistication in order to maximize learning results.

Examining activities and instructional questions in junior high school English textbooks is essential for molding the educational encounters of pupils. Considering the depiction of 21st-century abilities in reading activities is crucial, as it directly influences the cultivation of vital skills in learners (Wulandari & Hidayat, 2020). Moreover, the use of various activities, particularly writing tasks, in these textbooks significantly contributes to the enhancement of language competence and cognitive development (Yu & Reynolds, 2018). Moreover, the inclusion of well-constructed instructional questions, such as wh-questions, in English textbooks plays a crucial role in facilitating successful language learning and understanding among students (Lyddon & Okamura, 2020).

The impact of cognitive complexity in instructional materials has been thoroughly investigated. The study conducted by Ritchie et al. (2015) investigated the correlation between education and enhancements in overall cognitive capacity or particular talents,

providing insights into the impact of education on cognitive growth (Ritchie et al., 2015). (2023) examined the reciprocal connection between education level and cognitive complexity, highlighting the capacity of education to improve cognitive complexity and vice versa (Mikušková, 2023; Sabur et al., 2018). Sabur et al. (2018) compared written assessment instruments grounded in Bloom's Taxonomy, offering valuable information on the real-world implementation of cognitive complexity in educational evaluation. In their study, Agustina et al. (2022) examined how critical thinking is included into English textbooks for junior high school students. They emphasised the significance of cognitive complexity in educational resources for enhancing critical thinking abilities (Agustina et al., 2022).

The research conducted by Stevani and Tarigan (2022) presents a systematic approach for assessing English textbooks by employing Bloom's Taxonomy to examine reading comprehension questions. The study emphasises the significance of ensuring that instructional activities are in line with cognitive processes and learning objectives. In their study, Erdiana and Panjaitan (2023) examine the incorporation of higher-order thinking skills (HOTS) in English textbooks used in Indonesian high schools. They highlight the importance of instructional tasks that promote students' cognitive engagement and critical thinking abilities. In addition, Deng et al. (2020) conducted a study that examines the relationship between learner characteristics, teaching environment, and engagement patterns in MOOC learning outcomes. The study emphasises the importance of instructional activities in fostering cognitive and behavioural engagement.

Furthermore, the examination of the implementation of higher-order thinking skill (HOTS) in reading comprehension questions, as explored by Aryani and Wahyuni (2020), illuminates the significance of instructional tasks in promoting critical thinking and cognitive complexity (Aryani & Wahyuni, 2020). In addition, Febriyani et al. (2020) conducted a research that underscores the significance of engaging in high-order thinking skills (HOTS) activities in enhancing students' critical thinking abilities. The study emphasises the direct correlation between instructional tasks and the resulting learning outcomes (Febriyani et al., 2020).

In addition, the study conducted by (2015) presents a structure for examining the level of mental effort required and the integration of content and practices, highlighting the importance of instructional tasks in facilitating students' involvement in critical thinking and logical analysis of disciplinary concepts and practices (Tekkumru-Kisa et al., 2015). The study conducted by Litman & Greenleaf (2017) examines argumentation tasks in secondary English language arts, history, and science. It emphasises the differences in instructional focus and enquiry space, highlighting the various instructional methods that impact student engagement and learning outcomes (Litman & Greenleaf, 2017).

The decision to use Bloom's Taxonomy as the analytical framework for the study is based on its extensive recognition and usefulness in educational research, specifically in the examination of instructional activities and questions in English language teaching (ELT) curriculum. Bloom's Taxonomy offers a systematic and all-encompassing structure for classifying cognitive processes and learning goals, consisting of six tiers of cognitive intricacy: knowledge, understanding, application, analysis, synthesis, and assessment. The references (Stevani & Tarigan, 2022; Ulum, 2016; Dewayani et al., 2020; Aryani & Wahyuni, 2020; Erdiana & Panjaitan, 2023; Igbaria, 2013; Anasy, 2016; Baggali & Kuhi, 2014; Rosi & Ningrum, 2019; Zainil et al., 2020; Sidek & Ja'afar, 2017), and Febriyani et al. (2020) collectively emphasise the widespread utilisation of Bloom's Taxonomy in the analysis of reading comprehension questions, higher-order thinking skills (HOTS), and cognitive demand



in educational materials. The taxonomy provides a methodical technique to assessing the cognitive complexity and alignment of instructional activities with learning objectives, therefore offering significant insights on the depth and rigour of instructional materials.

In addition, the following references (Stevani & Tarigan, 2022; Ulum, 2016; Dewayani et al., 2020; Aryani & Wahyuni, 2020; Erdiana & Panjaitan, 2023; Igbaria, 2013; Anasy, 2016; Baggali & Kuhi, 2014; Rosi & Ningrum, 2019; Zainil et al., 2020; Sidek & Ja'afar, 2017), along with Febriyani et al. (2020), emphasise the usefulness of Bloom's Taxonomy in analysing the cognitive levels represented by instructional tasks and questions, as well as its role in identifying the distribution of higher-order thinking skills in educational materials. Researchers can use Bloom's Taxonomy to methodically evaluate the cognitive requirements and elements of critical thinking present in instructional activities. This information can then be used to guide the creation and assessment of educational resources.

Conclusively, doing a thorough examination of instructional activities and questions in English textbooks is crucial to guarantee that educational materials are in line with learning goals, possess a high level of cognitive complexity, and foster the development of critical thinking abilities. Through analysing the many aspects of instructional activities, educators may improve the quality and efficacy of instructional materials, eventually leading to enhanced student learning outcomes. The research is attempted to answer the following questions:

1. How do tasks in junior high school English textbooks align with the cognitive levels of Bloom's Taxonomy, and what patterns or trends emerge in their distribution across different levels?"
2. How are instructional questions categorized within Bloom's Taxonomy in junior high school English textbooks?

## **2. Method**

The study employed a qualitative methodology using content analysis to examine the cognitive complexity of tasks and instructional questions of English textbooks using revised Bloom's taxonomy. The content analysis primarily examined specific words or concepts, as well as the meanings and linkages within the formal components of communication. Additionally, it analysed the fundamental structures of meaning that were the subject of investigation (Ulum, 2016). Moreover, content analysis is a methodical approach used to examine the definitions and concepts presented in textbooks or the topics discussed within them, with the aim of constructing a comprehensive understanding of the subjects taught in a certain field of study (Karama, 2022).

This study included set of tasks and instructional questions that were designed to assess cognitive domains of revised Bloom's taxonomy (Anderson et al., 2001), including remembering, understanding, applying, analyzing, evaluating, and creating. The data gathering involved the use of an English textbooks published by Maestro CV Hasan Pratama for Grade VIII Junior High School. The book consisted of six chapters with 112 pages in total.

The researcher obtained the data by employing a checklist table, which was derived from Pratiwi's work in 2014. The checklist table will serve as the tool to address the research question and achieve the research aim. Multiple categories were listed. The rows of the checklist table consist of tasks, instructional questions and the six levels of updated Bloom's taxonomy. In order to obtain valid and reliable data, the researchers conducted a data trustworthiness using four criteria, namely credibility, transferability, dependability and confirmability (Elo et al., 2014).

### 3. Findings

The analysis begun with the allocation of assignments and the different types of questions in the Maestro English textbook over six chapters. Every chapter has a distinct collection of activities, combining both individual and group projects. Chapter 1 has the most number of tasks (12), while Chapter 5 has the lowest (2). Tasks encompass a range of levels in Bloom's Taxonomy, incorporating both Lower Order Thinking Skills (LOTS) and Higher Order Thinking Skills (HOTS). The incorporation of both individual and collective tasks inside each chapter enhances intricacy, providing valuable perspectives on both collaborative and independent learning. Regarding instructional questions, Chapters 1, 2, and 6 have a total of 50 multiple-choice questions each. In addition, Chapter 3 has 50 questions for a mid-term test and 10 questions for completing dialogues. Chapter 4 has 10 questions that help students differentiate between requests and permissions. In Chapter 5, there are 50 multiple-choice questions and a special assignment to create a greeting card. There were 55 tasks and 441 questions consisted in the six chapters of the textbook.

#### 3.1. Cognitive Alignment and Distribution Patterns of Assignments in Junior High School English Textbooks

All cognitive domain were covered by the classification of assignments based on Bloom Taxonomy presented in the textbook. They were the levels of *remembering*, *understanding*, *applying*, *analyzing*, *evaluating*, and *creating*. Below was the table presenting the result of the analysis of tasks found in the textbook.

Table 1. Cognitive Domain of Tasks in Maestro English Textbook

Cognitive Domain of Bloom Taxonomy	Task	LOTS & HOTS
C1	20	LOTS
C2	12	
C3	6	
C4	2	HOTS
C5	4	
C6	11	

The defining feature of C1 Remember is the ability to retrieve information from memory by identifying and recalling facts, terminology, fundamental concepts, and replies (Anderson & Krathwohl, 2001). Creating and responding to these sort of queries is rather straightforward. The user's text is incomplete. Students may readily locate the solution within the text without the need for them to analyze, identify, infer, or engage in other activities that require critical thinking. For example in the task "*Read the dialogue and answer the following questions*" could be answered directly by finding the answer that obviously stated in the text. As expected, all the 6 chapters of the textbook being examined have this type of task. This Remembering domain had the highest frequency of task with 20 tasks across the six chapters.

As for C2 domain, the textbook had 12 tasks performed the cognitive domain of Understanding. The definition of Understanding is by building a meaning from instructional messages, including oral, written, and graphic communication (Anderson & Krathwohl, 2001). This type of task is one level higher than C1 Remember and still included in LOTS. Basically,

this domain require the students to interpret, exemplify, classify, summarize, infer, compare, or explain. For example, as for the task "Complete the dialogue using the suitable expression" could be answered by giving the the right expression to the given sentence. The task did not provide list of expression for students to choose, otherwise they needed to choose the right expression based on the previous explanation in the book. All the chapters had the same model of task which enhance the students thinking skill not just by providing the answers right in the text, but by inferring the answer by the given sentence and situation in the text.

The third cognitive domain of Bloom taxonomy is Apply. According to Anderson and Krathwohl (2001) applying is performing or a procedure through executing, or implementing. Applying connects to or points to circumstances where learned material is used through products like models, presentations, interviews or simulations, and other activities. This type of task involve the students capability to apply learned material in new and concrete conditions. For example, as for the task "Do the interview with your friends to fill in the table using Can you...?". This type of activity could be done by applying learned material in that situation about asking for capability. Not like the previous level, there are only 6 type of this task found in the textbook.

However, for the domain of Analyzing (C4) which represent the first stage of Higher order thinking, the textbook only provided two tasks. Analyzing leads to separating materials or concepts into sections, deciding how the sections connect to one another or how they interconnect, or how the sections connect on the whole form or objective (Anderson & Krathwohl, 2001). The point of this question is the competence of the students to differentiate the sections or material into its components so that its arrangement might be better. The task was about arranging unjumbled dialogue, and analyzing the song lyrics. In this cognitive area, learners must analyze information into its fundamental elements, see the connections between these elements, and subsequently arrange them in a coherent fashion. The assignment requires students to analyze the sequence and structure of phrases, determining the logical order needed to create a meaningful dialogue. By engaging in this assignment, students not only demonstrate their comprehension of grammar and syntax but also refine their analytical abilities in evaluating the syntactic connections and contextual significance of each phrase. This exercise promotes critical thinking by requiring a careful analysis and synthesis process, which enhances the development of analytical skills essential for successful communication and understanding in the field of English language instruction.

Moreover, the activity in chapters 1 and 6, where the group is tasked with selecting and expressing emotions such as happiness, compassion, condolence, prayer, and wish through appropriate quotes, corresponds to the "Evaluate" (C5) level in Anderson and Krathwohl's (2001) updated Bloom's Taxonomy. At this cognitive level, evaluation entails the act of forming judgments by using specified criteria and standards, accomplished through the process of verifying and critiquing. The work necessitates students to evaluate and choose suitable quotes for particular circumstances, showcasing their proficiency in utilizing predetermined criteria to make evaluative assessments. By selecting quotations that correspond to the provided scenarios, students demonstrate their comprehension of suitable language and actively evaluate the emotional and contextual suitability of each quotation. In the revised taxonomy, the act of assessing takes place before producing, highlighting the significance of careful assessment prior to engaging in creative endeavors. Thus, this activity efficiently focuses on the evaluation level, enhancing students' capacity to develop well-informed assessments and criticisms using predetermined criteria within the framework of expressing opinions.

In the last level of the taxonomy was creating (C6). Creating is placing elements simultaneously to construct a coherent or functional whole; reorganizing elements into a new system or format through generating, planning, or producing. Create asks the students to place sections at the same time in a different way, or synthesize sections into something new (Anderson & Krathwohl, 2001). Since this level is the last level and occupies the highest position in the newest taxonomy, it could be concluded that this level is the most difficult to construct or even to answer for both the teacher and the student (Daeik & Anter, 2004). There were 11 activities found in the textbook applying this thinking skill. For example the task of writing sentences using simple present tense, writing invitation card, translating several sentences from English into Indonesian, making phone call on the given situation, and writing dialogue about prohibition.

### 3.2. Cognitive Domain of Instructional Questions

Applying the theory of revised Bloom's taxonomy, the current research discovers 441 instructional questions from 6 chapters presented in the Maestro English Textbook for the second grade of Junior High School Students. The questions were presented at the end of every chapter of the book and served as the evaluation. 400 questions were in the form of multiple choice while the other 30 were comprehension questions, 10 last questions were to be translated into English and Indonesian, and 1 last questions was to write a greeting card for the loved one. Below is the presented data found in the textbook.

Table 2. Cognitive Domain of Questions in Maestro English Textbook

Cognitive Domain of Bloom Taxonomy	Questions	LOTS & HOTS
C1	197	LOTS
C2	221	
C3	22	
C4	-	HOTS
C5	-	
C6	1	

Table 2 shows distribution of instructional questions in each domain. There were 191 questions in C1 of Remembering level, 221 questions in C2 of Understanding, 22 questions in C3 of Applying, and 1 question in C6 of Creating. As stated before that mostly the questions were in the form of multiple choices. The multiple-choice questions pertain to completing short dialogues and encompass a range of language functions, including seeking attention, expressing appreciation, stating abilities and willingness, conveying obligations, prohibitions, and suggestions, as well as asking for and granting permission and extending invitations. The comprehension questions are designed to assess the comprehension of conversations. All these questions primarily align with the "Applying C3", "Understanding C2" and "Remembering C1" levels of Bloom's Taxonomy.

Additionally, the finding reveals that the categories of cognitive level are not equally distributed in the questions. The lower thinking skill address the questions with less intensity compared to the higher thinking. Despite the absence of an analyzing and evaluating

category, it is important to recall High proportions of Remembering and Understanding in the distributed questions. The predominant category seen is remembering, which accounts for almost three quarters of the total questions. When it comes to this area, students mostly handle clear information that is presented in the text. E.g. *what does Thoriq expresses? What are Frans and Agus discussing about? What does Frans say to get respond from Nara?* To answer the questions, students only need to read the text and quickly search for the relevant information. The answers are clearly stated. Over 75% of the questions fall into this category, indicating that students primarily encounter topics that pertain to the lower level of thinking skill.

Moreover, The task of translating sentences from Indonesian to English and vice versa is classified under the "Applying" level of Bloom's Taxonomy. Students were asked to translate 10 sentences in the form of conversation. Though this assignment, students were required to utilize their language proficiency and abilities to effectively convey information between different languages. The process of translating from one language to another according to certain standards will help to master the language materials and speech. As a result, the growth of students' thinking leads to the development of oral and written skills. Using this translation will help to increase student memory. One type is conversation translation. This translation can be used to translate a foreign language into the native language and vice versa Normatova, 2020.

However, the higher level of question serve as C6 of Creating was found only 1 question in chapter 6. Through the type of question, students were encouraged to deal with the skill to analyze information on the text by differentiating the elements found there, such as *read the greeting card, find elements in writing a greeting card, and write your own greeting card to someone you love*. This question demanded students to break the text and analyze the elements to find out the most important section in a greeting card, later on they were asked to produce or write a greeting card.

#### 4. Discussion

The primary objective of revised Bloom's taxonomy (2001) is to aid instructors in developing assignments that align with the cognitive abilities of students. The intended degree of achievement (Anderson & Krathwohl, 2001). The categories on the cognitive level function hand in hand. It is necessary to prioritize the lower categories in order to enhance the proficiency in the higher categories. The upper categories encompass the abilities to analyze, evaluate, and create.

Regarding this finding, the textbook for grade VIII of Junior High School only includes reading comprehension problems that sufficiently meet the criteria for Lower Order Thinking Skills (LOTS) and it is mainly in Remembering, Understanding and Applying category. This is stated as imbalance since the realization of LOTS is found in more than 60% of the inquiries. The frequent occurrence of C1 to C3 which serve as Ligher Order Thinking Skills (LOTS) load students with incapacity to maximize their problem-solving abilities that need a higher level of cognitive thinking.

The assignments and questions in grade VIII textbooks mostly emphasize the lower categories, particularly Remembering, understanding and applying. This category is effective for reviewing previously acquired knowledge, however an excessive number of tasks and questions from this category alone is insufficient to stimulate higher-order thinking skills (HOTS). Less than 20% of the questions in this textbook contain HOTS-based questions and exercises, which is inadequate for stimulating and growing HOTS abilities. This presents



evidence that the development of HOTS (Higher Order Thinking Skills) is necessary. This growth can be achieved by acquainting students with the necessary abilities. A textbook should serve as a platform for familiarizing and developing higher-order thinking skills (HOTS) (Pratama & Retnawati, 2018). Therefore, in promoting higher-order thinking skills (HOTS) to develop critical thinking, it is beneficial to implement HOTS-based questions more frequently (Wu & Pei, 2018).

These findings align with the results reported by Ulum (2016), Brasahid (2019), and Tangsakul (2017). Within those Current study indicates that there is still a deficiency in the inclusion of Higher Order Thinking Skills (HOTS)-based items in exercises and questions in English textbook. Comparatively, there is a commencement of including Higher Order Thinking Skills (HOTS) in a sufficient quantity of reading comprehension problems. This is seen in the findings of the analyzed textbook. The finding is supported by the research conducted by Setiyawati, who discovered that Higher Order Thinking Skills (HOTS) are prevalent in the textbook she examined. It is asserted that the textbook marginally incorporate Higher Order Thinking Skills (HOTS), but their quantity is insufficient.

As for the task designed in the textbook, when completing the exercise, students are not required to engage in critical thinking as the answer is already provided in the text. Supported by Aryani & Wahyuni 2020 indicated in their study that these exercises necessitate students to concentrate on the material presented in the book, while also expecting them to comprehend the content at a more profound level. They do not depend on the exact assertions, but rather they must examine the significance underneath the literal data. However, in these analyzed assignments, students were still primarily focused on the text and have not yet transitioned to thinking beyond the text.

Regarding the task type of Numrich's sequence, it is elucidated that critical thinking is cultivated by exposure to diverse experiences. Progressive actions that present escalating difficulties. The process begins with an examination of the students' immediate environment, with a specific emphasis on the written material. This analysis then extends to encompass a broader context, as described by Beaumont (2010). According to Beaumont (2010), critical thinking involves the activation of emotional or instinctive reactions in order to arrive at a rational judgment. However, it is disclosed that the reading comprehension questions only concentrate on the text. The practice of examining pupils' individual emotions and subsequently linking them to encourage deeper thinking about the text is relatively overlooked. Therefore, it can be concluded that the three textbooks are unlikely to enhance critical thinking skills because the tasks assigned to students do not require them to think critically or engage with the real world beyond the literal information provided in the text or the problems they solve.

Conversely, the researcher argues that there could be some contributions from the Higher Order Thinking Skill (HOTS) problem since they appear significantly more intricate than the Lower Order Thinking Skill (LOTS) difficulties. In addition, the researcher contends that the textbook's author takes into account the amount of time required to complete higher-order thinking skill (HOTS) activities. Engaging in higher-order thinking skill (HOTS) tasks requires much more time compared to lower-order thinking skill (LOTS) tasks, especially considering the restricted duration of classroom activities. A remark from Airasian & Russel (2008) supports the notion that teachers often have to wait a significant amount of time for pupils to answer problems related to higher-order thinking abilities.

## 5. Conclusion



The findings indicate that the English language textbook for eight grade students, published by the Maestro CV Hasan Pratama, inadequately addresses and promotes higher order thinking skills in both tasks and instructional questions. Specifically, the assignments and questions in these exercises only evaluate half of the comprehensive reading skill indicators and language function. The textbook lacks emphasis on higher order thinking skills and markers of reading proficiency in the reading comprehension activities. It is also concluded that the cognitive dimension in each task and questions presented in an imbalance portion. It is dominated to remember (C1), followed by understanding (C2), and Apply (3).

Hence, it is recommended that the author incorporate and finalize more advanced cognitive questions in order to establish a more equitable distribution between lower-level and higher-level questions. This is necessary because the current reading comprehension exercises in the textbook are predominantly comprised of lower-order thinking skill questions, with a dearth of higher-order thinking skill questions. It was important for English teachers to consider all levels of Bloom's Taxonomy, such as knowledge, comprehension, application, analysis, synthesis, evaluation, and creation. Subsequent research should assess the incorporation of Bloom's taxonomy in English language teaching resources, namely in the areas of speaking, listening, and writing, in order to showcase the significance of including revision techniques in English textbooks on a broader scale. Furthermore, the viewpoints of the students might be obtained and examined in order to modify the current English language resources.

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## **EFL STUDENT-TEACHERS' PROFESSIONAL DEVELOPMENT: EXPLORING STUDENTS' PERCEPTION ON MICROTEACHING CLASS**

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**Abstract.** This study explores the perceptions of English as Foreign Language (EFL) students regarding their teachers' professional development through microteaching class. Microteaching, a technique where teachers practice teaching with a small group of peers or students, is increasingly utilized in teacher education programs. This research aims to understand how students perceive the effectiveness of this method in enhancing their teachers' instructional skills and overall classroom performance. Surveys and interviews used for gathering data with EFL students from English Language Department, Soe Educational Institute. The findings suggest that students generally view microteaching positively, recognizing several benefits including improved teaching strategies, better classroom management, and increased teacher confidence. Students noted that microteaching allowed teachers to receive immediate feedback and refine their techniques in a supportive environment. However, the study also highlights some challenges, such as the artificial nature of the microteaching setting and the limited scope of practice it offers. Despite these drawbacks, students believe that when integrated with other professional development activities, microteaching can significantly contribute to teachers' growth and effectiveness. In conclusion, students' perceptions affirm that microteaching is a valuable component of EFL teacher professional development. The insights gained from this study can inform teacher education programs and help in designing more effective professional development strategies that align with both teachers' and students' needs.

**Keywords:** *EFL student-teachers 'professional development, microteaching class, students's perception,*

### **1. Introduction**

The success of any educational process is determined on the teacher's quality, commitment, and skill. Many believe that instructors are born, while others believe that they are created. In any case, good teachers' services are critical to societal improvement. Effective classroom communication by teachers is crucial and can be enhanced through practice (Handayani et al., 2024), (Flaherty et al., 2024). Teaching-learning is a continual process that emphasizes the importance of teachers continuing to learn in order for students to learn differently (Azrai et al., 2020), (Yerdelen et al., 2019). Teacher education equips future educators with the required skills and knowledge for effective classroom instruction. Increasing educational quality and standards is a national priority for all nations (Rama & Reddy, 2013), (Mohideen et al., 2023). Many higher education programs use micro-teaching as a pedagogical strategy to help students develop information, understanding, skills, and attitudes that may be applied in the workplace.

Previous research suggests that micro-teaching experiences can help build beginning professionals. Micro-teaching allows teacher trainees to gain valuable teaching skills, experience, and information (Malmir, 2020). Sabon and Coklar (2013) believe that micro-



teaching provides opportunities for pre-service teachers to develop skills such as lesson planning, selecting teaching goals, capturing students' attention, speaking in front of a group, asking questions, effectively managing time, and assessment techniques. In line with Peekers (2009) stated that microteaching helps teacher trainees overcome their dread of actually instructing. According to Subramaniam (2006) in Sabon and Coklar (2013), microteaching benefits student-teachers in the following ways: (1) it exposes students-teachers to the realities of teaching, (2) introduces student-teachers to their roles as teachers, (3), helps student-teachers to see the importance of planning, decision making, and implementation of instruction, (4) helps student-teachers build their confidence for teaching. In conclusion that micro-teaching has numerous benefits or advantages for teachers, trainees and student-teachers, especially when it is carefully planned and done.

There have been several definitions proposed for microteaching. According to Kieviet (1972), micro-teaching is a teacher training method that makes explicit use of feedback principles. Ajayi (2006) defines micro-teaching as a set of regulated activities that enable students to focus on specific instructional behaviors. Yusuf (2006) defined micro-teaching as a training strategy that allows student teachers to develop teaching skills in a controlled environment before implementing them in the classroom. All of these definitions share something in common. Microteaching involves student teachers acquiring teaching techniques and preparing for practice on a small scale. Feedback is provided to both the student teachers and lecturers.

Incorporating micro-teaching in teacher education programs allows trainees to practice teaching skills for a shorter length of time before beginning their actual practice. After at least twenty minutes of teaching, both classmate and lecturer typically provide observations, comments and suggestions. According to Akanbi and Usman (2014), micro-teaching in teacher training involves students instructing their own student group. They said that micro-teaching allows student teachers to evaluate each other's performance by studying and reflecting on their experiences.

Student-teachers participating in microteaching class have the opportunity to improve their teaching skills by completing a variety of basic teaching assignments. Bell (2007) also claims that student instructors taking educational methods courses frequently use microteaching. Students get experience by preparing and teaching a lesson to their peers. Student teachers plan and carry out brief instructional activities. Microteaching as a compulsory subject taken by student before they did practice teaching at school. Teaching practice is a mandatory and compelled endeavor in universities or institutions of education. So Microteaching class is an important tool to provide student teachers with strategies to improve their teaching abilities and develop the student-teachers professionalism.

Based on the background above, the researcher conducted research under the title "English Foreign Language (EFL) Student-Teachers' Professional Development: Exploring Students' Perception on Microteaching Class". This study aimed to investigate the EFL student-teachers perception on microteaching class regarding to professional development part of becoming a teacher. The research questions that answered through this study were about (1) what are the EFL student-teachers' perception of the benefits microteaching class for their self and professional development? (2) How can microteaching class be improved to promote professional development of student-teachers?

## 2. Research Method



This study used descriptive qualitative method. Survey, semi-structured interview and self and peer assessment paper were used for gathering the data. Survey developed based on teaching skills enhanced by EFL student-teachers through microteaching class with ternary format questions (yes/no/maybe). The semi-structured interview conducted for getting deeper insights about the student-teachers' perception on microteaching class. The participants were EFL student-teachers who enrolled microteaching class. They are 13 students consists of 2 males and 11 females. Thematic analysis used to identify common themes, patterns and insights of student-teachers professional development from the students perspective.

### 3. Findings And Discussion

**Research Question One:** what are the EFL student-teachers' perception of the benefits microteaching class for their self and professional development?

Based on the survey that delivered to the participants, table 1 displayed the EFL student-teachers' responses towards the benefits of microteaching class for their self and professional development in teaching.

Table 1. EFL student-teachers' responses toward the benefits of microteaching class

No	Questions	Yes	No	Maybe
1	Does microteaching helped you develop and properly manipulate teaching skills?	92.3%	-	7.7%
2	Does microteaching helped you develop confidence in the art of teaching?	92.3%	-	7.7%
3	Does microteaching help you do away with anxiety and fear in teaching?	76.9%		23.1%
4	Does microteaching provide you with the ability to manage classroom situation well?	92.3%	-	7.7%
5	Does microteaching helped you in the area of selecting teaching goals and preparation of lesson plan?	92.3%	-	7.7%
6	Does microteaching helped your ability of asking question and speaking in front of group?	69.2%	15.4%	15.4%
7	Does microteaching develop your ability of selecting appropriate instructional materials in lesson delivery?	79.9%	15.4%	7.7%
8	Does microteaching helped you manage time effectively in classroom?	92.3%	-	7.7%
9	Do you believe microteaching class helped you develop your professional teaching in the future?	92.3%	-	7.7%

According to the data that interpreted on the table 1 about the EFL student-teachers' response about the benefit of the microteaching class for their self and professional development, there are 92.3 % (12 students) answered 'yes' and 7.7% (1 student) answered 'maybe' that microteaching helped them to develop and properly manipulate teaching skills; there are 92.3% (12 students) answered 'yes' and 7.7% (1 student) answered 'maybe' that microteaching helped the EFL student-teachers to develop their confidence in the art of teaching; there are 76.9% (10 students)

answered 'yes' and 23.1% (3 students) answered 'maybe' that microteaching helped them to do away anxiety and fear in teaching; There are 93.3% (12 students) answered 'yes' and 7.7% (1 student) answered 'maybe' that microteaching provided them with the ability to manage classroom situation well; There are 92.3% (12 students) answered 'yes' and 7.7% (1 student) answered 'maybe' that microteaching helped them in the area of selecting teaching goals and preparation of lesson plan; there are 69.2% (9 students) answered 'yes', 15.4% (2 students) answered 'no' and 15.4% (2 students) answered 'maybe' that microteaching helped them with the ability of asking question and speaking in front of group; there are 76.9% (10 students) answered 'yes', 15.4% (2 students) answered 'no' and 7.7% (1 student) answered 'maybe' that microteaching developed their ability of selecting appropriate instructional materials in lesson delivery; there are 92.3% (12 students) answered 'yes' and 7.7% (1 student) answered 'maybe' that microteaching helped them manage time effectively in classroom; and the last, there are 92.3% (12 students) answered 'yes' and 7.7% (1 student) answered 'maybe' that they believe that microteaching class helped them in developing their professional teaching in the future.

This study found that microteaching can help EFL student teachers improve their teaching skills, confidence, anxiety reduction, class management, lesson planning, public speaking, instructional materials selection, and time management. This study supports the findings of Subramaniam (2006) in Sabon and Coklar (2013), Owosu and Brown (2014), and Akanbi and Usman (2014), Mahmir & Ali (2020) who found that micro-teaching helps teacher trainees gain teaching skills and confidence. Reduction in anxiety and fear, class management, selection of teaching goals, preparation of lesson plan, ability of speaking in front of group, selection of proper instructional materials as well as time management. The study also tallies with view from Owosu and Brown (2014) that microteaching is an important stage in the professional development of teachers (student-teachers) and it provides an opportunity for teachers, student-teachers to apply the knowledge and theories learned on campus to the real classroom.

**Research question two:** How can microteaching class be improved to promote professional development of student-teachers?

Regarding to the result of semi-structured interview with EFL student-teachers about how microteaching class can promote student-teachers professional development in teaching, table 2 can be interpreted the student-teachers' perceptions.

Table 2. Student-teachers' perceptions

S1	<i>I took the microteaching class in semester 6 with 4 teaching practices or opportunities, what I felt was that the microteaching class gave me the best experiences in improving my teaching skills. I was really trained to manage time, choose learning media that suits the materials, give good instructions, transfer materials to students. Moreover, the opportunity to manage my confidence when speaking in front of students. Further, in microteaching classes, lecturer and friends also help in providing feedbacks and suggestions after I practice teaching. So, it helps me to evaluate myself to be better in the future.</i>
S2	<i>The best experience I had during Microteaching was during the last section of my mini teaching performance. I used Kahoot as a learning medium to study while playing. The response from my friends and lecturers was great, which boosted my confidence.</i>
S3	<i>My best experience was during the 3rd teaching practice at that time I felt I had not prepared myself well but when I saw the lesson plan I became braver and in the 3rd</i>

	<i>practice I felt better than the previous practice.</i>
S4	<i>The microteaching course is a subject of this semester. I took this course to improve my teaching skills and gain hands-on experience on how to effectively teach English in small groups. I started teaching with a mixture of excitement and trepidation. We routinely created structured lesson plans that reflect the diverse learning styles of our class members as a preparatory step. I understand the importance of building good relationships with students to create a supportive learning environment. During the teaching process, I faced several challenges, especially in terms of time management and focusing on teaching objectives, classroom management and communication skills. After teaching, I have got some constructive feedbacks, comments and suggestions from my peers and lecturer. Those feedbacks were so important and improved my teaching skills and helped me build my professional development in teaching for my next teaching practice at school.</i>
S5	<i>Reflecting on my recent teaching experiences has been a transformative process, offering me profound insights into my development as a student who will become a future teacher. Each session has been a valuable learning opportunity, guiding me toward a deeper understanding of effective teaching practices. Initially, I realized the critical importance of mastering the subject matter I teach. At the first time, I encountered frequent errors and uncertainties due to incomplete knowledge. This realization prompted me to delve more deeply into the material, investing extra time in thorough preparation and study. I came to appreciate that a solid grasp of the content not only reduces errors but also boosts my confidence when delivering lessons. Another significant lesson learned was the essential role of student engagement through meaningful interaction. Feedback from peers and lecture highlighted areas where my communication with students could be more effective. There were instances where my delivery seemed to lack clarity or failed to capture students' interest, impacting their understanding. Recognizing this, I endeavored to adopt a more dynamic teaching style, encouraging active participation and fostering an environment conducive to learning.</i>

Table 2 about student-teachers' perception above showed that based on their four times teaching practice from 16 meetings in one semester, they proved that they have got more knowledge and experiences dealing with teaching skills. Feedbacks, comments and suggestions from their peers and lecturer motivated them to be better in preparation of teaching and creating a meaningful teaching and learning.

Regarding to Student 7 (S7)'s self-evaluation, she stated that the importance of getting feedbacks from peers and lecturer encouraged her to improve her teaching skills.

