

Teachers' perspectives of factors affecting lesson planning practices in Vanuatu mathematics classrooms

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Sustainable education is becoming a hot topic in debates and discussions worldwide. There are concerns that current education systems are not providing for the needs of all people in a sustainable way. Many countries are taking steps to ensure a type of education that will sustain their citizens and meet the challenges of tomorrow. In Vanuatu, such attempts are made through official documents such as the National Curriculum Statement (NCS), a policy statement to improve teaching, learning and teacher education. The NCS states that good teaching requires carefully planned strategies. This study investigated Vanuatu's secondary school teachers' perspectives on the factors that affect their lesson-planning strategies for achieving student-centred learning. Twenty secondary school mathematics teachers in Port Vila participated in this 2022 study. First, mathematics lesson plans were collected and analysed to evaluate whether the teachers could plan student-centred learning. Second, the teachers were interviewed individually to gauge their views on factors hindering their attempts to design student-centred learning. Data collected was analysed using a thematic analytical tool. The findings revealed the need to support teachers in lesson planning, particularly designing and using student-centred learning strategies.

Keywords: Student-centred; lesson planning; problem-solving; mathematics classroom; Vanuatu; sustainable education; tok stori

INTRODUCTION

Education and the future are inseparable; that is to say, it is not possible to discuss educational issues without visualising the future. Our perceptions about what the future might look like should form the basis for the type of knowledge and skills necessary for the next generations (Holfelder, 2019). This visualisation about future education is significant in sustainable education, which implies that future education should be *better* than the status of education as we know and experience today. There is no hope if tomorrow's education system involves the same philosophy of education the struggling world currently experiences. A new philosophy of education must entail sustainable learning (Hays & Renders, 2020). In education, sustainable learning implies a proliferation of new curriculum materials and a sharper focus on teaching and learning. A focus on teaching and learning requires teacher training and development to be prioritised as key areas for development.

Cassity et al. (2023) have recently produced a report on teacher development in Vanuatu. They pointed out key issues and steps necessary for supporting teacher development in Vanuatu, including improving knowledge of curriculum content, student-centred pedagogies, and lesson planning. The report by Cassity et al. (2023) came following the introduction of the Vanuatu National Curriculum Statement in 2010 (Ministry of Education & Training, 2010). The reports argued that contrary to the traditional teaching method in which children are expected to be passive recipients of information, learning should be active. Children should be encouraged to interact with their teacher and others in the classroom. The argument required research in Vanuatu focusing on teacher development, particularly teaching and learning. This paper contributes to research on teacher development in Vanuatu by focusing on the mathematics teachers' perspectives on the factors that affect their planning practices in support of active, student-centred learning approaches.

THE LITERATURE ON MATHEMATICS EDUCATION

This brief literature review focuses on student-centred mathematics education, specifically on the planning and effectiveness of lesson preparation.

Jones (2011) contends that good lesson planning requires teachers to spend considerable time thinking about the types and learning styles of the students in their classrooms so the lessons are effective. In mathematics lesson planning, for instance, teachers must imagine and anticipate what might occur during the lesson. Teachers need to anticipate the types of questions students might ask, the tasks that will engage students in mathematics learning and the types of materials or resources, such as textbooks, that might be needed. Hence, time spent on planning can lead to effective and meaningful lessons.

Effective and meaningful classroom lessons in student-centred education are based on the constructivist learning philosophy, where children create their own learning and are guided by their teachers (Shah, 2019). What does a constructivist lesson or student-centred learning look like? A student-centred lesson is a lesson that supports students to be 'active' (Matsumoto, 2022). Students become active learners when they are talking, sharing and dialoguing with their peers as well as with teachers, in contrast to passively receiving information from teachers. Matsumoto (2022) believes that when students are active, their minds are engaged in mathematical thinking.

An effective classroom lesson should encourage problem-solving. Polya (1948) puts forward the view that mathematics should be informal, enabling students to solve mathematical problems by using and trialling different approaches. This fallibilist view of mathematics led Polya to devise his well-known four steps in solving problems: (1) understand the problem, (2) devise a plan, (3) carry out the plan, and (4) look back. This method is similar to the mathematical thinking process advocated by Tohir et al. (2020), though Polya separates devising the plan from carrying out the plan.

