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EXPLORATION OF STUDENT ACTIVITY IN LESSON STUDY LEARNING WITH TRANSCRIPT BASED LESSON ANALYSIS USING NVIVO

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Abstract :
This study aims to describe the learning process that takes place when using lesson study based on Transcript Based Lesson Analysis (TBLA) in the climate change course and describes the exploration of lesson study learning in the climate change course with Transcript based lesson analysis using nvivo. This study uses a qualitative method with a case study approach, where data is collected through videos, voice recordings and documentation that is made into a conversation transcript in excel consisting of numbers, minutes, seconds, speakers and utterances, then the excel is analyzed using NVivo. The results of the analysis show that the TBLA-based lesson study method increases the active involvement of students in group discussions, student-teacher interactions, and in individual learning activities. The use of NVivo allows efficient and systematic data processing, providing visualization of interactions in the form of word clouds, word trees, and graphs to identify key themes in learning. This study is the first to use NVivo to analyze Transcript Based Lesson Analysis (TBLA) data in the context of climate change learning. Previously, TBLA analysis was carried out manually, which was less efficient and potentially biased. The use of NVivo speeds up analysis, increases accuracy, and allows for more complex data visualization.

Keywords: Activeness, Lesson Study, NVivo, Transcript based lesson analysis

INTRODUCTION

In the educational process, the environment has a significant influence in shaping student behavior. Higher education as a place where the educational process takes place, the situation and conditions will also determine the formation of student attitudes and behavior. Because higher education as an institution that carries out the task of educating and teaching, as well as improving, processing the behavior of students brought from their family environment (Barnas & Ridwan, 2019) .

According to Parhusip & Wijanarka (2018) education is a conscious and planned effort to create a learning atmosphere so that students develop their potential in spiritual, personality, intelligence, and skills aspects. One form of education that plays a role in making professional educator participants is the physics education department of Jambi University. Graduates are expected to be able to build ICT-based learning to improve the quality of education, students will study various courses, such as basic

physics, mechanics, thermodynamics, educational psychology, atomic physics, solid state physics, electronics, as well as various practicums, mathematical physics and climate change.

Exploration literally has several important meanings, namely as an exploration to gain broader knowledge and as an effort to gain new experiences from situations that have never been experienced. In the exploration process, curiosity and creativity play an important role in finding innovative ways to understand or solve problems. This concept is relevant in climate change courses, which require collaborative learning so that students can put forward ideas and work together to solve problems. Students are expected to be able to analyze the effects of climate on agriculture, livestock, forestry, and plant pests and diseases, as well as understand urban and industrial climates (Pramono, 2018) .

Exploration is an important process in learning that provides an opportunity to broaden horizons and deepen understanding. This activity allows individuals to learn new things through observation, analysis, and reflection on the situations they face. In the context of education, exploration is an effective way to stimulate students' curiosity, which ultimately triggers creativity in solving problems and developing innovative ideas. By exploring data, observers not only obtain superficial information but can also understand a deeper context. For example, in classroom learning, exploration helps observers to see the dynamics of interactions between educators and students, communication patterns that occur, and student responses to certain teaching strategies. In addition, challenges faced in the learning process can be identified, making it possible to find more relevant and effective solutions (Sari et al., 2022) .

A quality learning process is characterized by collaboration between students and educators to create activeness and creativity, so that the learning atmosphere becomes enjoyable and supports the achievement of learning objectives optimally. Student activeness can be demonstrated through various aspects, such as carrying out learning tasks, solving problems, asking questions if they do not understand the material, seeking information, actively discussing, conducting self-assessments, practicing solving problems, and applying the knowledge gained to solve academic challenges (Budiningsih, 2022) .