*"In my third micro-teaching session, I noticed significant strides in my teaching approach, yet I remain aware of several areas where improvements are crucial. Feedback from both lecturers and peers has been instrumental in shaping my growth. Specifically, I need to refine my skills in time management, ensuring that each lesson segment is effectively allocated. Moreover, enhancing my use of teaching media and integrating technology more seamlessly into my lessons will undoubtedly enrich the learning experience. Lastly, I aim to sharpen my clarity in giving instructions, ensuring they are concise, comprehensive, and easy to follow. These insights are pivotal as I continue to evolve and refine my teaching methodology, striving for continuous improvement in fostering an engaging and effective learning environment"*

More findings from S9's self-evaluation, she mentioned about knowing student's learning style, integrating technology must be including in planning the lesson of teaching and learning.

*"While participating in microteaching lessons, this experience was precious in honing my teaching skills. First, I learned to design and deliver lesson material in a short time clearly and systematically. Through feedback from mothers and classmates, I gained valuable insight into how to improve the clarity and effectiveness of messaging to students. Second, this experience also made me understand more about the importance of adaptation in class and full attention to the needs of students. I learned to be more sensitive to their level of understanding and adjust my teaching style to better suit each student's learning style third, through the process of reflection after each microteaching session, I increased my ability to identify strengths and weaknesses in my own teaching. I learned to be more active in creating fun classes by delivering material that is better and easier for students to understand, which helps me grow and develop as a more effective educator. Thus, this microteaching experience not only improved my technical skills in teaching but also deepened my understanding of the importance of self-reflection in the learning process"*

Based on the explanation above, it can be interpreted that microteaching can enhance the skills and professionalism of EFL student-teachers before they come to the real classroom at school. Lecturer, peers and her/his self-become the great support system in developing and improving their teaching skills. In line with Ledger and Fischetti (2020), it's important to have skilled mentors to help students build essential practices and bridge the gap between theory and practice. Teacher training programs typically consist of foundation, methods, and clinical practice courses. Fragmentation in teacher preparation can cause a disconnect between theoretical knowledge and practical work in classrooms, as well as relegating teaching practices to specific courses/modules rather than integrating them throughout the program.

Micro-teaching has numerous advantages and has long served as a beneficial preparation tool for student-teachers in real-world classrooms. Cooper and Allen's (1970) review of micro-teaching research discovered that performance in a micro-teaching environment accurately predicts future classroom performance. Micro-teaching began with small groups of students in schools practicing the delivery of micro lesson plans and behavior control tactics.

Teaching involves more than simply imparting knowledge. Borah (2021) argues that it is a multifaceted process that both facilitates and impacts learning. A teacher's efficacy is judged by how well their students absorb their instruction. According to Müller and Mildemberger (2021), classrooms are not conducive to developing essential teaching abilities. Regarding to the challenges S10, he described about unnatural student behavior, limited student interaction, limited time of practice teaching, artificial classroom environment and balancing theory and practice.

*"The challenges I face in microteaching class are that sometimes my peers, who play the role of students, do not meet my expectations and can be difficult to communicate with. I also find it challenging to determine the students' characters and learning styles. I do hope that having a microteaching guidebook and a well-equipped microteaching practice room can help prospective teachers learn and practice teaching."*

Referring to the explanation above, it can be interpreted that peers playing as students may not behave genuinely, either being too obedient or deliberately difficult in ways that do not match real classroom settings, which might undermine the authenticity of the teaching experiences. Moreover, microteaching's simulated nature may lack the unpredictable and dynamic character of a real classroom, restricting the development of real-world teaching abilities and classroom management strategies.

So, it can be concluded that microteaching allows the learner to focus on acquiring certain teaching abilities. Afolabi (2010) suggests that teachers develop their talents in a supportive environment, leading to a more meaningful teaching experience. Microteaching helps students prepare for classroom instruction by simulating real-life circumstances. Effective microteaching promotes professional development for trainee teachers. Allowing enough time for microteaching helps student teachers develop high-quality teaching skills.

Student teachers offered ways to increase the quality of microteaching. They recommended that microteaching lecturer allocate additional time for micro-teaching and assign themes during preparation to ensure adequate preparation time. Student teachers requested guidance on syllabus interpretation and peer teaching before engaging in microteaching activities.

#### 4. CONCLUSION

Based on the results of this investigation, the following conclusions were reached: This study found that micro-teaching assisted EFL student-teachers in developing teaching skills, reducing anxiety and fear, managing classroom situations, selecting teaching goals, preparing lesson plans, asking questions, speaking in front of groups, and managing time effectively.

This study concluded that microteaching had a positively impact to EFL student-teachers' practice performance. Therefore, microteaching performance can be utilized to predict students' teaching practice performance.

The study found that microteaching helped EFL student-teachers improve their teaching skills, confidence, ability to manage classes, select appropriate teaching goals, prepare lesson plans, speak in front of groups, select appropriate instructional materials, and manage time effectively, leading to improved teaching practice performance.

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## Living in the Arid Dryland through the Eyes of Young People in East Nusa Tenggara: A Narrative Study

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**Abstract.** It is undeniable that humans and the environment interact with each other. The environment affects of people's behavior who inhabit a place, and conversely, human behavior affects the environment. For example, an arid environment poses unique challenges to the people living in the area. One of the biggest challenges is the need for water. Individuals must adapt to survive in dry environments and limited water sources. The purpose of this study is to explore the lived experiences of young people living in arid environments. The selection of young people as the subject of this study is based on the fact that young people are an important element in the fabric of society and the starting point of development. A total of five female and three male young people, living in the dry environment for 17-21 years were involved in the research. A narrative research approach was used to understand the stories of life experiences in the dry environment. Data was collected using in-depth interview techniques. Thematic analysis was used to categorize the informants' personal experiences. The results showed that although some young people migrated outside the area, the dry, barren and rainy living conditions did not make the informants despair and leave their area. The desire to overcome life's challenges but having limited knowledge and skills to manage the dry environment is becoming the main conflict of young people. All informants agreed that the problems and impacts of the dry environment need to be addressed. However, the way young people perceive the problem affects their sensitivity to control over the problem. Three had internal locus of control and five had external locus of control. Further, in-depth research on the meaning of the content of the stories, the existence and role of young people in their environment, for example, still needs to be done.

**Keywords:** lived experience, young people, drylands, dry climate, narrative

### 1. Introduction

Indonesia, a Southeast Asian country with a tropical climate, is one of the agrarian nations in the region. With over 191.09 million hectares of land covering various islands, Indonesia has diverse environmental and biophysical characteristics, particularly in agricultural contexts. The country's environmental diversity is reflected in the variety of parent materials, soil types, climates, and topography. Socio-economic factors and local wisdom are also integral components in the utilization and development of land, alongside biophysical elements. Land, as defined, is the Earth's surface, which consists of climate, topography, relief, hydrology, and vegetation. Furthermore, land includes soil, parent materials or mineral rocks, and nutrients, serving as a resource for living beings (Alim, 2022).

One of Indonesia's provinces dominated by drylands with an extreme dry climate is East Nusa Tenggara (NTT), located in the easternmost part of the country. The geographic characteristics of this region have shaped its people's way of life for centuries, influencing every aspect of their existence, from traditional livelihoods to cultural value systems that have evolved

amidst such harsh environmental conditions. The dry climate introduces unique challenges, such as limited water availability, food shortages, and heightened health risks due to dehydration and climate-related illnesses.

Despite efforts to investigate the impact of climate change and environmental conditions in NTT, studies that focus on the lived experiences of young people in this context remain limited. Existing research may highlight certain aspects of these challenges but often lacks the narrative depth needed to holistically understand how young people in NTT face these environmental conditions, how they respond to them, and how these experiences shape their identities and perspectives on the future.

Experiences, as captured through sensory perceptions and stored in memory, can be acquired or felt immediately after an event occurs or after a long period. Experiences can be shared with others and serve as guidance and lessons for human life (Saparwati, 2012). According to Frankl (as cited in Naisaban, 2004), life has inherent meaning, which is not meant to be questioned but rather responded to, as all humans are responsible for living purposefully. This response is not through words but through actions.

Young people in NTT, much like previous generations, constantly face a variety of experiences in their environment, which generate both external and internal pressures stemming from the dry environmental conditions. This generation represents the guardians of the future of the region, tasked with preserving cultural heritage and maintaining ecological balance, while also adapting to increasingly pronounced global climate change. However, this group is also vulnerable due to limited educational opportunities, restricted access to healthcare, and a lack of economic prospects that could provide adequate income.

Therefore, an in-depth study of young people's lived experiences in dryland environments in NTT through a narrative approach is crucial. Such a study will offer valuable contributions to our understanding of the challenges faced by the younger generation in this region while providing a solid foundation for formulating more targeted policies and more effective intervention programs.

## 2. Method

### Location and Population

The study was conducted at Nusa Cendana University (Undana), one of the largest universities in East Nusa Tenggara (NTT), Indonesia. The university was chosen due to the diverse student population, representing various regions across NTT, including dryland areas. The population for this study consists of all active students enrolled at the university, with the sample focusing on students who come from dryland regions and have lived in such environments for a minimum of 15 years.

A snowball sampling technique was employed to select participants. The sample included five female and three male young people, each from different regions, faculties, and age groups. The demographic characteristics of the informants can be seen in Table 1 below:

No	Name	Gender	Age (years)	Study Program	Semester	Region of Origin	Duration of Residence (years)
1	Ef	Female	19	Guidance & Counseling	3	Beutaran, Lembata	19
2	Dn	Male	19	Physical Education	3	Beutaran	19
3	Kr	Female	21	Non-Formal Education	7	Oinlasi, TTS	21

4	An	Female	21	Law	7	Sabu Raijua	21
5	Dd	Male	21	Architecture	7	Sabu Raijua	21
6	Bar	Male	19	Physical Education	3	East Sumba	19
7	Sel	Female	17	Public Health	3	East Sumba	17
8	Mar	Female	20	Guidance & Counseling	3	Nagekeo	20

### Data Collection and Analysis

Data were collected using in-depth interviews conducted directly with the participants. The interviews were audio-recorded with the informants' consent. This method allowed for a comprehensive capture of each individual's narrative, reflecting their lived experiences in dryland environments. The analysis followed a narrative thematic approach, where data were coded, validated, and categorized to extract key themes from the participants' personal stories. The NVivo software was used to assist with thematic analysis, helping identify recurring patterns and organize the data. The thematic coding allowed for the systematic exploration of the informants' experiences, focusing on their perceptions of their environment, their understanding of local values, the risks and vulnerabilities they face, and their thoughts on environmental challenges.

### 3. Results

The study revealed several key themes related to the participants' experiences of living in arid environments. These include knowledge about the environment, the participants' personal definitions of dryland conditions, local values related to the environment, the risks and challenges posed by living in a dryland environment, and perspectives on courses that are characteristic of Nusa Cendana University. Upon further analysis, the following five themes emerged from the data:

#### a. Life Experiences in Dry Climates

The informants shared their perspectives on their environment, not only highlighting the limitations of their dry region but also its strengths and the personal significance it holds for them. The challenges of living in a dry area include hot weather, arid and barren land, and limited water availability. Local reservoirs often dry up during the summer, rendering them unable to irrigate agricultural fields. This dry condition affects food security, as agricultural activities depend heavily on the climate. On the positive side, some areas produce valuable commodities such as coconuts, copra, bananas, and economically significant crops like cocoa, candlenut, and vanilla. Here are some testimonies from the informants about their regions:

*“In our environment, the rain is unpredictable. It comes at uncertain times. During the dry season, most people tend to raise livestock, such as goats. When the food supply runs out, they usually barter for fish from other areas or purchase it. In my opinion, the place is very dry, with erratic rainfall. The income from the area is not enough to sustain life for a full year, and water is also scarce. People see us as living in a dry place with only the sea, mainly fish and other marine products. Unlike the mountainous regions that have more food, which they can sell, we only produce enough for our own consumption” (Ef-1).*

*“In our village, it's perhaps the driest of all in Lembata. People see the dry land as no longer important for supporting life. It's enough for basic needs, but it's hard to*

*support children's education. Some of the villagers have moved to other places to earn money to send their children to school” (Dn-2).*

*“In my area, it’s productive with plenty of crops like corn and bananas, but water is a big problem. During the dry season, a truckload of water costs Rp. 500,000 for 5,000 liters. They sell 1,000 liters for Rp. 100,000, so a full truckload costs Rp. 500,000. Most people complain because of the lack of water. One of the risks of living in a dry land is crop failure due to misjudging the rain. If the rain hasn’t come yet, and they’ve already planted, there’s no way to afford enough water to irrigate large fields” (Kr-3).*

*“The weather in Sabu is extreme, but it’s extreme in terms of dryness, not cold. My subdistrict has low rainfall, while others usually get rain one or two weeks earlier. My village is extremely dry. I haven’t been everywhere in NTT, but from what I’ve seen, Sabu might be the driest. On a scale of 1 to 10, I’d give it a 10” (An-4).*

*“We used to have more regular rain when I was younger. But since around the time I was in third grade, the rain has decreased significantly. We rely on wells for water, which used to be closer to our homes, but now many of the wells are nearly dry. The well that my family and several other households use has dried up” (Dd-5).*

*“Due to the heat, people plant crops that can withstand dry conditions, like pumpkins and sweet potatoes, which absorb more water from the soil. During the rainy season, most people have fields, and they construct water storage ponds to collect rainwater, which they then channel to irrigate their fields” (Bar-6).*

*“In that area, the land is dry and barren, but during the rainy season, it’s not as dry. During the dry season, many farmers plant peanuts, which can be optimized for cultivation during this time” (Bar-7).*

*“When I reflect on my hometown, I wonder if it will always stay this dry. I hope that people will learn to utilize the dry environment to meet their needs. Friends and lecturers who have visited often comment on how hot and dry Mbay is, even though it’s part of the same district as Boawae or Bajawa, which are much cooler” (Mar-8).*

#### **b. Plot**

The thoughts and feelings that arise concerning the environmental conditions vary among the informants. Several patterns of attitudes toward the dry environment emerged, including:

1. Dependence on Rainy Season Earnings for Dry Season Survival Many people still rely on what they earn during the rainy season to get through the dry season.  
*“The availability of food depends on the rainfall, too. If the rain is good, then they can have enough food, but if not, they go without. Usually, the rain starts in November, and by February, it has stopped” (Ef-1).*
2. Love for Their Dry Homeland Despite the challenges, some people express gratitude and attachment to their dry homeland.  
*“We are grateful because God has placed us here. So we enjoy it, even though it’s dry” (Sel-7).*

*"Although we were ridiculed when we were younger, we, the local people, still love our village and want to work" (Dn-2).*

3. Mixed Feelings About Staying in the Dry Region Some people are content with staying, while others prefer to leave. Many have migrated to Malaysia, leaving land uncultivated.  
*"There is laziness, frustration, and sadness because it's too hot to work outside. That is probably the main reason why people don't want to work outdoors" (An-4).*  
*"For us who are used to it, it's normal. But newcomers likely wouldn't be able to stand it" (Bar-6).*  
*"In our village, some people are comfortable staying, seeing it as a normal part of their heritage, while others have family members who have gone to Malaysia. They leave their children behind to go abroad, and as a result, much of the land is left unused" (Ef-1).*
4. The Major Problem is Access to Water One of the main issues is the difficulty in obtaining clean water.  
*"As for water for daily use, we rely on well water, pumped with a machine. But in the dry season, sometimes the water turns brown because the water level drops. We hit rocks at the bottom of the well because it's so dry" (Mar-8).*  
*"For me, it's about distance. Most rely on well water. The well is about 20 meters deep, and the distance from the house to the well is far, though I don't know exactly how far" (Dn-2).*
5. Low Knowledge of Dry Land Management Some residents lack knowledge about how to manage dry land properly. For example, they use harmful chemicals that reduce soil fertility.  
*"The use of pesticides and toxic materials to kill weeds, such as garamason, reduces soil fertility. Over time, the land becomes barren. This may not happen immediately, but after a year or two, the soil degrades, and the area becomes very dry" (Dn-2).*

#### c. Character

The following presents the thoughts and feelings of young people regarding their dry environmental conditions. In general, all informants described their area as dry and hot, making it difficult to farm during the dry season, with plants wilting and rainfall periods being short. As described by Mar:

*"The atmosphere there is really hot, especially during the dry season when it's extremely hot, and the plants look wilted. So when it rains, it feels like a new source of life" (Mar-8).*

The emotions experienced by the informants regarding their environment are varied. Some expressed happiness because of the strong social ties, tolerance, mutual assistance, being with family, and the attention received from the government. Others felt optimistic, believing that despite the dryness, there are still things that can be done. However, there were also feelings of concern, particularly for the elderly and those without income who struggle to access food during the dry season. Others expressed frustration due to the dry conditions and the difficulty of accessing water, while some felt indifferent, as they had grown accustomed to the situation.

*"As for my inner feelings, I am happy because aside from being with family, there is strong tolerance among neighbors. Unlike in big cities where people tend to*



*live independently, in Sabu, cooperation and mutual help are still strong. For example, in the city, you have to buy produce at the market, but in our village, neighbors can share their harvests with each other" (An-4).*

*"During the dry season like this, we feel sorry for the elderly and those without income, it's really sad" (Ef-1).*

The attitudes of young people toward the risks and challenges of living in a dry environment are influenced by their level of education. Those with an education level below high school tend to care less about the challenges in their area, often engaging in drinking and causing disturbances in the village. Meanwhile, young people who pursue higher education are more forward-thinking in addressing environmental challenges.

*"They are lazy to go to school. For example, in high school, they start drinking and get into trouble, and then get expelled. Some even get pregnant at a young age and then quit school" (Ef-1).*

*"For those of us who have completed high school and continued our studies outside the village, our thinking is broader than those who stay behind. When we return, we are more concerned about the environment, while those who stay in the village seem to care less and engage in bad habits, such as drinking" (Dn-2).*

**d. Conflict**

The conflicts that arise are not only between the informants and their environment but also with other people. There is a feeling of sadness when they see dry land left uncultivated, along with a desire to move away but being emotionally tied to their homeland. Internal conflicts within the informants include a desire to bring about change in their environment, but feeling limited by their own abilities, such as a lack of knowledge and material resources. They harbor hopes and dreams of one day bringing about change in their region, participating directly through local youth organizations in greening and cleaning efforts. Conflicts with other people stem from frustration with the unproductive behaviors of young people in the area, which do not align with the environmental challenges they face.

*"We are the young people in that area, and although we want to move away, we can't. That's our homeland, so we have to figure out how to manage it, like using water wisely" (Kr-3).*

*"For me personally, it feels sad, seeing the dry land. It's become common for us to deal with dry land, but it's frustrating to see young people just focusing on drinking. We can't intervene because there are village rules for addressing such behavior" (D-4).*

**e. Views on Environmental Challenges**

The informants have different perspectives on their life experiences. Informants two, four, and five recount their experiences from a personal viewpoint, while the others describe their experiences from the perspective of outsiders or their environment.

*"Physically, in terms of mindset, I think people are still reluctant to try. For example, they haven't attempted to process raw agricultural products. They tend to sell them in raw form rather than processing them. I think that's one of the weaknesses in Sabu—the lack of human resources to produce finished goods" (An-4)*

*"For me, my hometown holds many memories and has produced successful people. So, I hope that those who have become successful will pay more attention to this area" (Kr-3).*

## 4. Discussion



Dry, barren environmental conditions with limited water resources were common themes recounted by the informants. Low rainfall significantly impacts the community's food security and survival. One of the primary challenges of living in arid regions is that low rainfall can lead to decreased crop production and quality, crop failure, selling produce to middlemen at lower prices, reduced food availability, and a general lack of awareness about environmental conservation. Moreover, the hot weather tends to discourage outdoor activities. To overcome these challenges, some residents choose to migrate. Those who remain often engage in rain-calling rituals (lede lewu in Lembata, Kaijo ceremony in Nagekeo) during prolonged dry seasons, or they adapt by engaging in other activities to meet their needs, such as collecting snails, fishing to exchange for food, working in salt farms, selling water, selling summer fruits, or working as laborers in the rice fields. The greatest risk they face is that if crops fail, they have limited options to address the problem.

The environmental conditions and the challenges of living in drylands affect not only food availability but also influence the behavior of the youth. However, ecological behavioral responses can vary depending on cognitive and social factors (Widjanarko, 2019). The specific issues experienced by the youth in response to these environmental challenges include a lack of knowledge about managing drylands and how their attitudes toward the risks and challenges of living in such an environment are influenced by their level of education. This aligns with Iskandar's (2012) view that the lack of environmental education and preservation is a current issue in Indonesia.

Human perception is a crucial variable in shaping behavior toward the environment. One's perception of the environment is formed through their interactions with the world around them, personal experiences, and the information they receive from the media, education, and culture. This perception then influences their worldview, attitudes, and actions in addressing environmental issues. According to Vincent (as cited in Nugrahaningsih, 2015), perception can be influenced by several factors: 1) Past experiences can shape someone's current perception, as people tend to draw conclusions based on what they have seen, heard, or felt before. 2) Desires can influence one's perception when making decisions. 3) People tend to reject offers that do not align with their expectations. 4) Experiences shared by friends can significantly affect someone's perception.

The findings of this study suggest that differences in environmental perceptions reflect how young people view the environmental challenges they face. Those who recount their experiences and environmental issues from a personal perspective tend to have a problem-solving style centered on themselves (internal locus of control). In contrast, those who narrate their experiences from an external or environmental perspective tend to attribute problem-solving to factors outside of themselves (external locus of control). Young people who view the dry environment as a challenge that can be overcome through knowledge and education believe that innovation and technology can help address the problems in their region. This view is consistent with Carrim et al. (2006), who argue that such dimensions reflect the extent to which individuals believe that what happens to them is either within or beyond their control. They come to believe that hard work and personal abilities will yield positive results, fostering optimism in finding solutions within their community.

Some young people also view environmental responsibility as a duty beyond their own control. Those with an external locus of control believe that their actions depend on factors outside their personal control (Landy & Conte, 2004; Martin, Thomas, Charles, Epitropaki & McNamara, 2005). In interviews, informants expressed the need for government and local

authorities to assist in solving environmental problems, such as water scarcity, natural resource management, and improving community knowledge on how to transform drylands into viable living spaces. This view aligns with Levenson (as cited in April, 2012), who stated that external locus of control is commonly associated with control by powerful others or by chance and luck. The government is seen as a powerful actor in solving the drought-related problems in their environment, as well as in agricultural, irrigation, and community livelihood initiatives. However, the efforts made by the government are often considered insufficient in addressing these challenges.

Despite the findings, this study has limitations, such as not fully exploring the environmental values held by the youth, which could serve as motivational factors for individual behavior, nor the learning processes acquired from their environment. Environmental behavior demands an interdisciplinary approach, and further research integrating psychological, social, and cultural perspectives on the ecological behavior of youth is required.

## 5. Conclusions

The narratives of young people regarding the challenges of living in dry environments highlight the importance of managing food reserves to survive. Living in arid, barren regions with low rainfall does not cause all young people to give up and leave their areas. However, some choose to migrate in search of a better life. The conflicts that arise are both internal and external. External conflicts include the limitations posed by the dry environment, such as water scarcity, as well as the counterproductive attitudes of some youth in facing environmental challenges. Internal conflicts occur within individuals who are motivated to change the environmental conditions but lack the knowledge and skills to manage drylands effectively. Perceptions of the dry environment shape different meanings and values for individuals, influencing how young people narrate their life experiences and view environmental problems and challenges. Informants with an internal locus of control perceive the challenges of living in drylands as problems they must solve themselves, while those with an external locus of control believe the responsibility lies with the government. Environmental education is one potential solution to help young people confront the challenges of drylands, manage the environment, utilize available resources, and foster positive ecological behavior.

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## Transforming English Language Education with Gamification: An Analysis of Student motivation, Engagement and Performance

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**Abstract.** The recent development of digital technology has revolutionized various industries, including the education sector. The COVID-19 pandemic in 2019 necessitated the adoption of distance learning, resulting in a substantial increase in technological advancements and a demand for them. As a result, both teachers and students had to acquire digital literacy abilities. This study aims to explain the effect of employing Quizizz, Kahoot!, ClassPoint, Flippity, and Educaplay gamification on student motivation, engagement, and performance in the realm of English language training. This study thoroughly examines students' experiences with gamification in the context of English language teaching. The data was gathered by the utilization of a survey, examination, and observation sheet. Following the completion of the learning activity, a survey was given to a cohort of 35 vocational undergraduate students. The study's findings demonstrate the significant influence of gamification in the field of English language instruction. Participants regularly reported experiencing heightened engagement, motivation, and the cultivation of effective and enjoyable learning activities as a result of competition.

**Keywords:** *gamification, motivation, engagement, performance*

### 1. Introduction

The introduction of digital technology has completely transformed numerous industries, including the field of education. An important advancement is the utilization of gamification, which involves incorporating game components into non-game situations, in order to improve learning experiences. Within the field of English language teaching, gamification has emerged as a viable strategy to tackle issues pertaining to student motivation, engagement, and performance. By utilizing gamification elements such as reward, rankings, and challenge, educators strive to establish a more engaging and interactive educational setting that appeals to contemporary students who are adept at using technology.

The COVID-19 epidemic in 2019 required remote learning leading to a significant increase in technological progress and necessity. Consequently, both teachers and students were faced with the task of acquiring digital literacy skills. The effectiveness of technological adaptability in e-learning depends on the educator's knowledge, the institution's preparation, and motivation (barber, 2020). Effective e-learning is dependent upon digital literacy, which unavoidably influences the understandings and preference of both educators and learners. Thus, it is necessary for them to adjust to unconventional classroom environments by utilizing massive open online courses (MOOC), a learning management system (LMS), or online conferencing platforms that facilitate real-time interactions between educators and learners.

Technology is becoming more widely acknowledged as an essential tools, media and instrument in many educational settings for both teaching and learning purposes (Saichaie, 2020). In the context of English language instruction, technology has several benefits. It improves teaching and learning by increasing motivation, fostering student independence, offering a wide variety of reading resources, facilitating efficient learning, and enhancing communication (Mofareh, 2019). In addition, the use of digital content technology in English as a Foreign Language (EFL) education enhances the learning process and facilitates the creation of relevant learning experiences (Helvich et al., 2023). Integrating technology into the classroom is regarded as a new and modern method of instruction. One effective way to integrate technology into the classroom is through gamification.

Gamification refers to the incorporation of game characteristics into situations that are not related to gaming (Robson et al., 2015). Originally implemented in the corporate domain to foster interactive and significant interactions with user, gamification has subsequently gained extensive acceptance in several industries. Gamification has been increasingly popular in education due to its capacity to boost motivation and engagement in learning. As a result, it has become a preferred method in training and educational settings in recent years (Rincon, et al., 2022). Within this particular context, gamification is regarded as a progressive approach aimed at enhancing student interest and engagement by integrating elements of game design (Dichev & Dicheva, 2017). Studies suggest that the implementation of gamification can have a substantial influence on the educational experiences of students. Research has demonstrated that this method enhances student involvement and enhances learning results by making educational programmes more pleasurable and interactive (Kapp, 2012).

Regarding the acquisition of the English language, the implementation of gamification techniques, such as badges, point systems, and educational games, can offer prompt feedback and cultivate a competitive yet encouraging environment for learning (Turgut & Rabia, 2017). Fitria's (2022) study suggests that gamification, also known as game-based learning, is expected to have a positive impact on students. According to Indriasari, et al. (2020), gamification has been employed to increase student engagement in peer review tasks. According to Manzano-Leon et al. (2021), educational gamification has a substantial impact on academic achievement. A study conducted by Hsu and Wang (2019) emphasizes that the implementation of gamification not only increases students' motivation but also improves their performance in language learning tasks. By skillfully incorporating game and competition elements, the process of learning can become more interesting and fun, thereby enhancing students' motivation to study. To enhance the learning experience, it is crucial to establish a well-defined concept and objectives, and to actively involve students in a manner that enhances enjoyment and immersion.

One of the breakthroughs in English language instruction is the use of gamification, specifically through platforms like utilizing Quizizz, Kahoot!, ClassPoint, Flippity and Educaplay, which has shown to be a powerful tool. They are educational platform that utilizes interactive quizzes and competitive features. Gamification in education entails integrating game design components into the learning process to stimulate and captivate pupils. Quizizz, Kahoot!,

ClassPoint, Flippity and Educaplay prove this by transforming quizzes into a vibrant sport where students accumulate points and receive instant feedback. This interactive structure not only engages students but also boosts their motivation to actively participate. They offer students the chance to engage in English practice through interactive and enjoyable activities, turning ordinary exams into a competitive and immersive experience in a supportive environment. The rapid feedback mechanism and gamified environment of this platform motivate students to actively engage and work towards increasing their language skills.

This study aims to clarify the impact of using Quizizz, Kahoot!, ClassPoint, Flippity and Educaplay gamification on students' motivation, engagement, and performance in the field of English language instruction. The study seeks to evaluate the students' motivation, engagement, and performance of this gamification method in addressing educational obstacles and fostering a more engaging and efficient learning atmosphere through a comprehensive examination. The study aims to provide significant insights into the impact of Kahoot! gamification on modern English language training and its potential benefits for learners and educators.

## **2. Research Method**

This study utilized a mixed-method technique, which involved pretests, posttests, and a semi-structured questionnaire, to successfully investigate individual experiences and opinions (Creswell & Creswell, 2018). To fully understand the impact of gamification in English language training, it was necessary to employ qualitative methods, specifically semi structured interviews, due to the intricate nature of the subject. This research comprehensively investigates students' encounters with gamification in the context of English language instruction. The study approach is determined by its suitability for studying individual perspectives, enabling a thorough assessment of the impact of gamification. Criteria of success refer to the specific measurements or standards that are utilized to evaluate the effectiveness or accomplishment of a certain activity. The success criteria in this study entail active student participation in the teaching and learning process. The students demonstrate high levels of engagement and motivation, with an estimated 70% actively participating in the teaching-learning process through attending class, completing assignments, and engaging in educational games.

Data was collected using a survey, test and observation sheet. After completing the learning activity, a survey was administered to the group of 35 vocational undergraduate students. The survey was created with the intention of assessing the motivation and engagement levels of participants in gamification activities and game-based learning activities that were given during the course while the test to measure the students' performance. The primary emphasis of the class observations was on motivation and involvement. All learning activities in the class were documented in the field notes. The assessment comprised a performance test to evaluate students' speaking abilities and listening comprehension, as well as a multiple-choice test to assess their reading comprehension and listening skills. A rubric was implemented to evaluate students' performance in speaking and writing, in order to determine their scores.

### 3. Findings And Discussion

The study of individuals' experiences in gamified English language classes has yielded significant results, providing insight into the various impacts of gamification on factors such as engagement, motivation, and performance. By examining a range of subjects, the study captures participants' perspectives, offering a valuable outlook on the substantial effects of gamification. The findings highlight the diverse ways gamification influences English language instruction, including improvements in student engagement and attitudes, the motivational benefits of competition, and the effectiveness of incorporating varied learning activities.

The results reveal the positive impact of gamification on their engagement and overall attitude towards learning English. Many students have observed that increased class attendance reflects the beneficial relationship between gamification and active participation (Inayati & Waloyo, 2022). The adoption of gamified teaching methods appears to have transformed the traditional classroom environment, making it more dynamic and engaging.

In addition, the participants consistently conveyed increased enthusiasm linked to gamified learning exercises. The participants emphasize the emotional advantages brought about by gamification. These views are consistent with prior research, which highlights the beneficial emotional influence of gamified methods on individuals learning a language (Rahayu et al., 2022). Moreover, the distinctive and pleasurable elements of gamification enhance the development of a favorable and attractive learning environment (Dian Anisa et al., 2020).

Table 1. Result of Students' Answer on Engagement and Motivation

NO	Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I desired to thoroughly investigate all the available alternatives due to their high level of difficulty	5%	5%	12%	52%	26%
2	I perceived time to elapse swiftly during the process.	3%	4%	10%	56%	27%
3	My objective was to successfully accomplish the game, regardless of its outcome	3%	4%	13%	59%	21%
4	I didn't mind how the game concluded.	21%	60%	9%	6%	4%
5	I experience a sense of boredom when engaging in its gameplay	29%	54%	9%	5%	3%
6	I prioritized achieving success in this task.	5%	5%	12%	54%	24%
7	I would depict this activity as highly captivating.	3%	4%	10%	60%	23%
8	I exerted significant effort in completing this activity	42%	35%	5%	14%	4%
9	I did not exert much effort in	32%	36%	16%	12%	4%



	performing well in this activity					
10	I did not devote much energy into this task	3%	4%	13%	51%	29%

The majority of participants about 78% reported being sufficiently stimulated to explore all available alternatives, while only 7% expressed feelings of boredom. The majority of participants 80% expressed a willingness to complete this gamified learning exercise. Gamification has a notable impact on student engagement with the learning material. The students were not only acquiring knowledge from their institutions, but they were also striving to comprehend and assimilate the material (Cahyani, 2016).

The motivation of students plays a vital role in conceptual transformation processes that involve emotional aspects, critical thinking, learning strategies, and academic success. Students exhibit intrinsic motivation once they have established their desired outcome. Consequently, the students are motivated to take action in order to fulfil their inherent drive to enhance their own performance. Gamified learning interventions can enhance student motivation throughout the learning process. The table comprises statements that are relevant to engagement. This study also investigated the potential of gamified learning scenarios to enhance students' motivation. In general, the feedback was favorable: 90 % of participants expressed the belief that performing well on this assignment was essential to them. About 83 % of students found it engaging and considered the Quizizz, Kahoot!, ClassPoint, Flippity and Educaplay game to be intriguing.

The outcomes of incorporating gamification in English language learning demonstrate the long-lasting effectiveness of competitive elements in motivating participants to improve their performance. These findings align with previous scholarly studies that emphasize the motivational impact of competition in gamified environments (Li et al., 2022). This acknowledgement highlights the importance of the competitive element in gamification as a key motivator for individuals to actively engage in the educational process and continuously strive for personal growth.