Crespo (2003) describes an effective lesson as one where lesson activities are planned and presented in an *implicit way*, thus giving the opportunity for students to discover. This implies that when teachers frame classroom problems in an unfamiliar way and the problems are not straightforward, it opens rather than narrows the mathematical scope of the activity. In effect, space for learning in a constructivist tradition is created when teaching is indirect.

Another way to engage students and thus make lessons effective is by questioning students. Aziza (2021) observes that when teachers ask open-ended questions in class, students answer

these questions with a variety of responses. For example, ‘A rectangle has a perimeter of 30m. What might be the area?’ This type of question can provoke students’ thinking and lead to student discussion.

Classroom lessons that involve students in active learning require teachers to be well-informed about the content of their subject and student-centred pedagogical skills. This is true in Vanuatu as elsewhere. In the next section, I will present contextual information on Vanuatu and the methodology used in this study.

METHODOLOGY

The Republic of Vanuatu is roughly 800 kilometres west of Fiji Islands and 1,800 kilometres east of Australia. Vanuatu gained independence from France and Britain in 1980 but retained French and English as languages of instruction in schools. The main centre of Vanuatu is Port Vila, which is located on Efate Island. There are 18 Anglophone secondary schools on Efate. Five of these schools are located in Port Vila. Over one thousand secondary school teachers (Ministry of Education and Training, 2022) teach in government-run schools and are appointed by the Vanuatu Teaching Service Commission (TSC).

This study investigated teachers’ perspectives on the factors that affect their lesson-planning practices, including their student-centred learning strategies. The study’s intent is to use the findings to provide guidelines for enhancing the quality of teacher lesson planning.

The main research question was:

1. What is Vanuatu secondary school mathematics teachers’ perspectives on the factors that affected their lesson planning practices, including student-centred learning strategies?

This question assumed that scrutinising teacher practices helped to better understand teacher planning practices.

The study sub-questions were:

- 1.1 What do the lesson plans look like? (That is, how is planning represented on paper?); and
- 1.2 What are the mathematics teachers’ perspectives regarding the factors that affect their lesson-planning practices, including student-centred learning strategies? (This question interrogated the factors at play behind the teachers’ planning practices).

This study used a qualitative research approach. Austin and Sutton (2014) posit that in a qualitative research approach, researchers do not seek to generalise their findings from a wider population but seek to understand the feelings and thoughts of the study participants. A qualitative approach was deemed appropriate for this study. A survey of lesson plans and interview methods were used to collect data. Necessary efforts were made to avoid research infringements. First, the researcher sought and gained ethics approval from the Education Authorities to carry out the study in schools. Second, the researcher spent many hours explaining the study to the participants in meetings and obtained the participants’ consent to take part in the study.

The researcher has taught in the Vanuatu school system for over 20 years, at secondary school and teacher training college levels. This long period has given the researcher considerable familiarity with the Vanuatu Education system and the current culture in schools. Twenty

teachers from five secondary schools in Port Vila participated in this study in August 2022. Of the 20 teachers, 18 agreed to be interviewed and provide lesson plans. The researcher analysed the lesson plans using a survey schedule focusing on the lesson topic, lesson objectives, and tasks for teachers and students. The rationale for focusing on these areas of the lesson plan was to gain a sense of the nature of the lesson. The researcher then interviewed 12 participating teachers using the Vanuatu Bislama language. The researcher later translated the Bislama script into English (both versions are provided below). Each interview lasted between 20 to 30 minutes. The interview protocol was framed loosely using the question, 'Why do you think it is difficult to design student-centred learning experiences?'. The reason for using Bislama is because it is the first language of all the teacher participants. In Bislama, teachers could express themselves freely and truthfully. Each interview was audio-recorded and later transcribed for analysis purposes.

