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Field Trip Method Implementation for Increasing Students' Understanding of the Rubbish Effect on the Environment: An Action Research Evidence from Saint Ursula Catholic Elementary School, Timor-Leste

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A B S T R A C T

This study examines the role of the Field Trip Method (FTM) in improving the learning of environmental concepts, engagement, and collaboration skills among primary students. Data were gathered using a classroom action research design during three instructional cycles with pre-tests, post-tests, classroom observations, and documentation analysis. The sample of the study was 32 students and a science teacher. The quantitative findings revealed that there was a tremendous positive change in the learning outcomes of students, whereas the qualitative findings showed that students were more active, enquiring, problem-solving, and interacting positively in the classroom. It is noted in the study that teacher facilitation, systematic instruction planning and reflective practice are critical in mediating the effectiveness of FTM. The incorporation of field-based learning as part of current teaching and learning processes, as opposed to isolated activities, also enhanced student attendance and knowledge retention. The results further reveal that FTM applied with care can promote cognitive and behavioural growth, which favours experiential, constructivist and place-based methods of learning. This study offers a practical implication of how to design and execute field-based activities in resource-constrained learning environments and proves that the effectiveness of FTM relies on planned consideration, teacher directing, and alignment with learning goals

INTRODUCTION

Education is the core part of national development, especially in the generation of human capital between generations. In the Timor-Leste context, the education system has significantly improved since the restoration of independence, but it still faces structural and pedagogical challenges. Lack of adequate learning facilities and infrastructure and differences in teacher quality are also serious problems (Ximenes, 2026a; Ximenes, 2026b). More importantly, the lack of implementation of effective and student-centred teaching practices can limit the creation of meaningful learning experiences, as well as the academic performance of students (Ximenes and da Costa, 2025).

Although the Constitution of the Democratic Republic of Timor-Leste does provide the right to equitable and quality education, the process of its application to classroom practice is rather irregular. Traditional teaching methods still prevail in science education in primary schools, with students deprived of a chance to play their parts in the learning process (Ximenes, 2026c). Such an imbalance can be observed especially in environmental issues, like how rubbish affects the environment and human health, which must be learnt contextually and experientially to enable the development of profound knowledge.

There have been professional development programmes, like those organised by the Ministry of Education and the international education organisations, that have sought to enhance the pedagogical skills of teachers (Ximenes, 2025). However, the gap between training and classroom implementation remains significant (De Deus, 2025). The effective methods of experiential learning are the field trip method (FTM), which is yet to be utilised in primary schools. An example of this phenomenon is the fact that in the case of Saint Ursula Catholic Basic Education School, the field-based learning integration in the natural science teaching process is minimal, which could be associated with the overall lack of connection between the theory and practice of pedagogy.

Available sources indicate the potential of FTM to improve conceptual learning abilities, motivation, and awareness of environmental issues in students by involving them in real-life situations. Nevertheless, there exists a significant ambiguity in the empirical data. The majority of the research is concerned with the overall effectiveness of FTM but not how it can be planned, executed, and assessed in particular classroom settings, especially with limited resources like those in Timor-Leste. Moreover, few studies have used an action research strategy to investigate how teachers continuously improve their instructional methods when applying FTM in actual classrooms.

To fill this gap, the current research takes an action research approach where the researcher used the field trip method to implement the method in a 3rd-grade natural science classroom with the aim of establishing how students understand the environmental effect of waste. Three objectives direct the study: (1) to investigate the way teachers plan and execute the strategies to integrate FTM in the learning process; (2) to increase the active engagement and conceptual learning among students with the help of experiential learning; and (3) to measure the effectiveness of FTM to enhance the process of instruction and the

results of learning. In line with these goals, the research questions in the study are as follows: (1) What are the strategies that teachers design and implement to enhance students' knowledge of waste? (2) What pedagogical interventions are needed to improve the motivation of students with FTM and encourage their learning performance? And (3), what is the learning outcome for students after FTM is implemented?

The uniqueness of the study is due to its context-specific, practice-orientated approach. Compared with the previous studies, which describe generalised results, this one gives a detailed analysis of the implementation, adaptation, and evaluation of FTM using action research cycles in a practical classroom teaching environment. It also adds to the body of literature by providing empirical evidence about the pedagogical mechanisms of the FTM implementation, especially in the context of a developing education system. Therefore, it can facilitate a more context-dependent conceptualisation of experiential learning and have practical implications for enhancing the practice of teaching science in primary schools.