Participants in the competition also priorities self-improvement and aiming for perfection. This demonstrates how gamification can be a powerful motivator. Introducing competition as a means of motivation not only encourages learners to actively participate but also emphasizes individual achievement as a primary objective (Q. Zhang & Yu, 2022). This aligns with the self-determination theory, which posits that tasks perceived as challenging and providing autonomy might enhance intrinsic motivation (Jones et al., 2022). The positive reactions expressed in the competitive aspects of gamification provide more insights into the motivational benefits linked to these characteristics. The recognition that competition serves as an incentive for participants to develop more ambitious aims aligns with the idea that rivalry can stimulate individuals' drive to pursue greater effort for demanding accomplishments (Shekels & Tranter, 2022). Furthermore, the participants' recognition of the challenges associated with balancing cooperation and individual effort in a competitive setting highlights the complex and fulfilling aspects of managing rivalry in the context of gamified learning.

Table 2. Overall English Score

	Mean Score	Standard Deviation
<b>Pre-Test Score</b>	64.32	5.56
<b>Post-test Score</b>	78.64	5.47

Table 3 T-test Score

	F	Sig.	t	df	Sig. (2-tailed)	Mean differences	Std. error differences
<b>Pre-Test Score - Post-test Score</b>	.516	.523	3.142	34	.001	6.343	1.993

The average English skills Pre-Test mean score of the students is 64.32, with a standard deviation of 5.56. The students' English mean score in the Post-test Score is 78.64, with a standard deviation of 5.47. Based on the data from table 3, it can be concluded that the t-test value (3.142) is greater than the t-table value (2.72), and the P-value (0.001) is less than 0.05, indicating a substantial difference in the Overall English Score when utilizing Quizizz, Kahoot!, ClassPoint, Flippity, and Educaplay for gamification. From the above table, it is obvious that the significance level (two-tailed) of 0.001 is lower than 0.05. This proves a distinguished difference in students' English language proficiency while utilizing Quizizz, Kahoot!, ClassPoint, Flippity, and Educaplay gamification for English language learning.

Using Quizizz, Kahoot!, ClassPoint, Flippity and Educaplay can provide challenges, such as students encountering issues accessing the internet due to either leaving their devices at home or their batteries running out. As a result, they may only be able to view the questions without actively participating in the game. In the event that an issue arises, one of the students may encounter a difficulty, prompting the teacher to potentially modify the configuration of the games to be conducted in a collective manner. Another issue in gamification is the restricted range of question types available in the free version. The available choices are limited to multiple-choice and true-false formats and this constraint restricts the teacher's ability to obtain pupils' responses to an open-ended question that requires more extensive elaboration (Resmayani, 2019). Teachers can enhance their interactions by upgrading to the premium account through a monthly subscription.

## Discussion

Extensive research provides strong evidence for the effectiveness of gamification in enhancing student motivation and engagement. The utilization of online games for gamification can have a significant influence on students' motivation to acquire English language skills through various means. By utilizing Quizizz, Kahoot!, ClassPoint, Flippity and Educaplay, students are incentivized to succeed since they are able to observe the rankings of their peers. Additionally, students desire to participate in competitions and engage in learning activities due to the straightforward and easily comprehensible game rules offered by both platforms. The

usage of online platforms enhances student enjoyment and engagement by providing participants with appropriate feedback or prizes. The students exhibit significant enthusiasm for learning when games are introduced, as opposed to while studying in a traditional manner. A study conducted by Nitiasih et al. (2022) discovered that the implementation of gamification, specifically using local stories, resulted in heightened student incentive to read and improved reading comprehension. The study also proposed that in a gamified learning environment, teachers can employ a digitally-based narrative. Presently, numerous research findings indicate that digital reading material is more widely favored than printed reading material (Kaban & Karadeniz, 2021).

Furthermore, the prior investigation revealed that the students experienced boredom as a result of the learning activity that did not use the game. However, when utilizing the game, the students shown increased enjoyment and engagement. Gamification has the potential to offer a captivating and dynamic learning experience, hence enhancing the enjoyment and amusement of learning English. According to Chen and Yao (2021), engaging in online games might enhance students' pleasure and contentment with English learning tasks, hence boosting their motivation. Furthermore, the implementation of gamification in education can cultivate a spirit of rivalry among students, leading to heightened drive to excel and attain incentives. Competition and rewards in online games can enhance students' innate drive to learn English (Balaji & Chakraborty, 2021). Furthermore, gamification can offer prompt feedback and reinforcement, enabling students to track their progress and acknowledge their achievements. Feedback and reinforcement in online games can increase students' motivation and participation in English learning activities (Liu, Kuo, & Chao, 2021). In addition, online games have the potential to enhance students' cognitive abilities and foster their motivation to acquire English language proficiency (Mallick, et.al, 2021).

In general, incorporating gamification through online games can significantly enhance students' involvement in English courses. Gamification facilitates an enjoyable and dynamic educational experience, where competition and prizes foster internal drive, prompt feedback and reinforcement heighten involvement, and the development of problem-solving abilities boosts confidence and motivation to acquire knowledge. Implementing the use of Quizizz, Kahoot!, ClassPoint, Flippity and Educaplay Application Assisted Learning Gamification can create a dynamic and engaging learning environment that promotes healthy competition among students. This is achieved through the delivery of material and the use of multiple-choice quizzes, which are more effective than traditional lecture and question and answer methods. This is confirmed by the rise in scores on each language skill being measured.

#### **4. Conclusion**

The primary aim of this study was to examine the impact of gamification on the field of English language instruction. More precisely, the study aimed to investigate the impact of gamified learning environments on students engagement, motivation, and performance the overall learning experience. The study's findings show the substantial impact of gamification in

English language teaching. Participants consistently reported having increased engagement, motivation, and the development of effective and pleasurable learning activities as a consequence of competition. The t-test table indicates that the significance level (two-tailed) of 0.001 for the overall English Score is lower than the threshold of 0.05 when using Quizizz, Kahoot!, ClassPoint, Flippity, and Educaplay for gamification. This demonstrates a notable disparity in students' English language aptitude when using Quizizz, Kahoot!, ClassPoint, Flippity, and Educaplay gamification methods for English language acquisition. Gamification not only improved attendance but also increased the learning environment by fostering a more dynamic and engaged culture. Consequently, this encouraged a sense of excitement and pleasure in the overall process of learning. In summary, this research emphasizes the potential of gamification to revolutionize English language teaching by fostering positive learning experiences. As educators and policymakers investigate innovative approaches, the integration of gamification emerges as a feasible way to develop dynamic, engaging, and efficient language learning environments.

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## A Critical Discourse Analysis on “Big Show” Teacher’s Guide Level 5: Cultural References, Moral Values, and Power Dynamics in Indonesian Society

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**Abstract.** The present study undertakes a Critical Discourse Analysis of the "Big Show Teacher's Guide Level 5," with a specific emphasis on the portrayal of cultural consciousness, ethical principles, implicit messages, and power dynamics, within the Indonesian societal framework. The research indicates that although the handbook incorporates cultural variety and advocates for moral principles, it frequently mirrors Western cultural standards that may not completely correspond with the communitarian ideals and indigenous customs prevalent in Indonesia. The study also emphasizes the guide's subtle reinforcement of consumerist ideology and individual accountability, which may conflict with the prevailing collective moral framework in Indonesian society, particularly in Islamic Montessori schools. Moreover, the guide's focus on Western settings and language may marginalise non-Western identities, therefore posing a challenge for learners to actively participate in global views while yet maintaining their cultural identities. The results underscore the significance of developing educational resources that are culturally sensitive, aligning with local norms and so improving intercultural competency.

**Key words:** *critical discourse analysis, Big Show, Power Dynamic, Moral value*

### 1. Introduction

The incorporation of English language instruction in non-native settings has been a topic of extensive scholarly investigation and pedagogical discussion for a considerable period of time. The ongoing consolidation of global English as the dominant language necessitates a thorough analysis of its pedagogical consequences, especially in culturally varied settings. The approach to English education in Indonesia has experienced substantial transformations, especially after 2015 when the government discontinued the requirement of English as a compulsory subject in elementary schools. This change in policy demonstrated an increasing acknowledgment of the necessity to give priority to national languages and cultural identity at the early stages of schooling. Nevertheless, despite this shift in policy, English continues to be an essential element of Indonesia's secondary and postsecondary education, motivated by its perceived significance for worldwide competitiveness. Hana Sakuragi, the author of the "Big Show Teacher's Guide Level 5," is a prolific contributor to educational resources aimed at instructing English to young learners, particularly in places where English is not the first language. This handbook, published by PT. Asta Ilmu Sukses in Indonesia in 2019, is a component of a wider effort to include global English education into many cultural settings.

Developed by Ellie Kim, the project underwent content editing by Peggy Anderson and was specifically designed for the Indonesian educational market, aligning with the worldwide tendency of adapting English language learning resources for local settings. This release coincided with a period of substantial overhauls in Indonesia's educational policy, namely following the elimination of English as a mandatory subject in elementary schools in 2015. This

transition underscored the importance of educational resources that not only impart English language skills but also uphold and integrate indigenous culture and ethical principles. The handbook, although it aligns with international educational norms, also demonstrates the intricacies of establishing a uniform curriculum in a culturally and linguistically varied country such as Indonesia. The partnership of worldwide and local educational specialists in creating this handbook emphasizes the continuous interplay between global and local factors in language teaching, especially in a swiftly advancing society. Established in 2001 with the aim of investing in the development of exceptional Indonesian human capital. Mentari Group has established itself as a prominent educational provider in Indonesia, gaining confidence for over twenty years by offering textbooks, teacher training, English language assessments, and a network of independent retailers.

The objective of this study is to utilize Critical Discourse Analysis (CDA) to examine the portrayal of cultural awareness, moral values, power dynamics, and specific implicit messages in the English language teaching resource, the "Big Show Teacher's Guide Level 5." In the present era of extensive interconnectivity, the comprehension and appreciation of many cultures have become increasingly fundamental. Nevertheless, apart from the apparent cultural disparities, there exist underlying strata of ethical principles, unexpressed signals, and power dynamics that influence the communication and interpretations. This introductory section analyses the complex correlation among these elements, acknowledging that although there are notable cultural differences, they are all based on common human experiences and principles. The present study aims to investigate the potential of cultural knowledge in facilitating the navigation of intricate situations, so promoting empathy, understanding, and respect in our interpersonal engagements. Fairclough (1995) identifies four interrelated components that are crucial for comprehending a discourse: cultural awareness, moral standards, implicit codes, and power dynamics.

Cultural awareness refers to the ability to correctly recognize and appreciate both the differences and similarities that exist across different civilizations. A comprehensive grasp of the values, beliefs, practices, and behaviours that are distinctive to many groups is essential for this skill. A crucial aspect of Critical Discourse Analysis (CDA) is its ability to enrich our comprehension of the interplay between language, power, and society in many cultural settings (Fairclough, 1995). It is crucial to acknowledge that speech is intrinsically linked to culture, being thoroughly influenced by the values, beliefs, and customs of the groups from which it originates. Hence, using speech analysis without taking into account the cultural context might result in misinterpretations, misunderstandings, and ethnocentric findings. Cultural awareness, within the framework of Critical Discourse Analysis (CDA), refers to the recognition of how language is both shaped by and mirrors variation in culture. This knowledge necessitates a comprehension of how cultural standards, perspectives, and social frameworks influence communication methods, the creation of meaning, and the exertion of authority (Sharifian, 2011). A thorough comprehension of this concept is crucial for a rigorous assessment of how communication operates to support or question existing power systems, especially in multicultural and cross-cultural settings. The cultivation of cultural awareness enables analysts to enhance their ability to discern the ideologies inherent in language, elucidate the cultural underpinnings of social interactions, and critically examine prevailing narratives that sustain injustice (Surjowati, 2021). In the end, the incorporation of cultural knowledge enhances Critical Discourse Analysis (CDA), therefore facilitating a more intricate and thorough exploration of the function of language within society.

Textbooks are crucial instruments in the process of acquiring knowledge, not only for the instruction of language but also for the transmission of ethical principles. They furnish course content that shapes students' social interactions and their conduct in society. Pratama and Retnawati (2018) argue that textbooks serve as ideological tools, transmitting prevailing society norms. Therefore, these materials effectively communicate many significant lessons that students may use in their local communities. English instructional materials have a purpose beyond language acquisition; they are profoundly imbued with principles such as accountability, attentiveness, and compassion. Widodo (2018) states that textbooks convey ideas through both visual and verbal elements, frequently introducing ideals that are unfamiliar to both educators and learners. The significance of these moral messages lies in their purpose to impart character development to children through their educational encounters. Textbooks used in English education frequently incorporate principles such as integrity, self-control, and accountability. Furthermore, this integration encompasses not just the subject content but also character development, motivating students to incorporate these behaviours into their everyday life. The inclusion of principles such as discipline and honesty in English classes serves to strengthen ethical behaviour that students may extend outside the confines of the classroom. Not only do textbooks provide explicit teachings, but they also carry implicit moral precepts. Sukma et al. (2021) argue that religious views, work ethic, and respect are prevalent in several textbooks, although they may not always be explicitly addressed. These latent principles influence students' comprehension of ethical conduct in different social contexts. The significance of exhibiting courteous and responsible behaviour is frequently emphasised in language instruction textbooks. The data further demonstrates that English textbooks actively encourage ethical principles in student-teacher relationships. Texts frequently portray situations in which students are urged to assist each other, demonstrating concern and accountability. In some situations, such as when a student provides assistance to another who is feeling overwhelmed, the moral teachings underscore the need of collaboration, compassion, and consideration for others. Moral values function as the fundamental principles that guide human behaviour and influence our concepts of ethical behaviour. Intricately interwoven with our cultural and societal circumstances, these values also mirror our own convictions and experiences. Moral worth is a quantification of the judgment of society on the conduct of a group of individuals (Mahrudin et.al, 2023).

Implicit communications encompass nuanced or inadvertent cues that have the potential to influence our cognition, mood, and actions. These messages can be conveyed by means of certain words, graphic representations, symbols, and nonverbal signals (Richards et.al, 2017). In general, English textbooks have a vital function in imparting moral principles through both direct and indirect information. The aforementioned principles encompass accountability, empathy, environmental stewardship, and collaboration (Engelen et.al, 2018). Through the integration of these teachings into the curriculum, textbooks serve as a valuable tool in directing students not only in their academic pursuits but also in their moral and ethical growth, therefore cultivating a comprehensive character that may have a beneficial influence on society.

Foreign language textbooks also have a role in promoting internationalization and globalism, however they frequently place excessive emphasis on the source culture, therefore restricting students' capacity to interact with global viewpoints. An Algerian English as a Foreign Language (EFL) textbook emphasizes national culture by using frequent mentions of local personalities, monuments, and festivities, therefore promoting a feeling of national cohesion and loyalty (Faiza et.al, 2022). Although English is widely acknowledged as a means of worldwide communication,

the emphasis on local culture hinders learners from wholeheartedly adopting a broader and more complex multinational perspective. This difficulty exemplifies the wider dilemma in language teaching, where the promotion of global proficiency must be balanced with the preservation of cultural identity. Meerbek (2023) mentioned that power dynamics refer to the distribution of power and influence in a community or organization, which may be affected by several elements such as social standing, economic means, educational achievement, and political sovereignty. Asghar (2014) argues that power dynamics manifest in the selection of vocabulary and the construction of sentences. The power of dominant groups lies in their capacity to exert influence by molding the discourse surrounding certain topics, therefore determining the boundaries of inclusion and exclusion in conversations and impacting the development of identities. The manifestations of power may be observed in several domains, including media, politics, and education, where the language used mirrors concepts of authority, legitimacy, and marginalization.

The objective of Critical Discourse Analysis (CDA) is to uncover the fundamental power dynamics, therefore facilitating a rigorous analysis of how language operates as a tool for both subjugation and opposition (Wodak, 2008). The use of Critical Discourse Analysis (CDA) enables researchers and analysts to reveal the intricate processes of language that either support or question social disparities, therefore enhancing comprehension of the impact of discourse on individuals and society. The approach is especially pertinent considering the cultural setting of Indonesian culture, where educational resources frequently mirror wider global influences that may or may not correspond with indigenous cultural norms. The cultural panorama of Indonesia is both abundant and varied, encompassing a multitude of races, languages, and religious customs. In this heterogeneous environment, Islamic educational institutions, particularly those that adhere to the Montessori approach, have become prominent. Islamic Montessori schools integrate the child-centered and exploratory learning paradigm of Montessori education with Islamic principles, therefore fostering not only academic achievement but also moral and spiritual development in accordance with Islamic doctrines (Abu et.al, 2023). The Indonesian society places substantial emphasis on both intellectual and ethical growth, with religious and cultural values exerting a profound influence on educational methods.

An exemplary illustration of how worldwide educational materials are tailored, or not, to the particular local circumstances of Indonesian culture is the "Big Show Teacher's Guide Level 5," a resource specifically created for teaching English to young learners. In this Critical Discourse Analysis (CDA), our objective is to investigate the extent to which these materials conform to or deviate from the cultural and moral principles that are highlighted in Indonesian Islamic Montessori schools. Through its analysis, this research will illuminate the wider consequences of employing internationally manufactured educational resources in Indonesian classrooms, namely in relation to cultural portrayal and the strengthening of certain moral and ethical principles. The results of this study are anticipated to enhance the current discourse on the function of English language education in Indonesia, namely in terms of its harmonization with national educational objectives and local cultural principles. Moreover, by recognizing the impact of Islamic Montessori concepts, this research emphasizes the need of integrating native educational ideologies into English language instruction, guaranteeing that the teaching methods not only promote language learning but also align with the cultural and moral orientation of the students.

## **2. Research Method**

The core methodology used in this study is Critical Discourse Analysis (CDA). This methodology enables a thorough analysis of both visual and verbal content in the teacher advice book, with the goal of revealing the hidden implicit signals sent through the material (Fairclough, 1995). The introduction highlights the importance of Critical Discourse Analysis (CDA) in educational research, namely in examining how language and representations might influence students' understanding of moral principles, cultural consciousness, and power relations (Van Dijk, 2001). The importance of values in education is emphasized, since these values are crucial for the overall growth and social development of pupils. The introduction posits that textbooks serve not just as instruments for language acquisition but also have a pivotal function in cultivating virtues such as accountability, attentiveness, and altruism. Such viewpoint is consistent with the overarching educational objectives established by the Ministry of Education and Culture of the Republic of Indonesia. Furthermore, it provides a structure for the research, emphasizing the interaction among language, morality, and education, and lays the foundation for the subsequent findings that will be examined in the last section of the paper (Wodak, 2008).

### 3. Results

The "Big Show Teacher's Guide Level 5" showcases a deliberate attempt to integrate cultural understanding into its language courses, notably by utilizing examples and situations in the exercises. Including instances such as inquiring about the frequency of chopstick usage (e.g., "How often do you use chopsticks?"). Indicating that chopsticks are never used implies a deliberate effort to acquaint children with cultural variety. The use of chopsticks as a cultural emblem, particularly in East Asian societies, serves to emphasize the aim of fostering pupils' awareness of diverse cultural customs. Nevertheless, there is a nuanced complexity in how this portrayal may be interpreted. For example, if the question "How often do you use chopsticks?" is followed by "I never use chopsticks," it may inherently promote a perception of "otherness" towards cultures where chopsticks are often used. This has the potential to strengthen a prevailing cultural viewpoint, especially in areas where chopsticks are not customary, therefore marginalizing those who belong to such cultures.

The guide implicitly incorporates moral principles, frequently inside the framework of the teachings. For example, students are prompted to articulate their practices using adverbs, and some of these sessions involve conversations on conduct and its ethical ramifications. The lesson on articulating activities with adverbs such as "beautifully," "carefully," "poorly," or "carelessly" implicitly encourages the importance of performing tasks with excellence and conscientiousness. As an illustration, the associated narrative from Unit 2 incorporates expressions such as "Attempt to contemplate the appropriate approach to accomplish tasks." The adage "Whatever you do, always try to do your best" encapsulates the moral value of pursuing excellence and being conscientious of one does. This discourse embodies a global ethical doctrine that surpasses cultural boundaries, advocating for the notion that excellence and attentiveness in one's deeds are commendable principles. Nevertheless, the Critical Discourse Analysis (CDA) would also take into account the fundamental power dynamics and if these moral teachings are enforced from a certain cultural perspective, which may not consistently correspond with the varied moral frameworks of all pupils.

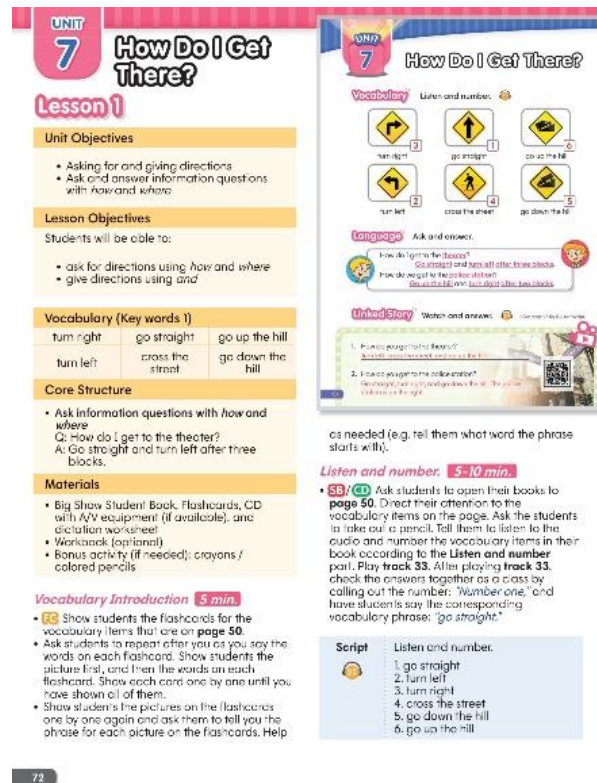
Critical Discourse Analysis (CDA) also examines the implicit or unexpressed aspects in the texts. For instance, the use of some cultural allusions instead of others might indicate the distribution of power and the favoritism directed towards particular cultural standards. This guide



clearly demonstrates the influence of Western or globalized consumer culture by using allusions to supermarkets, economic transactions, and iconic items such as soap, shampoo, and toothpaste, which are globally recognized yet originating from a specific global culture. This emphasis may eclipse the significance of local or indigenous cultural traditions and values. Moreover, the moral principles imparted are frequently couched in a manner that conforms to worldwide or Western standards, such as the significance of individual accountability and self-enhancement, which may not completely connect with societies that prioritize community values. In order to conduct a more comprehensive Critical Discourse Analysis (CDA) that specifically examines cultural awareness, moral values, power dynamics, and other hidden signals within Indonesian culture, I will highlight concrete examples from the "Big Show Teacher's Guide Level 5." The examination will contain concrete illustrations, potential consequences, and their comparison with the cultural and societal standards often observed in Indonesia.

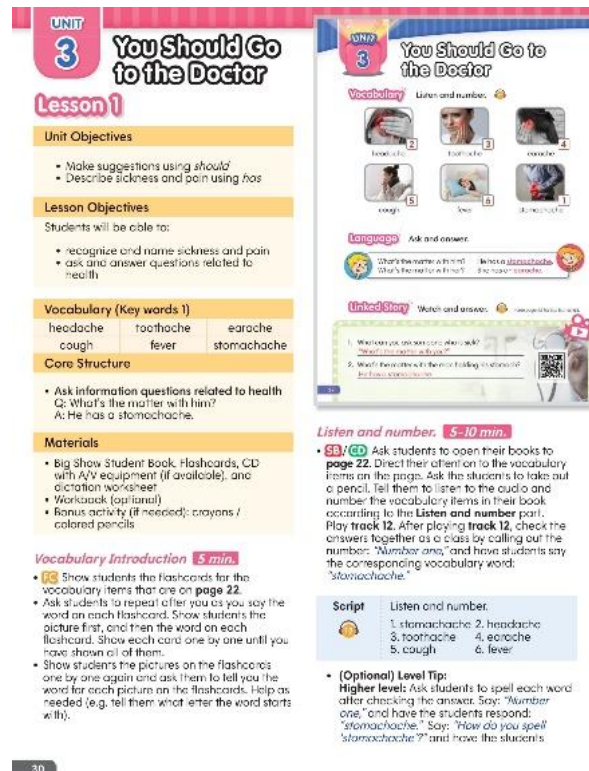
In Unit 7: Directions Geography, the lesson on requesting and providing directions incorporates expressions such as "Go straight and turn left after three blocks" and "Where is the bus station?" The event is imminent. The scenario presupposes a metropolitan setting characterized by organized thoroughfares and urban transit networks that are more prevalent in Western cities compared to many regions of Indonesia. The instruction of directions mirrors the cultural milieu commonly found in Western or advanced urban regions, which may not align completely with students from rural or less urbanized regions of Indonesia where public transportation networks are less advanced or where navigation depends on landmarks rather than street names and blocks. This is likely to estrange students from these regions or portray an erroneous portrayal of their actual experiences. In Indonesia, particularly in rural regions, individuals frequently provide directions by references to prominent features (e.g., "Turn left at the large tree" or "It is in close proximity to the market"), which is not evident in the provided information. This might be interpreted as a nuanced manifestation of cultural hegemony, in which Western standards are given precedence over indigenous customs.





Picture 1

In Unit 3: Sickness and Pain Health covers strategies for managing illness, such as seeking medical attention for a toothache. I ought to visit the dentist. This recommendation is consistent with a contemporary, individualistic health care philosophy. The guidance underscores the need of personal accountability for one's health, reflecting ethical principles that give priority to self-care and individual decision-making. Nevertheless, within Indonesian culture, especially in more conventional societies, health concerns are generally addressed collectively, with family members or neighbours assuming a substantial role in providing care. The given content fails to acknowledge or include this community attitude, thereby potentially neglecting a significant element of moral and social values within Indonesian culture. Within several Indonesian communities, there exists a notable focus on communal assistance and familial obligations, particularly during periods of sickness. The emphasis on individual accountability may not sufficiently appeal to pupils who are accustomed to more communal methods of care and well-being.

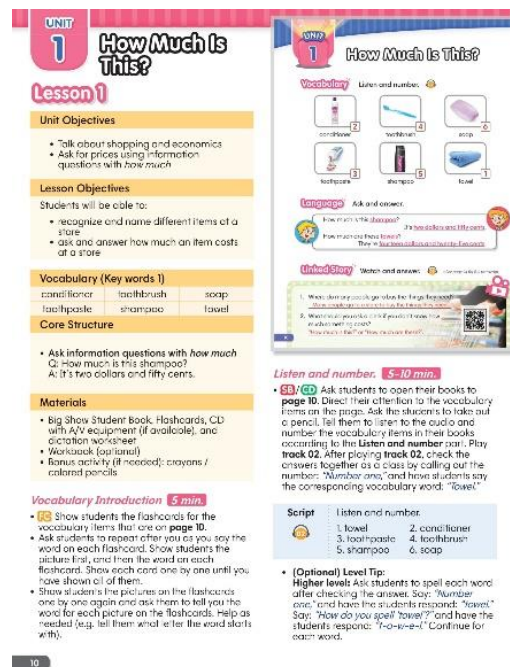


Picture 2

The guide also employs characters such as "Louie", "Rachel", "Anna", and "Jeff" and frequently showcases situations like grocery shopping and discussions on items such as "shampoo," "conditioner", and "toothpaste". Implicitly, the employment of Western names and situations reinforces the notion that they represent the standard or ideal, hence perhaps marginalizing non-Western identities and experiences. Many Indonesian students, particularly those hailing from rural regions or with diverse cultural origins, may encounter greater difficulty in identifying with these people and situations. Implicitly, this may imply that Western lifestyles and commercial products are superior or more desired. In Indonesia, the nomenclature, everyday situations, and social transactions might exhibit significant variations contingent upon the geographical area and cultural context. Profound reliance on Western settings might not only isolate certain pupils but also inadvertently weaken the abundant variety of Indonesian cultural identities, where local names, traditional marketplaces, and indigenous customs have a prominent position.

In Units 1: Shopping focuses on acquiring prior knowledge about pricing, doing product comparisons, and comprehending consumer interactions, such as questioning about the cost of a shampoo or determining that it is two dollars and fifty cents. This content emphasizes a consumerist paradigm, which mirrors power relations in a worldwide society where consumerism is commonly perceived as a universal standard. This can perpetuate the notion that value is obtained from the capacity to engage in consumer culture, which may not correspond with the economic circumstances or principles of all Indonesian students, especially those from less prosperous backgrounds where conventional, non-financial transactions or less complex lifestyles may be more common. Within Indonesia, although consumerism is seeing growth, there exist certain villages where traditional marketplaces, barter systems, and a prioritization on

necessities over desires are still prevalent. The emphasis of the content on consumption may strengthen a global capitalist viewpoint, that neglecting or underestimating local economic practices and the socio-economic pluralism in Indonesia.



Picture 3

#### 4. Discussion

A multifaceted problem, the portrayal of cultural material in English as a Foreign Language (EFL) textbooks in Indonesia both mirrors and strengthens prevailing power dynamics (Bahri et.al, 2023). The prioritization of Western viewpoints in these textbooks might result in the marginalization of indigenous cultures and perpetuate a hierarchical structure of knowledge. Evidence indicates that English as a Foreign Language (EFL) textbooks in Indonesia prioritize the source culture, which is usually Western, over foreign or target cultures, such as those from Indonesia and other Asian nations (Lestariyana et.al, 2022). A clear disparity exists in the portrayal of cultural aspects, with Inner Circle cultures (such as the United States) being primarily highlighted, while Outer and Expanding Circle cultures (like Indonesia) have comparatively less emphasis (Tika et.al, 2023). Moreover, the language selections in these textbooks have the potential to sustain stereotypes and consolidate prevailing power structures. An analysis of sexism in EFL textbooks revealed that female characters were shown with less frequency compared to men, and prominent professional gender stereotypes were observed, indicating a predisposition towards conventional gender roles (Firstyani et.al, 2022). The results emphasise the importance of adopting a fair and comprehensive strategy towards cultural portrayal in English as a Foreign Language (EFL) textbooks. This approach should recognise and appreciate the unique characteristics of Indonesian culture and encourage the development of intercultural communication skills. Through this approach, educators and textbook artists may foster the development of students' cultural sensitivity and global knowledge, therefore making a valuable contribution to a fair and inclusive learning environment.

While the portrayal of cultural practices and moral teachings in educational environments generally strives to be universally applicable, it often fails to adequately recognize and include the wide range of students' backgrounds. This disparity may be ascribed to the inclination to portray a uniform perspective of cultural customs and ethical principles, which may not accurately represent the diverse range of experiences and convictions that students bring to the educational setting (Dingba, et.al, 2016). A more profound involvement with indigenous cultures and a more equitable portrayal of various ethical frameworks are crucial to augment both cultural consciousness and the instruction of moral principles. The arguments between Las Casas and Sepúlveda in the 16th century exemplify the conflict between universal moral assertions and the acknowledgment of otherness (Brunstetter, 2010). In light of this historical background, it is crucial to take into account several viewpoints in instructing moral principles. Furthermore, in contemporary multicultural countries, the notion of public order is progressively shaped by legal principles such as dominant values and lifestyles, which might result in the prohibition of cultural behaviors associated with minority groups (Cavaggion, 2019). This methodology fails to acknowledge the significance of variety and so leads to the marginalization of specific cultural traditions. Furthermore, the presence of cultural traditions that impede the integration of students with special needs in the field of education, as shown in Narok County, Kenya, emphasizes the necessity for a more comprehensive and inclusive approach (Maryconsolata, 2020). Through the incorporation of all cultural practices and moral frameworks, educators have the ability to provide a learning environment that is more inclusive, therefore demonstrating respect and appreciation for the distinct backgrounds of every student. Moreover, the analysis of prophetic leadership and cultural intelligence in Islamic traditions provides significant insights on effectively negotiating a wide range of cultural customs and ethical systems (Idrus & Abd. Ghani, 2023). Gaining a comprehensive understanding and showing respect for the cultural traditions of others is essential for cultivating a harmonious and inclusive learning environment. It is imperative to use a more sophisticated and comprehensive method of instructing cultural customs and ethical teachings. This entails a more profound involvement with indigenous cultures and an equitable portrayal of several ethical perspectives. By adopting this approach, educators may augment cultural consciousness, advocate for ethical principles, and establish a more comprehensive educational setting that acknowledges and appreciates the variety of students' origins.

The use of English as a Foreign Language (EFL) curriculum that are strongly shaped by Western cultural norms and values can provide considerable difficulties, especially in countries such as Indonesia where the local cultural, moral, and social environments may vary greatly. This phenomenon has the potential to result in a kind of cultural imperialism, in which Western behaviours are effectively established as the norm, therefore perhaps marginalizing the cultural identities and values of Indonesia (Ulm, 2023). Studies have demonstrated that popular EFL coursebooks such as Top Notch and English File series often exhibit Western cultural viewpoints. The dialogues, readings, and listening exercises are primarily influenced by the norms and values of English-speaking countries, so overlooking the local Asian values (Hassaskhah & Abdollahi, 2021). Within the Indonesian setting, this might lead to a lack of alignment between the educational program and the indigenous culture. An investigation conducted on the First Certificate Masterclass (FCM) curriculum in Iran revealed comparable concerns, since most of the depictions in the book were not consistent with the ideology and beliefs of Iranian Muslim individuals (Alimorad, 2016). Incompatibility of this nature might result in a deficiency of student involvement and pertinence, especially in areas that have lower



levels of globalization. Insufficient recognition of local cultural identities might impede the acquisition of intercultural communicative competence, as learners may have difficulties in harmonizing their own cultural values with the prevailing Western standards emphasized in the curriculum (Kamal & Ben Mhamed, 2023). In order to tackle these problems, researchers and curriculum designers should embrace a more culturally adaptable methodology. This requires incorporating critical cultural awareness into the English as a Foreign Language (EFL) curriculum, using culturally appropriate teaching methods to provide learners with a deep understanding of the culture of the target language (Ghadiri et.al, 2015). Implementing such a method would enable learners to embrace the validity of cultural variations and enhance the clarity of their own cultural beliefs and behaviors. Through this approach, educators have the ability to provide a learning environment in childhood education that is more inclusive, showing respect and appreciation for the many backgrounds of pupils. Consequently, this approach serves to improve both cultural awareness and the instruction of moral principles (Alam et.al, 2023). Furthermore, the construction of a local English as a Foreign Language (EFL) curriculum may be used as a means of opposing the perceived dominance of English. This approach enables the integration of local cultural traditions and values into the educational system (Kasaian, 2011). This methodology not only encourages the awareness and appreciation of different cultures but also cultivates a more sophisticated comprehension of the intricacies associated with intercultural communication. Nisar et.al (2023) emphasised the relevance of a well-rounded and inclusive English as a Foreign Language (EFL) curriculum in promoting the development of language skills and cultural competency among learners. Thus, facilitating the connection between curriculum influenced by Western cultures and the distinct cultural milieus of heterogeneous civilizations such as Indonesia.