To protect the identity of the participants, codes were used to report on their actual words as recorded in the interview scripts. Each participant was given a code, such as TE01, TE02 . . . TE20 (TE means teacher and 01 means the first participant).

All participating teachers in this sample were teaching in Anglophone secondary schools. Some teachers were university graduates, but most graduated from the Vanuatu Teacher's College and have been teaching for over five years. Teachers were familiar with the school and classroom routines in their respective schools. The thematic analytical tool (Maguire & Delahunt, 2017) guided the researcher in analysing the interview scripts and understanding the emerging themes or patterns. This sample's 40% lesson plan and 60% interview ratio is sufficient to understand what happens in the Vanuatu classroom.

FINDINGS

In this section, findings about lesson planning are presented in terms of lesson objectives and format. An analysis of four factors that affect lesson planning follows.

Lesson plans

Lesson objectives

Lesson plans surveyed had learning objectives framed with *active* and *passive* imperatives. The form used varied. For example, in one mathematics lesson plan, the objective was to get the students to 'Define trigonometry as the measure of triangles' and 'label sides of triangle correctly' (TE13). In another lesson plan, the learning objective was for the students to 'Locate the point of intersection and the coordinate of two or more linear graphs' (TE10). In yet another lesson plan, the objective was for students to 'Label' the sides of right-angled triangles (TE12). The imperatives (underlined) used are active in that they indicate the expected action of students planned by teachers. These imperatives appeared to create space for students to be active.

However, although active, these imperatives also narrowed the scope of inquiry because of how they were designed in the lesson. For example, the word 'define' (TE13) required the students to recall the definition of trigonometry, thus narrowing the scope of inquiry. Similarly, the imperatives 'locate' and 'label', as used in the context of the lessons above, narrowed the scope of inquiry in that students were required to recall rather than to think. The learning tasks in another lesson plan required the students to 'write' down the coordinates of the point of intersection of a particular graph and then to 'draw' the table of values (TE08). Again, while

the imperatives were active, the way they were framed in the lesson plan gave little opportunity for investigation, thus narrowing the students' tasks. Tasks outlined in other lesson plans were framed similarly: using active imperatives but demanding little thinking.

Analysis of the lesson plans revealed that although the learning objectives were written using active terms that could superficially have been interpreted in an active way, the potential for the lesson to engage students in the learning was undermined by the closed nature of the associated learning tasks.

The learning objectives in some of the lesson plans surveyed were framed using passive terms. For example, the learning objective written in one lesson plan on angles required the students to 'know that angles in a triangle make up 180 degrees' (TE07). The word 'know' is ambiguous because it is not definite and lacks clarity about what students are expected to demonstrate to show learning. Hence, in this context, using passive imperatives such as 'know' will likely promote a passive learning environment. In this case, for example, teachers could have opted for terms such as 'identify' or 'create'.

Format of lesson

Traditional format

In a traditional lesson format, the teacher transmits all the knowledge, and students passively listen and are expected to absorb everything that is transmitted. Six lesson plans surveyed had certain aspects that contained phrases that could promote subjunctive spaces of inquiry. For example, in the lesson outline below, the objective was to get students to write the trigonometric ratios or formulas needed to find the unknown length or angle of a right-angled triangle. Note that in the plan, the steps were clearly outlined (TE05). 'Tr' indicated teacher.

A. Introduction:

1. Tr. explain the reason to learn the concept of this lesson.
2. Recap on last lesson
3. Explain the tasks for this lesson

B. Development:

1. Tr gives notes on the 3 ratios – Tangent, Cosine, and Sine of an angle then explain.
2. Do some examples of writing the ratios together.
3. Students should develop own rule of doing it correctly (Tr can give hint to assist).
4. Exercise on practicing the idea then correct work together with students explaining their answers.
5. More questions of different forms be given (to capture the idea) – select students to response.

C. Conclusion:

1. Ask students how this concept should be helpful to find the unknown length or angle of a right-angled triangle (Response: substitution then solving of equation).
2. Homework: Think about how to substitute and solve the unknown for the next lesson.