According to (Hariani, 2021) the learning model can make students more motivated in participating in learning, this learning model provides opportunities for students to practice building their own conceptual framework by combining old knowledge obtained from the daily environment with discussion activities carried out so that the new knowledge that is built or obtained becomes more meaningful. Students do not only learn one skill, but four skills that are interrelated and must be mastered comprehensively. These skills include listening, reading, speaking, and writing skills. Each of these skills supports the development of effective communication skills, which are important for student success in learning. These four skills are also closely related to various aspects of learning activity (Pusparini, 2021) .

According to Hamalik (2020) learning activities are grouped as follows: (1) Visual activities, Visual activities related to the sense of sight such as reading, looking at pictures, observing, demonstrations, exhibitions and others; (2) Oral activities, Oral activities related to the sense of speech such as stating facts or principles, connecting goals, asking questions, giving suggestions, expressing opinions, interviews, discussions and interruptions; (3) Listening activities, activities related to the sense of hearing including listening to the presentation of materials, listening to conversations or group discussions, listening to the radio or voices; (4) Writing activities, activities that use writing tools such as writing stories, writing reports, writing essays, making summaries, doing tests or filling out questionnaires; (5) Drawing activities, Drawing activities usually include drawing, making graphs, charts, diagrams, maps and patterns.

The activeness of student learning in higher education is one of the important indicators in determining the quality of education. As individuals who are considered more mature, students should be able to play an active role in the learning process, either through discussion, collaboration, or independent exploration. The approach used in the teaching and learning process needs to accommodate their needs as more independent and critical adult learners. students tend to be passive, only as listeners, without being given space to express opinions, ask questions, or explore the material in depth. In today's digital era, technology can be used to encourage student learning activities. For example, by using blended learning, flipped classroom, or project-based learning methods, students not only get theory, but can also apply their knowledge in real contexts. Activities such as presentations, group discussions, and simulations can also increase their involvement (Irsyad et al., 2020) .

According to Santoso (2019), the impact of extreme climate change in the form of drought is the number one cause of crop failure. This condition has implications for decreasing production and farmer welfare in addition to having a direct impact on the level of food crop production, climate change also has an indirect impact, namely it can reduce food crop productivity with increasing pest and disease attacks. In the rainy season, plant diseases such as kresek and blast develop in rice plants, anthracnose in chili plants, and so on. In the dry season, rice stem borer pests, praying mantis pests, and thrips in chili plants develop. Climate change has a significant impact on the agricultural sector because it is related to planting patterns, planting times, production, and quality of results. Climate change occurs due to changes in climate variables (temperature and rainfall) continuously over a long period of time between 50 and 100 years. Climate change has caused an increase in global temperatures, shifts in rainfall patterns, rising sea levels, and an increase in the frequency and intensity of extreme weather over the past century (Ririhena et al., 2023) .

TBLA is a method of analyzing learning outcomes using transcripts of student conversations, students-educators in learning activities, which are known by conducting in-depth observations or in-depth reflection. Observations are more aimed at observing student activities in terms of interactions between students, students-educators, students-teaching materials, students-environment. Learning activities are recorded by observers on the tools and materials provided. In addition to being observed by observers, these learning activities are also documented with close-ups of special events experienced by students or a group of students during the learning process.

According to Thamrin & Darmawan (2024) Lesson study developed in Japan since the early 1900s, involving educators in planning, observing, and reflecting on learning. *Lesson Study* comes from the Japanese language, namely *jugyokenkyu* , the word *jugyo* which means *lesson* or learning, and *kenkyu* which means *study* or *research* or assessment. Thus, *lesson study* is a professional development approach in the context of education that involves collaboration of educators in planning, implementing, and structured reflection on lessons. This approach aims to improve the quality of teaching through collaboration and in-depth study of teaching practices, motivating students to learn independently. This approach aims to improve the quality of teaching and learning through in-depth reflection on teaching practices. Among the various possible approaches, lesson study (LS) is considered a powerful strategy for teacher learning (Lendínez Muñoz et al., 2024) .