## 5. Conclusions

Although the "Big Show Teacher's Guide Level 5" does attempt to familiarize pupils with cultural variety and inculcate moral principles, it also exhibits some prejudices and power dynamics commonly seen in globalized educational resources. The universality of cultural customs and moral lessons may be questioned, as they may not adequately recognize or include the wide range of pupils' multicultural origins. A more profound involvement with indigenous cultures and a more equitable portrayal of various ethical frameworks might augment both cultural consciousness and the instruction of moral principles.

The curriculum outlined in the "Big Show Teacher's Guide Level 5" is significantly shaped by Western cultural norms and ideals, which may not consistently correspond with the cultural, moral, and social dimensions of Indonesian society. This has the potential to result in a manifestation of cultural imperialism, when Western customs are subtly established as the benchmark. Within an educational environment, this might unintentionally exclude Indonesian cultural identities and values, particularly in areas that have lower levels of globalization. To enhance cultural responsiveness, it is advantageous to include indigenous terminologies, settings, and customs into the educational program, thereby assuring that moral teachings and cultural awareness exercises align with the real-life experiences of students. This would not only augment cultural pertinence but also empower pupils by affirming their own cultural heritage and societal conventions.

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# ETHNOMATHEMATICS EXPLORATION OF *LOPO* IN TAMKESI TRADITIONAL VILLAGE, NORTH CENTRAL TIMOR DISTRICT AND ITS INTEGRATION IN MATHEMATICS LEARNING

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**Abstract.** Culture and mathematics are something that cannot be avoided in everyday life, because they have actually been integrated into aspects of people's lives. The thing that can bridge culture and mathematics is ethnomathematics. This study aims to describe the philosophy of *Lopo*, describe ethnomathematics activities and mathematical concepts in *Lopo* in Tamkesi Traditional Village and its integration in mathematics learning. This study is a qualitative study with an ethnographic approach, which was conducted in Tamkesi Traditional Village, Biboki Selatan District, North Central Timor Regency, with 3 informants. The research instruments are the main instrument, namely the researcher and supporting instruments, namely observation guidelines, interview guidelines and documentation. Data analysis uses the Miles and Huberman model, namely data reduction, data presentation and drawing conclusions. Data validity uses triangulation of sources and techniques. The results of this study indicate that there are ethnomathematics activities in the *Lopo structure* in Tamkesi Traditional Village, namely *counting*, *locating*, *measuring*, *designing* and *explaining*. Based on the ethnomathematics activities, the mathematical concepts identified in it are the concepts of counting, multiplication, plans and cardinal directions, non-standard measurements, arithmetic sequences, geometric concepts of flat and solid shapes, geometric transformations, concepts of similarity, lines and angles.

**Keywords:** Ethnomathematics, Traditional Buildings, *Lopo*, *Mathematics Learning*

## 1. INTRODUCTION

Mathematics is a science that plays an important role in human life, both in education and in daily life activities. Given its very important role, mathematics is made one of the compulsory subjects taught at every level of education. Dominikus, et al., (2023) stated that mathematics plays an important role in various human life activities such as calculating, measuring, and many other activities. In reality, many parties are not aware of this, especially students. Students often consider mathematics as a difficult and scary subject to understand. However, mathematics is actually very close and attached to the life and cultural practices of certain communities. Dominikus and Balamiten (2021) describe the relationship between culture and mathematics as a complementary two-way relationship.

In learning mathematics, conceptual understanding is very much needed to master the material, where students relate real things in everyday life that contain mathematical concepts. Blegur (2023) found

that students have low conceptual understanding, problem-solving skills and poor mathematics learning achievement. The cause of this problem occurs due to the lack of teacher understanding of the use of local culture for mathematics learning in the classroom where teachers tend to teach mathematical concepts directly, while students learn more material by memorizing formulas.

In response to this, a step is needed to change students' perceptions, namely by connecting the material studied with real problems in daily activities so that students do not consider mathematics lessons to be just theory but rather the application of mathematics experienced by students in everyday life. Wahyuni, et al., (2013) stated that one thing that can bridge culture and mathematics is ethnomathematics. Ethnomathematics is mathematics that grows and develops according to the lives of people in a particular culture (Funan and Mamoh, 2019). So in simple terms, it can be said that ethnomathematics is mathematics found in a particular culture. Culture-based learning is one alternative that can be applied by teachers as facilitators. Astutiningtyas, et al., (2017) stated that culture-based learning provides space for students to carry out contextual learning based on students' experiences as part of a cultural society.

Seeing this reality, ethnomathematics exploration activities on traditional *Lopo buildings* need to be carried out to be used as a source of learning. Traditional buildings are architectural arts that symbolize the culture and characteristics of a society. Tamkesi Traditional Village as the center of the Biboki Kingdom located in South Biboki District, North Central Timor Regency has a traditional building that is seen as a sacred place and holds a lot of history about the tribe, and inside it there are ancestral relics in the form of antiques that have supernatural powers. The traditional building in question is *Lopo* which until now still maintains its form and structure as an effort to maintain cultural values that are increasingly being displaced by modernization . *Lopo* is a traditional building used as a meeting place or deliberation for the king, traditional elders and the community. *Lopo* has a room that functions as a place to store ancestral relics and also as a place to store food such as corn, rice and beans.

One of the ethnomathematics studies that raises the culture of traditional houses is Fahik, Nenohai & Blegur (2023), namely exploring ethnomathematics activities at the Soka Bu'ahan Traditional House in Babulu Induk Village. For this reason, this study was conducted to explore the culture of the Community in the Tamkesi Traditional Village, especially the traditional *Lopo building* which has a different philosophical and cultural meaning. Therefore, the researcher wants to study the existing mathematical and cultural factors with the research title **"Ethnomathematics Exploration of *Lopo* in the Tamkesi Traditional Village, North Central Timor District and its Integration in Mathematics Learning"**.

## 2. METHOD

The type of research used is qualitative research with an ethnographic approach. Qualitative research is a naturalistic research, meaning that the researcher himself becomes the main instrument who goes directly to the field to obtain data through observation, interviews, and documentation as it is without manipulation (Nasution, 2003). According to Creswel (2017) ethnographic design is a research design that explores themes, especially related to roles and behaviors in a particular society, and explains the daily lives of the community. This research was conducted in Tamkesi Traditional Village, South Biboki District, North Central Timor Regency.

The subjects of the study were 3 people, namely King Biboki, the king's spokesman and a traditional elder who had knowledge of culture in Tamkesi Traditional Village while the object in this study was *Lopo*. Data collection techniques used were observation, interviews and documentation. Observation activities were carried out through observation of the form and structure of *Lopo*. Then the interview technique used a semi-structured interview where interview guidelines were prepared and the development of questions was adjusted to the concept and objectives of the study.

The instruments in this study are the researcher as the main instrument and supporting instruments, namely observation guidelines, interview guidelines and documentation. The analysis method in this study uses the Miles and Huberman model, including data reduction, data presentation, and drawing conclusions. While to check the validity of the data using technical triangulation and source triangulation.

### 3. RESULTS

The results and discussion of this study are presented in several stages, namely the first stage explains the philosophy of *Lopo* in Tamkesi Traditional Village, the second stage presents the results of the analysis of ethnomathematics aspects of *Lopo*, and describes the concept of school mathematics related to ethnomathematics in *Lopo* in Tamkesi Traditional Village which is then integrated into mathematics learning.

#### 3.1 *Lopo* Philosophy in Tamkesi Traditional Village

*Lopo* in Tamkesi Traditional Village has a philosophical meaning in each of its parts. The philosophical meaning of *Lopo* is *Ni* ( *Lopo pillars* ) which number six consisting of 4 *Ni Naek* (supporting pillars) symbolizing four kings: Tnesi, Aluman, Eba and Tautpah who came from *mansa saena* (sunrise) around Timor Island with the aim of finding the center point of Timor Island. In addition, these four pillars also symbolize four tribes, namely two tribes from the male side and two tribes from the female side who unite as supporters in the marriage bond of two people (male and female). While 2 *Ni*

*Aina* (core pillars) are above the attic symbolizing men and women who live together. *Suan'na Lopo* symbolizes dualism that nature always contains two, namely *Uis Neno-Uis Pah* (God of Heaven and God of Earth), *bife-aton* (female and male), *olif-tata* (younger sibling). Then the community in Tamkesi Traditional Village also has prohibitions that should not be done when around the Village, namely *nastun* (stumbling), *tamof bole* (dropping things), and *kikao bole* (forgetting things). When someone violates one of these prohibitions, the person concerned will get a disaster such as falling ill and ending in death.

### 3.2 Ethnomathematic Aspects of *Lopo* in Tamkesi Traditional Village

Ethnomathematics in *Lopo* in Tamkesi Traditional Village is explained based on six characteristics of ethnomathematics according to Bishop (1988) which are described as follows:

#### 3.2.1. Counting activity

Counting activity was found when the Tamkesi Traditional Village Community counted the number of bundles of cogongrass prepared for the *Lopo roof*. The number of bundles of cogongrass was calculated as 1 large bundle (*futu eas*) consisting of 50 small bundles (*skina eas*), so the number of small bundles of cogongrass can be calculated based on the number of large bundles constructed as follows:

**Table 1.** Construction calculates the number of small bundles of cogongrass based on the large bundles.

Many Big Ties	Count Construction (Many Small Bunches of Alang-Alang Grass or <i>Skina</i> )
1	1 large bundle x 50 <i>skins</i> for each large bundle = 50 <i>skins</i> (small bundles)
2	2 large bundles x 50 <i>skins</i> for each large bundle = 100 <i>skins</i> (small bundles)
..	.....
A	A large bond x 50 <i>skins</i> for each large bond = 50 + 50 +50 + ... + 50 (50 added A times)

activities were also found when the community counted the number of bamboo halves used as *a tool*. *Lopo*, where 1 bamboo is split into 4 bamboo halves of the same size. So based on this activity, the concept of arithmetic sequence is found which is constructed as follows:

**Table 2.** Construction calculates the number of bamboo sections used as *the tanpani* based on the number of bamboos.

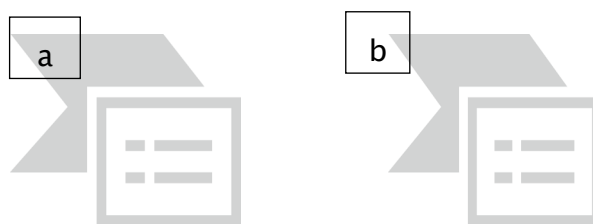
Lots of Bamboo	The Number of Bamboo Splits	Pattern
1	4	$U_1 = 4$
2	$8 = 4 + 4$	$U_2 = U_1 + 4$
3	$12 = 4 + 4 + 4$	$U_3 = U_1 + (2 \times 4)$
...	...	...

N	$4n = 4 + 4 + 4 + \dots + 4$ (4 added together equals n)	$Un = U_1 + (n-1)4$
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In addition, counting activities are also found in the activity of counting the number of poles and the number of *suaf*. The Tamkesai Traditional Village community mentions the numbers 1, 2, 3, 4, 5, ..., 20 in the Dawan language, namely *eas/mese* (one), *nu* (two), *teun* (three), *ha* (four), *niam* (five), and so on up to *boa nu* (twenty).

**3.2.2. Localizing or locating activity** activities were found when the Tamkesi Traditional Village community determined the position of *the Lopo* to be built, namely right in front of *the nesu muni* with the aim of making it easier for *Usi* and *Aina* (the king and his wife) from *Sonaf* to *Lopo*. As explained previously in the philosophical meaning that the door used for daily entry and exit activities is *the nesu muni*. Based on this description, the mathematical concept of the plan and the direction of the wind was found.

**3.2.3. Measuring activity** . The activity of measuring is found in the activity of measuring the length, height and distance between poles, *suaf* and *tanpani* on *Lopo*, namely using non-standard measurements. The concept of non-standard measurements used by the Tamkesi Traditional Village Community when building *Lopo* is *ne'he* or fathom and *lakat* or span. *Ne'he* or fathom is used to measure the distance between poles, and the length of the pole with the measurement of *nehe eas* or 1 fathom  $\pm 1$  m. While *lakat* or span is used to measure the distance between *tanpani* , and the distance between *suaf* where *lakat eas* or 1 span  $\pm 15$ -20 cm.



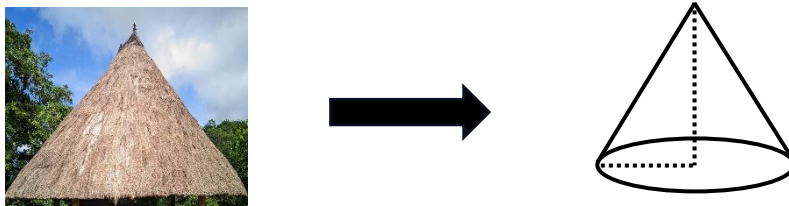
**Gambar 1.** (a) *lakat/depa* (fathom), (b) *ne'he/jengkal* (inch)

**3.2.4. Designing or designing activities** Design activities are found in the *Lopo structure* in Tamkesi Traditional Village, namely the roof, pillars, *suaf*, *tanpani*, *bena* , carvings on the supporting pillars.

#### 1. *Lopo* Roof .

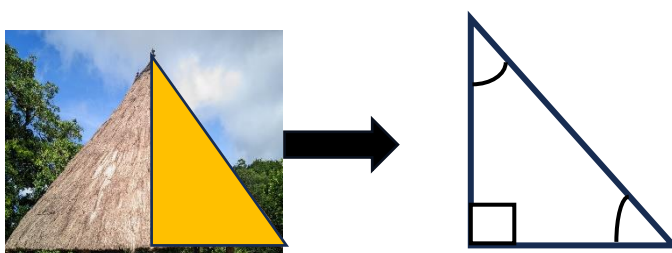
*Lopo* roof is designed in a cone shape, as can be seen in **Figure 2**.





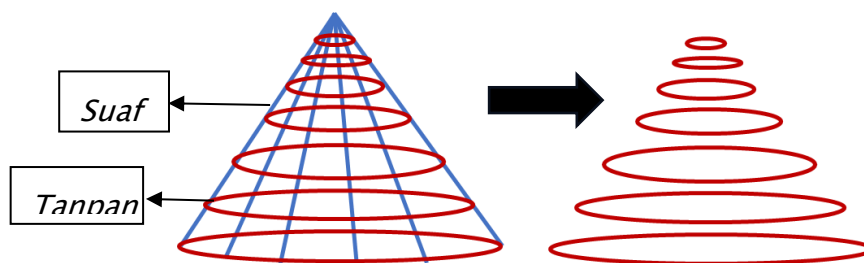
**Figure 2.** Conical shape of the *Lopo* roof

If a *Lopo* roof is viewed from the *suaf* position and a horizontal line is drawn from the outer edge of the roof to the center point of the roof, it will form a right triangle with the right angle located at the center point of the roof, as can be seen in **Figure 3**.



**Figure 3.** Right triangle shape on the *Lopo* roof

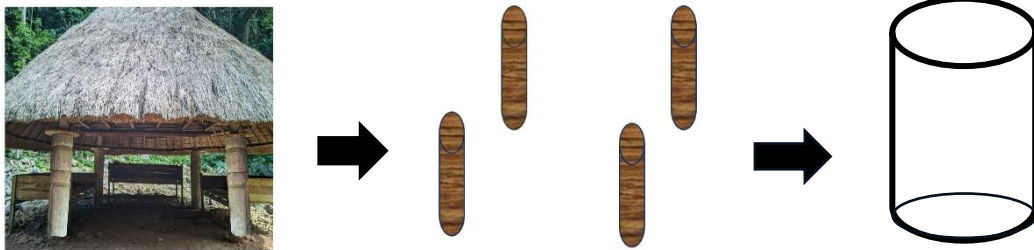
On the *Lopo* roof there is also a concept of similarity, namely on the *Lopo* roof which is round when viewed from bottom to top with decreasing size, as can be seen in **Figure 4**.



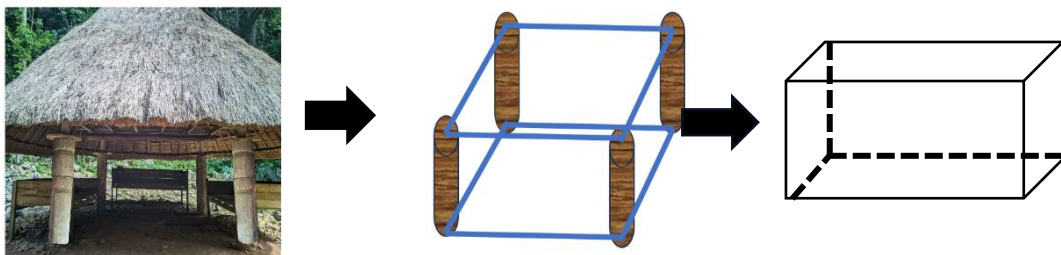
**Figure 4.** The concept of similarity on the *Lopo* roof

## 2. *Lopo* Pole

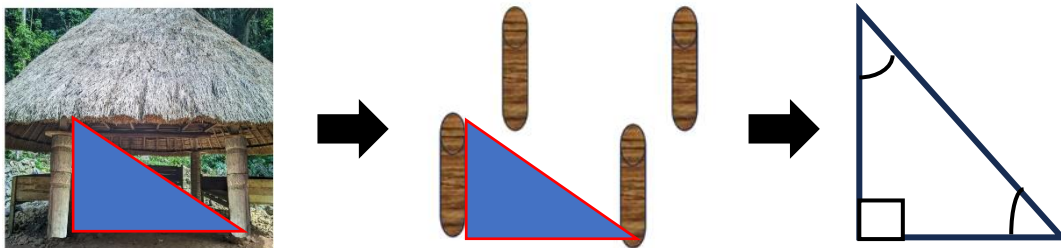
*Lopo* support pillars have 4 pillars designed to form a tube, as can be seen in **Figure 5**. If the four support pillars are connected with lines at each top and bottom end, they will form a geometric shape in the form of a block, as can be seen in **Figure 6**.



**Figure 5.** Tube on the *Lopo pole*



**Gambar 6.** Bearn on *Lopo pole*

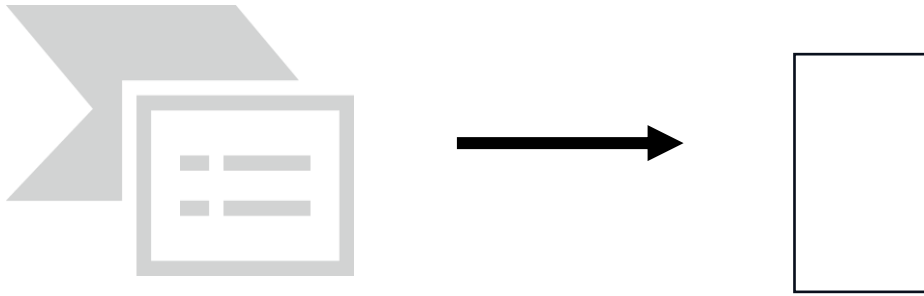


**Figure 7.** Right triangle on the *Lopo pole*

In **Figure 7**, if viewed from the position of the two poles, namely a vertical line is drawn on one of the poles and a horizontal line between the two poles, it will form a right angle.

### 3. *This is Aina Lopo*

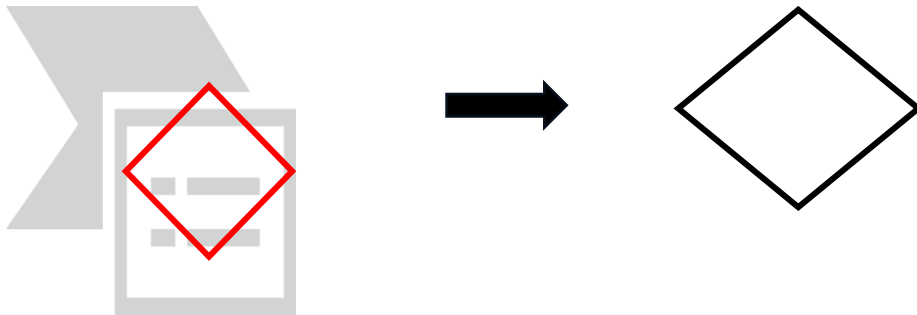
In **figure 8**, it can be seen that *the ni aina Lopo* is designed to form a rectangle.



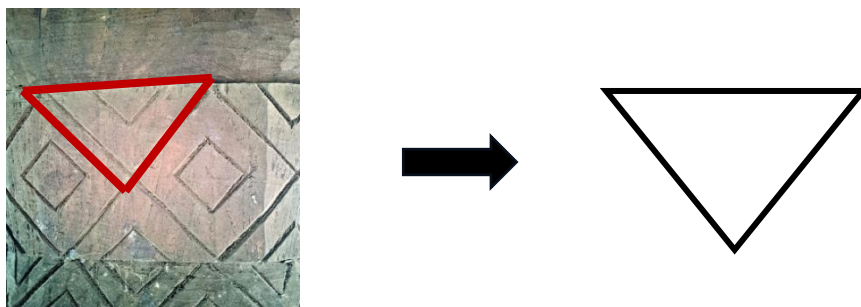
**Figure 8.** Rectangle on *ni aina Lopo*

#### 4. Carvings on the *Lopo Support Pillars*

There are carvings on the *Lopo support pillars* which are designed to form flat shapes of rhombuses and triangles, which can be seen in **figure 9** and **figure 10**.




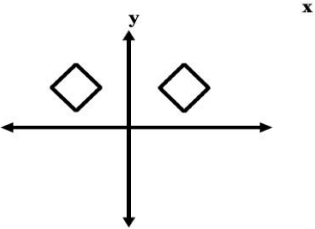
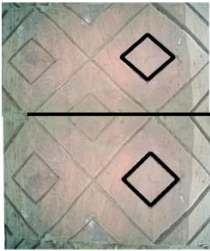
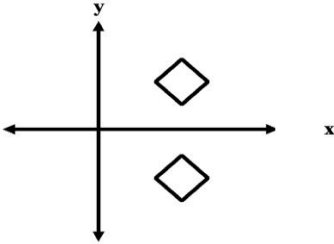
**Figure 9.** Rhombus on the *Lopo pillar carving*


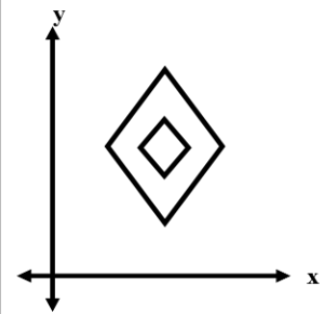
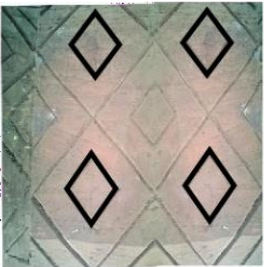
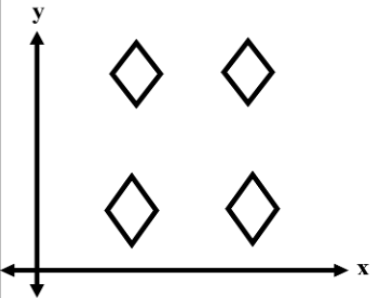

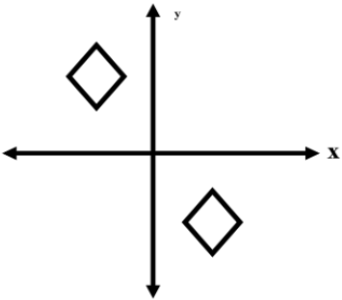


**Figure 10.** Triangle on the carving of the *Lopo support pillar*

The carvings on the *Lopo support pillars* not only contain geometric concepts but also contain transformation concepts as described in **table 3**.

Table 3 Geometric Transformation Forms in Supporting Pillar Carvings

Carved Image on Lone Support Pillar	Illustration	Types of Geometric Transformations
		Reflection About the y-Axis
		Reflection About the x-Axis

Carved Image on <i>Lopo Support Pillar</i>	Illustration	Types of Geometric Transformations
		Dilation
		Translation
		Rotation

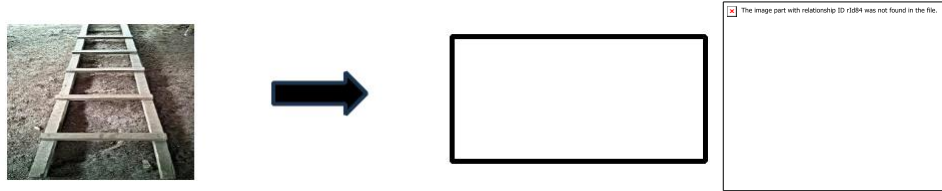
5. *Bena (Board) Lopo*  
*Bena Lopo* is designed in a circle, as can be seen in **figure 11**.



**Figure 11.** Circles on *Lopo yarn*

6. *Lopo Stairs*

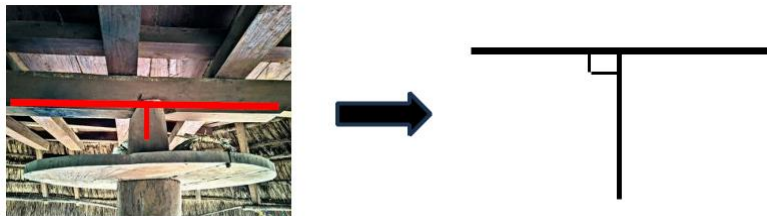
*Lopo Stairs* have 5 steps of the same size. The *Lopo Stairs* are designed to form a rectangle, as can be seen in **figure 12**.



**Figure 12.** Rectangle on the *Lopo stairs*

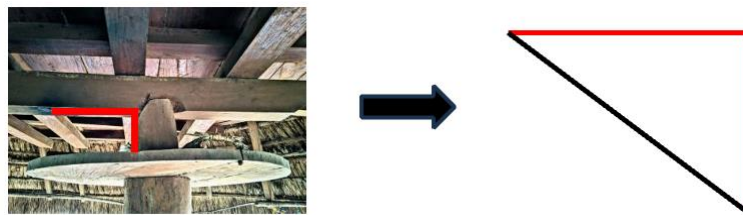
7. Support Poles and *Sut*

In **Figure 13**, it can be seen that the support pole and the rafter form two perpendicular lines.



**Figure 13.** Two perpendicular lines on the support pole and *the sut*.

In **Figure 14**, it can be seen that the support pole and *the rafter* form a right angle. If a guide line is drawn, it will form a right triangle, namely having two sides that are perpendicular to each other with an angle of 90 degrees and having a hypotenuse that is located in front of the right angle with an angle of 45 degrees.



**Figure 14.** Right angles on the support pole and *the rafter*

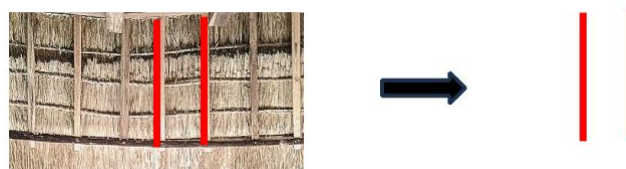
8. *Tanpani and Suaf*

In **figure 15**, it can be seen that *tanpani* and *suaf* have a rectangular geometry concept. In addition, in **figure 16**, it can also be seen that there is a concept of a parallel line between one *suaf* and *another*





Figure 15. Rectangles on the tank and suaf



### 3.2.5. Explaining activity

The activity of explaining is found in the philosophies of each part of the *Lopo* which has been explained previously in the section on the meaning and philosophy of the *Lopo* in the Tamkesei Traditional Village, namely *Ni Lopo* ( *Lopo* pillars ) which number six consist of 4 *Ni Naek* (supporting pillars) symbolizing four kings: Tnesi, Aluman, Eba and Tautpah who came from *mansa saena* (sunrise) around Timor Island with the aim of finding the center point of Timor Island. In addition, these four pillars also symbolize four tribes, namely two tribes from the male side and two tribes from the female side who unite as a support in the marriage bond of two people (male and female). While 2 *Ni Aina* (core pillars) are above the attic symbolizing men and women who live together.

### 3.3 Integration of Ethnomathematics in Mathematics Learning

The results of ethnomathematics exploration at *Lopo* in Tamkesei Traditional Village show that there are mathematical activities related to the concept of school mathematics. The results of ethnomathematics integration in mathematics learning are described as follows:

Table 4. Integration of Ethnomathematics in *Lopo*

No	Ethnomathematics in <i>Lopo</i>	School Mathematics Concept	Learning Outcomes	Educational level
1	Counting or calculating	Counting	Students demonstrate understanding and have number sense for whole numbers up to 100. Students can read, write, determine place value, compare,	SD (Class I)

No	Ethnomathematics in <i>Lopo</i>	School Mathematics Concept	Learning Outcomes	Educational level
			sort, and perform composition (arrange) and decomposition (break down numbers).	
		Multiplication	Students can perform addition, subtraction, multiplication and division of whole numbers up to 100.	SD (Class II)
		Number Pattern	Students can recognize, predict and generalize patterns in the form of arrangements of objects or numbers.	Junior High School (Grade VIII)
2	<i>Locating</i> or localizing	Map and Wind Direction	Students can determine locations on maps using a grid system.	SD (Grade V)
3	<i>Measuring</i> or measuring	Measurement	Students can compare the length and weight of objects directly, and compare the duration of time. Students can measure and estimate the length of objects using non-standard units.	SD Class I
4	<i>Designing</i> or planning	Geometry Concept	Students can recognize various flat shapes (triangles, quadrilaterals, polygons, circles) and spatial shapes (blocks, cubes, cones, and spheres).	SD (Class I)
			Students can describe the characteristics of various flat shapes (triangles, quadrilaterals, polygons)	SD (Grade III)
		Geometric Transformations	Students can perform single transformations (reflection, translation, rotation, and dilation) of points, lines, and plane shapes on the Cartesian coordinate plane and use them to solve problems.	Junior High School (Grade IX)

Thus, the mathematical knowledge in traditional *Lopo buildings* contains school mathematics concepts that can be used as learning resources and contexts for teachers to design and develop more relevant, interesting and contextual mathematics learning tools for students.

#### 4. DISCUSSION

Mathematics in culture is called ethnomathematics. Every cultural activity contains mathematics or ethnomathematics (Wara Sabon Dominikus, 2021). As done by the Community in Tamkesi Traditional Village, where there are ethnomathematics and school mathematics concepts in *Lopo* that can be used in school mathematics learning. The ethnomathematics found in *Lopo* include: first, counting activities, which are seen in the activities of counting the number of bundles of cogongrass, calculating the length of time, calculating the number of poles and *tanpani* used to build *Lopo*. Second, localizing activities are found when determining the position of *Lopo*. Third, measuring activities are found when measuring the distance between poles, the length of the poles, the distance between *tanpani* , and *suaf* using non-standard measurements, namely fathoms and spans. Fourth, designing activities are found in the structure of *Lopo*, namely the roof, poles, *bena*, *hala tok'o* and stairs. The five activities explain the philosophy of the parts of *Lopo* and the prohibitions that should not be done while in Tamkesi Traditional Village.

Based on the ethnomathematics activity, the mathematical concepts in it were identified, namely the concept of counting, multiplication, plan and cardinal directions, non-standard measurements, arithmetic sequences, geometric concepts of flat and solid shapes, geometric transformations, concepts of similarity, lines and angles. These mathematical concepts can be used in school mathematics learning, especially for educators as facilitators so that they can develop culturebased learning tools in creating an active and enjoyable learning atmosphere. This is in line with the research conducted by Fahik, Nenohai & Blegur (2023) entitled Exploration of Ethnomathematics in the Soka Bu'ahan Traditional House in Babulu Induk Village, East Nusa Tenggara.

#### 5. CONCLUSION

Based on the results of the analysis and discussion above, it can be concluded that there are ethnomathematics activities in *Lopo* in Tamkesi Traditional Village. These ethnomathematics activities include activities of counting, localizing, measuring, designing, and explaining. From various ethnomathematics in *Lopo* in Tamkesi Traditional Village, various school mathematics concepts were found, including the concepts of counting, multiplication, plans and cardinal directions, non-standard measurements, arithmetic sequences, geometric concepts of flat and solid shapes, geometric transformations, concepts of similarity, lines and angles.

The school mathematics concepts above can be used in school mathematics learning. So it is concluded that, the traditional *Lopo building* in Tamkesi Traditional Village contains the concept of school

mathematics, which can be used as a learning resource by students in learning mathematics. Therefore, teachers as facilitators must be more skilled in utilizing the culture of the environment around students in teaching.