The data above revealed that although the lesson plan showed a traditional view of learning, in that it began with an introduction followed by examples and notes, followed by exercises and ended by giving homework, lines B3, C1 and C2 provided a sense of learning that could engage students in a meaningful way because it portrayed the idea that learning is the student's responsibility rather than the teacher's.

The excerpts below from one of the interviews portrayed a similar view to lesson planning:

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Long mi, taem mi go insaet long class, fes samting mi mekem, mi talemaot wanem nao bai mifala i mekem long class. Afta mi givim sam notes mo explen smol long students. Afta mi givim wan or two examples. Sam taem mifala ino gat inaf textbook, bai mi mas raetemaot ol questions or exercises long board nomo afta askem ol students blong mekem ol exercises ia. Afta mi jas go raon and spos students i gat question, oli jas askem mi. Samtaem we tae mi shot mifala i jas mekem quick correction lo few of the questions. Ol narawan mi lego kase next lesson nomo (TE11).

The first thing for me to do when I enter the class is to tell them what topic we are going to do in class. Then I will write brief notes on the board followed by my explanation of the topic with one or two examples. When I finish and in cases where we do not have enough textbooks, I get to write up questions on the board then ask them to do the questions. Then I circulate and if students have questions, then they get to ask me for further explanation. Sometimes when we run out of time, I just correct a few of the questions together on the board and leave the rest for next lesson (TE11).

The data above revealed a rigid form of planning where the teacher controlled the knowledge. This view of planning and learning reflected a traditional format of planning lessons.

Student-centred format

A student-centred format shows flexibility in learning and shifts its focus from the teacher to the students. Two of the seven lesson plans surveyed reflected a student-centred planning format. For example, one of the lessons was on investigating the sum of the interior angles of a triangle (TE09). The lesson objective was to get students to 'prove the sum of interior angles of a triangle'. The imperative 'prove' implies the idea of investigation, asking questions, trial and error, and being on the lookout for possible answers. Second, the development part of the lesson (or main part of the lesson) planned a student activity where they investigated the sum of the interior angles in a triangle. This was then followed by questions that accompanied the activity. The questions were: 'What do you notice about the 3 angles when arranged so that the vertices meet at a point? What can you say about the sum of the interior angles of triangles? Can you determine the sum of interior angles of triangles without a protractor?' (TE09). These questions are crucial for opening the scope of learning, which is important in constructivist learning.

The data above revealed that some participating teachers understood what it is like to plan a student-centred lesson for their students. However, given the infrequency of this kind of planning, it seemed that teachers needed more support to fully realise the potential of pedagogies based on constructivism or are student-centred. The next section presents the findings on teachers' perspectives on factors affecting their planning practices.

Factors affecting lesson planning

This section presents the four factors teachers reported affecting their lesson planning: absence of policy, curriculum textbooks, support systems and general planning challenges.

Absence of policy

Teachers interviewed stated they were unaware of any policies relating to teaching and learning mathematics in their schools. They stated that even though they were teaching within their mathematics departments, they knew nothing of any school or departmental policies on teaching and learning mathematics.

No, mifala long ples ia ino gat polisi. Long maths department mifala igat ol maths equipment nomo. Taem mifala I faenem difficulty blo tijim wan topic, ale mifala evriwan i sit daon mo decide se ating bai yumi go olsem ia. Yumi traem this method fastaem mo luk olsem wanem (TE01)

No, we don't have a policy here. We only have mathematics equipment. When each one of us finds difficulty with teaching a topic, we'd get together and put our ideas together as to how to teach the topic and we'd try out our proposed methods (TE01)

Ino gat any polisi olsem ia (Teaching and Learning mathematics). Mi no save remember se mifala i bin tokabaot wan polisi long side blong tijing mo learning mathematics (TE04).

There is no specific policy on how teachers should teach mathematics. I don't remember us talking about any policy to do with teaching and learning (TE04).

To be honest, ino gat wan polisi blong tijing mo learning mathematics. Mifala i tij nomo follem wanem method mifala i save mo follem maths syllabus (TE18).

To be honest, there are no policies for teaching and learning mathematics. We just teach according to what method we think is best and we follow the mathematics syllabus (TE18).