LITERATURE REVIEW

Field Trip Method (FTM): Pedagogical Value and Conceptualisation

The Field Trip Method (FTM) is generally understood in terms of an experiential learning approach that allows close interaction with phenomena of the real world, thus developing observational, analytical, and problem-solving abilities in students. FTM is placed in the paradigm of constructivism and place-based learning and includes active participation and collaborative inquiry, which are connected to higher levels of student motivation, innovation, and critical thinking (Jones and Washko, 2021; Ximenes, 2024). Traditionally considered an outdoor learning methodology, the recent scholarship reinvents FTM as a spectrum between the structured classroom learning and informal learning settings to provide more holistic learning experiences.

The pedagogical usefulness of FTM is often supported by empirical evidence, especially the potential of FTM to develop contextualised knowledge and enhance awareness of real-life problems among students (Foo and Foo, 2022). Nevertheless, such a body of research is usually marked by methodological shortcomings. Most of the research has credited better learning results directly to FTM, without properly considering the mediating variables, including teacher facilitation, teaching design, and student readiness. Therefore, the cause-and-effect effect of FTM is not fully developed.

Moreover, the major problems related to FTM, such as logistical issues, safety, and inequalities in access to learning conditions, are often underresearched (Ningsih et al., 2024; Ximenes, Freitas no Pereira). These restrictions imply that FTM is not necessarily effective, but it depends on how it is implemented. Argyilan et al. (2024) point out that effective field trip placement, learning objectives, and curriculum goals should be carefully aligned, and the learning objectives are likely to achieve meaningful outcomes. Thus, further subtle interpretation of FTM needs to go beyond the perceived advantages of the practice and look critically at the conditions of its pedagogical advantage.

FTM: Implementation Design to Practice

The quality of the instructional design and implementation largely depends on the effectiveness of the Field Trip Method (FTM). As observed in the existing literature, clarity of the learning objectives, structured activities, and correlation to the wider pedagogical principles that link the instructional goals, teaching strategy and assessment practices are recurrent themes. In that aspect, FTM is not necessarily useful, but its worth appears as the result of conscious and logical planning. Taneo, Madu, and Krisnawati (2023) suggest using a structured sequence as the defining objectives: planning activities, organising students, monitoring engagement, and evaluating outcomes as a framework for implementation. Although this model is practical in terms of clarity, it embodies a very linear form of approach, which could be too narrow in the face of the unpredictable and dynamic environment of an outdoor learning setting, where flexibility and responsiveness are crucial.

The competence of the teachers is the key factor in mediating the success of FTM. Nevertheless, this premise frequently fails to consider situational facts, especially in the areas where the professional development is still under-represented (Taneo et al., 2023). Lack of proper pedagogical training and leadership supervision can make teachers not design meaningful field-based experiences or provide higher-order learning when undertaking such activities (Ximenes and Belo, 2024). Moreover, Rosyida and Pratama (2025) emphasise that by choosing the right community-based learning locations and incorporating field trips into an ongoing instructional process, as opposed to making them a one-off phenomenon, the latter have a considerable effect on the quality of education.

In view of these revelations, there is still a significant gap in the literature as far as assessment practices are concerned. There is limited literature on the topic of the systematic evaluation and incorporation of learning outcomes of FTM into the formal assessment systems. As a result, the performance of FTM can hardly be evaluated holistically. All in all, its effectiveness hinges on the interplay of various factors, such as student engagement, environmental factors, and facilitation of the teacher in a flexible but structured pedagogical setup (Luah, Parmin, & Widiasih, 2025).

FTM Effectiveness in Building Student Understanding

The Field Trip Method (FTM) is considered to be one of the effective methods that help students to develop their conceptual knowledge in the context of direct observation and multisensory experience in real-life situations. FTM encourages a greater level of cognitive processing and enhances knowledge retention in comparison with traditional classroom-based learning by placing the learning in a real-life scenario. It also promotes active exploration, questioning, and inquiry, among which there is the development of creative thinking, problem-solving, and critical reasoning skills (Supaida, Kustiyowati, and Triwahyuni, 2025).