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## Analysis of Factors Affecting Decision Making in the Selection of Majors at SMK Negeri 4 Kupang

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**Abstract.** *Decision-making is the process of selecting one option from a range of alternative choices, carried out rationally. This process can be done individually or with the participation of others. This research aims to identify the factors influencing the decision-making of students at SMK Negeri 4 Kupang. This study employs a quantitative approach. The population consists of 195 tenth-grade students, with a sample size of 132 students. The sampling technique used in this research is probability sampling. Data collection was conducted using a Likert Scale questionnaire, focusing on decision-making in selecting a major (40 items), which includes both favourable and unfavourable items. The research findings indicate that knowledge about majors contributes the most to students' and parents' decision-making, with a contribution of 30.89%. Students' and parents' perceptions of majors account for 47.28%. The key factors include parenting style, parents' perceptions of majors, and career information. Peers also play a significant role in the decision-making process, influencing it by 58.04%. Based on these results, it can be concluded that three main factors emerged from the factor analysis: knowledge about majors, parental perception, and peer influence play an important role in the decision-making process for selecting majors at SMK Negeri 4 Kupang.*

**Keywords:** *Factor Analysis, Decision Making, Choice of Major*

### 1. Introduction

According to Terry (as cited in Santoso, 2022), decision-making is the process of evaluating and selecting options to solve a problem, typically involving the choice of one alternative from several available options. Decision-making is both a science and an art that must be pursued, studied, mastered, and deeply developed by individuals. It is considered an art because the process is often confronted with unique situations, each characterized by its distinct features.

Ruslan (as cited in Suryani, 2020) explains that the selection of a major is a student's right to choose a field of study that aligns with their talents, interests, and potential, offered by the school they wish to attend. The primary purpose of selecting a major is to provide students with comprehensive and clear information about the various available options for continuing their education. This process aims to help students choose the most suitable school or study program based on their general abilities (intelligence), talents, interests, personal inclinations, and other factors that may influence their educational path.

Vocational High School (SMK) is a form of formal education that continues vocational training at the secondary level, following junior high school or its equivalent, or after completing recognized learning outcomes at the junior high/MTs level. SMKs prepare students to develop specific skills for future careers. A phenomenon observed at SMK Negeri 4 Kupang, based on interviews conducted by the researcher with a school counselor, revealed that decision-making in selecting a major for grade X students is influenced by several factors, including interest, economic status, family, and peers.

Research conducted by Kasan (2022) highlights that choosing a major or field of expertise that aligns with one's interests, skills, and abilities is not an easy task, as many factors must be considered. Making a major selection requires careful, rational decision-making, aligned with personal interests. If the chosen major or area of expertise does not match a student's interests, it can lead to difficulty in following the curriculum, increasing the risk of failure when expectations do not align with reality. Several factors influence the decision to choose a major, including interest, economic status, parents, and peer influence.

## **2. Literature Review**

### **1.1. Decision Making**

According to Terry (in Santoso, 2022), decision making is an activity in assessing and making choices in solving a problem, usually done by choosing one alternative from several existing alternatives. Inbar (in Pasolong, 2023) defines that decision making should be understood in two senses, namely goal setting which is the translation of ideals, aspirations and achieving goals through their implementation. In summary, decisions are made to achieve goals through implementation and this is all based on human relations. For the success of decision-making, the ten laws of human relations should be the reference of every decision-making.

Furthermore, Bowo (in Trisnawaty, 2020) states that decision making is a process of finding one choice from a variety of alternative best choices that are carried out rationally. Solving various kinds of problems that exist with the intention of achieving a certain goal thus requires a decision-making process.

From the various definitions put forward above, it can be concluded that decision making is a process of systematically selecting alternatives to be followed up or to be used as a way of solving problems. This decision-making process can be done alone and can also be carried out with the help or participation of others. The basics that can be used in decision making vary, depending on the problem. Terry (in Pasolong, 2023), states that the applicable decision-making basics are as follows: a) Intuition, b) experience, c) Facts, d) Authority, e) Logic or Rational

### **1.2 Aspects that influence Decision Making**

Winkel (in Pramudi, 2019), explains the aspects that influence career decision making, especially in choosing a major, namely; aspects of interest, economic status, parents and peers, namely; a) Interest, b) Family economic status, namely the level of education of parents, c) Influence from parents and all family members, d) Association with peers and e) Counseling guidance teacher.

### **1.3 Major Selection**

Ruslan (in Suryani, 2020) defines that, the selection of majors is the right of students to choose suitable majors according to the talents, interests and potential in students available at the school of choice of students in continuing their education. The purpose of majoring is first of all



so that students can obtain complete and clear information about the various possible choices that exist for continuing their education.

Selection of majors is a decision where a person makes his choice from several alternative choices available. It can be useful for students in determining the best and quality majors according to the ability of talents and interests possessed by students to be more directed and in accordance with the wishes and majors they want and as expected. The selection can be determined by students according to their wishes, as well as majors of interest to students (Hidayat, 2019).

### **1.3.1 Aspects Affecting the Selection of Majors**

According to Riswani (2021), aspects that need to be considered in selecting and determining the specialization of SMA / MA and SMJK students can include academic learning achievement, non-academic achievement, parental attention and peers. Description of the aspects in choosing students' majors, namely; a) academic learning achievement, b) non-academic achievement, c) parents, and d) peers.

### **1.3.2 Majors at SMK Negeri 4 Kupang**

1. Visual Communication Design
2. Interior Design and Furniture Engineering
3. Computer Network Engineering
4. Creative Crafts of Wood and Rattan
5. Batik and Textile Creative Craft

## **1.4 Research Objectives**

The purpose of this study is to find out what factors influence decision making in choosing a major at SMK Negeri 4 Kupang.

## **3. Research Methods**

### *3.1 Research Design and Data Sources*

The type of approach in this research is quantitative research. Quantitative research according to Sugiyono (2019), is "research in the form of numbers and analysis using statistics". This quantitative research is used by researchers to analyze the factors that influence decision making in choosing majors at SMK Negeri 4 kupang. The research instrument used in this study is a decision-making scale in choosing a major.

Population is a collection of all possible people, objects and other measures of the object of concern that have the same characteristics or characteristics (Sugiono, 2019). In this study, the intended population is SMK Negeri 4 Kupang class X students from all fields of expertise with a total of 195 students.

Table 1. Research Population

NO	SKILL COMPETENCIES	NUMBER OF LEARNERS
1	Visual Communication Design	79
2	Computer and Network Engineering	69
3	Interior Design and Furniture Engineering	13

4	Batik and Textile Creative Craft	18
5	Creative Crafts of Wood and Rattan	16
<b>Total</b>		<b>195</b>

Data Source: Administration of SMK Negeri 4 Kupang FY 2023/2024

### 3.2 Data Collection Technique

Data collection on decision making in choosing a major is done by filling out a closed questionnaire with a *Likert* scale so that respondents will only give the answers needed for research purposes. This is because the *Likert* scale is used to measure the attitudes, opinions, and perceptions of a person or group of people about social phenomena (Sugiyono, 2020).

Respondents will choose one answer to the question / statement by giving a *cheek list* (✓) on the available answer number. The scale was prepared by the researcher using the division of two categories of statement items, favorable and unfavorable by determining the weight of the values.

Table 2. Likert Scale

Answer	Favorable (+ )	Unfavorable (-)
<b>Very suitable (SS)</b>	4	1
<b>Appropriate (S)</b>	3	2
<b>Not suitable (TS)</b>	2	3
<b>Strongly Disagree (STS)</b>	1	4

### 3.3 Data Analysis Technique

#### Factor Analysis

Factor analysis is a technique used to find factors that are able to explain the relationship or correlation between various independent indicators observed. The purpose of factor analysis is to find the minimum possible factors with the principle of simplicity or parsimony that can produce correlations between observed indicators. The data obtained during data collection is analyzed with statistical calculations so that the data can be presented in a simpler form (Safitri and Purba, 2023). This factor analysis has several stages, namely;

1. Kaiser Meiyer Olkin (KMO) Test and Bartlett's Test
2. Measure Of Sampling Adequacy (MSA) Test
3. Factor Extraction
4. Factor Rotation
5. Planting Factors

## 4. Results and Discussion

### 4.1 Results

#### 4.1.1 Kaisyer Meyer Olkin Test (KMO) and Barlett's Test.

Based on the table below the results of *IBM SPSS 26 Statistics For Windows*, it can be obtained that the KMO value is 0.728 and the Bartlett Test significance value is 0.000, it can be concluded that these variables can be analyzed further.

Table 3. Results of KMO and Barlett's Test Of Sphericity

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.728
Bartlett's Test of Sphericity	Approx. Chi-Square	297.314
	Df	45
	Sig.	.000

#### 4.1.2 Measure Of Sampling Adequacy (MSA) test.

Based on the table below the results of the *IBM SPSS 26 Statistics For Windows* anti-image correlation section, it can be seen that the variables formed after the MSA test are as follows:

**Table 4.** Measure Of Sampling Adequacy (MSA) Test Results

No.	Indicator	MSA Value	NO	Indicator	MSA Value
1	X1	0,762	6	X6	0,716
2	X2	0,762	7	X7	0,528
3	X3	0,775	8	X8	0,533
4	X4	0,774	9	X9	0,567
5	X5	0,789	10	X10	0,722

From table 4.2 above, it is known that 10 Indicators all have  $MSA > 0.5$ . Thus, the 10 Indicators above can be analyzed further.

#### 4.1.3 Factor Extraction.

The factor extraction process is divided into two, namely communalities and variable eigenvalue. The greater the communalities value of an indicator, the more closely it is related to the factor formed. The communalities value results from *IBM SPSS 26 Statistics For Windows* as follows:

**Table. 5.** Communalities value

<b>Communalities</b>		
	Initial	Extraction
<b>X1</b>	1.000	.330
<b>X2</b>	1.000	.586
<b>X3</b>	1.000	.724
<b>X4</b>	1.000	.599
<b>X5</b>	1.000	.531
<b>X6</b>	1.000	.542
<b>X7</b>	1.000	.712
<b>X8</b>	1.000	.811
<b>X9</b>	1.000	.442

<b>X10</b>	1.000	.527
<b>Extraction Method: Principal Component Analysis.</b>		

From Table. 5 Communalities there are zeroes in the extraction column indicating how much the factor formed to explain the variance. Next is to make assumptions on factor analysis. After all the assumptions in factor analysis are met, then the analysis is carried out to determine the number of factors formed based on several criteria, one of which uses *eigenvalue*. In this study, to determine the number of factors using *eigenvalues* with the criterion that the number of *eigenvalues* <1 is not used in calculating the number of factors formed. The *eigenvalue of the variables* studied can be seen in table 4.4 total variance explained below.

**Table 6. Total Variant Explained**

<b>Total Variance Explained</b>									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.089	30.890	30.890	3.089	30.890	30.890	2.919	29.185	29.185
2	1.639	16.391	47.281	1.639	16.391	47.281	1.781	17.810	46.995
3	1.076	10.761	58.041	1.076	10.761	58.041	1.105	11.047	58.041
4	.977	9.767	67.809						
5	.774	7.740	75.549						
6	.684	6.836	82.385						
7	.597	5.967	88.352						
8	.441	4.408	92.760						
9	.401	4.009	96.769						
10	.323	3.231	100.000						

#### 4.1.4 Factor Rotation

Gunawan (in Ihsan et al, 2023) defines that, this factor rotation is needed if the factor extraction method has not produced a clear main component. The variables that have been extracted will be rotated because usually the variable placement is not correct or there are still variables that do not fit the factor. The rotation process is carried out on variables that pass the MSA test.

After obtaining the component matrix value, it is known that 3 factors are the most optimal number, then the component matrix table shows the distribution of the 10 indicators on the 3 factors formed. While the numbers in the table are loading values that show the amount of correlation between an indicator and factor 1, factor 2, and factor 3.

After knowing the loading value in table 4.5 component matrix, factor rotation is carried out. This rotation is done with the aim of getting a clear view of the data with the loading value of each indicator on the existing factors. The loading value for each indicator on the existing factors can be seen in table 4.6 rotated component matrix below. This interpretation is based on the largest loading value of each indicator on existing factors so that an indicator is included in the factor that has the largest loading value.

Table 6. Rotated Component Matrix

<b>Rotated Component Matrix<sup>a</sup></b>			
	Component		
	1	2	3
X3	.847	.080	-.004
X2	.765	-.025	-.026
X10	.700	-.086	-.175
X5	.640	.295	.185
X4	.579	.206	.471
X1	.569	.078	-.010
X7	-.084	.827	.143
X6	.200	.697	-.129
X9	.058	.645	-.151
X8	-.094	-.210	.870
<b>Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.</b>			
<b>a. Rotation converged in 5 iterations.</b>			

Component matrix resulting from the rotation process (rotated component matrix) shows a clearer and more real distribution of indicators. Based on the table above, several indicators are obtained that have groups in each factor.

#### 4.1.5 Factor Naming

To name the factors that have been formed in factor analysis, it can be done in 2 ways, namely first giving a factor name that can represent the names of the indicators that make up the factor, and second giving a factor name based on the indicator that has the highest factor loading value. This is done if it is not possible to give a factor name that can represent all the indicators that make up the factor. In this study, naming factors based on indicators that have the highest factor loading values. The results of factor naming can be seen in table 4.7 below:

Table. 7. Factor Naming

No.	Indicator	Formed factors	Eigen value	Factor Loading	% Variance	% cumulative
<b>Factor 1</b>	- Interest in the major	Learners' and parents' knowledge about majors	3,089	0,562	30,890%	30,890%
	- Motivation			0,711		
	- Knowledge about majors			0,824		
	- Family Economy			0,632		
	- The role of parents			0,708		

	- Individualized planning			0,700		
<b>Factor 2</b>	- Parenting	Students' and parents' perceptions of majors	1,639	0,697	16,391%	47,281%
	- Parents' perception of majors			0,827		
	- Career information			- 0,645		
<b>Factor 3</b>	- Peers	Peers	1,076	- 0,870	10,761%	58,041%

## 4.2 Discussion

### 4.2.1 *Learner and Parent Knowledge of Majors*

In selecting a major at SMK, the school counselor plays a key role as a facilitator, mentor, and liaison between students and their chosen department—whether it be the department head or professionals in the field. BK teachers provide essential information on skill development related to various majors, guiding students to pursue self-development opportunities outside of school, such as participating in workshops, seminars, internships, and certified educational programs. They serve as mentors to help students acquire additional skills in their field of study, aiming to strengthen their career readiness in relation to their chosen major. Additionally, BK teachers act as role models, collaborating with professionals in relevant fields to offer insights into various majors. Through this, it is expected that they can better support students' needs and help them prepare for their future careers (Santoso et al., 2024).

### 4.2.2 *Perceptions of Learners and Parents about Majors*

The perception of students and parents towards majors contributed 16.391%. The forming factors are parenting patterns, parents' perceptions of majors and career information. As revealed by Kasan and Ibrahim (2022) that, by providing information to students can help students to develop and make wise decisions. Usually counseling guidance teachers will provide an understanding of careers through classical services or attach to madding at school.

BK teachers are expected to be able to utilize the use of media and technology to facilitate the expansion of access to information in providing services to students (Risqiyain & Purwanta, 2019). Media that can be used by counseling teachers in providing information to students are power points, videos, and animations (Nindya & Hidayanti, 2019).

In addition to career information, support from the surrounding environment, especially from parents, is very important in making decisions in choosing a major. In line with this, Gradiyanto and Indrawati (2023) revealed that families, especially parents, have a contribution to students' career decision making. Parents' views on education, especially on majors in schools and parenting patterns, help students make decisions in choosing majors.

### 4.2.3 *Peers*

Peers have a major influence on decision making in choosing a major by 10.761%. Peers influence attitudes and behavior and with an interest in the same majors as peers influence students to make decisions to choose majors that match familiar friends.



The influence of decision-making on the choice of majors in vocational schools is influenced by peers. The influence given can also have positive and negative impacts. Peers have a positive impact if they provide assistance in the form of motivation or encouragement in learning, especially in choosing majors and providing other information needed in learning. However, peers can also have a negative impact if they like to impose personal ego. This is why it is still widely found that students choose majors not based on their interests and talents, but students choose majors due to the influence of social contexts, namely peers (Gulo & Laila, 2023).

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## EXPLORING SATIRE IN BALABAN'S TIKTOK ACCOUNT

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**Abstract.** This research focused on the analysis of satire used by Balaban in his TikTok account. The objectives were to identify the types of satire found in Balaban's TikTok account and to understand the meaning of the satire expressions used by Balaban in his videos. The writer analyzed 10 videos from his account, applying descriptive qualitative research that produced data on the types and meanings of satire. Holman's theory on types of satire and meaning was used, with references from journals and books available on the internet. The data obtained from the 10 videos included 3 instances of Horatian satire and 7 instances of Juvenalian satire. Among the 29 satire expressions identified, the meanings were diverse, covering topics related to politics, ethnicity, social status, social life, art, and institutions. Therefore, the research concluded that the satire used by Balaban in his account was not only for criticism but also provided knowledge about satire in the public sphere.

**Key words:** Satire, Types of Satire, TikTok, Balaban

### 1. Introduction

Language has a power that can be likened to two sides of a coin. On the one hand, language can be a person's attraction. On the other hand, language can backfire on the wearer (Suciartini, 2020:1). Language plays an important role in determining the success of communication. It is important to understand the use of language so that communication can run effectively and purposefully.

In conveying criticism, language plays an important role. Criticism does not have to be delivered with abusive language. Criticism will be more effective if it is delivered through relaxed, straightforward language, but still refers to it as a criticism or insinuation to certain parties. However, many people are less able to wrap the language in the delivery of criticism so as not to seem patronizing or to drop.

There are many alternatives to the use of polite language in criticizing or insinuating. One of them is using satire as a style of criticizing something. Prasetyono (2011:42) stated that the meaning of satire is a style of language that expresses criticism in the form of innuendo against a state or a person. The satire style includes various types: laughing, rejecting, and criticizing. While Laughing is a responsive expression or action, created because of something funny and laughable to bring out a sense of pleasure. Refusing to have a definition disagrees with the situation. Criticizing is the nature of judging a situation to improve and build better. Keraf

(2010:11) stated that satire is satirical but satire that is thrown out subtly and not rudely can even be used as a joke so that it cannot hurt someone's heart even with the expression satire can make people laugh.

In this increasingly sophisticated era, conveying criticism through audiovisual media is considered more effective and interesting. Audiovisual is considered effective because it attracts the interest of the audience by presenting sound and images so as not to get bored and allows the audience to talk, participate, share, and create their online networks and produce reciprocal effects. Dodalwa (2019:1) stated that “in virtual space, the position of judge or philosopher can be played by anyone. Social media users or natizens, often control and criticize developments in various cases, such as those involving George Floyd who died at the hands of American Minneapolis police and became a trending topic on social media in 2020, the case has become the attention of netizens around the world. The same thing also happened in this country, such as the murder of Brigadier Joshua which occurred in 2022, the case of Mario Dandi which resulted in the arrest of his father for corruption of 56 billion in 2023, the Bima case criticizing the Lampung government in 2023, and other cases.

Similarly, Balaban used TikTok as one of the audiovisual media to deliver criticism of current events in society, government, organizations, and famous public figures. Balaban was a TikTok content creator with 269.2K followers. In his posts, he was very brave, criticizing intelligently, straightforwardly, and analytically. He was indiscriminate; anyone he felt needed to be criticized would be criticized by him. Balaban had his way of criticizing by using subtle language that could seem scornful. He used a satire style of criticism in each of his posts because he believed that his viewers had the intelligence to understand the hidden messages behind his language style or the scenes that appeared in the posts.

The study aims to explore the use of satire on social media, particularly TikTok, where users like Balaban voice complaints or criticism of perceived injustices. The research Problems are: 1) What are the types of satire found in Balaban TikTok account? 2) What is the meaning of the satire expression used by Balaban in his TikTok account?

## 2. Research Method

In this research, the writer used a descriptive qualitative research design. It was used to explore satire in Balaban's TikTok account. Source of Data The data of this research are all satires used in Balaban's TikTok account. The writer limited the videos to narrow the data and only took the most viewed videos. The writer only took 10 of the 367 videos that were uploaded from 2020 until 2024. The 10 videos' details are as follows:

**Table 3. 1 Videos that were Uploaded to Balaban's TikTok Account**

No	Date	Views	Likes	Comments	Favorites	Shares	Topic
1	January 26 <sup>th</sup> , 2022	8.9M	688,9M	15,8K	13,4K	23,2K	What can white people do that black people can't
2	January 20 <sup>th</sup> , 2023	8.2M	1.4M	26.2K	85.6K	181.9K	Serenity now
3	June 16 <sup>th</sup> , 2022	2.4M	439.6K	6211	10.5K	9604	Priorities
4	June 7 <sup>th</sup> , 2022	2.3M	306.8K	13.3K	10.1K	20.9K	Real Estate
5	January 13 <sup>th</sup> , 2022	1.2M	58.9K	6525	1867	3329	USA
6	October 3 <sup>rd</sup> , 2022	1,0M	193,6K	8248	12,2K	3468	How God made dark skin females
7	October 6 <sup>th</sup> , 2021	377.4K	50,5K	1617	861	1442	The United States legal system is a joke

8	December 28 <sup>th</sup> , 2022	120,1K	24,7K	3072	1385	276	Pro life
9	April 1 <sup>st</sup> , 2022	99.4K	20.4K	1358	648	1028	Oscars
10	April 1 <sup>st</sup> , 2022	27.8K	2608	266	37	40	Modern art

*Source: Researcher, 2023*

The writer only took 10 videos out of 367 videos as in table 3.1 above because the writer limited the videos based on videos that contained many elements of satire with the most viewers by the research objectives.

### Procedure of Data Collection

There were some techniques used to collect data. Those techniques are, as follows:

- 1.The writer actively opened the Balaban TikTok account and observed the content that had elements of satire in it with the most viewers, especially in the videos that were uploaded on:

**Table 3. 2 Dates of Most Viewed Videos in Balaban's TikTok Account**

No	Date	Topic
1	January 26 <sup>th</sup> , 2022	What can white people do that black people can't
2	January 20 <sup>th</sup> , 2023	Serenity now
3	June 16 <sup>th</sup> , 2022	Priorities
4	June 7 <sup>th</sup> , 2022	Real Estate
5	January 13 <sup>th</sup> , 2022	USA
6	October 3 <sup>rd</sup> , 2021	How God made dark skin females
7	October 6 <sup>th</sup> , 2021	The United States legal system is a joke
8	December 28 <sup>th</sup> , 2022	Pro life
9	April 1 <sup>st</sup> , 2022	Oscars
10	April 1 <sup>st</sup> , 2022	Modern Art

*Source: Researcher, 2023*

- 2.The writer found elements of satire in Balaban's TikTok account by watching the video, specifically in the video uploaded on dates from table 3.2 Dates of Most Viewed Videos in Balaban's TikTok Account.

### Procedure of Data Analysis

After collecting all the data, the writer analyzed the data through the process below:

- 1.The writer collected videos containing satire elements from the TikTok Balaban account, especially videos uploaded on dates from 3.2 Dates of Most Viewed Videos in Balaban's TikTok Account.
- 2.The writer analyzed which video list was according to the theories of experts by looking at journals, books, and the internet.
- 3.The writer found out the types of satire most widely used in the Balaban TikTok account, specifically the videos uploaded on dates from 3.2 Dates of Most Viewed Videos in Balaban's

TikTok Account.

### 3. Findings And Discussion

#### 3.1 Findings

This section discussed satire in Balaban's TikTok account, as found in 10 videos. Each video contained extracts that described the types and meaning of satire used by Balaban in his TikTok account. In addition, Holman (1992: 168-169) gives an argument that there are two types of satire; Juvenalian and Horatian. Juvenalian satire is known for being angry and bitter, its tone sarcastic and biting us the points with contempt and indignation at the corruption of human beings and institutions. On the other side, Horatian is gentle by winking at the audience which aims to correct by broadly sympathetic laughter. Then, the writer took ten videos. Three videos refer to Horatian and seven videos refer to Juvenalian. Here are excerpts from ten videos that contain types of satire and their meanings:

##### 3.1.1 Types of Satire

###### 1. Video 1

This video was uploaded on January 26<sup>th</sup>, 2022, and the duration is 17 minutes. The first video falls into the category of *horatian* satire as Balaban tends to be more relaxed, humorously quoting human or societal weaknesses by pointing out the differences between white and black people in a humorous manner. This is evident in the phrase “*this is easy when something is really funny, we are able to stay in the same place like not go anywhere when we laugh*” (Balaban, January 26<sup>th</sup>, 2022).

###### 2. Video 2

This video was uploaded on January 20<sup>th</sup>, 2023, and the duration is 59 minutes. In the second video, it fell under the category of *juvenalian* satire. Balaban expressed a serious, critical, and dissatisfied attitude toward the expensive preschool enrollment process while highlighting the irony in the school's demands. He openly mocked that the school fees, which had reached \$32,000 per year for a 2.5-year-old, were already burdensome enough. This is evident in the phrase “*you want me to fundraise, and you have the audacity to ask me how I might contribute my time, my skills, my knowledge, and you're gonna cash my check.*” (Balaban, January 20<sup>th</sup>, 2023).

Furthermore, he used a sharp and serious tone to convey quite drastic advice regarding having children. This can be observed in the expression “*by the way before i continue if you're thinking about having children dont uh just get sterilized now.*” (Balaban, January 20<sup>th</sup>, 2023).

###### 3. Video 3

This video was uploaded on June 16<sup>th</sup>, 2022, and the duration is 17 minutes. The third video fell under the category of *juvenalian* satire. Balaban strongly criticized Marjorie Taylor Greene, noting her announcement about introducing a bill to make exposure to drag queen performances illegal. He expressed frustration, highlighting urgent issues such as high gas prices, inflation, a bearish stock market, and frequent mass shootings.



In that video, there was sharp criticism of Marjorie Taylor Greene, who was perceived to prioritize what was considered trivial issues (drag queen performances) over serious problems such as high gas prices, inflation, a bearish stock market, and frequent mass shootings. This is evident in the phrase *“Bitch, we got \$6 gas, 9% inflation, a bear market, and a mass shooting every week, and you're worried about RuPaul?”* (Balaban, June 16<sup>th</sup>, 2022).

#### 4. Video 4

This video was uploaded on June 7<sup>th</sup>, 2022, and the duration is 53 minutes. The third video fell under the category of *juvenalian* satire. This was evident from Balaban's use of course and harsh language, as well as his intention to express dissatisfaction and disappointment with the situation deemed harmful by actors in the property market, especially major investors like Goldman Sachs and BlackRock. The message conveyed also contained sharp social criticism elements towards the economic injustices caused by those practices. This is evident in the phrases, *“Doesn't matter if you're liberal conservative, this should be terrifying to you and this should be illegal.”* (Balaban, June 7<sup>th</sup>, 2022), *“This is one of the main reasons why you can't afford to buy a single-family home right now because hedge funds and foreign investors and Goldman Sachs and BlackRock are buying up single-family homes and controlling the rental market.”* (Balaban, June 7<sup>th</sup>, 2022), *“Some of them are buying up single-family homes and letting them sit vacant because it's preferable to leaving money in a savings account as for them a hedge against inflation, this is terrifying.”* (Balaban, June 7<sup>th</sup>, 2022), *“The primary wealth builder in the United States has always been property ownership and this is why you can't buy a home right now.”* (Balaban, June 7<sup>th</sup>, 2022), *“This is why you're being priced out of the market, and it doesn't benefit any of us.”* (Balaban, June 7<sup>th</sup>, 2022), and *“This should be fucking illegal.”* (Balaban, June 7<sup>th</sup>, 2022).

#### 5. Video 5

This video was uploaded on January 13<sup>th</sup>, 2022, and the duration is 57 minutes. In the fifth video, it fell into the category of *horatian* satire. The diction used in the expression tended to present an image that was not too harsh and did not hurt the feelings of the message recipients. In this context, Balaban was mocking the common perception of America as a great country. He suspected that this perception only created false hope, where one could achieve financial success easily, but ultimately faced serious challenges such as health crises that could lead to bankruptcy and asset loss. This is evident in the phrases, *“and because health insurance always has a way of getting out of paying for major major mega stuff, you will go bankrupt and then you will lose your house because you can no longer afford to pay even the property taxes on your house.”* (Balaban, January 13<sup>th</sup>, 2022,) and *“save up some money buy a house have that house paid off by the time you retire at 60 years old and then you have enough money saved up that and you a paid off house that you can just live the rest of your life happily.”* (Balaban, January 13<sup>th</sup>, 2022,).

#### 6. Video 6

This video was uploaded on October 3<sup>rd</sup>, 2022, and the duration is 58 minutes. In the sixth video, it fell into the category of *juvenalian* satire, where Balaban stitched with the account @iamrandypyron. He used a critical, serious, and sharp tone to discuss issues of injustice related

to the negative labels attached to Black women, especially those with dark skin, in the video. He expressed his concern about the misguided and demeaning understanding of that group to boost viewership. This is evident in the phrases, *“So yeah, to hear that they're being labeled as innately violent by a black man might be especially hurtful.”* (Balaban, January 13<sup>th</sup>, 2022,), *“If my Jewish mother saw me disparaging Jewish women or any women for that matter online for clout, she would end me.”* (Balaban, January 13<sup>th</sup>, 2022,), *“You’re right, I’m not tone policing this guy but I’m particularly disturbed by this video black women dark skin black women in particular are probably the most patient people on this planet because they themselves are the victims of more violence and vitriol than any other group ever.”* (Balaban, January 13<sup>th</sup>, 2022,), and *“I know this isn’t my business and I’m not gonna tone police this guy, but I do wonder what his black mother thinks about this shit.”* (Balaban, January 13<sup>th</sup>, 2022,).

#### 7. Video 7

This video was uploaded on October 6<sup>th</sup>, 2021, and the duration is 33 minutes. In the seventh video, it fell into the category of *herotian* satire. Balaban employs a casual style, creating absurdity by drawing a comparison between prostitution and pornography while highlighting the inconsistency in legal regulations. This expression underscores the incongruity or paradox in the laws regarding prostitution and pornography, raising questions about the logic behind the differing legal treatment of two activities involving sexual elements. This is evident in the phrases he poses, *“Have you ever considered how utterly ridiculous it is that prostitution is illegal, but pornography is legal?”* (Balaban, October 6<sup>th</sup>, 2021), *“I mean, prostitution is being paid to have sex and pornography is being paid to have sex but filming and distributing it so that other people can watch it.”* (Balaban, October 6<sup>th</sup>, 2021), and *“Hahahaha like what if murder was that way. Murder is illegal unless of course you're filming it and then streaming it online for people to enjoy.”* (Balaban, October 6<sup>th</sup>, 2021).

#### 8. Video 8

This video was uploaded on December 28<sup>th</sup>, 2022, and the duration is 22 minutes. In the eighth video, it fell into the category of *juvenalian* satire. Balaban is replying to @va.harleyrr who commented, *“Almost all abortions are because women can't take responsibility for their actions....A very small percentage are about health or rape.”*

Balaban expressed his criticism of comments that judged women who chose abortion. Throughout the video, Balaban confronted arguments that blamed women by highlighting policies that forced them to become mothers, even when unprepared. He used a sarcastic and critical tone to mock comments that he deemed lacking clarity of thought and portrayed that perspective as overlooking the complexity of decisions related to abortion. This is evident in the phrases, *“Ah, this is a real big brain comment here. Almost all abortions are because women can't take responsibility for their actions and your solution is to force them to become mothers.”* (Balaban, December 28<sup>th</sup>, 2022), *“You, on the other hand, want to let that child suffer; you wanna let that child starve, you wanna let that child go without a home or education or all of the above, and that's why you don't get to call yourself pro life.”* (Balaban, December 28<sup>th</sup>, 2022) and *“I'm pro life, my wife and I are actually raising a child, and we would gladly allocate our tax dollars*

*to assist other children who weren't born into such fortunate situations.”* (Balaban, December 28th, 2022).

#### 9. Video 9

This video was uploaded on April 1<sup>st</sup>, 2022, and the duration is 59 minutes. In the ninth video, it fell into the category of *juvenalian* satire. In his expression, Balaban expressed his astonishment and disagreement with the inconsistent actions in the entertainment industry. He adopted a sharp critical tone and attempted to portray the absurdity of those decisions by presenting the fact that Polanski, a convicted child sexual abuser, was awarded and given a standing ovation at the Oscars.

His expression carried a tone of astonishment and anger toward the perceived immorality within the entertainment industry. This is evident in the phrases, *“Is that in 2002 y'all gave best director to Roman Polanski, a convicted child r@pist, and they gave him a standing ovation even though he wasn't there and he wasn't there because if he comes to the United States, he will be imprisoned because he drugged and r@ped and assaulted a 13 years old girl but y'all gave him a standing ovation.”* (Balaban, April 1<sup>st</sup>, 2022), and *“Where was Jim Carrey's righteous indignation for the Oscars then because Jim Carrey was disgusted theyWill Smith received a standing ovation. He said Hollywood's no longer the cool club, Jim Carrey, how did you feel in 2002? You were probably in the audience, you were probably clapping.”* (Balaban, April 1<sup>st</sup>, 2022).

#### 10. Video 10

This video was uploaded on April 1<sup>st</sup>, 2022, and the duration is 54 minutes. The tenth video fell into the category of *juvenalian* satire, as the language used by Balaban tended to be sharp, coarse, and mocking. Additionally, he expressed deep hatred and dissatisfaction towards modern art. This is evident in the phrases, *“Modern art is trash.”* (Balaban, April 1<sup>st</sup>, 2022), *“This pretentious app, the only way in which that artist is creative is getting all of those Eurocentric pretentious assholes with way too much money to give him money to jump around on a trampoline and draw on the walls like my child.”* (Balaban, April 1<sup>st</sup>, 2022), *“If you paid to see this guy, you should be embarrassed, and he's hustling y'all.”* (Balaban, April 1<sup>st</sup>, 2022), *“Modern art is garbage, and I will die on that hill, I'm sure some of it nice but this performance bullshit is that's embarrassing.”* (Balaban, April 1<sup>st</sup>, 2022), and *“There is absolutely zero intrinsic value to that art except in the eyes of those who think that they understand something the rest of us don't.”* (Balaban, April 1<sup>st</sup>, 2022).