This conceptual model shows four stages of lesson study (Learn-Plan-Do-Reflect) that work iteratively and repeatedly to improve the effectiveness of teacher lesson implementation. In stage 1, the LS team studies curriculum materials that provide rationale for pedagogical decisions, choices, and information about student thinking. Then, the team identifies learning objectives in relation to student learning of a topic. In stage 2, the study team collaboratively plans a research lesson – a real lesson that is designed, taught, and observed. In stage 3, the collaboratively planned lesson may be taught by one team member. Other team members observe student learning and collect data. In stage 4, team members gather for post-lesson reflection and discussion where they share the data collected. (Dibaba et al., 2024).

According to (Suwartono et al., 2022) the development of lesson study not only in climate change but also other subjects has spread throughout the world. *Jugyo kenkyuu* is a term in the teaching and learning process which means learning towards the learning process. This process is a model for educators through collaborative learning and sustainability to build a learning community and learning together. There are three stages of lesson study carried out in this study, namely plan, do, and see. These three stages of lesson study play an important role in increasing student activity in learning (Aziz et al., 2024) .

Lesson Study has three main steps: Plan, Do, and See. In the Plan stage, teachers understand student characteristics, design and implement learning, utilize ICT, and evaluate learning outcomes. This process aims to improve the quality of teaching by ensuring that the strategies implemented are in accordance with the needs and characteristics of students effectively (Nurtanto et al., 2021) . The Do stage in Lesson Study includes the implementation of learning in the classroom, while the See stage focuses on in-depth reflection through data analysis, learning design reviews, and cycle documentation. Through colloquiums, teachers evaluate the effectiveness of the methods used and formulate questions for improving subsequent learning (Yurnetti, 2018) .

According to (Mutiani et al., 2020) This *lesson study* can improve the quality of learning and professional educators. *Lesson study* is a collaborative activity process in a group of educators when

identifying learning problems. Lesson study activities consist of basic steps in the form of designing learning activities to achieve goals, implementing learning, observing the implementation of learning and reflecting to discuss the learning being studied for improvement in the next learning plan. The main focus of implementing lesson study is student activities in class with the assumption that student activities are related to the activities of educators in learning in class (Wiharto, 2021) .

According to (Rosidi & Arief, 2020) basically the implementation of *lesson study* can be carried out through several stages, including: 1) forming *lesson study groups* , for example educators, 2) determining the focus of *the lesson study* , 3) planning *lesson study* , 4) implementing learning and observing learning, 5) discussing and analyzing observation results and, 6) reflection and improvement for the next activity. Learning analysis is a way to see, hear, describe, discuss, and understand the interactions between educators and students during learning to achieve this, a more in-depth analysis is needed, namely through observation, recording, making transcripts and analyzing (Susanti et al., 2021).

According to (Wijanarka, 2020) the application of *lesson study* with a *project-based learning approach* has been proven to be able to create active and skilled students. In addition, this learning model also improves student learning outcomes, both in terms of knowledge and skills. Thus, *project-based learning* in *lesson study* is effective in improving the quality of learning as a whole. In addition, improving the quality of learning and active participation of students play an important role in developing their critical thinking capacity, so that they are able to understand concepts in depth and apply them in various learning situations (Sani et al., 2022) .

Analysis shows that Lesson Study supports the development of a collaborative culture and provides opportunities for teachers to share their knowledge and lesson study also motivates teachers to reflect on their roles in the classroom. This approach encourages more interactive teaching, but practical, cultural and sustainability challenges can limit teachers' engagement in ongoing professional development (Flanagan et al., 2023) .

Transcript Based Lesson Analysis (TBLA) is a learning analysis method that uses transcripts of recorded teaching and learning activities. The learning analysis system developed focuses on student responses during classroom learning, which reflects how classroom teaching practices and the level of student engagement. This model allows analysis to focus on communication between educators and students (Susanti & Aprian, 2022) .