While there is evidence of the existence of some relevant policies in some schools, these seemed to target areas other than teaching and learning mathematics, as is evident from the following excerpts:

Yes i gat ol polisi olsem blong marking wetem assignment. Spos students i handem in assignment wan dei after due date, certain percentage blong mark bai I cut off be mi no save long side blong blong polisi blong tijing. Hemia, taem mi kam, oli no bin soem long mi nating. Ating ino gat long form (TE20).

Yes there is a policy for marking and assignments. If students submit assignments a day late, a certain percentage of the mark will be cut off . . . but I am not aware of a policy for teaching and learning mathematics. Maybe it's not in written form (TE20).

The comments above pointed to the absence of a policy to guide the teaching and learning of mathematics, or at least recorded an absence in the teachers' experience. It must be noted that at the time of the study, the Vanuatu National Curriculum Statement had already been published and circulated to schools.

Curriculum-textbooks

The textbooks used in the Junior Secondary schools included those for Years 7, 8, 9 and 10. The participants revealed that they found it difficult to use the current mathematics textbooks to plan student-centred learning:

Mi no ting se ol textbuk I sapotem wan student-centred learning. Textbuk I gat nomo plante exampols mo exercises we students oli save mekem afta long wan activity. Emi (textbuk) no containem kind activity we I save promotem wan student-centred learning. The textbooks provide straight formula, and all these be oli no wokemaot se hao nao yu gat that formula ia olsem se ol students bai I wokem aot. These textbooks I givim ol exercise and examples nomo we mi ting se I promotem traditional teaching (TE19)

The textbooks do not promote student-centred learning. It only contains lots of examples and exercises that students can do after an activity. It does not contain activities that could promote student-centred learning. The textbooks provide straight formula and all these but, they (textbooks) do not require students to investigate and find out for themselves why the formula was derived. These textbooks only provide examples and exercises, which, to me, gives a picture of traditional teaching (TE19).

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Mi luk se ol texbuk we yumi yusum I no givim any ideas long tija blong yumi save developem wan student-centred learning. Hemi (textbuk) mekem tija mo students i stadi idea nomo inside mi yusum. So mi traem blong yusum other textbooks nomo blong traem faenem sam activities . . . ating hemia nao I mekem se tija I focus long texbuk nomo (TE17)

The textbooks we are using do not give ideas to teachers in terms of preparing a student-centred learning lesson. They only give ideas for teachers and students to study. So, I use other textbooks to find activities. That could be the reason why teachers rely heavily on textbooks (TE17).

The textbooks not only appeared to harbor traditional forms of teaching and learning mathematics, but they also presented a challenge for teachers in terms of designing student-centred activity:

Texbuk we yumi yusum I gat flap exampols mo exercise. Hemi reflectem wan traditional teaching. So jalens blong wan tija hemi blong transletem ol exampols ia ikam long wan good student-centred activity (TE16).

The textbook we are using has many examples and exercises. It reflects a traditional view of teaching. So, the challenge for a teacher is to translate these examples into student-centred activities. (TE16)

The teachers believed that the absence of appropriate textbooks made it difficult for them to plan student-centred learning. While textbooks were said to be the issue here, at the time of the study, it was believed among teachers that new mathematics textbooks would be circulated in schools.

Support systems

Participants also expressed the view that there was no support mechanism to provide them with professional development. They claimed that neither their mathematics departments, the schools, nor the Ministry organised professional training for them, targeting student-learning approaches. These excerpts illustrate their views:

Hemia ino gat anything blong helpem mifala. Mi ting se mi needim hemia (sapot) plante (TE14).

There is nothing to help us. I feel I need it (TE14).

For the last two years ino gat any sapot we school itsem i givim long ol tijas. And mi ting se I should gat sapot from tijas college or from else long side blong student-centred learning because basically jalens I stap long ples ia nao. You can train to be a student-centred teacher, be taem yu kam long field, you follem crowd of tijas (TE15).