### 3.1.2 The meaning of Satire expression used by Balaban.

#### 1. Video 1

This video was uploaded on January 26<sup>th</sup>, 2022, and the duration is 17 minutes. *“this is easy when something is really funny, we are able to stay in the same place like not go anywhere when we laugh”* (Balaban, January 26<sup>th</sup>, 2022). In that context, the speaker intends to convey that black people are very reactive individuals. It is not just in funny situations, their reactions are always exaggerated such as hitting and moving when they laugh.

#### 2. Video 2

This video was uploaded on January 20<sup>th</sup>, 2023, and the duration is 59 minutes. *“you want me to fundraise, and you have the audacity to ask me how I might contribute my time, my skills, my knowledge, and you're gonna cash my check.”* (Balaban, January 20<sup>th</sup>, 2023). In that context, the speaker feels that it is inappropriate for the school to ask for more contributions from parents, especially after they have paid such high fees.

Furthermore, *“by the way before i continue if you're thinking about having children don't uh just get sterilized now.”* (Balaban, January 20<sup>th</sup>, 2023). In that context, the speaker suggests that if someone is considering having children, it would be better for them to undergo sterilization immediately to prevent worries and difficulties that may arise in the process of raising children. This depicts the speaker's disapproval or dissatisfaction with the idea of having children or perhaps highlights the challenges faced by parents in raising children.

### 3. Video 3

This video was uploaded on June 16<sup>th</sup>, 2022, and the duration is 17 minutes. *“Beech, we got \$6 gas, 9% inflation, a bear market, and a mass shooting every week, and you're worried about RuPaul?”* (Balaban, June 16<sup>th</sup>, 2022). In that context, the speaker delivers sharp criticism towards Marjorie Taylor Greene, who is deemed to prioritize trivial issues (such as drag queen performances) over serious problems like high gas prices, inflation, a bearish stock market, and the frequent occurrences of mass shootings.

### 4. Video 4

This video was uploaded on June 7<sup>th</sup>, 2022, and the duration is 53 minutes. *“Doesn't matter if you're liberal conservative, this should be terrifying to you and this should be illegal.”* (Balaban, June 7<sup>th</sup>, 2022), and *“This is one of the main reasons why you can't afford to buy a single-family home right now because hedge funds and foreign investors and Goldman Sachs and BlackRock are buying up single-family homes and controlling the rental market.”* (Balaban, June 7<sup>th</sup>, 2022). In that context, the speaker wants to convey their concern about hedge funds, foreign investors, Goldman Sachs, and BlackRock being among the main reasons for the difficulty in buying homes, indicating serious criticism of the role of financial entities in controlling the housing market.

*“Some of them are buying up single-family homes and letting them sit vacant because it's preferable to leaving money in a savings account as for them a hedge against inflation, this is terrifying.”* (Balaban, June 7<sup>th</sup>, 2022). In that context, the speaker wants to express their concern about certain entities buying homes and leaving them vacant, thus causing fear and not aligning with the needs of the community.

*“The primary wealth builder in the United States has always been property ownership and this is why you can't buy a home right now.”* (Balaban, June 7<sup>th</sup>, 2022). In that context, the speaker wants to express their concern about changes in property ownership dynamics, as this situation may hinder the community's ability to purchase homes. *“This is why you're being priced out of the market, and it doesn't benefit any of us.”* (Balaban, June 7<sup>th</sup>, 2022). In that context, the speaker wants to convey their concern because the community is having difficulty buying homes due to market dynamics and emphasizes that this situation is detrimental to everyone. *“This*

*should be fucking illegal.*” (Balaban, June 7<sup>th</sup>, 2022). In that context, the speaker wants to convey that such a thing should be considered illegal.

#### 5. Video 5

This video was uploaded on January 13<sup>th</sup>, 2022, and the duration is 57 minutes. *“and because health insurance always has a way of getting out of paying for major major mega stuff, you will go bankrupt and then you will lose your house because you can no longer afford to pay even the property taxes on your house.”* (Balaban, January 13<sup>th</sup>, 2022,). In that context, the speaker wants to express their concern about the unequal healthcare and economic system in the United States, where even financially stable individuals can fall into bankruptcy due to high healthcare costs.

*“save up some money buy a house have that house paid off by the time you retire at 60 years old and then you have enough money saved up that and you a paid off house that you can just live the rest of your life happily.”* (Balaban, January 13<sup>th</sup>, 2022,). In that context, the speaker wants to express their hope of buying a house, paying it off before retirement, and having enough savings to live happily after retirement. In reality, not everyone has the opportunity or ability to achieve this. Many factors, such as high living costs, economic disparities, and job uncertainty, can hinder someone from attaining this.

#### 6. Video 6

This video was uploaded on October 3<sup>rd</sup>, 2022, and the duration is 58 minutes. *“So yeah, to hear that they're being labeled as innately violent by a black man might be especially hurtful.”* (Balaban, January 13<sup>th</sup>, 2022,). In that context, the speaker wants to convey discomfort and concern about the negative label given by a black man to a black woman.

*“If my Jewish mother saw me disparaging Jewish women or any women for that matter online for clout, she would end me.”* (Balaban, January 13<sup>th</sup>, 2022,). In that context, this statement indicates the speaker disapproval of derogatory behavior by providing an analogy similar to the expression above.

*“You’re right, I’m not tone policing this guy but I’m particularly disturbed by this video black women dark skin black women in particular are probably the most patient people on this planet because they themselves are the victims of more violence and vitriol than any other group ever.”* (Balaban, January 13<sup>th</sup>, 2022,). In that context, the speaker wants to express their concern about the video and underline the injustice experienced by black women. This statement exposes inequality and injustice, highlighting the paradox that although they may be the most patient, they also endure more violence and vitriol.

*“I know this isn't my business and I'm not gonna tone police this guy, but I do wonder what his black mother thinks about this shit.”* (Balaban, January 13<sup>th</sup>, 2022,). In that context, the speaker wants to acknowledge that this is not their concern, and they will not attempt to control how the person speaks. However, they still imply their disapproval and astonishment towards the action or opinion being discussed, which is a black man commenting on a black woman.

#### 7. Video 7

This video was uploaded on October 6<sup>th</sup>, 2021, and the duration is 33 minutes. *“Have you ever considered how utterly ridiculous it is that prostitution is illegal, but pornography is legal?”*



(Balaban, October 6<sup>th</sup>, 2021). In that context, the speaker wants to convey the inconsistency that while prostitution is considered illegal, the production and distribution of pornography are considered legal.

*“I mean, prostitution is being paid to have sex and pornography is being paid to have sex but filming and distributing it so that other people can watch it.”* (Balaban, October 6<sup>th</sup>, 2021). In that context, the speaker wants to state that essentially both activities involve payment for engaging in sexual intercourse, but in the case of pornography, it is filmed and distributed for others to watch.

*“Hahahaha like what if murder was that way. Murder is illegal unless of course, you're filming it and then streaming it online for people to enjoy.”* (Balaban, October 6<sup>th</sup>, 2021). In that context, the speaker wants to explain that in the same logic, murder could be considered legal if it's filmed and streamed online for others to enjoy. This emphasizes the inconsistency found in laws regarding prostitution and pornography.

#### 8. Video 8

This video was uploaded on December 28<sup>th</sup>, 2022, and the duration is 22 minutes. *“Ah, this is a real big brain comment here. Almost all abortions are because women can't take responsibility for their actions and your solution is to force them to become mothers.”* (Balaban, December 28<sup>th</sup>, 2022). In that context, the speaker wants to explain that almost all cases of abortion occur because women are responsible for their actions, not because of their inability to take responsibility. He implies that the proposed solution to force these women to become mothers does not solve the problem effectively and instead only creates new issues. By saying *“Ah, this is a real big brain comment here,”* the speaker expresses disbelief or astonishment at the argument considered foolish or shallow.

*“You, on the other hand, want to let that child suffer, you wanna let that child starve, you wanna let that child go without a home or education or all of the above, and that's why you don't get to call yourself pro life.”* (Balaban, December 28<sup>th</sup>, 2022). In that context, the speaker wants to explain sharply that the commentator has depicted that their viewpoint would let children suffer, starve, and be without a home or education.

*“I'm pro life, my wife and I are actually raising a child and we would gladly allocate our tax dollars to assist other children who weren't born into such fortunate situations.”* (Balaban, December 28<sup>th</sup>, 2022). In that context, the speaker wants to affirm that they themselves are someone who supports life, and they are willing to use their taxes to help children in need. They reiterate that their counterparts cannot be called *“pro-life”* because of their indifferent attitude towards the well-being of children born into difficult situations.

#### 9. Video 9

This video was uploaded on April 1<sup>st</sup>, 2022, and the duration is 59 minutes. *“Is that in 2002 y'all gave best director to Roman Polanski, a convicted child r@pist, and they gave him a standing ovation even though he wasn't there and he wasn't there because if he comes to the United States, he will be imprisoned because he drugged and r@ped and assaulted a 13 years old girl but y'all gave him a standing ovation.”* (Balaban, April 1<sup>st</sup>, 2022). In that context, the



speaker aims to explain by exposing the hypocrisy within the entertainment industry, reminding that in 2002, the Oscars awarded Roman Polanski, who had been proven to commit child rape. Polanski received a standing ovation even though he was absent from the event due to the risk of arrest.

*“Where was Jim Carrey’s righteous indignation for the Oscars then because Jim Carrey was disgusted that Will Smith received a standing ovation. He said Hollywood’s no longer the cool club, Jim Carrey, how did you feel in 2002? You were probably in the audience, you were probably clapping.”* (Balaban, April 1<sup>st</sup>, 2022). In that context, the speaker wants to explain that the statement implies disappointment with Jim Carrey because he appears to show injustice in reacting to similar situations in the past. The speaker highlights that Carrey did not show anger or disappointment when Roman Polanski received a standing ovation in 2002, despite Polanski being convicted of child rape. Furthermore, the speaker rhetorically questions Carrey’s feelings at that time, suggesting that Carrey might have been in the audience and applauded Polanski, indicating inconsistency in Carrey’s stance toward similar situations happening now. This illustrates the hypocrisy in reacting to controversial incidents within the entertainment industry.

#### 10. Video 10

This video was uploaded on April 1<sup>st</sup>, 2022, and the duration is 54 minutes. *“Modern art is trash.”* (Balaban, April 1<sup>st</sup>, 2022). In that context, the speaker wanted to express firmly his view that modern art is trash, indicating his dissatisfaction with the overall quality of modern art.

*“This pretentious app, the only way in which that artist is creative is getting all of those Eurocentric pretentious assholes with way too much money to give him money to jump around on a trampoline and draw on the walls like my child.”* (Balaban, April 1<sup>st</sup>, 2022). In that context, the speaker wants to convey that the only way for the artist to be creative is by obtaining financial support from wealthy, overly arrogant, and Eurocentric individuals, whom he tends to perceive as lacking deep knowledge of art.

*“If you paid to see this guy, you should be embarrassed, and he’s hustling y’all.”* (Balaban, April 1<sup>st</sup>, 2022). In that context, the speaker wants to convey that those who pay to see modern art pieces imply that they should feel ashamed for being deceived by the artist.

*“Modern art is garbage, and I will die on that hill, I’m sure some of it nice but this performance bullshit is that’s embarrassing.”* (Balaban, April 1<sup>st</sup>, 2022). In that context, the speaker wanted to assert his view that modern art is trash, even at the risk of defending it. Although he acknowledged that there may be some good pieces, he specifically condemned performance art, which he found embarrassing.

*“There is absolutely zero intrinsic value to that art except in the eyes of those who think that they understand something the rest of us don’t.”* (Balaban, April 1<sup>st</sup>, 2022). In that context, the speaker wants to state that art lacks significant transformative value except for those who feel they understand something others do not, highlighting the exclusive perspective of modern art enthusiasts.

### 3.2 Discussion

In this part, there are two topics of discussion that the writer is going to analyze, there are the types of satire used by Balaban in his TikTok account and the meaning of satire found in Balaban's TikTok account.

This section discusses the types of satire used by Balaban in his TikTok account. The writer took only 10 videos that consisted of satire. Furthermore, the analysis was based on Holman's theory. In addition, the writer formulated the types and meanings of satire in Balaban's content based on the results of the findings.

### **3.2.1 Types of satire in Balaban TikTok account**

In this part, the writer formulated the result of the findings based on the video in Balaban TikTok account which is used in the first video until 10 video. All the materials were formulated based on the strategy of Holman theory.

Holman (1992: 168-169) states that there are two divisions of satire; Direct or Formal Satire and Indirect Satire. When the satiric voice speaks out in the first person or else a character within the work itself is called Direct or Formal Satire, Horatian and Juvenalian are forms of direct satire. While indirect satire employs a plot through which the characters make themselves ridiculous by their actions and speech.

In Horatian satire, a vague allusion was used to mock someone subtly without addressing the core of the problem. Additionally, sometimes something was likened to something else to offend someone, as seen in video 1, video 5, and video 7. In these videos, Balaban gave satire softly without insulting directly, using a parable; this is called Horatian. Besides Horatian, there was also Juvenalian satire. Juvenalian satire itself was known for being angry and bitter, used to offend someone directly, as seen in video 2, video 3, video 4, video 6, video 8, video 9, and video 10. In these videos, Balaban used satire rudely without conveying jokes or simple words and was straight to the point.

In addition, the writer only collected data from 10 videos, with only 3 containing Horatian satire and 7 containing Juvenalian satire. This is because the speakers covered different topics; for instance, some consistently employed Juvenalian satire in their critiques. Meanwhile, other speakers delivered their critiques and jests in a relaxed and unhurried manner. Nevertheless, all of this was aimed solely at helping the speakers communicate effectively, entertain, and inspire social change.

### **3.2.2 The meaning of Satire expression used by Balaban**

The writer analyzed the first ten videos from Balaban's TikTok account using Holman's theory and various sources. Satire creators play a key role in conveying criticism or entertainment, but the meaning of their work can vary. For example, Balaban used humor, irony, and satire to address social issues and criticize behaviors, aiming to provoke social change. However, viewers interpret these messages differently based on their personal experiences. The writer noted that cultural, social, and political backgrounds heavily influence how individuals

understand satire. Thus, varied interpretations are normal in the complex field of art and communication.

#### 4. Conclusions

Based on the findings and discussions in Chapter IV, the writer draws the following conclusions: Balaban's TikTok content used sentences with satire, showing three instances of Horatian satire and seven instances of Juvenalian satire. The study analyzed 29 data points to understand the satire's meaning, ensuring clarity despite Balaban's harsh language. Horatian satire appeared in videos 1, 5, and 7, while Juvenalian satire was found in videos 2, 3, 4, 6, 8, 9, and 10.

#### 5. Suggestions

Based on conclusions above, the writer recommends some suggestions, as follows:

1. For future researchers, it is suggested to delve deeper into satire, especially its types and functions. Researchers also recommend exploring other theories in analyzing satire that can be used to conduct and develop this type of research.
2. For readers, it is suggested to use satire in the public sphere only for specific purposes and not to provoke anger in others.

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## **Analysis of Students' Grammatical Errors in English Writing (Pre-Test) in the English Course at Atma Reksha College of Pastoral Science, Ende - Flores**

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**Abstract.** This research begins with the author's curiosity about the English writing skills of Stipar Ende students of the Catholic Religious Education Study Program, second semester of the 2023/2024 academic year. This research is important for researcher to find out grammatical errors in English writing and as evaluation material for the researcher so she can find out students' weaknesses or shortcomings in writing English. The aim of this research is to find out students' grammatical errors in writing English, especially errors in the language aspect, to find out the most grammatical errors often found by students, and the causes of these mistakes and efforts to avoid these mistakes. From the results of the student pre-test, it can be seen that 10 questions given by a total of 80 students, only 7 students wrote correctly or had no grammatical errors. Most students make grammatical errors in writing English. This analysis uses Surface Strategy Taxonomy to group student errors. This research uses a descriptive method with a qualitative approach. The subjects of this research are the writings of 2nd semester students who are respondents and takes English courses totaling 80 people. The results of the research shows that students' errors in English writing consist of the most errors, namely misformation with a total of 84 or (37%), the next type of error is omission with a total of 74 or (32%), addition errors with a total of 47 or (21%), and the fewest errors were misordering errors, namely 18 (8%). The causes of this error come from the intralanguage and interlingual categories. The intralanguage category is an error that occurs due to the interpretation of the language learner, while the interlingual category is an error that occurs due to the student's lack of understanding of the structure of English. This research provides very valuable information or suggestions for English lecturers to design more effective and varied teaching methods so that students master English grammar or structure and are able to write simple English correctly and precisely.

**Key Words:** Error Analysis, Surface Strategy Taxonomy, English Writing.

### **1. Introduction**

Language is a communication tool used by humans in the form of symbols or sound symbols which aims to understand what is conveyed between the speaker and the listener. Language plays a very important role in understanding certain meanings. Some Indonesian people have the ability to speak more than one language. Apart from understanding regional languages that are acquired in informal form or used in everyday life among some people in a particular area, you can also understand Indonesian language. Indonesian language is a unifying language throughout Indonesia that must be learned and understood by all people. Indonesian language is studied by students from an early age, both at the Early Childhood Education (PAUD), primary and secondary school levels as one of the subjects and in tertiary institutions as one of the subjects that must be programmed.

In this era of globalization, Indonesian people, apart from mastering Indonesian as a unifying language, are also required to master English as an international language. English is very important for Indonesian people in various fields. For some students, it is important to



master English in order to pass the exam. However, for society in general, English is very important because all writing uses two languages, namely Indonesian language and English. Almost all packaging has English writing. Apart from that, in various public places, such as airports, ports, tourist attractions, hotels, banks, and even hospitals and other public places, there are English writings. Awareness of the importance of written English is felt, especially for those who are involved in the world of higher education. Atma Reksha Ende Pastoral College of Ende, the Catholic Religious Education Study Program makes English a mandatory subject for every student in second semester with 2 credits. This aims to ensure that students who pass the English course are equipped with knowledge of English, both speaking skills and good and correct writing skills.

To master English, there are four skills that need to be learned, namely writing skills, speaking skills, listening skills and reading skills as well as mastery of grammar and structure. Writing skill is one of the complex language skills and is considered difficult by students. Writing activities in English involve various aspects of language, namely grammar, spelling, punctuation, prepositions, text models and tenses.

The reality is that most students still experience difficulties in writing English because of students' lack of knowledge about vocabulary, grammar and the rules that apply in English. Apart from that, students do not practice writing in English enough. Students always think that English is difficult because it is a different way of writing and a different way of reading. Like mathematics which has formulas, English also has formulas and rules that apply. In fact, the grammar structure, vocabulary and spelling in Indonesian are very different from the structure of English. As an example of an Indonesian sentence: '*John mempunyai rambut panjang dan hitam*'. The English sentence becomes: John has black and long hair. In this sentence, structurally in Indonesian, the noun precedes the adjective. However, in English, adjectives precede nouns. This statement causes students to make mistakes or errors both verbally and in writing. Another example; in the Indonesian sentence '*saya cantik*.' However, in English it becomes 'I am beautiful'. This means you have to use to be present otherwise the sentence will be wrong. Apart from that, students usually translate Indonesian sentences straight into English.

The low ability of students to understand English grammar and interference from using their mother tongue or translating directly from Indonesian causes students to make mistakes in writing English. In English, these mistakes are known as errors and mistakes. According to (Meisa 2014,14), errors are systematic deviations or deviations that occur repeatedly and the learner does not realize that what is being done is a deviation. Meanwhile, a mistake is an event that only occurs once and the learner knows about it and immediately corrects it. Apart from that, according to (Ellis 1997, 5) "An error is lack of competence and mistake is performance deviant", which means that an error is a mistake caused by a person's lack of knowledge, while a mistake is a deviation in making a statement. Errors occur due to interference from the first language used by someone. In learning a language, errors are something natural. A person learns from a mistake in order to produce something right. Likewise, learning to write English requires

mistakes to be made in order to produce good and correct English writing and in accordance with the rules of English writing.

English writing is one of the most important parts of language learning. The results of student writing on the pre-test become evaluation material for a lecturer to determine student understanding. The discovery of various writing errors that occur is an important note for a lecturer to find the right solution. This cannot be denied because students come from different educational backgrounds during high school, namely some of them come from the language, science and social studies departments. Apart from that, each student's English learning experience is different, namely some often practice writing, listen to songs and watch native speakers speak from various sources, and some often speak English in their daily lives with people who are experts in English. However, there are those who rarely speak English and use English only when studying at school.

The following is some previous research on the analysis of grammatical errors in English writing. First, research conducted by Sidrah Rachman et al (2019) with the title 'Analysis of Grammatical Errors in English Writing of FIK UNM Primary School Teacher Education Students. The aim of this research is to reveal students' mistakes in English writing practice and how often they occur. This research shows that errors in English writing are divided into 4 parts, namely misformation, omission, addition and misordering. The most frequently made errors were formation errors in sentences, namely 181 or around 44.80% of the total number of student writing errors. Omission errors occurred 136 times or 33.66%, followed by misordering errors 48 times or 11.88% and the least were addition errors.

Second, research conducted by Arso Setyaji et al (2017) aims to identify various grammatical errors based on the Surface Strategy Taxonomy and their frequency of occurrence, as well as finding out various student problems when writing texts in English. The research results show that the most common errors are omissions (68.31%), additions (9.6%), misformations 8.45%, and misordering (2.11%) and the problem faced by students is a weak understanding of tenses, vocabulary mastery, inappropriate lexical choices in sentences, and incorrect sentence structure in the text.

What the two previous studies have in common with this research is that they both analyze grammatical errors in English writing. However, the difference is that in the first study a researcher only knew about grammatical errors in written English, and in the second study, apart from knowing the errors, he also knew about the problems faced by students. Meanwhile, in this study the researcher not only knows errors in English writing based on the Surface Strategy Taxonomy but also knows the causes of English writing errors and the right solutions to overcome these problems. Another difference is that previous research occurred at PGSD FIK UNM and PGRI University Semarang, while this research occurred at Atma Reksha Pastoral College of Ende.

The pre-test is a test given at the beginning of the learning process which aims to determine students' initial ability to write in English. Pre-tests are important for a lecturer to find out students' weaknesses or abilities in understanding the material to be studied. The results of

the pre-test will be used as an evaluation material for teachers in determining effective methods to apply so that students are able to understand the material being taught.

Based on the background above, the formulation of the problem in this research is first, what are the types of grammatical errors in English writing in the pre-test of the second semester students who are programming English courses? Second, what types of errors most often occur in English writing in the form of pre-test, third, what are the causes of grammatical errors in students' English writing? And fourth, what is the solution to solve this problem.

The aim of this research is to find out the types of grammatical errors in English writing in the pre-test of the second semester students who are programming English courses, to find out the most common mistakes made, and the causes of these errors, as well as the right solution to solve grammatical errors. The researcher analyzes grammatical errors in English writing using Surface Strategy Taxonomy. Surface Strategy Taxonomy explains how a structure can change either through adding or subtracting letters, or words or certain parts in a sentence or errors in arranging the structure to assemble a sentence (Dulay, 1982: 150). Based on this statement, Dulay explains the types of errors into four parts, namely omission, addition, misformation, and misordering. Omission occurs when the writer or speaker omits several morphemes or words both in speech and in writing. As a result of this omission, the sentence becomes wrong and meaningless. Addition is the opposite of omission, namely the addition of several morphemes or words both in speech and in writing. Misformation occurs due to the wrong form of a morpheme or structure. Meanwhile, misordering occurs due to errors in placing a morpheme or group of morphemes in a sentence. In other words, misordering occurs because of confusion in constructing English sentences. English learners are influenced by the construction of sentences in Indonesian or their mother tongue which results in errors in constructing English sentences.

## **2. Research Methods**

This research uses descriptive research methods with a qualitative approach. The qualitative method aims to explain data in the form of student writing. This statement is supported by the opinion of (Moleong 2007, 6) who states that qualitative research aims to understand phenomena about what is experienced by research subjects, for example behavior, perceptions, motivations, actions holistically by describing them in the form of words and language, at a time. In this research, the researcher chooses a qualitative method to analyze the types of errors contained in students' English writing (pre-test) seen from the Surface Strategy Taxonomy which is grouped into 4 parts. This research was carried out at Atma Reksha Pastoral College of Ende which is located at Gatot Soebroto street, km. 3, Mautapaga, Ende district, East Nusa Tenggara in the Catholic Religious Education Study Program especially at English Course. This research was carried out in February at the beginning of the even semester, the first week of lectures for the 2023/2024 academic year.

The subject of this research is the writing of 2C and 2E semester students who are programming English courses as many as 80 students. The researcher chooses this class because judging from the pre-test results, these two classes mostly experienced errors in writing English

compared to other classes. The instrument in this research is a pre-test which is given in the form of 10 questions and students are asked to answer the questions completely in English on the topic of Self Introduction. From the results of the students' answers, the researchers analyzed the errors. Ellis and Barkhuizen (2007) state that the error analysis procedure includes five stages, namely: collecting student language samples, identifying errors, describing errors, explaining errors, and evaluating errors. In this research, the researcher analyzed using several stages, namely identifying English grammatical errors, describing errors based on 4 types of errors (omission, addition, misformation, and misordering), calculating errors using the formula ( $P = \frac{n1}{\sum N} \times 100\%$  where P: errors in percentage,  $n1$ : number of types of errors, and  $\sum N$ : total number of errors), and explains grammatical errors in English writing.

### 3. Results And Discussion

#### *Error grouping*

Researcher groups grammatical errors based on Dulay's theory which explains the types of errors into four parts, namely omission, addition, misformation, and misordering. Students' English writing errors in the pre-test are grouped into 4 errors with the number of errors and percentages as shown in the following table.

Table 4.1 Percentage of Grammatical Errors by Type

Number	Type of Errors	Number of Errors	Percentage
1	Omission	74	32%
2	Addition	47	21%
3	Misformation	84	37%
4	Misordering	18	8%
	<b>Total Number of Errors</b>	223	100%

From this table, it can be explained that the order of the types of errors most often made by students is misformation with a total of 84 (37%), the next type of error is omission with a total of 74 (32%), addition errors with a total of 47 (21%), and errors the ones with the least amount of misordering were 18 (8%). This value is obtained using the formula  $\frac{n1}{\sum N} \times 100\%$ , where to get the percentage obtained from the error frequency divided by the number of errors. The percentage of errors is explained as follows: omission errors are obtained by  $\frac{74}{223} \times 100\% = 32\%$ , addition errors are obtained by  $\frac{47}{223} \times 100\% = 21\%$ , misformation errors are obtained by  $\frac{84}{223} \times 100\% = 37\%$ , and errors misordering obtained with the formula  $\frac{18}{223} \times 100\% = 8\%$ .

#### *Dominant error type*

From the table 4.1 above, it can be seen that the type of error most often made by students or the dominant error in English writing in the pre-test results is formation errors with a total of 84 errors and a percentage of 37%. Students experience many types of formation errors

due to lack of knowledge of English, especially the meaning of words. For example, 'I life in Gatot Subroto streat'. According to the correct meaning of English, this sentence should be 'I live in Gatot Subroto street'. Apart from that, the use of structure or grammar in English. The sentence structure in Indonesian is different from the sentence structure in English. For example, 'My hobbies are volleyball and football. In terms of structure or grammar in English, this sentence is wrong, it should be 'my hobbies are volleyball and football. This is because there is more than one preference or the subject is plural, so to be is used as are. Students often make mistakes because they are influenced by their mother tongue or translate sentences in Indonesian directly into English sentences which causes the sentences to be wrong.

## Discussion

This section discusses four types of errors in English writing made by students, namely the pre test which consists of omission errors, addition errors, misinformation errors, and misordering errors. Each incorrect sentence was given an explanation and the researcher corrected the sentence into a correct English sentence. In addition, the researcher replaced the respondent's name with an initial in describing each type of error. The four types of errors in English writing are discussed as follows

### 1) Omission Error

In English writing, students made omission errors with a total of 74 errors with a percentage of 32%. The researcher groups these errors in table form as follows:

Table 4.2. Omission Errors

Students Name	Sentence Number	Incorrect Sentence	Correct sentence
KR	1	My full name Krisogonus	My full name is Krisogonus
YB	2	My ful name is	My full name is
YW	3	I am com from	I come from
MB	4	I com from	I come from
MM	5	I am twenty yers	I am twenty years
	6	Two thousand for	Two thousand four
	7	My hoby is volleyball	My hobby is volleyball
YL	8	I am twenty for	I am twenty four
	9	I am student	I am a student
MK	10	I am studing in Stipar Ende	I am studying in Stipar Ende
	11	My phone number 085239 dst	My phone number is 085239 dst
RB	12	I finished studin in SMAKN 1 Ende	I finished studying in SMAKN 1 Ende
FK	13	I finisd my studyng in SMAK Carmelo	I finished my studying in SMAK Carmelo

	14	I studing in Stipar Ende	I studying in Stipar Ende
<b>MS</b>	15	My full name Maria Suri	My full name is Maria Suri
	16	Am come from Bajawa	I am from Bajawa or I come from Bajawa
<b>AF</b>	17	I com from Ende	I come from Ende
<b>KK</b>	18	I am 20 year old	I am 20 years old
	19	I study STIPAR Ende	I study in STIPAR Ende
<b>MW</b>	20	I finished studing in SMAS Katolik Thomas Golewa	I finished study in SMAS Katolik Thomas Golewa
<b>TA</b>	21	My birthday 29 th	My birthday is 29
	22	I am student	I am a student
	23	I have girlfriend	I have a girlfriend
<b>MI</b>	24	My age twenty years old	my age is twenty years old
<b>MM</b>	25	My hoby is volleyball	My hobby is volleyball
<b>KD</b>	26	I finisd my study in Bajawa	I finished my study in Bajawa
	27	I from Bajawa	I am from Bajawa
<b>AK</b>	28	Ok thaks for the time and chane to me	Ok thanks for the time and change to me
<b>RT</b>	29	I finshed my study in SMAN 3	I finished my study in SMAN 3
	30	I am a midle child	I am a middle child
	31	My hoby volleyball	My hobby is volleyball
	32	I have to brother	I have two brothers
	33	My brother name is Haven and Hendra	My brother' s names are Haven and Hendra
<b>KT</b>	34	Thanks for the time given to me	Thanks for the time is given to me
	35	My nick name Titin	My nick name is Titin
<b>SB</b>	36	I com from Welamosa	I come from Welamosa
<b>FI</b>	37	I finish my stady SMAKN 1 Ende	I finished my study in SMAKN 1 Ende
	38	I am studing in STIPAR Ende	I am studying in STIPAR Ende
<b>YL</b>	39	I finished studing in SMAN 2 Ende	I finished my study in SMAN 2 Ende
	40	I studing in STIPAR Ende	I am studying in STIPAR Ende
<b>LN</b>	41	I studying SMAN 1 Ende	I studied in SMAN 1 Ende
<b>AC</b>	42	The are seven family	There are seven family
<b>AB</b>	43	My mather is Maria Murri	My mother's name is Maria Murri
	44	My hobby is vollyball	My hobby is volleyball
<b>YD</b>	45	I have three sister and one brother	I have three sisters and one brother
	46	My job student	My job is a student
<b>MT</b>	47	My hoby is reading	My hobby is reading



<b>AA</b>	48	My birthday December	My birthday is December
<b>MS</b>	49	My hobby dancing	My hobby is dancing
<b>MK</b>	50	I live my family	I live with my family
	51	My birthday 23 years old	My birthday is 23
	52	My hobby is sing and reading	My hobby is singing and reading
<b>EY</b>	53	My mather is Maria Mentiana	My mother's name is Maria Mentiana
<b>MB</b>	54	And my two brother	And my two brothers
	55	My birthday eight, may 2005	My birthday is eight, on May 2005.
<b>MI</b>	56	My job student	My job is a student
<b>LL</b>	57	I am student	I am a student
	58	My status is I have girlfriend	My status is I have a girlfriend
<b>MG</b>	59	I am student	I am a student
<b>VB</b>	60	I com form Moni	I come from Moni
<b>MY</b>	61	I com from Maumere	I come from Maumere
<b>MR</b>	62	I from country Indonesia	I am from Indonesia
	63	I twenty years old	I am twenty years old
	64	My hobby listen to music	My hobby is listening to music
<b>AP</b>	65	I am finish study SMA negeri 2 Ende	I finished study in SMAN 2 Ende
<b>KW</b>	66	My hobby is play volyball	My hobby is playing volleyball
<b>EI</b>	67	I nineteen years old	I am nineteen years old
<b>YM</b>	68	I nineteen years old	I am nineteen years old
	69	I am student	I am a student
<b>MM</b>	70	I nineteen years old	I am nineteen years old
	71	I am student	I am a student
<b>YS</b>	72	I live with family	I live with my family
<b>MR</b>	73	My age nineteen years	My age is nineteen years
	74	Two brother	Two brothers

From the sentences above, it shows that students produce omission errors in English writing. In sentences number 1, 11, 15, 21, 24, 31, 34, 35, 46, 48, 49, 51, 55, 56, 64, and 73 students eliminate to be (is), sentences number 27, 40, 62, 63, 67, 68, and 70 students removed to be (am), in sentences number 9, 22, 23, 57, 58, 59, 69, and 71 students removed article (a) and sentences number 32, 45, 54, and 73 students removed the letter (s) in the words brother and sister which are plural forms. For sentences number 3, 4, 17, 36, 60, and 61 students removed the letter (e) in the word come, number 2 students removed the letter (l) in the word full, sentences number 7, 25, 47 students removed the letter (b) in the word hobby. For sentences number 10, 12, 14, 38, 39, and 40, students removed the letter (y) in the word studying and number 13 removed the letter (i) in the word studying. In sentence number 13, 26 students removed the letter (e) and number 29 removed the letter (i) and number 37 removed the letter (ed) in the word finished.