According to (Irvani & Agus, 2024) through camera technology, educators can obtain more detailed observation data because they can repeat the recording. This recording can be converted into a transcript. This method is known as "Transcript-Based Learning Analysis". *Transcript Based Lesson Analysis* (TBLA) is a method of observing student learning activity by using transcripts of student conversations, students-educators in learning activities, which are known by making observations. TBLA analyzes dialogue transcripts during the learning process so that it can see student involvement during the learning process (Aprian et al., 2021) .

There are four stages commonly used in data processing using NVivo software. The four stages start from the internal data input stage and the external data input stage. Internal data is a data file that already exists on the laptop and does not require an internet connection to input it into the NVivo software. External data is data that comes from the internet and if you want to input it into the NVivo software, an internet connection is required. First, the external data input process requires the help of the NCapture for NVivo feature in Google Chrome. Second, it is the stage of encoding research data, whether data in the form of interview results, data in the form of online news, data from YouTube, data from online scientific articles, data in the form of online magazines and so on. Third, the visualization stage or the stage of displaying schematic images of the coding results that have been carried out. Fourth, it is the stage of drawing conclusions based on the resulting visualization images (Tambun et al., 2023).

Another important function of NVivo is using sets, a function in NVivo that groups documents to see the relationships between them and build models based on them. Sets can also be seen as the first step in visualizing qualitative data. The second step is to leverage the model feature and draw visuals based on patterns, datasets, or other relationships that researchers want to see based on their data (Ozkan, 2019) .

The analyzed data was obtained from the results of documentation in the form of video/audio which was then transcribed to be described as data results. The conversation transcript was later entered into NVivo. NVivo is a set of tools provided to manage data from various different sources, such as

video-audio, books, research reports, historical documents, journal articles, website content, *online news* , conference proceedings, memos, field notes, bibliographic annotations, and even researcher's daily journals. With NVivo, qualitative researchers can efficiently and effectively perform analytical coding on data. Codes are short words that symbolically provide summative attributes, stand out, capture the essence of language-based or visual data (Priyanti et al., 2020) .

The purpose of this study is to describe the learning process that takes place when using lesson study based on Transcript Based Lesson Analysis (TBLA) in climate change courses and to describe the exploration of *lesson study* learning in climate change courses with *Transcript based lesson analysis* using nvivo . This study is different from previous studies, where this study uses Nvivo as a data analysis tool from Transcript Based Lesson Analysis (TBLA) to achieve research objectives, while previous studies conducted data analysis manually using Transcript Based Lesson Analysis (TBLA).

The benefits of this study are: 1) Benefits for students, improving the quality of learning, namely being able to understand and apply more effective learning strategies, increasing their participation and active involvement in the learning process in problem solving, communication, and collaboration. 2) Benefits for educators, namely being able to provide insight into effective methods and strategies to improve student learning activities, so as to improve the quality of teaching. 3) For researchers, obtaining a clear picture of the implementation of lesson study using Transcript Based Lesson Analysis (TBLA), gaining direct experience in implementing learning in the classroom, and as information to develop further research, especially in the field of Physics.

RESEARCH METHODS

The type of research used is qualitative *case study research. Case study* is studying an event, situation, incident or called a phenomenon that aims to reveal the uniqueness or uniqueness of the characteristics contained in the case being studied. This type of case study research is descriptive, namely a study that describes a case and requires researchers to start research with a descriptive theory, namely clearly explaining the results of the research (Ilham et al., 2024) .

Qualitative research is descriptive and analytical, which means describing and explaining events, phenomena, and social situations that are studied in depth. This approach allows researchers to understand the meaning behind the data collected, so that the research results are richer, contextual, and reflect the actual reality (Waruwu, 2023) . Qualitative methodology is a research procedure that produces descriptive data in the form of written or spoken words from people and observed behavior. Qualitative research as research that intends to understand what phenomena are experienced by research subjects such as behavior, perception, motivation, actions, holistic, descriptions in the form of words and language, in a specific natural context and by utilizing various natural methods (Hermawan, 2019) .