FTM has not only affective and behavioural consequences but also cognitive benefits, such as improved understanding and retention of information, which are essential for effective learning outcomes. Research also shows that field-based learning contributes to environmental awareness and

creates positive sustainability and conservation perceptions. This aligns with experiential learning theory, which proposes that practical exposure to real-life scenarios could influence the values of learners and alter their behavioural predispositions in the long term (Ruberto, Mead, Anbar, & Semken, 2023). These findings suggest that FTM has the potential to lead to development not only academically but also in character education.

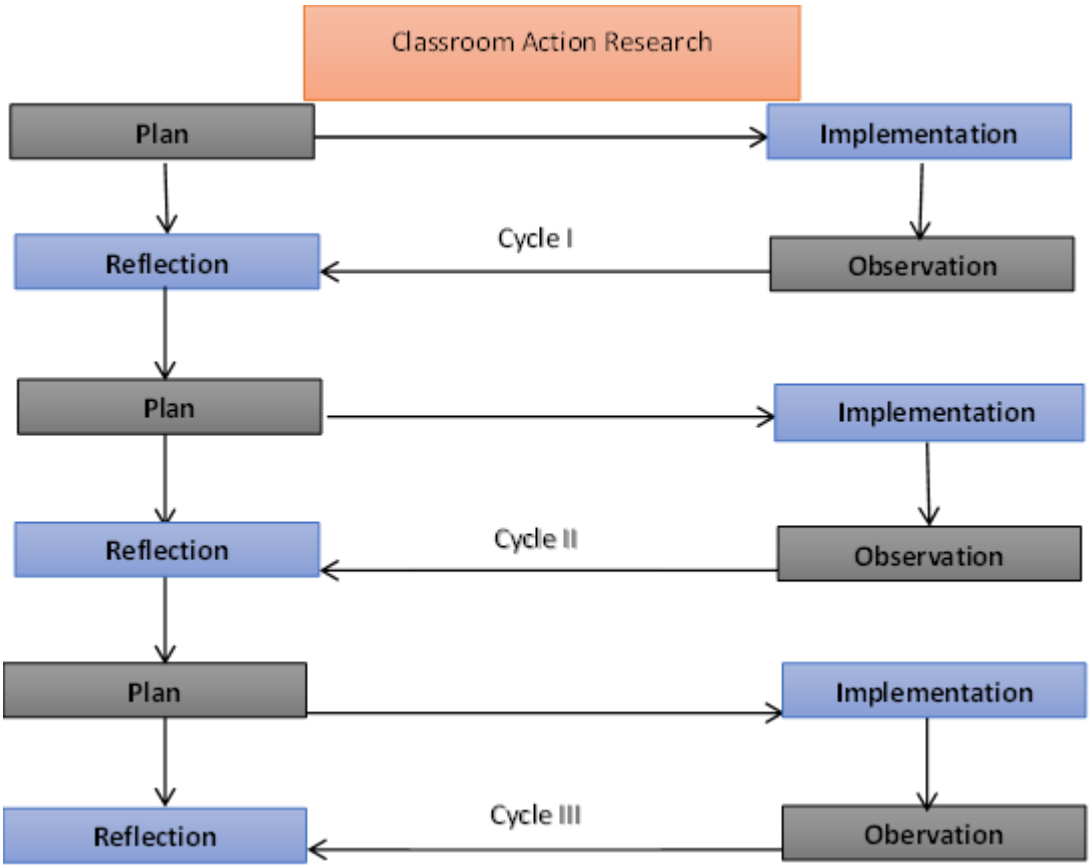
Nevertheless, there are significant limitations of the current evidence base. A lot of research is based on short-term interventions, and not much information is available to provide a long-term view of the sustainability of learning outcomes. Also, the tendency towards generalising the findings to various contexts without sufficient consideration of the differences based on culture, institutions, and resources is observed. This undermines the extrinsic legitimacy of arguments about the effectiveness of FTM. In addition, there are minimal studies that critically test the level of attribution of the outcomes that are observed (which may be due to the method rather than supporting variables like teacher facilitation or task design). Thus, although FTM is a promising pedagogical strategy, its effectiveness cannot be expected to be universal. More rigorous, context-sensitive and longitudinal studies are required to determine the exact conditions in which FTM yields meaningful and sustained learning results, especially in resource-limited environments like Timor-Leste.