Meanwhile, in sentences number 52, 64 and 66, students removed the verb *ing* in the words sing and listen, number 44 and 66 students removed the word (e) in the word volleyball,

numbers 19 and 65 removed the preposition in and 50 removed the preposition with, number 5 and 18 removes the letters (a) and (s) in the word years, numbers 6 and 8 remove the letter (u) in the word four, number 32 removes the letter (w) in the word two. Number 16 removes the word I, number 28 removes the letter (n) in the word thanks and letter (g) in the word change, number 30 removes the letter (d) in the word middle, number 42 removes the letter (re) in the words there and apostrophe ( ' ) and the word name, in numbers 43 and 53 students removed the letter (a) in the word mother, and in number 72 students removed the word my as a possessive pronoun.

## 2) Addition error

In English writing, students made 47 addition errors with a percentage of 21%. The researcher groups these errors in table form as follows:

Table 4.3. Addition Error

Students' Name	Sentence Number	Incorrect Sentence	Correct Sentence
KR	1	I am come from Nuabosi	I am from or I come from Nuabosi
	2	I am study in Stipar Ende	I study in Stipar Ende
MW	3	I come from in Maumere	I come from Maumere
YB	4	I am finish study	I finish study
YW	5	I'm live in Durian street	I live in Durian street
MC	6	I my study in Stipar	I study in Stipar
MB	7	I finish my studying in	I finish my study in
MG	8	I am live in Perumnas	I live in Perumnas
	9	I am tewenty seven	I am twenty seven
KS	10	I come from in Moni	I am from or I come from Moni
MN	11	I 'am come from Nangapanda	I am from or I come from Nangapanda
JU	12	I am come from Boanio	I am from or I come from Boanio
RB	13	I am cam from Peibenga	I am from or I come from Peibenga
YN	14	I my study in Stipar Ende	I study in Stipar Ende
MS	15	You cann call me Pika	You can call me Pika
MG	16	I'am 19 years old	I am 19 years old
YW	17	I am come from Mauponggo	I am from or I come from Mauponggo
EB	18	I am come from Mauponggo	I am from or I come from Mauponggo
VR	19	I'm come from Ende	I am from or I come from Ende
	20	I am live in WZ Yohanes street	I live in WZ Yohanes street
MI	21	I am come from Rendu	I am from or I come from Rendu
AK	22	I am study in Stipar Ende	I study in Stipar Ende
FM	23	I come from in Maumere	I come from Maumere
SB	24	I my study in Stipar	I study in Stipar
VI	25	I am com from Maurole	I come from Maurole

<b>SW</b>	26	I am come from Boawae	I come from Boawae
<b>KM</b>	27	I don't have jobs	I don't have job
	28	My hobby is are reading and writing	My hobbies are reading and writing
<b>AC</b>	29	I am from in Indonesia	I am from Indonesia
<b>MS</b>	30	I am from in Indonesia	I am from Indonesia
<b>FT</b>	31	I'm come from Indonesia	I come from Indonesia
<b>MT</b>	32	I'm eighteend years old	I'm eighteen years old
<b>AA</b>	33	I am come from Indonesia	I am or I come from Indonesia
<b>LM</b>	34	I'm live in Samratulangi street	I live in Samratulangi street
<b>MI</b>	35	I am live in Gatot Subroto street	I live in Gatot Subroto street
<b>ST</b>	36	I'm stady with my family	I study with my family
	37	I am come from Ende	I am from or I come from Ende
<b>VE</b>	38	I am study in Stipar Ende	I study in Stipar Ende
<b>MY</b>	39	I am study in Stipar	I study in Stipar
<b>AP</b>	40	I'am a student	I am a student
<b>KW</b>	41	I am come from Indonesia	I am from or I come from Indonesia
	42	I am live in Gatot Subroto street	I live in Gatot Subroto street
	43	I am live with my parents	I live with my parents
<b>AM</b>	44	I am live in Melati street	I live in Melati street
	45	I am nineteen years old	I am nineteen years old
<b>EI</b>	46	I come from in Indonesia	I come from Indonesia
<b>MB</b>	47	I am live family	I live with my family

From the sentences above, it shows that students produced addition errors in English writing in the pre-test. In sentences number 1, 11, 12, 13, 17, 18, 19, 21, 25, 26, 31, 33, 37, 41, and 46 students should not use to do and to be simultaneously in one sentence and in the same sentence. That's right, it should be I am from or I came from. In sentences number 2, 4, 5, 8, 20, 22, 34, 35, 36, 38, 39, 42, 43, 44, and 47 students added to be (am), in sentences number 3, 10, 23, 29, 30, and 46 students added the preposition (in). In sentences number 6, 14, and 24, students add the word my as a possessive pronoun. In sentence number 9, students add the letter (e) to the word twenty, number 15 the student adds the letter (n) to the word cann, in sentences number 16 and 40 the student adds an apostrophe (') to the word I am, number 27 the student adds the letter ( s) as plural in the word jobs, number 28 students added to be (is) in the sentence my hobby is reading and writing. Meanwhile, in sentence number 32 the student added the letter (d) to the word eighteen and number 45 the student added the letter (h) to the word nineteen and in sentence number 7 the student added the verb ing to the word studying.

### 3) Formation Error

In English writing (pretest), students made 84 errors with a percentage of 37% and the researcher grouped these errors in table form as follows:

**Table 4.4. Formation Errors**

Students' Name	Sentence Number	Incorrect Sentence	Correct Sentence
<b>MB</b>	1	My from Aimere	I am from Aimere
<b>KR</b>	2	My sidoname	My nick name
<b>MW</b>	3	I was bron in Waigoto	I was born in Waigoto
	4	My brother name is Kristian and Paulus	My brothers' names are Kristian and Paulus
<b>YB</b>	5	You can colme	You can call me
	6	I cam from	I come from
<b>YW</b>	7	You can call my Ita	You can call me Ita
<b>MC</b>	8	I life in Irian Jaya street	I live in Irian Jaya street
	9	I want to introjust	I want to introduce
<b>MB</b>	10	I finish my stading in	I finished my study in
	11	I am naintin years old	I am nineteen years old
<b>MG</b>	12	My job is stadents	My job is a student
<b>KS</b>	13	I want to introjudce	I want to introduce
<b>MK1</b>	14	I hobby is singing	my hobby is singing
	15	I am date of birth ten July	My birthday is on July, tenth
<b>MK2</b>	16	My full name in Marlina Nake	My full name is Marlina Nake
	17	I life in Gatot Subroto streat	I live in Gatot Subroto street
	18	My hoby is singing and music	My hobbies are singing and music
<b>FK</b>	19	You can coll me Rianty	You can call me Rianty
<b>MS</b>	20	Late me introduce my self	Let me introduce my self
	21	I live in durian streat	I live in Durian street
<b>AF</b>	22	You can col mi Enjel	You can call me Enjel
	23	I life in BTN	I live in BTN
	24	I am naintin years old	I am nineteen years old
<b>MF</b>	25	My sare name is Wea	My short name is Wea
<b>TA</b>	26	My hobby is volleyball and football	My hobbies are volleyball and football
<b>YM</b>	27	You can colmi Nesta	You can call me Nesta
	28	I life in Anggrek	I live in Anggrek
	29	Thanks sou mach.	Thanks so much.
<b>MG</b>	30	I live in Gatot Subroto screet	I live in Gatot Subroto street
<b>YW</b>	31	I finshed my study in SMAK Wolosambi	I finished my study in SMAK Wolosambi
<b>EB</b>	32	I finshed my study in SMAK Wolosambi	I finished my study in SMAK Wolosambi
<b>MM</b>	33	I cam from Bajawa	I come from Bajawa
	34	I am stading in Stipar	I am studying in Stipar
	35	I finisid my study in SMAN Golewa	I finished my study in SMAN Golewa
<b>KD</b>	36	You can col me Amel	You can call me Amel
<b>SB</b>	37	You can colmi Santi	You can call me Santi

	38	I life in Asrama	I live in Asrama
<b>VI</b>	39	I'm eightin yeas old	I'm eighteen years old
	40	I am the third child of thir sibling	I am the third child of three sibling
<b>YL</b>	41	You can coll me Oland	You can call me Oland
<b>SW</b>	42	I my study in Stipar Ende	I study in Stipar Ende
<b>LN</b>	43	I camprom Welamosa	I come from Welamosa
	44	You came call mi Amy	You can call me Amy
<b>MW</b>	45	I came from Moni	I come from Moni
	46	My hobbies is singing	My hobby is singing
<b>AB</b>	47	A com from Sumba	I come from Sumba
	48	A live in Gatot Subroto street	I live in Gatot Subroto street
<b>YD</b>	49	My hobby is playing folly ball	My hobby is playing volley ball
<b>AA</b>	50	I live in my family	I live with my family
<b>MS</b>	51	I am one eit years old	I am eighteen years old
<b>FT</b>	52	I'm name is Fransiskus Thomas	my name is Fransiskus Thomas
	53	I am twenti eit	I am twenty eight
	54	My hobby is foodball	My hobby is football.
<b>T</b>	55	I live in Panjaitan streat	I live in Panjaitan street
	56	My hobby are singing and reading	My hobbies are singing and reading
	57	I'm have student.	I am a student.
<b>AA</b>	58	I live in my family	I live with my family
	59	My hobbies is singing	My hobby is singing
<b>EY</b>	60	A come from Maumere	I come from Maumere
	61	A lif in Gatot Subroto street	A live in Gatot Subroto street
	62	My mather is Maria Mentiana	My mother's name is Maria Mentiana
	63	My sisters is Antonia and Yanty	My sister's names are Antonia and Yanty
	64	My hobby is cooking rais	My hobby is cooking rice
<b>LM</b>	65	I am singel	I am single
<b>YT</b>	66	I am twenty tri years old	I am twenty three years old
	67	There are free family: my mather, sister and my brother	There are three family: my mother, sister and my brother
<b>LL</b>	68	I am eigthin	I am eighteen
<b>MG</b>	69	I live whit my friends	I live with my friends
<b>VB</b>	70	My study in Stipar Ende	I study in Stipar Ende
	71	I life in Perumnas	I live in Perumnas
<b>VE</b>	72	I can from Maumere	I come from Maumere
<b>MY</b>	73	I live in Gatot Subroto stit	I live in Gatot Subroto street
<b>MR</b>	74	I life in Gatot Subroto street	I live in Gatot Subroto street
<b>KW</b>	75	My religious is katolik	My religion is Catholic
<b>EI</b>	76	I live in Gatot Subroto streath	I live in Gatot Subroto street
<b>MA</b>	77	I live in my family	I live with my family
	78	Katolik Religi stady program	Catholic Religious Study Program

	79	I am not married but I am stady	I am not married but I am a student
<b>YM</b>	80	Ai can from Nangapanda	I come from Nangapanda
<b>MM</b>	81	Ai can from Nangapanda	I come from Nangapanda
<b>MB</b>	82	You can colme Ima	You can call me Ima
	83	They is five people	They are five people
	84	I am is study	I am a student

Based on the table above, it shows that students produced formation errors in English writing in the pre-test. For numbers 4, 18, 26, 64, and 83 students should use to be (are) not to be (is), numbers 5, 19, 22, 27, 36, 37, 41, 44, and 82 should be correct sentences you can call me. In sentences number 21, 30, 55, 73, and 76, students should use the word street, sentences number 11, 24, 39, and 68 should use the words nineteen and eighteen, while number 51 should be eighteen, not one eight, and number 53 should be twenty-eight, right? twenti eit. In sentence number 56, students should use the word hobbies, not hobby, and in numbers 46 and 59, students should use the word hobby, not hobbies. For sentences number 50, 58, and 77 you should use the preposition with, not in, sentences number 49 and 54 should use the words volleyball and football. In sentences number 8, 17, 23, 28, 38, 61, 71, and 74 students should use the word live, not the word life. Meanwhile, in sentences number 31, 32, and 35, students should use the word finished as the past form.

Sentence number 7 should be the object me, number 1 should be subject I, number 14 should be the possessive adjective my, sentence number 16 should be to be (is), numbers 9 and 13 should be the word introduce. Sentence number 29 should be the word much, not mach, sentences number 6, 33, 43, and 45, 47, 60, 80, 81, should be I come from, numbers 47, 48, 60, 61, 80, and 81 should be subject I, Number 12 should be the word student not standents, number 52 should be my name not I am name, number 64 should be the word rice, 65 should be single, numbers 66, 67 should be the word three, number 62 should be the sentence my mother's name is, number 20 should be the word let, number 78 should be the word religious, number 34 should be the word studying, sentence number 42 I my study in Stipar should be I study in Stipar without the possessive adjective, number 70 my study in becomes I study in. For sentence number 2, it should be a nickname, not a sido name, number 3 should be born, not bro. Sentence number 10 I finished my study in becomes I finished my study in and number 78 should be catholic religious study program.

#### 4) Ordering Error

In English writing, students produced 18 ordering errors and the percentage was %. The author groups these errors in the table as follows:

**Table 4.3. Ordering Errors**

Students' Name	Sentence Number	Incorrect Sentence	Correct Sentence
----------------	-----------------	--------------------	------------------



<b>AC</b>	1	This is stadi religious studi program	This study is religious study program
	2	My brother two	my two brothers
<b>YD</b>	3	I old nine ten years	I am nineteen years old
<b>LM</b>	4	I am two twenty years old	I am twenty two years old
	5	I am hobby voli ball	My hobby is volley ball
	6	I am berday ninethen, January	My birthday is on January, nineteenth
<b>YT</b>	7	My birthday is sixteen on April	My birthday is on April, sixteenth
<b>MB</b>	8	My job stadeni am	My job is a student
<b>LL</b>	9	I birthday 26 Mey	My birthday is on Mey twentysixth
<b>MG</b>	10	My is hobby volly ball	My hobby is volley ball
<b>MR</b>	11	There are eight my person famil	There are eight person in my family
	12	My number phone 081236..	My phone number is 081236..
<b>YS</b>	13	My date of briddtday four April	My birthday is on April, fourth
<b>FI</b>	14	I am phone number 082190...	My phone number is 082190...
	15	I am is hobby writer	My hobby is writing
<b>EI</b>	16	I date of birth twenty October	My birthday is on October, twentieth
<b>MB</b>	17	I am is hobby singing	My hobby is singing
<b>MI</b>	18	My number phone:082 312 505 272	My phone number is 082 312 505 272
<b>AA</b>	19	My is a'm student	My job is a student

From this table, it can be seen that students also produce ordering errors in English writing. For sentences number 12, 14, 18 my phone number, I am phone number, the English structure is wrong, it should be my phone number is. In sentences number 6, 7, 9, 13, 16, namely I am the ninth day, January, my birthday is on April, I am 26 May, my date of bridal day is fourth April and I date of birth is twenty October, my birthday should be on. Sentence number 1, namely This is a religious study program, should be this study is a religious study program, sentence number 2, my brother two, should be my two brothers. In sentences number 3 and 4, I am nine ten years old and I am two twenty years old, it should be I am nineteen and I am twenty two years old. Sentences number 5, 10, 15, 17 should be my hobby is, for numbers 8 and 19 students should use the sentence my job is a student, while number 11, namely my is a'm student, should be I am a student.

In general, students make mistakes in writing English because English is not their first language but Indonesian language. It is very natural for a language learner to make mistakes in writing English. They are also not used to writing in English but only at certain times at school. This is supported by Tarigan's opinion that "We should really realize that we cannot learn language without making systematic mistakes" (Tarigan 2011, 126).

#### 4. Conclusion

Based on the results of the research and discussion, the researcher concluded that students produced 4 types of grammatical errors in English writing during the (pre-test). This can be seen from the types of errors most often made by students, namely misformation with a total of 84 or (37%), types of omission errors with a total of 74 or (32%), addition errors with a total of 47 or (21%), and the fewest errors are misordering was 18 (8%). This error can be caused by intralanguage and interlingual categories. The intralanguage category is an error that occurs due to the interpretation of language students, while the interlingual category is an error that occurs due to students' lack of understanding of the structure of English which generally arises because of the differences between English and Indonesian. Apart from that, this research provides very valuable information or suggestions for English lecturers to design more effective and varied teaching methods so that students master English grammar or structure and are able to write simple English correctly and precisely.

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## HUBUNGAN ANTARA KONFORMITAS TEMAN SEBAYA DENGAN PERILAKU KONSUMTIF PADA MAHASISWA PENERIMA KIP KULIAH

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**Abstrak.** Pemerintah Indonesia memberikan bantuan dana pendidikan yang disebut Kartu Indonesia Pintar (KIP) kepada peserta didik di jenjang dasar hingga perguruan tinggi. Untuk jenjang perguruan tinggi, dana ini diberikan langsung kepada mahasiswa penerima manfaat dan diharapkan dapat dikelola secara mandiri dengan bijaksana untuk memenuhi kebutuhan hidup dan perkuliahan. Tujuan penelitian ini untuk mengetahui hubungan antara konformitas teman sebaya dan perilaku konsumtif pada mahasiswa penerima KIP Kuliah di Kampus B Universitas Nusa Cendana. Sebanyak sampel 105 mahasiswa terlibat dalam penelitian yang dipilih menggunakan teknik *purposive sampling*. Data penelitian dikumpulkan dengan menggunakan kuesioner konformitas teman sebaya dan perilaku konsumtif. Analisis deskriptif dilakukan untuk menggambarkan karakteristik responden dan variabel penelitian. Analisis korelasi dengan bantuan aplikasi *SPSS for Windows 27 version* dilakukan untuk mengetahui hubungan antara konformitas teman sebaya dengan perilaku konsumtif. Hasil analisis ditemukan mayoritas mahasiswa memiliki tingkat konformitas teman sebaya (79%) dan perilaku konsumtif (86,7%) yang tinggi. Perilaku konformitas mahasiswa ditunjukkan dengan bersikap kompak dan taat pada kelompok namun cenderung kurang memiliki komitmen terhadap kesepakatan kelompok sebaya. Lebih dari separuh (65,7%) mahasiswa memiliki kecenderungan untuk melakukan pembelian impulsif dan pembelian tidak rasional (64,8%), dengan separuh (52,4%) mahasiswa melakukan pemborosan untuk mencari kesenangan. Hasil analisis uji korelasi *product moment* menunjukkan terdapat hubungan positif yang signifikan dengan nilai  $r = 0,577$ ,  $p < 0,05$  antara konformitas teman sebaya dengan perilaku konsumtif. Eksplorasi lebih lanjut masih perlu dilakukan terhadap penggunaan dana KIP Kuliah dengan prestasi belajar mahasiswa serta menganalisis aspek-aspek konformitas dan perilaku konsumtif pada mahasiswa.

**Kata kunci:** *Konformitas, teman sebaya, konsumtif, KIP, Undana*

**Abstract.** The Indonesian government provides education funding assistance called the Smart Indonesia Card (KIP) to students at the primary to tertiary levels. For the college level, these funds are given directly to the beneficiary students and are expected to be managed independently and wisely to meet the needs of life and lectures. The purpose of this study was to determine the relationship between peer conformity and consumptive behavior in KIP Lecture recipient students at Campus B, Nusa Cendana University. A total sample of 105 students was selected using the purposive sampling technique. The research data were collected using questionnaires on peer conformity and consumptive behavior. Descriptive analysis was conducted to describe the characteristics of respondents and research variables. Correlation analysis with the help of the SPSS for Windows 27 version application was carried out to determine the relationship between peer conformity and consumptive behavior. The results of the analysis found that the majority of students have a high level of peer conformity (79%) and consumptive behavior (86.7%). Students' conformity behavior is shown by being compact and obedient to the group but tend to lack the commitment to peer group agreements. More than half (65.7%) of students tend to make impulsive and irrational purchases (64.8%), with half students (52.4%) wasting money to

find pleasure. The results of the product-moment correlation analysis show that there is a significant positive relationship with a value of  $r = 0.577$ ,  $p < 0.05$  between peer conformity and consumptive behavior. Further exploration still needs to be done on the correlation of KIP funds with student learning achievement and deep analyzing on the aspects of conformity and consumptive behavior in students.

**Keywords:** *Conformity, Peers, Consumptive, Indonesia Smart College Card, Nusa Cendana University.*

## 1 INTRODUCTION

The Indonesian government is obligated to improve access and opportunities for education at higher education institutions and to prepare intelligent and competitive Indonesian individuals. Therefore, the government strives to ensure that economically disadvantaged Indonesian students, especially those with achievements, continue their education to the university level through the The Indonesian Smart College Card (Puslapdik Kemendikbud Ristek, 2021).

Ideally, the living expenses received by students should be managed independently and wisely to meet their basic needs and educational expenses, such as food, clothing, housing, transportation, and other necessities supporting academic activities, while also saving a portion for future use. However, student consumption activities are not immune to a shift in meaning, originally intended to fulfill basic needs and educational purposes, but instead becoming a means to satisfy desires for tertiary needs, such as spending on leisure with peer groups, buying expensive branded clothes, simply for the sake of appearance without careful consideration (Rohman, 2018).

Misuse of The Indonesian Smart College Card assistance is also experienced by students at the B campus of the Faculty of Teacher Training and Education, Nusa Cendana University. Based on the results of a preliminary study conducted on February 13, 2023, several students reported that the KIP Kuliah assistance they received was used to treat their peer group to meals, buy alcoholic drinks to consume together with their peer group, purchase trendy clothes to look like their peer group, top up for recognition in online gaming groups, spend money to go with their peer group to recreational places such as cafés, malls, or popular tourist spots, use funds to modify motor vehicles to match the style of their peer group, and simply hang out at the house of one of the group members.

Conformity within a group can lead individuals to behave according to the group's desires and make them do things outside of their own wishes. One form of conformity behavior exhibited by students in order to gain acceptance or recognition is through consumptive behavior (Myers, 2012 in Azizah & Listiara, 2017). This study is important to examine because not all KIP Kuliah recipients use the assistance they receive wisely and appropriately. This research also provides information about the proper and correct use of KIP Kuliah funds, in accordance with the KIP Kuliah guidelines issued by the Ministry of Education, Culture, Research, and Technology. Additionally, no previous research has discussed peer conformity and consumptive behavior among KIP Kuliah recipients.

## 2. Research Method

This study was conducted at the B campus of the Faculty of Teacher Training and Education (FKIP) at Nusa Cendana University, located at JL. S. K. Lerik, Kelapa Lima District, Kupang City, East Nusa Tenggara, with a research period of one month. The research was conducted from May 8 to June 15, 2024. The population in this study consisted of students who are recipients of the KIP Kuliah assistance at the B campus of Undana.

**Table 1: Research Population**

No	Study Program	KIP Student Population
1	Primary School Education (PGSD)	251
2	Guidance and Counseling (BK)	134
3	Early Childhood Education (PGPAUD)	120
4	Social Education (PLS)	100
5	Physical Education, Health, and Recreation (PJKR)	93
<b>Total</b>		<b>698</b>

Non-probability sampling is used in this study. With a purposive sampling technique. Purposive sampling is a technique for quantitative research. This sampling is a technique for selecting samples based on specific criteria (Sugiyono, 2022).

**Table 2: Research Sample**

No	Study Program	KIP Student Population	Percentage Sample	
1	Guidance and Counseling (BK)	251	15%	38
2	Physical Education, Health, and Recreation (PJKR)	134	21%	28
3	Early Childhood Education (PGPAUD)	120	20%	24
4	Primary School Education (PGSD)	100	18%	18
5	Social Education (PLS)	93	8%	8
<b>Total</b>		<b>698</b>		<b>105</b>

Data collection:

Collecting data used a question are (survey) in this study, the validity and reliability test for the research instrument used are the pilot research, which it condition simultaneously with the actual research.

Quetionares based on the peer conformity and consumptive behavior scale. A quetionare is a data collection technique that involss set of written questions to answer (Sugiyono, 2022). The instrument is designes based on aspects of peer conformity, which include cohesion, agreement, and compliance.

Other quetionare is designed based on variable consumptive behavior aspects of consumptive behavior are impulsive buying, irrational purchasing, and wasteful buying.

**Table 3: Blueprint of the Peer Conformity Questionnaire**

Aspects	Behavior Indicators		Total
	Favorable	Unfavorable	
Cohesion	4		4
Agreement	6		5
Obedience or Compliance	3		3
<b>Total</b>	<b>13</b>		<b>12</b>

The scale is designed based on aspects of consumptive behavior. The aspects of consumptive behavior include impulsive buying, irrational purchasing, and wastefulness or seeking pleasure

**Table 4: Blueprint of the Consumptive Behavior Questionnaire**

Aspect	Behavior Indicators		Total
	Favorable	Unfavorable	
Impulsive Buying	3		3
Non-Rational Buying	3		3
Wasteful Buying	5		5
<b>Total</b>	<b>11</b>		<b>11</b>

### Data Analysis Technique

Analysis technique used in this study is descriptive analysis calculate, frequency, distribution, grouping specific categories by percentage this is to understand characteristics of peer conformity and consumptive behavior among.

The sample (KIP Recipients) in Campus B Faculty of Teacher Training and Education Nusa Cendana University.

### 3. Study Result Peer Group's

#### 1. Overview of Conformity and Consumptive Behavior

105 respondents in this study, consisting of 29 males and 76 females were examined. Nearly half (42%) of the respondents were 2<sup>nd</sup> semester students, with the other were students from fourth, sixth, and eighth semesters. Majority (79%) of respondent have high peer conformity. Peer conformity behavior was more commonly found among female students (68.2%) compared to male students (18.9%). Most students (84.8%) demonstrated cohesive attitudes, and 81.0% showed high in compliance. Although majority of them (71.4%) have low agreement to their peer group. This indicates that the peer conformity in students of campus B Faculty of Teacher Training and Education (FKIP) are to follow the group or friends, but individually they didn't agree with the group.

Meanwhile, about (86.7%) of the student show high consumptive behavior. Same with peer group result, the prevalence was more among female student (64.7%) than male students (21.9%). Consumptive behavior was driven by impulsive behavior and irrational buying. More than half of the students (65.7%) show a tendency of impulsive buying, (64.8%) made irrational purchases, and (52.4%) wasted money to pleasure other.

#### 2. Peer Conformity Instrument Validity Test



The instrument tested using SPSS version 27, with a total of 25 items.

**Table 5: Peer Conformity Validity Test**

Aspect	Behavior Indicators		Dropped Items	Total
	Favorable	Unfavorable		
Cohesion	1, 3, 5, 6, 7	2, 4, 8	-	8
Agreement	9, 10, 11, 13, 15, 17, 19	12, 18, 14, 16	11	
Obedience	20, 22, 24	21, 23, 25	-	6
<b>Total</b>		<b>15</b>	<b>8</b>	<b>2</b>

Table 5 shows that there are 23 items that are valid and 2 items are invalid.

### 3. Peer Conformity Reliability Test

Reliability testing was conducted using SPSS version 27 with the Cronbach's alpha analysis technique.

**Table 6: Peer Conformity Reliability Test**

Reliability Statistics	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
	.812	.798	23

Table 6 shows P value 0.812, which means that instrument is reliable.

### 4. Consumptive Behavior instrument Validity Test

The instrument tested using SPSS version 27, with a total of 22 items.

**Table 7: Consumptive Behavior Validity Test**

Aspect	Behavior Indicators		Dropped Items	Total
	Favorable	Unfavorable		
Impulsive Buying	1, 3, 5	2, 4, 12	-	
Irrational Buying	7, 9, 11	6, 8, 10	-	
Wasteful Buying	13, 15, 17, 19	14, 16, 20, 22	18, 21	
<b>Total</b>	<b>10</b>	<b>10</b>	<b>2</b>	

Table 7 shows that there are valid 20 items and 2 items invalid.

### 5. Consumptive Behavior Reliability Test

Reliability testing was conducted using SPSS version 27 with the Cronbach's alpha analysis technique.

**Table 8: Consumptive Behavior Reliability Test**

Reliability Statistics	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
	.848	.820	20

Table 8 shows P value 0.848, which means the instrument is reliable.

## Results of normality, linearity, and hipotesis tests

1) Normality Test

The results of the normality test using the One-Sample Kolmogorov-Smirnov test showed a significance value (Asymp Sig)  $0.232 > 0.05$ , meaning that the data in this study are normally distributed.

2) Linearity Test

Linearity value is  $0.000 < 0.05$  and a deviation from linearity value  $0.484 > 0.05$ . Therefore, it can be concluded that there is a linear relationship between peer conformity and consumptive behavior.

3) Hypothesis Test

Data analysis is using pearson product moment correlation interpret the relationship between peer conformity and consumptive behavior among KIP recipients at campus B of the faculty of teacher training and education (FKIP) Nusa Cendana University.

Pearson product-moment shows  $P. 0.577 > 0.05$ . There is strong correlation between peer conformity and consumptive behavior in this study.

#### 4. Discussion

Based on the data analysis, peer conformity among male and female students is predominantly in the high category. In line with Febrianti & Roswiyani (2023), who stated that the peak of conformity behavior occurs during adolescence, particularly among students aged 18-24. Around this period, students are growing from the stage of late adolescence, transitioning toward early adulthood.

According to Batubara (2010) in Nabila (2022), late adolescence is more oriented to socializing within certain groups with limited number of members, and the relationship is mutually. The high level of conformity indicates that both male and female students are not fully independent in the decision making due for peer group rejected.

Conformity behavior is the result of group pressure, which can be seen in the tendency of students to align the behavior in order to place other, obedient, thus avoiding criticism (Myers, 1983 in Sihontang, 2019). The high level of peer conformity is show the high degree of cohesion and obedience. The cohesion and obedience can be high because students act like the group member and follow the rules of the peer group.

Although there are high cohesion and obedience, rejection can happen. Projection happens due to different opening among the members in the same level of thinking. This agreement can affect the overall level of group conformity, as is linked to the willingness to follow the group norms. This main challenge lies on the aspect of agreement, which can influence the long-term level of group conformity (Mardison, 2016).

The results this study above are in line with the opinion of Sudarto (2020), who stated that consumptive behavior is influenced by the level of conformity of the peers.

Based on the data analysis, consumptive behavior among students, both male and female, is predominantly in the high category. This statement aligns with the opinion of Suyana&Fransisca (2005 in Rohman&Widjaja, 2014), who explained that consumptive behavior refers to actions of purchasing to satisfy desires, excessively, leading to wastefulness and cost inefficiency. The term "consumptive" means wasteful, indicating that someone

consumes goods and services excessively. Consumptive behavior among students is based on consumer behaviour. According to Suntoyo (2012 in Nugraha, 2021), consumer behavior is defined as individual activities involved in using goods or services, including the decision-making process.

This study find out that more than half of the KIP' students engage in excessive purchasing, irrational buying, and wasteful spending in order to seek pleasure with high intensity. As a result, students' financial conditions become uncontrollable due to excessive and continuous purchases (Astuti, 2013 in Yahya, 2021).

Hypothesis in this study, there is a relationship between peer conformity and consumptive behavior among KIP recipients at Campus B of FKIP Undana. The correlation coefficient obtained from SPSS version 27 with the product-moment correlation test method is (0.577), for  $n = 105$  and with a significance level of 0.05, where the  $r$ -table value is (0.1918). The results show that the  $r$  result (0.577) is greater than the  $r$  table (0.1918), therefore positive hypothesis is accepted. This indicates a positive relationship between peer conformity and consumptive behavior among KIP recipients Campus B of FKIP Undana.

## 5. Conclusion

Based on the discussion, relationship between peer conformity and consumptive behaviour at Campus B FKIP University of Nusa Cendana, the majority of KIP recipients (79.0%) have high peer conformity, characterized by high levels of cohesiveness and obedience, but with low agreement. The majority of KIP recipients (86.7%) demonstrate high levels of consumptive behavior, including impulsive buying, irrational purchasing, and excessive spending. There is a positive relationship between peer conformity and consumptive behavior among KIP students at Campus B FKIP University of Nusa Cendana where higher peer conformity leads to higher consumptive behavior.

Based on the data analysis, consumptive behavior among students, both male and female, is predominantly in the high category. This statement aligns with the opinion of Suyana & Fransisca (2005 in Rohman & Widjaja, 2014), who explained that consumptive behavior refers to actions of purchasing not to fulfill needs but to satisfy desires, done excessively, leading to wastefulness and cost inefficiency. The term "consumptive" means wasteful, indicating that someone consumes goods and services excessively. Consumptive behavior among students is based on consumer behavior. According to Suntoyo (2012 in Nugraha, 2021), consumer behavior is defined as individual activities directly involved in acquiring and using goods or services, including the decision-making process in preparing and determining those activities.

The findings of this study show that more than half of the KIP Kuliah scholarship recipients engage in excessive purchasing, irrational buying, and wasteful spending in order to spend money and seek pleasure with high intensity. As a result, students' financial conditions become uncontrollable due to excessive and continuous purchases, leading to the accumulation of goods (Astuti, 2013 in Yahya, 2021).

Based on the hypothesis test results, there is a relationship between peer conformity and consumptive behavior among KIP Kuliah scholarship recipients at the B campus of FKIP

Undana. The correlation coefficient (r-observed) obtained from calculations using SPSS version 27 with the product-moment correlation test method is (0.577), for  $n = 105$  and degrees of freedom ( $df = 103$ ), with a significance level of 0.05, where the r-table value is (0.1918). The results show that the r-observed (0.577) is greater than the r-table (0.1918), thus  $H_a$  is accepted and  $H_0$  is rejected. This indicates a positive relationship between peer conformity and consumptive behavior among KIP Kuliah scholarship recipients at the B campus of FKIP Undana.

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## **School in Elementary was different from Preschool: Social School Readiness in East Nusa Tenggara**

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**Abstract.** The ability to socialize and interact is needed by children when entering primary school. Therefore, parents play an essential role in preparing their children. This study aims to determine the readiness of parents in vulnerable families in NTT to prepare children when entering elementary school. This study used an exploratory method involving 25 parents. Interview data was collected for one month in several districts spread across East Nusa Tenggara. The interview process was conducted in person and via Zoom for 30 minutes. This research resulted in 4 major themes, namely how children greet teachers, talk about differences in the school environment, respect teachers, and do not cry or fight at school. The results of this study show that parents always play a role in helping their children prepare for the new learning environment.