According to Creswell (2009) the basic procedure in reporting qualitative research results is to develop descriptions and themes from the data, present descriptions and themes that convey various perspectives from participants and detailed descriptions of individuals. By using qualitative inquiry strategies, these results can also provide a chronological narrative of a person's life (narrative research), a detailed explanation of their experiences (phenomenology), a theory generated from the data (grounded theory), and a detailed portrait of a group that shares a culture (ethnography), an in-depth analysis of one or more cases (case studies).

Time and place of research. This research was conducted in room 311A of the FKIP Lab, Jambi University, located at Jalan Jambi - Muara Bulian No.KM. 15, Mendalo Indah, Jambi Luar Kota District, Muaro Jambi Regency, Jambi. The research was conducted from October to December 2024 involving Physics Education students, Department of Mathematics and Natural Sciences Education, Faculty of Teacher Training and Education, Jambi University. This study aims to explore the activeness of students in lesson study learning with Transcript Based Lesson Analysis (TBLA) using NVivo.

The subjects of this study were students of the Physics Education study program at Jambi University who were divided into three groups with each group consisting of five students. The planning of this study was carried out in three meetings, where in the first meeting the observer team carried out Do 1 then recorded it during the learning activity, then the results of the Do 1 recording were processed into a form of transcript data containing conversations that occurred during the learning process. Furthermore, in the second meeting the observer team carried out Do 2 then recorded it during the

learning activity, then the results of the Do 2 recording were processed into a form of transcript data containing conversations that occurred during the learning process. In the third meeting the observer team carried out Do 3 then recorded it during the learning activity, then the results of the Do 3 recording were processed into a form of transcript data containing conversations that occurred during the learning process. According to Ningsih & Sunanti (2024) learning videos go through a transcription process, namely transferring videos into written form. Conversations in the form of sound heard in the video are changed into written transcripts. The transfer is done second by second. An index is given for each sentence.

The data in this study are in the form of documentation data such as videos, photos and recordings that are documented during the learning activities in order to obtain more varied and more accurate data. The results of the learning video recorder will be made in excel in the form of a conversation transcript that is numbered, minutes, seconds, speakers and utterances or often called Transcript Based Lesson Analysis (TBLA) with the aim of observing all planned student activities can be seen in the table below.

Table 1. Transcript of the dialogue conversation

No	Time		Speaker	Saying
	Minute	Second		
1	0	2	D	Peace be upon you, and Allah mercy and blessings
2	0	8	M	and peace be upon you wr. wb
3	0	12	D	How are you today?
4	0	20	M	Good
5	0	23	D	Have you had breakfast yet?

The transcript of the conversation will then be entered into NVivo. NVivo is a set of tools provided to manage data from various different sources, such as video-audio, books, research reports, historical documents, journal articles, website content, online news, conference proceedings, memos, field notes, bibliographic annotations, and even researcher's daily journals. With NVivo, qualitative researchers can efficiently and effectively perform analytical coding on data. Codes are short words or phrases that symbolically provide summative attributes, stand out, capture the essence of language-based or visual data (Priyanti et al., 2020) .

In this study, data analysis was conducted using NVivo to process data from Transcript Based Lesson Analysis (TBLA). NVivo enables efficient qualitative data processing, which helps researchers organize and analyze recorded conversation transcripts during the learning process. This analysis process includes several stages, starting from entering transcript data, coding data, visualizing interaction patterns, to drawing conclusions based on the results of the analysis. The use of NVivo allows the identification of key themes in communication between educators and students, and provides a clearer picture of the level of student activity in lesson study learning.

Previous studies, such as those conducted by (Prianggita et al., 2022) and (Susetyarini et al., 2021) used the TBLA approach to analyze learning dynamics, but the data was analyzed manually, such as conversation transcriptions, which can be more time-consuming and more susceptible to analysis bias. In these studies, it was found that although efforts have been made to improve learner-centered learning, interactions are still dominated by teacher-centered teaching. The use of NVivo in this study is expected to speed up the analysis process, reduce the potential for errors, and provide a deeper understanding of learner activity during learning.