In the last two years there has been no support provided by the school to the teachers. I think there should be support provided from the Teachers College or elsewhere because this is where the challenge is right now. One can train to become a student-centred teacher but when he or she comes to the field, it's easy to follow the crowd of teachers (TE15).

Mifala I stap gat smolsmol meeting lo dipatment level mo samtaem mifala gat workshop olsem blo helpem mifala be I need blong gat moa olsem (TE11).

We do have meetings at the department level and sometimes we have workshops to help us in our teaching, but we really need more of this (TE11).

The views above have expressed the need for on-going support for mathematics teachers in schools.

Challenges in planning

The participants also described the challenges they faced in planning lessons. The excerpts below show a range of these challenges:

First, long experiens blong mi, mi lukim se taem mi disaenem gud hands-on activities, bai oli students oli rili eager blong faenemaot answers. Bai oli rili folem learning. Be taem mi jas go mo explen and explen, it's like students oli explorem anything. Taem we students oli faenem samting (TE06)

First, in my experience so far, I see that when I design hands-on activities, students are eager to find out the answers. They really get on with learning. But when I go and just explain and explain, students don't explore anything. When they (students) find out things for themselves, that's a source of motivation for them. So, I find that if I can design a good activity, students will find it more interesting compared to the materials simply being explained to them (TE06).

Mifala ino gat inaf risos. Samting we i hard long me hemi hao nao blong desanenem wan student-centred activity based lo topic we i stap long syllabus. Hemia hemi wan jalens. Ating spos mifala i gat risos bai mifala i save desanenem activity. Be hemi bigfala jalens ia. Mifala ino gat inaf texbuku we i follem Student-centred approach so taim mi jekem internet, mi faenem plante material we hemi student-centred be jalens long mi se hao nao blong adaptem materials ia ikam long classroom blong mi. So samting we hemi hard se blong desanenem wan Student-centred activity and mi wish mi gat plante moa training long side ia (TE02).

Resource-wise, we do not have adequate resources. The hardest thing for me is to design my own activity based on the concept to be taught as outlined in the syllabus. This is the challenge. If we have all the available resources, we can easily design this. There is a lot of challenge in designing student-centred activities. We do not have textbooks tailored towards student-centred so when I search the internet, I find mathematics materials that are student-centred, but I find it a challenge in trying to contextualise these materials. I guess the how part of designing student-centred activity and wish we have more practice in this (TE02).

These teachers know the benefits of student-centred learning in that students get motivated when they discover things for themselves. However, the lack of resources, the pressure to teach to the syllabus, and the difficulties that teachers experienced in planning student-centred lessons are all issues that teachers encountered and that affected their planning. If teachers found it difficult to plan student-centred learning, problem-posing was likely to be hindered, as seen here:

Taem we mi stat teaching, mi follem method we mi explen fastaem mo afta givim exampols after givim exercise, mi faenem se students oli faenem i hard blong understandem wanem mi stap tijim (TE03).

When I started teaching, I followed the method whereby I explain first, then I give a few examples, and then follow with exercises from the textbook. Students find it hard to understand what I teach using this method (TE03).

The data above has revealed that the format of lesson plans portrayed the traditional view of lesson planning practices. Further, the lack of a clear policy relating to teaching and learning mathematics, the absence of good mathematics textbooks and the lack of other suitable resources undermined learning opportunities. The relationship between the two views of learning portrayed in the data is worth considering in Vanuatu education. Maintaining a traditional teaching and learning perspective will continue to promote rote learning. However,

student-centred learning could promote active learning, though this approach could be challenging for the teachers.

DISCUSSION

This study sought to explore Vanuatu mathematics teachers' perspectives of the factors affecting their planning practices, including student-centred learning strategies. The study began with a survey of the lesson plans and then went on to capture the teachers' perspectives via interviews. The implication of the study findings now be discussed.