METHODOLOGY

Research Design

In this research the Classroom Action Research (CAR) methodology has been used, but this methodology is founded on the reflective research model that involves teachers undertaking their own research in their respective classrooms with a view of enriching and enhancing the teaching and learning activities. It is a process that is cyclical in nature since it entails planning, acting, observing, and reflecting on lesson plans implemented with the view of identifying areas to improve (Prihantoro and Hidayat, 2019). CAR is a teachers' tool for individually examining their methods of instruction and comparing them with others to promote professional growth. The cycles usually involve lesson preparation, implementation, observation of lessons, and evaluation of the outcomes to shape the further cycles (Putri, Nurhuda, and Huda, 2023).

By enabling teachers to systematically approach issues in the classroom and enhance the learning outcomes of students with the help of the amount of self-assessment and self-correction, this iterative process will enable them to improve their work and achieve better results (Nurulanningsih, 2023). The dynamism of CAR promotes teacher professionalism by promoting collaboration, a variety of teaching practices, student-centred teaching, and continuous assessment of teaching strategies and student abilities. A CAR made by researchers was based on the following diagram.



Picture 1

Research Site and Participants

The research was conducted at EBC. Saint Ursula elementary catholic school. Researchers chose this school for their study because, based on four years of teaching experience, they observed that many students struggle with learning natural sciences, particularly regarding waste management. Therefore, implementing MFT through class action research in the area, finally, from the implementation of MFT, has responded to their problems directly inside and outside the classroom.

A research subject is an individual or a tool employed by researchers to gather information that would be useful in achieving the study goals. Researchers frequently choose students as subjects in educational research, often applying interventions or actions to them. To illustrate, in classroom-based research, the subjects can be the teacher who is doing the research, a particular group of students (e.g., 32 students in class A in the 3rd grade), and the researcher who will be an observer teacher. The choice of research participants is very important and is typically based on factors such as access, permission, and suitability to the research objectives; in most cases, relevant and feasible data gathering can be ensured by employing meticulous sampling methods (Saunders, 2012). To achieve the goals of effective participant involvement, the development of trust and open communication regarding the purpose and procedures of the study also promotes cooperation and the quality of the data (Wong et al., 2021). The comprehension of the views of the participants can enhance the research design and ethical conduct, which will eventually be

beneficial to the researcher and the respondents by ensuring that the research addresses their needs and concerns, leading to more relevant and impactful findings (Kost et al., 2025).

Data Collection Method

Methods of data collection play an imperative role in scientific research since they directly affect the quality, richness, and applicability of the researched data. These methods are especially significant in the background of Classroom Action Research (CAR) since they are integrated into a teaching and learning process. The researcher normally has two roles: the first is the instructor and the second is the collector of data, and this aspect allows the researcher to collect data directly and continuously during the instruction interventions (Saadi, 2025). This two-fold position offers a more realistic and situational perspective of classroom dynamics and student behaviour during learning. Structured observation is one of the key methods of CAR, which is often assisted by the use of checklists to track the student engagement, participation, and lesson implementation efficiency in a systematic manner (Batubara and Gustafaruddin, 2024). Besides the above, field notes are used to document spontaneous occurrences, unforeseen reactions of students, and challenges which would not have been captured using structured instruments.

Additionally, documentation is a significant supplementary source of data in the form of students' works and academic records that offer concrete evidence of learning processes and outcomes. Pre- and post-tests are also used to determine the level of knowledge that students had before and after the intervention. Such tests yield objective numerical data that facilitate comparisons in measuring learning progress at various stages (Bakri, 2024). Generally, the process of data collection in CAR is performed in three stages, namely pre-action, action, and post-action, whereby it becomes easy to perform a systematic assessment of the change in the performance of the students over time (Saadi, 2025). This combination of approaches to data collection helps to increase the validity and credibility of the research results since it is a triangulated and comprehensive view of the instructional process as well as learning outcomes (Bakri, 2024; Saadi, 2025).

Data Analysis Method

The data analysis methods are fundamental in processing gathered data into significant and acceptable information by systematic arrangement, comprehension, and confirmation. This study typically involves several interconnected stages, including data accumulation, reduction, presentation, and verification. The process of data accumulation means collecting all the needed information using one or several tools, and data reduction is aimed at summarising and choosing the necessary data to compute the important findings. Data presentation was then performed as descriptive narratives or graphs, and they serve to elucidate patterns and aid in decision-making. The last step is verification, which helps in ensuring that findings have been done according to the requirements set by objectivity, validity and reliability, thus enhancing the credibility of the results of the research.