**Keywords:** *School readiness, Social readiness, Parenting, Social-emotional, School transition.*

### **1. Background**

The ability to socialize and interact is a readiness for children when entering primary school (SD) (Susan et al., 2010; Jose et al., 2020). Early children with emotional and social maturity will usually not experience problems when entering elementary school. Teachers mark this social-emotional maturity with positive emotional expression, enthusiasm, and the child's ability to regulate emotions and behavior (Susane, 2006). Social-emotional skills are an essential aspect often overlooked in parents' preparation for the primary school stage of education. Social skills, such as the ability to interact with others, understand social rules, and manage emotions, are essential foundations for children to succeed (Rachman & Cahyani, 2019). Research conducted by Magdalena (2013) states that social readiness is one of the vital factors to ensure children's success in a new learning environment.

On the other hand, socially unprepared children often experience difficulties in adapting, children feel awkward and uncomfortable in social interactions, and even experience behavioral problems. Good social skills are essential things that children must have when entering elementary school. To prepare children's social skills to enter elementary school, parents need to train children to get used to interacting with new environments and have a brave attitude, a sense of responsibility,

and respect for others. Children with good social readiness tend to adjust more quickly to the new school environment.

Preparing children to enter primary school means preparing children to have the competencies that they need when entering school so that children can adapt and succeed later (Rahmawati et al., 2018). Given the importance of children's social-emotional maturity during the PAUD period, researchers suggest that schools have their measurement tools to evaluate the condition of children's social-emotional abilities to assess children's school readiness to a higher level, namely elementary school (Susan et al., 2010). Skibbe (in SOYDAN & Sema, 2017) emphasizes that school readiness is not only about physical readiness but also about children's developmental traits, such as social skills, general knowledge, cognitive skills, and language proficiency, which all play a role in determining children's readiness to start formal education. Preparing children to enter school aims to prepare children so that the transition from early childhood to primary school takes place safely and smoothly. At the primary school level, there are many different demands, such as more extended learning activities, demands for children to be quiet and focus on listening to the teacher, increased routines at school, less time for rest and play, changes in relationships between teachers and children, and changes in relationships with classmates (Magdalena, 2013). So, it is essential to prepare children to adapt well later.

Unfortunately, children's readiness to enter primary school is often described by teachers and parents as the child's ability to learn to read and write. Parents tend to ignore children's social readiness. Children are required to have academic skills before entering primary school. This is why many preschool children in Indonesia are enrolled in literacy programs to accelerate their academic skills (Roman, 2018). Parents and teachers consider this ability a prerequisite for readiness for primary education and a standard for admission to favorite schools (Fridani & Agbenyega, 2013).

## **2. Literature Review**

“school readiness” refers to a child meeting the requirements to successfully transition from preschool to formal school education (Cuskelly & Detering, 2003). According to Janus & Offord (2007), this includes a child's ability to respond to school tasks. Snow (2010) adds that school readiness reflects a child's level of competence when starting formal education, which plays a vital role in their future success. Aspects of school readiness generally include social and academic skills that are considered essential for children's learning preparation. In addition, school readiness is also helpful as an early predictor of children's educational performance. It relates to the level of minimum development necessary for a child to cope with the demands of learning at school, including cognitive, social, and emotional aspects (Mashburn et al., 2016). Thus, it can be concluded that school readiness is a condition in which a child meets the necessary competencies when entering formal education, which plays a role in their success in the school environment.

A child's readiness in the context of the school covers a variety of essential aspects, including physical health and being able to pay attention to personal hygiene according to their age, the ability to regulate their social and emotional well-being, the ability to communicate well with adults and peers, and the ability to express their needs and feelings appropriately. In addition, readiness also involves a sense of interest in and engagement with the environment



around her, including motivation to learn and develop, good sensory-motor skills, knowledge and logic, and the ability to adapt to the classroom environment.

Janus and Offord (2007) divide school readiness into five main domains, namely physical health and well-being, motor skills, social competence, emotional maturity, and language and cognitive development. The physical health and well-being domain involves sensory-motor readiness for children's health to enter the learning environment, including movement skills, fine motor skills, and physical independence. Social competence includes the child's ability to cooperate and communicate with others, obey rules, and demonstrate curiosity and problem-solving skills. Emotional maturity includes good social behavior, adaptive behavior, and managing emotions and anxiety. Meanwhile, the development of speech-language skills consists of the child's ability to use language correctly, aspects of speech, storytelling and mathematical logic, and interest in learning.

### **3. Methodology**

#### **3.1 Research Design**

This research uses a qualitative method with a descriptive approach. Qualitative research produces descriptive data in the form of written or spoken words from people and behaviors observed from the phenomena that occur (Bogdan and Taylor in Suwendra, 2018). This is based on the fact that this study aims to descriptively describe the role of parents in preparing children's social skills when they enter elementary school.

#### **3.2 Research Procedures**

##### **a. Research Setting**

The research was conducted in East Nusa Tenggara Province in areas with vulnerable families, namely Kupang District, Ende District, East Manggarai District, Ngada District, and Southwest Sumba District. Kupang district, Ende district, East Manggarai district, Ngada district and Southwest Sumba district were selected.

##### **b. Participants**

The participants in this study were parents in Kupang District, Ende District, East Manggarai District, Ngada District, and Southwest Sumba District. Participants were selected using purposive sampling. Purposive sampling is a non-random sampling method in which the researcher selects samples intentionally by determining specific identities that are by the research objectives (Lenaini, 2021). The criteria used in this study are parents aged 20-40 years who have children ready to enter elementary school and families who live in vulnerable environments such as poverty. The participant selection process was carried out by contacting partner schools. We managed to contact seven partner schools, namely three schools from Kupang Regency and one partner school from Ende Regency, East Manggarai Regency, and Southwest Sumba Regency. There were 25 participants, namely 3 participants each from Ende, East Manggarai, and West Sumba districts, and 13 people from Kupang district.

Furthermore, of the 25 participants, 7 were male parents, and 18 were female parents.

Participants came from different educational backgrounds, from elementary school to stratum 1.

Their average occupation was a farmer (10 people), housewife (12 people), PAUD teacher (1 person), honorary worker (1 person), and entrepreneur (1 person). Of the total 25 participants we contacted, all of them were willing to be interviewed.

Table 1. Participant Criteria

Criteria	District					Sex		Age			Accupation				
	Kabup	Kabup	Kabup	Kabup	Kabup	Male	Female	20 – 30	31 – 40	41 – 45	Farmer	Hauseh	Teache	Honore	Wirasu
People	13	3	3		3	7	18	9	12	4	10	12	1	1	1

#### c. Data Collection Technique

The data collection technique used in this research is an in-depth interview technique for parents to prepare their children to enter elementary school. In-depth interviews, where researchers explore information in depth by asking questions freely by paying attention to the guideline questions prepared in advance so that the atmosphere is lively and carried out often (Huberman & Miles, 1992). The questions asked by the researcher aimed to explore information about the things prepared by parents when preparing their children to enter elementary school. Interviews were conducted directly for parents in Kupang district because the location was reachable and via Zoom with parents of Ende district, East Manggarai district, Ngada district, and Southwest Sumba district. Before the interview, the researchers made an appointment first. Data collection was carried out for one month. Before the interviews, the research team conducted ethical research by the required moral standards. The interview was conducted for approximately 30 minutes. Before starting the interview, the researcher explained the research topic to be discussed, the purpose of conducting this research, and discussed the questions that would be given. The author used interview guidelines as a tool or instrument in the study. There are two basic interview guideline questions, namely, what do parents think school readiness is? In collecting interview data, the researcher used a cellphone as a voice recorder and a notebook to record important things obtained during the interview. The results of the interviews were written in the form of interview transcripts. Transcript writing was done after each interview by re-listening the recorded interviews and writing them down in typed form. The interview transcripts were then submitted to the team leader.

#### d. Data Analysis

The author analyzed and organized the raw data collected in the form of interview transcripts. I collected 25 interview transcripts in 1 month. The next step is for the author to read the data that has been collected to find out what data sources I have obtained with understanding the data that has been received. The author conducted coding with the supervisor and classified it into themes. Then, the themes obtained are used to create research titles. The author formulates several indicators that want to be seen from parents related to parents' social readiness when children enter elementary school, namely: 1) how children greet teachers, 2) tell about the conditions of the new school environment, 3) respect teachers 4) do not cry or fight at school.

## 4. Results

Readiness in this study is the preparation, completeness, and role of parents in preparing children to enter elementary school, both in children's social readiness, such as actions or things that children will do when entering a new school environment. The role of parents is to inform children about how the new school environment is different, how children greet teachers, how children respect teachers, and teach children not to cry or fight in a new school.

Based on the results of interviews, parents revealed that children's social-emotional development is essential to pay attention to; children must be trained and taught how they can manage and express their feelings when at school later. This is evident from the expression of a parent with the initials YT who said, "Beta su often says to my younger brother that elementary school to sonde pi ko learn na jump left jump right to the PAUD. In elementary school, everyone learns to sit quietly on their benches, and there is no crying in PAUD. Apale cried to ask to go home. At home, I promised them that in elementary school, they must learn well because in elementary school, it is the same as in preschool. Because when you get to school, your teacher will give you homework and you will get 100 points, and you will get money. Ketong appreciates his work at school by giving him pocket money, and if he does not have the money, he will give him another gift. I will cook his favorite food or take him for a walk with his cousins."

Mrs. K said that giving direction and advice to children before entering primary school is very important. Because then we parents can train children to get to know the new school environment first and also learn how children behave and interact with friends and teachers at school later. "I promise him that until elementary school, he will be naughty to the elementary school teacher, just like the early childhood teacher who can still jump up and down when learning. In elementary school, you learn to sit still and run around. So you have to sit down and listen to the teacher, start giving less, that is naughty already. You cannot call for a long time - you must be quick." (KT's mother).

When children first enter school, the social aspects of children are still challenging to adapt to; many children still do not have social readiness, children still run around in class, and sometimes suddenly get angry when they understand the intentions and tasks given by the class teacher, etc. Because this often happens, as a parent, the child's social readiness is critical. Because this often happens, as parents, before entering elementary school, they must teach children manners, courtesy, and respect for their elders. This is evident from the expression of a father with the initials Y who said, "I often teach about manners, courtesy, ethics, e, getting along with friends, maybe meeting older people should be how that. As for manners, I often teach them to be polite to parents or guests who come to our house; we must be polite e, then e, when we meet people, we must e, greet them."

## **5. Discussion**

Children's school readiness is a vital aspect because it not only affects their learning achievement in an educational environment but also determines their success in the future. Factors that influence children's school readiness include the environment in which they live and grow. NTT is one of the provinces with many vulnerable environments, which can affect how parents care for and prepare their children for primary school. Social readiness is one form of support for vulnerable families in NTT in preparing their children for primary school. The research data shows that children's social readiness can be seen in children being more independent, children being able to interact with the new school environment, doing the activities they want, being responsible, and respecting teachers and friends. Children with a low level of school readiness when starting education are more likely to experience difficulties at school because they face challenges in behavior and social skills (Connell & Prinz, 2002).

To support social readiness, the role of parents is needed in motivating children, teaching children how to interact well with friends and teachers in a new school environment, telling how

the situation and conditions of the new school environment are so that children are not surprised by the differences between the new and old school environments, teaching children to appreciate and respect teachers, and also parents must teach children to be able to express their emotions when in a new school environment such as telling children not to fight and cry when in a new school etc. This is one form of support for the social readiness of vulnerable families in NTT to prepare children to enter elementary school.

Social skills tend to be higher among individuals from collective cultures. This is due to the values the culture emphasizes, such as respecting parents, being humble, and prioritizing harmony in relationships. Islamy et al. (2020) said that the formation of children's social behavior instilled by parents is collective. Parents in collective cultures often emphasize and reinforce these values to their children. In regions like East Nusa Tenggara, parents usually better prepare their children by instilling these social values early on. They teach their children to respect their elders, behave politely, and show humility and willingness to negotiate or give in to reach a mutual agreement. This is an integral part of shaping children's social skills in the new learning environment, where parents continue to instill these values in children to prepare them.

In addition to collective culture, low socioeconomic conditions affect children's social readiness to enter primary school. Atika Rasyid (2018) explains that socioeconomic status affects children's social skills. Families with low socioeconomic conditions may need help providing the necessary school books and equipment. Despite coming from a family with low economic conditions in NTT, parents always provide good understanding to children in the community. Parents constantly instill high social values in their children, such as respect for elders, good manners, etc. This is very beneficial for children in developing their social skills. This is very beneficial for children in developing social skills. In addition, the child will be better prepared when entering elementary school with a new learning environment.

The high religious values in NTT communities contribute positively to children's social readiness to enter primary school. Spiritual values, such as love, care, and mutual respect, often guide parents in educating their children. This can create a supportive environment for children to develop the social skills needed to cope with a new learning environment. The figures of teachers and pastors in the eyes of NTT communities greatly influence children's social readiness to enter primary school. Parents always use teachers and pastors as models in educating their children. Teachers and pastors are often regarded as good companions and advisors for children. The critical role of parents is constructive in preparing children to enter the new school environment. Providing emotional support, information, and guidance helps children to feel more prepared and confident to face changes and challenges in the new school environment.

## **6. Recommendations**

The limitation of this research is the limited number of respondents, especially in representation from various districts in East Nusa Tenggara (NTT). It is recommended for future researchers to increase the number of participants to include a better representation of different regions in NTT so that the research results can be more representative and have greater diversity. This research also found several exciting themes, such as cultural readiness, so it is recommended that future research look at other aspects of school readiness. It is hoped that the results of this research will add interesting information about social readiness, which is a priority in NTT society.

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## META-ANALYSIS: PROBLEM SOLVING SKILLS IN PHYSICS EDUCATION

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**Abstract.** The purpose of this study is to analyse articles on the application of problem solving skills in physics education from 2019 to 2023. This analysis is expected to provide information to researchers, especially in Indonesia, on the application and benefits of Problem Solving Skills in physics education. This analysis focuses on the distribution of research locations (based on educational level, research objectives, research methods, and research results/findings). The data collection method uses the Publish or Perish (PoP) application, which consists of three main steps: identification, screening and inclusion. A total of 988 articles were found. After analysing the PRISMA 2020 model, this study decided to analyse 17 articles that corresponded to the topic set, namely the use of problem solving skills in physics education. The results of the analysis and discussion concluded that problem solving skills can be developed through different learning models that correspond to the problem solving skills indicators. The model used can be combined with methods, media, approaches, learning tools, modules or teaching materials. The majority of problem solving skills research in Indonesia in 2019-2023 was conducted in secondary schools, both junior and senior high schools.

**Keywords:** *problem solving skill, Physics education, learning models.*

### 1. Introduction

With the rapid development of science and technology, there have been significant changes in various aspects of life. This development also has an impact on globalisation, which is becoming increasingly strong, hence the need for high-quality human resources. One way to produce good human resources is to improve the quality of education (Wiyono & Zakiyah, 2019). Education is an important and inseparable process in our lives. Through good education, people can acquire and master the knowledge needed for their lives. By improving the quality of education, we can create good quality education and high quality students.

Learning is a teaching and learning activity for teachers and students with the aim of facilitating the development of students' cognitive, affective and psychomotor skills (Kurnianto & Haryani, 2020). The main purpose of learning is for students to be able to overcome problems that arise in their daily lives. Education plays an important role in improving the quality of a person. Through education, the aim is for students to have intelligence not only in terms of theory but also in terms of other skills (Samad & Tolla, 2022).

One strategy for achieving learning objectives is to use an appropriate learning model. This learning model provides guidance and direction to teachers in implementing the learning process as a whole. Choosing the right learning model has a significant impact on learning outcomes or other learning objectives (Helaluddin et al., 2020). This is because there is no single learning model that is effective for all types of subjects, but rather depends on the characteristics of the learning material and the model used.

Physics education is an important area for developing problem-solving skills. Students' ability to solve problems is a very valuable skill in the context of physics learning. In an effort to improve the understanding of physics concepts and their application in real situations, it is important to pay attention to the development of students' problem solving skills.

Problem solving skills require certain skills and expertise that each student possesses in order to solve a problem (Winkler et al., 2021). Problem solving skills are very important for students to develop because it will have an impact on motivation and a better cognitive level (Astuti et al., 2021). Someone who is not able to understand the problem will not be able to find and use the right strategy to deal with the problem at hand. Therefore, problem solving skills need to be trained in students throughout the learning process to create superior human resources and to be able to overcome various challenges.

Physics education is an integral part of the education system that aims to teach students the basic principles and concepts of the physical sciences (Hendra et al., 2023). However, understanding physical concepts is not enough. Students also need to develop higher order thinking skills, which include problem solving skills. Problem solving skills are closely related to physics education. In the context of physics learning, problem solving skills are very important because physics involves understanding complex concepts and applying principles to real situations. Students with good problem solving skills will be able to overcome various challenges and difficulties that arise in learning and understanding physics concepts.

In physics learning, students are challenged to apply theoretical concepts to real-life situations (Putri et al., 2019). They must be able to analyse problems, identify relevant information, use physics knowledge to formulate appropriate solutions, and solve problems using systematic methods. Problem solving skills enable students to gain a deep understanding of physics concepts and apply them in everyday contexts. Effective physics education should be able to develop students' problem-solving skills. Teachers need to encourage students to think critically, analyse situations and find innovative solutions in the context of physics. Through active and interactive learning approaches, students can engage in various activities that develop problem solving skills, such as experiments, simulations, group discussions and real-world problem solving (Gerace & Beatty, n.d.).

Overall, the development of problem-solving skills in physics education not only provides academic benefits, but also prepares students to face challenges outside the world of education. The ability to solve problems effectively is a valuable skill in everyday life and in various career fields. Therefore, physics education needs to pay sufficient attention to the development of students' problem solving skills in order to create a generation that is resilient and able to adapt to changing times.

This article aims to conduct a Literature Review on problem solving skills in physics education. Through the collection and synthesis of related research findings, this article will comprehensively discuss the relationship between the development of problem solving skills and various quality variables of physics learning, such as student learning outcomes, learning motivation, critical thinking skills, learning models, and others, according to the findings of the reviewed research articles. In addition, this article will also identify factors that influence the development of students' problem solving skills in physics learning. By examining meta-analyses

of problem solving skills in physics education, it is hoped that this article can provide a better understanding of the importance of developing problem solving skills in the context of physics learning. The results of this Literature Review are also expected to provide guidance and recommendations for educators in designing effective learning strategies to develop students' problem-solving skills in physics education.

## 2. Research Methodology

This research investigates the extent of problem solving skills in physics education. A systematic review was conducted using the PRISMA (Preferred Items for Systematic Review and Meta-Analysis) approach, specifically the PRISMA 2020 model, through three main stages: identification, screening and inclusion. Articles were collected using the Publish or Perish (PoP) application with Google Scholar data sources by entering the keywords problem solving skills and physics education. A total of 988 articles from the period 2019 to 2023 were found. For the purpose of this study, 17 articles were selected to be reviewed, which corresponded to the topic defined by the author.

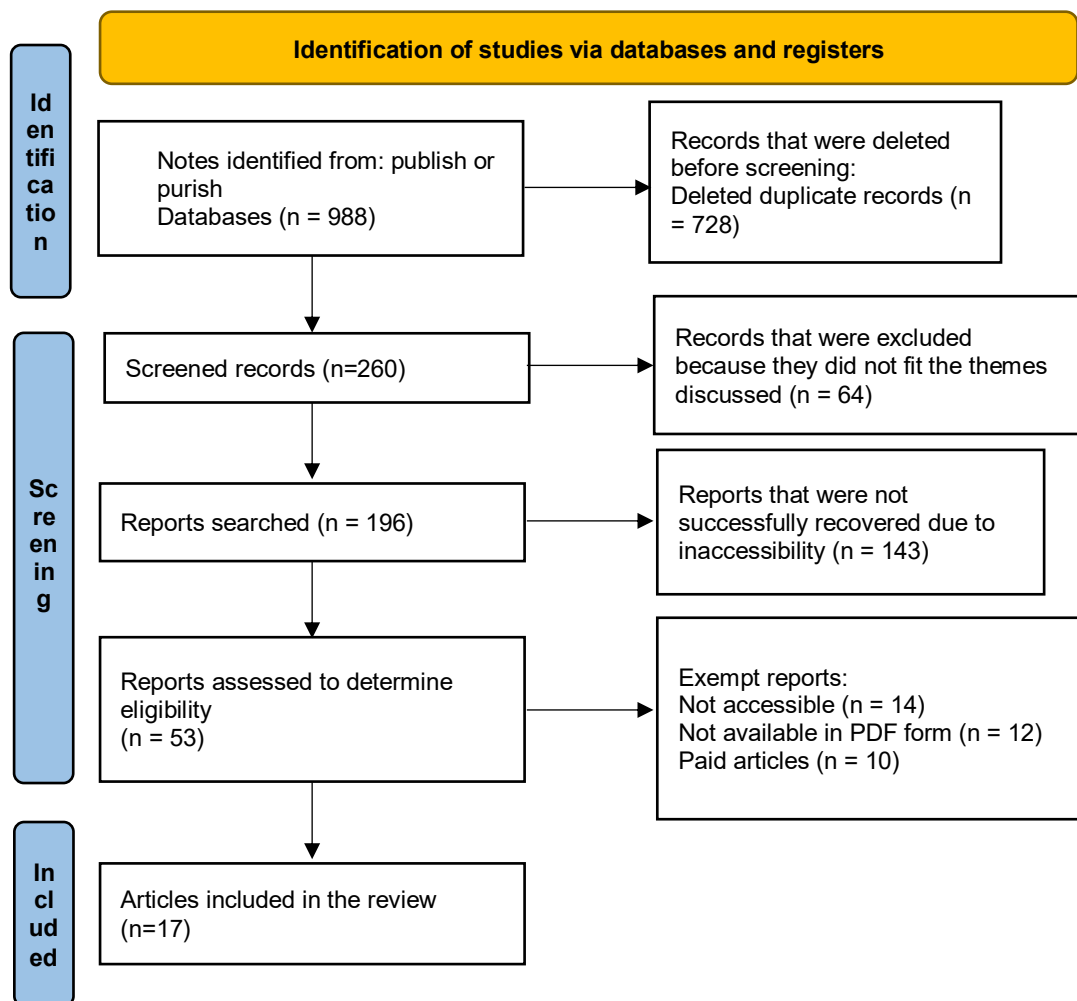


Figure 1. Literature Review diagram of the PRISMA 2020 model

### 3. Results and Discussion

Article searches were conducted using the Publish or Perish (PoP) application, on Google Scholar meta data, obtained 17 articles that met the analysis criteria displayed in Table 1.

Table 1. Articles included in the study

No	Title	Authors	Year
1	The Effect of Higher Order Thinking Skills Oriented Problem Solving Model Learning on Physics Learning Outcomes and Problem Solving Ability	Safri Daryanti, Indra Sakti, Dedy Hamdan	2019
2	Development of Problem Solving Based Physics Module to Improve High Order Thinking Skill on Static Fluid Material Grade XI MAN 2 Kuningan	Sa'diah, Damar Septian, Gita Erlangga Kurniawan	2019
3	Analysis of Problem Solving Ability of Physics Concepts on the Material Impulse-Momentum in Students of SMA Muhammadiyah 1 Demak	Titik Nurhayati	2021
4	Application of Problem Based Learning (PBL) Model Assisted by Mind Mapping in Physics Learning to Improve Problem Solving Ability on the Material of Effort and Energy	A R Asuri, A Suherma, D R Darman	2021
5	Students' Physics Problem Solving Ability Through Guided Inquiry Learning Model Assisted by Post Organizer	Arini Rizqa, Ahmad Harjono, Wahyudi	2020
6	The Effect of Problem Solving Learning on the Problem Solving Skills of Junior High School Students	Muhammad Muslim, Rahmat Yunus, Arif Sholahuddin	2022
7	Application of Problem Solving Method to Critical Thinking Ability of Students in SMA Negeri 3 Makassar	Marzuki, Aisyah Azis, Salamang Salmiah Sari	2022
8	The Effect of a Problem Based Learning (PBL) Model Using STEM Approach in Improving Problem Solving Skills of Junior High School Students	Lulu Iolanessa, Ida Kaniawati, Muhamad Gina Nugraha	2020
9	Development of direct teaching tools to train problem solving skills of senior high school students	Anggun Ulil Izzati, Muhammad Arifuddin, Suyidno, Misbah	2020
10	The Effect of Cooperative Problem Solving Model on Students' Problem Solving Ability on Pressure Material	Kartika Eka Kusuma Wardani, Tomo Djudin, Syukran Mursyid	2021
11	Development of Physics Teaching Materials on the Topic of Elastasis Using the Direct Teaching Model to Train Students' Problem Solving Skills	Ramadhanti, Mastuang, Andi Ichsan Mahardika	2020
12	Whatsapp-assisted Blended Learning: Its Effect on Critical Thinking and Problem Solving Skills	Wayan Suana, Mirda Raviany, Feriansyah Sesunan	2019
13	Inquiry-based Authentic Learning in STEM Programme on Students' Scientific Literacy Based on Students' Problem Solving Ability Levels	Idawati, Muhardjito, Lia Yuliati	2019

14	Application of Problem Based Learning (PBL) Model Using PDEODE Strategy to Train Problem Solving Skills of Learners in Senior High Schools	Irma Hidayati Haryanti, Woro Setyarsih	2020
15	The Effect of Systematic Problem Solving Learning Model on Learning Outcomes of Basic Physics 2 Direct Current Electricity Material in Physics Education Students	Tri Isti Hartini, Martin	2020
16	The Effect of POE (Predict-Observe-Explain) Learning Model on High School Physics Problem Solving Ability in View of Students' Scientific Attitude	Syarful Annam, Susilawati, Syahrial Ayub	2020
17	Problem Solving Ability of High School Students on Archimedes' Law	Rudi Purwanto	2020

The focus of this analysis in this study is the distribution of research locations (by education level), research methods, and research findings.

### 3.1 Location of Research

An overview of the distribution of research locations is very important in order to provide information to future researchers in considering the determination of locations and research subjects. The distribution of research locations based on the findings in this study is shown in Figure 2 below..

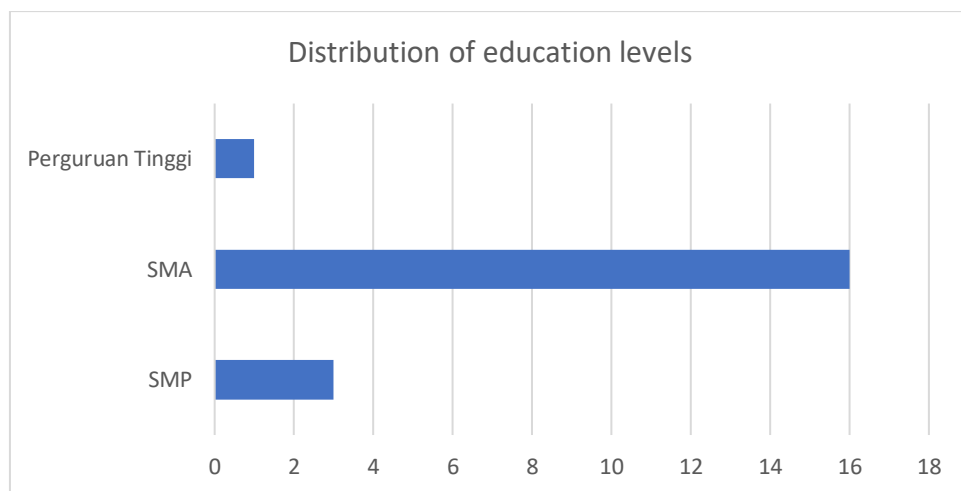


Figure 2: Distribution of Research Sites by Level of Education (Year 2019-2023)

Figure 2, shows that the distribution of research locations on problem solving skills in physics education, the majority is found at the secondary school level, both Junior High School and Senior High School, only one study was conducted in universities. Thus, there is a great potential for research on similar topics to be carried out in universities.

### 3.2 Research Objectives

Research objectives are important to discuss because research objectives are a guide for researchers to determine strategies in research including methods that ultimately determine the

quality of research results. In general, the research formulation found corresponds to the research results found.

### 3.3 Research method

The choice of research method is very important because it determines the quality of the research results. Variations in research methods need to be highlighted in this study to inform future researchers in considering research methods in similar studies. An overview of the variations in method selection found in this study is shown in Figure 3 below.

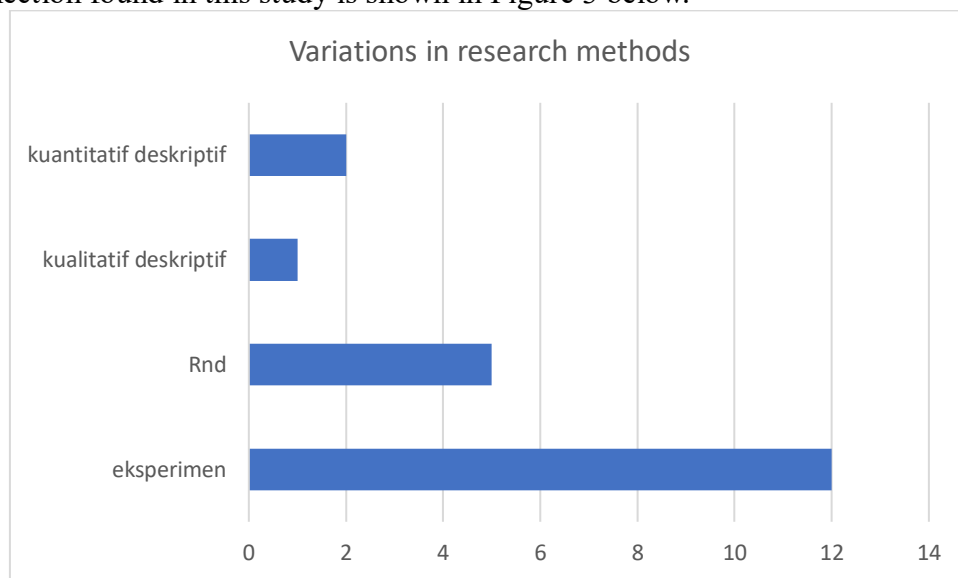


Figure 3: Variations in the Use of Research Methods

The results of this research study show that the selection of research methods has not been balanced, still dominated by experimental methods. In addition, it is still dominated by quantitative research methods. This information will provide opportunities for future researchers to consider the selection of methods in developing problem solving skills in physics learning.

### 3.4 Research Results.

From this study, several learning quality variables were found such as problem solving, problem solving model, problem-based learning model, guided inquiry model, problem solving method, problem solving skill, problem solving ability, high order thinking skill, STEM, mind mapping, post organiser, learning outcomes, learning tools.

In this study, the keyword set is problem solving skills but it was found that researchers used two words that actually have different meanings but are related, namely ability, and skills, so it needs to be explained to equalise perceptions in further research. According to the Big Indonesian Dictionary, ability has the root word "capable" meaning power (can, able) to do something; can; and ability means ability; proficiency; strength. Meanwhile, skill has the root word "skilled" meaning capable of completing tasks; capable and dexterous; and skill means the ability to complete tasks (<https://kbbi.web.id>). According to the Cambridge Dictionary, ability refers to the ability to do something. Ability can also be defined as the capacity that supports a person to perform a skill. Meanwhile, skill is the ability to do something well or skilfully. (<https://kumparan.com>). From this explanation, it is understood that what needs to be trained through the learning process is skill, not ability, although both are interrelated. Therefore, in this study the author uses the term problem solving skills.



The results of this study show that there is a positive relationship between problem solving skill variables and other learning quality variables. The explanation of the relationship between learning quality variables and problem solving skills based on the results of this study is divided into several topics, among others:

1. Application of the model alone (single) is able to improve problem solving skills (Muslim, M. et al, 2022; Wardani, K.E.K, et al, 2020)
2. Application of the method alone (single) is able to improve problem solving skills (Marzuki, et al, 2020)
3. Application of learning models with specific skills can improve problem solving skills (Daryanti, s. et al, 2019).
4. Module development with specific skills is able to improve problem solving skills (Sa'diah, et al, 2019).
5. The application of a model with certain media can improve problem solving skills (Asuri, A.R., et al, 2021; Rizqa, A., et al, 2020; Suana, W., et al, 2019)
6. The application of a model with a certain approach is able to improve problem solving skills (Lolanessa, L, et al, 2020; Haryanti, I.H. & Woro Setyarsi, 2020; Idawati, et al, 2019)
7. The development of certain learning tools can improve problem solving skills (Izzati, A.U., et al, 2020)
8. Development of teaching materials with a certain model is able to improve problem solving skills (Ramadhanti, et al, 2020).
9. The application of the POE model cannot improve problem solving skills (Annam, S., et al, 2020).
10. A single descriptive analysis without any treatment found that students' problem solving skills were in the good category (Nurhayati, T., 2021; Purwanto, R. 2029).

Of the 10 points of research findings above, points 1 to 8, have similarities where the combination of models, methods, media, approaches, teaching materials has a positive impact on the development of students' problem solving skills while point 9 has its own uniqueness, where the application of the POE model in physics learning is not able to improve students' problem solving skills. These results also illustrate that not all learning models can develop students' problem solving skills. Therefore, to develop problem solving skills, it is necessary to consider deeply and carefully.

#### **4. Conclusion**

From the results and discussion in this study, it can be concluded that problem solving skills can be developed by various learning models that correspond to the indicators of problem solving skills. The models used can be combined with methods, media, approaches, learning tools, modules or teaching materials. The majority of problem solving skill research from 2019-2023 in Indonesia was conducted in secondary schools, both junior and senior high schools. This condition makes it possible for lecturers to develop problem solving skills in universities, especially in physics teacher education study programmes. The distribution of research areas has not been balanced, so there is an opportunity for future researchers to research elsewhere in Indonesia, especially in East Nusa Tenggara Province..

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