RESULTS AND DISCUSSION

This section describes some findings and discussions in videos, audio recordings and learning documentation taken during the research on student learning activity in climate change courses made in the form of *transcript based lesson analysis* (TBLA) then analyzed using Nvivo for 3 learning cycles. then studying the process of exploring student activities with Transcript Based Lesson Analysis using nvivo.

The results of the video, audio recordings and documentation in cycle I discuss the subtopic of the influence of climate on agriculture and livestock, then the video, audio recordings and documentation of cycle II discuss the influence of forestry climate, as well as the influence of climate on plant pests and diseases. Furthermore, the results of the video, audio recordings and documentation of cycle III discuss urban climate and industrial climate. From the 3 cycles, educators want to try to implement learning in the form of projects by asking students to make mini miniatures about urban climate and vertical heating.

The initial stage carried out in each cycle is the planning stage. This planning stage begins with educators who prepare a learning plan that will be implemented. In this first cycle, various learning tools are needed. These tools include the RPP (Learning Implementation Plan) for the climate change course designed with the project based learning (PJBL) model for vertical varming material, and student worksheets. In the planning stage (plan), observers are not involved in preparing the learning plan because the plan has been prepared by educators. In the first discussion, educators provide direction to observers regarding their role, namely monitoring and recording student activities during classroom learning in the Climate Change course.

Each cycle of lesson study in the learning activity stage begins with educators opening the learning by following the stages that have been prepared in the RPP (Learning Implementation Plan) whose contents have been adjusted to the needs. Learning activities are divided into 3 groups with the number of group members divided into 5 or 6 students, then observers make video recordings, voice recordings and documentation. The results of this recording are then made into transcripts of conversations during the learning process which are made based on numbers, minutes, seconds, speakers and utterances which aim to analyze student activities during classroom learning and using a tool, namely nvivo. In the initial stage, conversation transcripts are analyzed in NVivo by grouping them based on five indicators of student activity. This step aims to organize transcripts into categories that describe various student activities according to the indicators that have been set. This process makes it easier to map the level of student involvement in interactions during learning activities.

Table 2. Conversation Transcript

No	Time		Speaker	Saying
	Minute	Second		
1	1	32	T	That's it, Assalamualaikum Warohmaturohi Wabarakatu (Opening)
2	1	38	M	Peace be upon you
3	5	0	M3 (M	Not enlarged enough, ma'am
4	5	2	T	Can you read it?
5	5	4	M3 (M	Read Buk
6	13	32	M3 (M	We are using the 4th fertical farming, right?
7	14	27	M5 (W	Ask for paper so that each one will have a cover
8	15	32	M1 (A	San, please give me the paper first.
9	15	35	M2 (S	Let me find out the advantages and disadvantages
10	15	38	M5 (W	This is number 2, okay, let me make number 2.
11	15	41	M2 (S	How does it work, guys?
12	39	23	M2 (S	What's this
13	39	29	M1 (A	So how many are there like that in these 12 hectares? If we do vertical farming, it is done indoors
14	39	48	M4 (I	There's still like a room, right? He's outside.
15	39	54	M3 (M	It's like hydroponics but it's vertical.
16	40	2	M1 (A	Doesn't it look like a building?
17	40	6	M3 (M	Yes, I'm looking for a way to do it, but I already told you how much we'll make for it.
18	40	14	M5 (W	12 hectares who could have imagined
etc.	...	...	...	.....

Table 2. Transcript of the conversation, namely students discussing the concept of agricultural climate with a focus on the application of the *vertical farming* system. The conversation shows that

students are trying to understand the relationship between sunlight, photosynthesis, and the greenhouse effect in the context of agriculture. then discussing the efficiency of land use, challenges in irrigation and watering, and harvesting mechanisms in the vertical farming system. Several group members proposed solutions such as using water pipes to water plants and considering the layout of the land to be more efficient. However, the main challenge faced was understanding the scale of the land (12 hectares) and how to adapt technology in the farming system. This discussion shows that students are beginning to understand the basic principles of modern agriculture, but still need to deepen technical planning and system implementation.