Qualitative data based on observations and documentation is normally interpreted through content analysis methods, which include a descriptive approach with close interpretation and easy explanation of phenomena that are watched in the learning process. Quantitative data gathered, pre-tested, and post-tested is, on the other hand, analysed with percentage formulas to determine the learning improvements in students and classify levels of performance (Ruvindran, 2019). Qualitative and quantitative methods are integrated to provide a more thorough insight into the research context. Moreover, the choice of the right statistical measures is based on the purpose of the research, the nature of the data, and its distribution, where parametric or non-parametric tests are taken to make the right interpretation (Mishra et al., 2019).

Ethical Considerations

The ethical considerations were considered during the research process as a way of safeguarding and upholding the interests of all the participants. Before the collection of data, the research was approved by the Institution Research Commission of Instituto Catolico de Formacao de Professores (ICFP), which ensured that the research complied with institutional ethical practices. Respondents were told the study's purpose, and their participation was voluntary, with no risk of consequences for dropping out. Anonymity and confidentiality were strictly adhered to, ensuring that no names of individuals were revealed in any publications or reports (Asogwa, & Sinthumule, 2025). In addition, the gathered data was only utilised back into the university and was treated with caution to avoid misuse and unintended access. Such moral conduct made the research responsible and respectful and it was conducted in accordance with acceptable academic standards.

RESULT

Quantitative Results

The following table shows the results of the quantitative of the cycle one to cycle three.

	Cycle I			**Cycle II**			**Cycle III**	
Category	**Pre-test**	Action I test	Action II post-test	**Pre-test**	Action I test	Action II post-test	**Pré-teste**	Action I post-test
Very good	0%	41%	75%	0%	44%	72%	0%	78%
Good	19%	34%	19%	0%	31%	22%	10%	16%
Insufficient	81%	25%	6%	100%	25%	6%	90%	6%

The findings in the table indicate an obvious and stable increase in the learning outcomes of the students during the three cycles occurring after the intervention. Cycle I: The percentage of students in the poor category dropped drastically in Action I and more in Action II, from 81 to 25 per cent in the pretest and 6 per cent, respectively. At the same time, the level of the very good category

rose considerably, by 0% up to 41% and finally to 75%, which showed a significant development in the understanding of the students.

The same trend is followed in Cycle II by finding that the poor category was initially put at 100 per cent in the pre-test. This percentage reduced to 25 per cent in Action I and 6 per cent in Action II after the intervention. In the meantime, the percentage of students who attained very good performance increased to 0–44–72 percent (learning was effective).

In CYCLE III, the percentage of students in the poor category (90) has been maintained at a high percentage, but again, with intervention, there is a significant improvement. The very good category grew by 0% in the pre-test, then in Action I, it grew to 78%, and the poor category dropped significantly to 6%.

In general, the statistics demonstrate that the instructional intervention has been very effective in enhancing students' understanding. The teaching strategy's result in all cycles is the same: poor performance decreased and very good performance increased.

Observation Analysis Results

The content analysis method of the classroom observation grids in Cycles I to III shows a gradual improvement in the teacher's knowledge, professional attitude, and teaching skills.

In Cycle I, the teacher was well-versed in the material she was offering, able to explain students' answers, and used the appropriate instructional materials and academic language. Attitudes in relation to professionalism were mostly positive, such as punctuality, communication with students, and corrections to the student work, but some of the aspects, e.g., giving enough time to students to ask questions and talking to them personally, needed more enhancement. Skills in teaching were sufficient, especially clarity in presenting the content, time management in the classroom and communication with the students; however, pacing and classroom control could have been improved.

Action I and II had a significant improvement by Cycle II. The teacher enhanced their knowledge element through more regular use of academic language and instructions, as well as better explanations of the content. Professional attitudes also strengthened, including improved interaction with students, more effective use of time in responding to questions, and a more systematic approach to correcting student work. Skills were taught better, with clearer explanations being given; time management was enhanced, and monitoring students' engagement was also made easier.

As observed in Cycle III, the teacher was very proficient in all the components. The teacher consistently demonstrated strong content knowledge, clarified student responses, and effectively utilised teaching materials. The professional attitudes were also fully developed, such as punctuality, active interaction with students and comprehensive correction of the work of the students. The teaching skills were also well advanced with clarifications and supervisory classroom control and facilitation of students throughout the lessons, which contributed to a more engaging and productive learning environment.

