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A thesis presented in partial fulfilment of the requirements for the degree of Master of Education in Mathematics Education

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Abstract

Pāsifika students’ academic achievement in mathematics continues to remain a priority for New Zealand education (Ministry of Education, 2013). Research in both the New Zealand and international contexts identifies the need for New Zealand classrooms to foster culturally responsive and mathematical practices that align with Pāsifika students’ cultural values, backgrounds, interests and experiences. As a result, Pāsifika students will have increased opportunities to participate and engage in mathematics while developing a cultural identity within New Zealand classrooms.

This study utilised the Pāsifika students’ and their families’ funds of knowledge to design culturally relevant mathematical tasks. These tasks were used within the students’ mathematics classroom where the teacher was supported to implement culturally responsive and mathematical practices. It examined how the use of culturally relevant tasks while enacting the reviewed cultural and mathematical practices could foster Pāsifika students’ participation and engagement in mathematics.

This study used qualitative research methods with an ethnographic case study approach while drawing on Pāsifika research frameworks (Lemanu, 2014; Sauni, 2011). 11 Year 5 and Year 6 students who descended from the Pacific Islands participated in this study. Semi-structured interviews were completed at the beginning and end to find out the Pāsifika students’ perspectives about their experiences of their culture and mathematics. Throughout the study, photo-elicitation interviews were used to identify Pāsifika students’ cultural funds of knowledge and mathematical experiences that they engaged in outside of school. This information was used to work with the classroom teachers to design culturally relevant mathematics tasks. Observations were made of the students’ behaviour and interactions while working on these tasks within their
classroom setting. After each observation, focus group interviews were conducted to gain insight into the students’ perspectives of the task and learning experience. The use of a variety of methods provided greater evidence of data that I drew on to support my findings.

The results illustrated key findings and recommendations that have been visually represented using a frangipani (kalosipani/ pua fiti/ fiti pua/ tipani)\(^1\) ula-lei\(^2\). Each petal on the frangipani flower represents the key themes that emerged. These are as follows; mathematics at home and school, culturally relevant tasks, funds of knowledge, collaborative grouping and mathematical disposition and cultural identity. These key themes are supported by a group of learners which include parents, teachers and students and are bound together by the core Päsifika values. The key themes, community of learners and cultural values form the ula-lei. This study revealed these components as being effective practices that educators should develop to support Päsifika learners’ participation and engagement in mathematics.

1. The frangipani plant is translated to kalosipani in Tonga, pua fiti in Samoa, fiti pua in Niue and tipani in the Cook Islands.
2. Traditional Pacific Island necklace
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# Table of Contents

**Abstract** ii  
**Acknowledgements** iv  
**Table of Contents** v  
**List of Tables and Figures** ix  

## Chapter One: Introduction  1  
1.1 Introduction  1  
1.2 Context  1  
1.3 Rationale  2  
1.4 A visual representation of the study  5  
1.5 Aims of the study  6  
1.6 Overview of chapters  7  

## Chapter Two: Literature Review  8  
2.1 Introduction  8  
2.2 Culturally responsive teaching and equity  9  
2.3 Culturally responsive tasks and funds of knowledge  10  
2.4 Student engagement and teacher-student relationships  12  
2.5 Drawing on cultural values in the classroom  16  
2.6 Mathematical tasks  18  
2.7 Conclusion  20  

## Chapter Three: Methodology  21  
3.1 Introduction  21  
3.2 Qualitative Research  21  
3.2.1 Case Study  22  
3.2.2 Ethnography  22
Chapter Four: Findings and Discussion

4.1 Introduction

4.2 Phase One: Students’ initial experiences and perspectives of mathematics at home and school
   4.2.1 Student interview data related to mathematics at home and school
   4.2.2 Initial observations of students working in their mathematics classroom

4.3 Phase Two: Exploring students’ funds of knowledge through photographs
   4.3.1 Measurement
   4.3.2 Number
   4.3.3 Geometry
   4.3.4 Algebra