Through TBLA, many learning variables can be revealed, this technique can be used as a new method to identify the success of learning design. This study will analyze the pattern of teacher-student interactions in climate change learning. The discovery of this interaction pattern will be the basis for designing a more effective learning design (Winarti et al., 2021) . After the conversation transcripts were obtained, the qualitative software used by researchers to analyze or process data was NVivo to achieve research objectives. NVivo is very useful in coding, annotating, and visualizing data from TBLA transcripts.

NVivo is a qualitative analysis software designed to help researchers manage, analyze, and understand qualitative data more efficiently. How NVivo works can be explained as follows: First, NVivo allows users to import various types of qualitative data, including text, audio, video, images, and other structured documents into its platform. This allows researchers to bring together and integrate data from multiple sources, creating a central repository for analysis, making further analysis easier (Wiraguna et al., 2024) .

The results of the conversation transcripts are then analyzed or processed using Nvivo. The first step the observer takes is to register an Nvivo account. After registering, go to *the new project* and *the project title, file name, description will appear.* Then fill in each column and press *next.* Then the observer presses *create project.* After that, the observer presses *next* until the image appears as below.

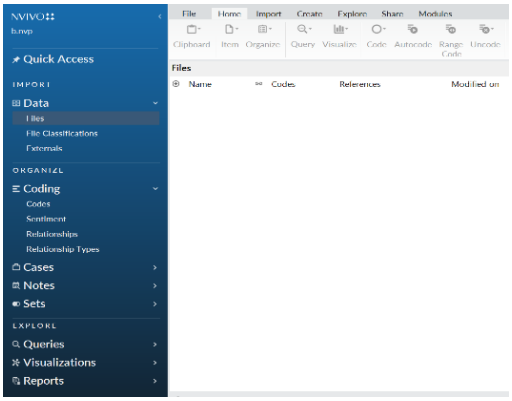

Figure 1. Nvivo application display

Next we enter the import step here we can enter files in the form of excel, journals, images or videos after we enter the file we enter the coding step then we enter the codes section then we right-click to enter the code according to the indicators we need. Coding is categorizing certain sentences or words that are the key to answering research questions (Yulianto & Wijaya, 2022) .

After we adjust it, we enter the explore step, then click *Word Frequency* , then select the folder whose frequency you want to calculate, then the number 1000 in *the display words* change to 50 only, meaning 50 words that often appear, then the number in *with minimum length* change to 5, meaning at least 1 word contains 5 letters. After that, click *Run Query, then select the desired word cloud* display model. The shape of this word cloud is like a word unit as in the image below.

Figure 2. Word cloud

Word Cloud is a visualization of a collection of words that are often mentioned in a particular media. The function of the word cloud is to facilitate reading data about what is often talked about by other people (Guritno et al., 2024) . Based on Figure 2. it is concluded that the words or topics that often appear in the media are plants, agriculture, vertical farming, climate change and so on. In Figure 2. The word cloud presented shows that the conversation session was carried out by educators and students. The words that appear in this word cloud are conversations between educators and students, where these words are the conversation index recorded in the transcript as a whole. This stage is a reference for researchers to draw conclusions.

Then *the Word tree* or *word tree* is a visual feature that helps understand the relationship between words in a text (Salajang et al., 2023) . This visualization maps the main word in the middle with branches that show the context of its use. To create *a word tree* , the steps are as an example, when you want to search for the word climate, click *Explore* , select text *Search* , select *file* , then type the word you want to search for, then click Run Query, then select the visualization in the form of *Word Tree* as in the image below.