Overall, the content analysis serves as an effective example of the gradual evolution of the teacher's competencies, demonstrating the effectiveness of iterative interventions in the classroom and the continuous development of those competencies.

Documentation Analysis Results

The documentation analysis is also supportive and confirms the positive direction in the results of the statistical analysis as well as the classroom observations. Student worksheets, post-test and pre-test scores, photos of learning activities, and other teaching artefacts all demonstrate constant improvements in students' understanding, participation, and engagement. These recorded materials will provide a concrete presentation that students did not only score well on in quantitative tests but also engaged in practical use of their studies in the classroom processes. The consistency of the documented information with the observation grids and the statistical results solidifies the validity of the findings and proves that the applied instructional interventions were effective in improving the learning performance of students and the classroom dynamics.

DISCUSSION

The results of the study revealed that the Field Trip Method (FTM) with proper planning and teacher facilitation provided realistic improvements in learning results, engagement, and problem-solving skills among students. Quantitative findings showed a definite rise in the number of students that received higher performance categories, whereas the analysis of observations and documentation proved the improvement of participation, teamwork, and comprehension. The findings align with the notion of FTM as an experiential learning method, which offers the firsthand experience of real-world phenomena, which supports the development of observational, analytical, and critical thinking (Jones and Washko, 2021). The gains in cognitive performance, especially in knowledge retention and problem-solving, are consistent with studies that have hypothesised that multisensory and contextually embedded learning fosters a deeper comprehension than the conventional classroom-based learning (Supaida, Kustiyowati, and Triwahyuni, 2025; Ruberto, Mead, Anbar, and Semken, 2023).

Another important aspect that is brought to the fore by the study is the role of teacher facilitation in mediating the effectiveness of FTM. It was observed that the professional attitude of teachers, clarity of explanation, classroom management and feedback in good time played a major role in student engagement and learning outcomes. This observation confirms the previous studies that highlight the pedagogical quality of FTM is not intrinsic but is a result of a close interconnection of learning goals, instruction, and teacher reflections (Argyilan, Huysken, and Votaw, 2024; Taneo, Madu, and Krisnawati, 2023). These results were supported by documentation of the work of students, pre- and post-tests, and classroom artefacts, meaning that the progress has been achieved because of the organised FTM interventions as opposed to accidental circumstances.

Besides, the findings will indicate that the FTM implementation in continuum learning processes boosts learning and motivation. The constructivist and place-based learning theories, which assume that knowledge is socially constructed based on direct experience in real situations, are also demonstrated through the active participation of students, their questioning, and the ability to solve problems together (Foo and Foo, 2022; Rosyida and Pratama, 2025). Meanwhile, the contextual factors like resource constraints, safety, and logistical issues emphasise the importance of prior planning and flexible facilitation, which is also consistent with the literature that warns of the high context-dependence of FTM (Ningsih, Affandy, and Hermoyo, 2024; Ximenes, Freitas, and Pereira, 2025). Altogether, the combination of quantitative, observational, and documentary data makes the validity of these conclusions stronger and proves that FTM, carefully introduced, can have significant cognitive, behavioural, and attitudinal changes.

CONCLUSIONS AND RECOMMENDATIONS

The research concludes that the field trip method, implemented with a systematic approach to instruction planning and facilitated by the qualified teacher, is an effective way of enhancing student knowledge, interest, and cooperation levels. The synthesis of quantitative, observational, and documentary data is the confirmation of the beneficial effect of FTM on learning outcomes and classroom interactions. The key mediating variables were teacher competence, reflective practice and alignment of field activities to learning objectives. These results confirm the perception that the effectiveness of FTM mediates both contextual and instructional conditions but not the method explicitly, which is in line with general principles of experiential, constructivist, and place-based learning. The research gives empirical proof about the pedagogical advantages of iterative, context-based, field-based learning in resource-constrained settings like Timor-Leste. Future studies can also examine the long-term sustainability of the FTM results, examine the contextual modifications, and research the interactions between teacher facilitation, instructional design, and student involvement to maximise the effectiveness of the method.

FUTURE STUDY

This research still has limitations so further research is needed related to the topic of **Field Trip Method Implementation for Increasing Students' Understanding of the Rubbish Effect on the Environment: An Action Research Evidence from Saint Ursula Catholic Elementary School, Timor-Leste** to perfect this research and increase insight for readers.

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