The study revealed that teachers used active terms in framing their learning objectives. These terms are theoretically capable of eliciting active learning. However, there needs to be more awareness of how to effectively develop active imperative terms to plan student-centred learning experiences. Teachers (e.g., TE13 and TE10) used active terms but the actual lesson plans showed a narrowing of the scope for learning. Mathematics teachers must, therefore, be aware of how to use imperative terms that create the opportunity for students to engage in learning. This is important in lesson planning because it is consistent with good lesson planning practices as advocated by Jones (2011) and other experts in the field of teaching and learning.

The study also revealed the types of lesson formats being practiced by Vanuatu teachers. The typical lesson format, starting with a brief introduction followed by examples and ending with exercises, if not carefully considered and could perpetuate traditional teaching where teachers remain the experts. This format suggests that the current beliefs about teaching and learning in Vanuatu do not follow the constructivist tradition and allow teachers to continue to rely on transmission models of education. This observation is consistent with the view that what teachers plan in a mathematics lesson reflects their beliefs about mathematics (Henney & Stemhagen, 2024).

The study further revealed that participants lacked awareness of a policy on teaching and learning mathematics and relied on a limited selection of textbooks. These factors contributed to the teachers' difficulties in planning student-centred lessons. Stodolsky and Grossman (1995) noted that it is important to have clearly articulated policies on teaching and learning to guide teachers. Where there is no policy, teachers are left to their own devices, and systemic problems remain hidden. If policies on teaching and learning mathematics are clearly defined and articulated, associated problems, such as lack of support systems and employment of materials that support student-centred learning, are likely to become evident and can be addressed. A policy that can drive a system towards a student-centred learning approach is crucial for promoting subjunctive spaces of inquiry. It should be noted that both the Vanuatu National Curriculum Statement (Ministry of Education and Training, 2010) and the report by Cassity et al. (2023) included policies on teaching and learning and student-centred learning. Thus, policies are present on paper but have yet to be manifested in the classroom.

The study also revealed the apparent lack of a support system for mathematics teachers. Although the views of the participating teachers may not reflect the views of all Vanuatu teachers, having a support system or mechanism in place is vital for teachers. Teacher support at the department level is of the first order of importance. Departmental support provides teachers with direct guidance when they need it the most. Other authorities, such as the Ministry, may also provide support. Wherever support comes from, teachers need to be provided with opportunities to learn and become creative in their own settings.

Broadly speaking, the study revealed the need to support mathematics teachers in designing learning materials that include student-centred learning strategies. Taking the work of Harris et al. (2013) ‘student-centred Schools’ into consideration, the Vanuatu education system could develop a framework for supporting current teachers so that they can be confident in providing effective learning for Ni-Vanuatu¹ children both now and into the future for sustainable development. *Sustainable education*² is about the future, and if we do not critically review our education and our teaching and learning philosophy now, it will be more challenging to map out the best possible education for Vanuatu in the future.

CONCLUSION

The participating teachers in this study have demonstrated their dedication and commitment to teaching in schools, both in their lesson planning and interview discussions. The study also revealed the teachers’ views on some factors hindering their planning practices, including student-centred learning strategies.

Vanuatu must consider how to frame the type of education that is sustainable. Sustainable education could provide Ni-Vanuatu children with the means to sustain themselves in different scenarios in the future. For instance, in the event of a natural disaster such as a cyclone, Ni-Vanuatu children should know what to do to be resilient. Ni-Vanuatu educationists must be willing to engage in *tok stori*³ about what is important for Ni-Vanuatu children in the future. This line of thinking concerns the education needed for future generations. It must include considerations on the current status quo of education in Vanuatu, such as the nature of planning taking place in mathematics classrooms and the perceptions of teachers involved. The work of Ni-Vanuatu and Pacific Island scholars, such as Niroa (2001), Niroa and Sanga (2004) and many others, should be the basis for Ni-Vanuatu scholars to start with as we step away from passive education and into a future where our up-and-coming young citizens are active in classrooms and, with perseverance, active in Vanuatu society.

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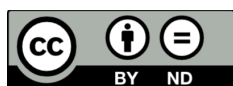
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¹ Refers to a native or naturalised citizen of Vanuatu.

² The type of education that sustains people in different circumstances.

³ The Melanesian form of communication involving storytelling and relational interactions.

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