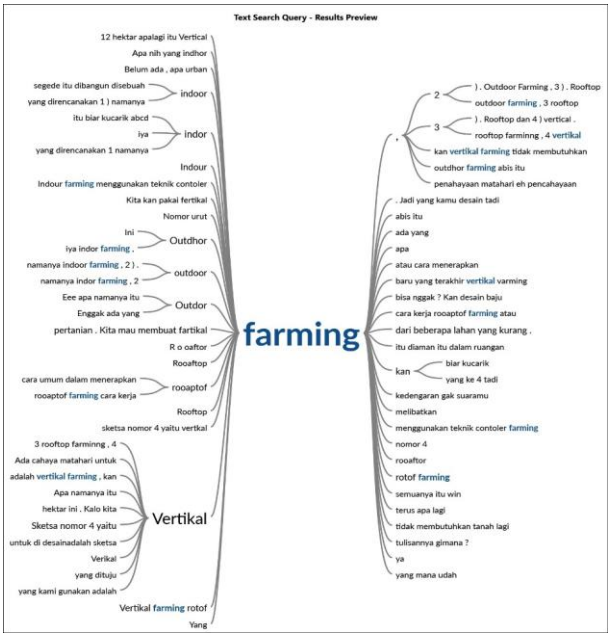

Figure 3. Word tree for the word climate

In Figure 3. *Word tree* is a very useful visual feature for mapping and understanding the frequency and relationship between words in a text. Centered on the word *farming* and for the right end based on the branch to the middle point, namely *farming*, for example, on the upper right there is a sentence about " *outdoor farming, rooftop farming* " and on the lower left in the vertical section there is a reading of the word *farming* , namely "sketch design regarding *community gardens* in urban climates". It can be seen from these results that students actively participate in designing *vertical farming designs.*

Next, visualize *the chart* (graph). The method is to click *Explore* , then select and click *Chart* , select *coding* , then click *Next*, select *coding for file* , then click *Next* , then select *the file* to be processed, then block the *file and click OK so that the chart (graph)* image appears .

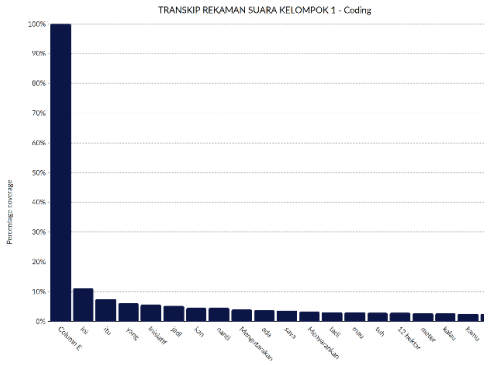

Figure 4**.** Graph

In Figure 4. this graph is used to see the visual relationship between categories, concepts, or themes. Researchers can easily identify patterns that may not be visible just by reading the text, thus facilitating a more in-depth and systematic analysis of the data.

CONCLUSION

Based on the results and discussions obtained in the study of Exploration of Student Activeness in Lesson Study Learning with Transcript Based Lesson Analysis Using Nvivo, it can be concluded that in Lesson Study learning based on Transcript Based Lesson Analysis (TBLA) using NVivo in the Climate Change course. The results of the study indicate that the application of Lesson Study with TBLA allows detailed identification of student activeness through analysis of dialogue transcripts processed using NVivo. Students show an even level of active involvement, both in group discussions, student - teacher interactions, and in individual learning activities. The Lesson Study-based learning process successfully creates a collaborative, interactive learning atmosphere and encourages critical thinking skills. The use of NVivo provides efficiency in analyzing qualitative data, allowing systematic organization and visualization of data to support evidence-based decision making.

The implementation of TBLA-based Lesson Study learning provides significant benefits for various parties. For students, this method encourages active participation and the development of communication, collaboration, and critical thinking skills that are important for the world of work. For educators, this study offers new insights into the effectiveness of TBLA and NVivo in evaluating learning, while encouraging innovation in data-based teaching methods. For educational institutions, this approach can be adopted as a model to continuously improve the quality of learning. In addition, this study opens up opportunities for further research on the use of TBLA in other courses or levels of education, as well as the development of more complex analysis with the Nvivo feature.

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