4.4 Phase Three: Classroom implementation of culturally relevant tasks and the development of cultural and mathematical practices
   4.4.1 Drawing on Påsifika cultural values
   4.4.2 Drawing on Påsifika students’ funds of knowledge and students’ working on culturally relevant tasks in their mathematics classroom

4.5 Phase Four: Shifts in students’ perspectives of mathematics at home and school
   4.5.1 Student interview data related to mathematics at home and school
4.5.2 Student interview data related to shifts in their mathematics classroom

4.6 Summary

Chapter Five: Conclusion

5.1 Introduction

5.2 Summary of research questions

5.2.1 What are the out of school mathematical perspectives and experiences of Påsifika students?

5.2.2 How do Påsifika students describe their culture being reflected in their mathematics classroom?

5.2.3 What classroom experiences foster Påsifika students’ participation and engagement in mathematics?

5.3 Key findings, recommendations and implications

5.4 Limitations

5.5 Suggested areas for future research

5.6 Visual representation

5.6.1 A group of learners

5.6.2 Five petals: five themes

5.6.3 Formation of the ula-lei: core values

5.7 Conclusion

References

Appendices

Appendix A1 Initial interview

Appendix A2 Semi-structured group interview

Appendix A3 Final interview

Appendix B Culturally relevant tasks

Appendix C1 Student consent form

Appendix C2 Parent consent form

Appendix C3 Teacher consent form
<table>
<thead>
<tr>
<th>Appendix</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>C4</td>
<td>Board of Trustees consent form</td>
<td>104</td>
</tr>
<tr>
<td>C5</td>
<td>Student photograph consent form</td>
<td>106</td>
</tr>
<tr>
<td>D1</td>
<td>Student and parent research information sheet</td>
<td>108</td>
</tr>
<tr>
<td>D2</td>
<td>Board of Trustees research information sheet</td>
<td>111</td>
</tr>
<tr>
<td>D3</td>
<td>Teacher research information sheet</td>
<td>114</td>
</tr>
<tr>
<td>E</td>
<td>Record sheet used to transcribe notes from classroom observations</td>
<td>116</td>
</tr>
<tr>
<td>F</td>
<td>Thematic analysis table used to group data into themes</td>
<td>117</td>
</tr>
</tbody>
</table>
### List of Tables and Figures

#### Summary of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 3.1</td>
<td>Timeline of research activities implemented during each phase of the current study</td>
<td>26</td>
</tr>
<tr>
<td>Table 4.1</td>
<td>Contexts of photographs</td>
<td>44</td>
</tr>
<tr>
<td>Table 4.2</td>
<td>Student responses identifying different types of measurement</td>
<td>45</td>
</tr>
<tr>
<td>Table 4.3</td>
<td>Student responses identifying different types of number</td>
<td>48</td>
</tr>
<tr>
<td>Table 4.4</td>
<td>Student responses identifying different types of geometry</td>
<td>50</td>
</tr>
<tr>
<td>Table 4.5</td>
<td>Student responses identifying different types of algebra</td>
<td>51</td>
</tr>
<tr>
<td>Table 4.6</td>
<td>Mathematical contexts outside of school identified as being important</td>
<td>63</td>
</tr>
</tbody>
</table>

#### Summary of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1.1</td>
<td>Frangipani ula-lei used as a visual representation of the research study and findings</td>
<td>5</td>
</tr>
<tr>
<td>Figure 3.1</td>
<td>Talanoa model (as cited in Lemanu, 2014, p. 2)</td>
<td>23</td>
</tr>
<tr>
<td>Figure 3.2</td>
<td>Ula terms of engagement model (as cited in Sauni, 2011, p. 57)</td>
<td>24</td>
</tr>
<tr>
<td>Figure 4.1</td>
<td>Pule-tasi</td>
<td>47</td>
</tr>
<tr>
<td>Figure 4.2</td>
<td>Making an ula-lole</td>
<td>47</td>
</tr>
<tr>
<td>Figure 4.3</td>
<td>Volcanic rock</td>
<td>47</td>
</tr>
<tr>
<td>Figure 4.4</td>
<td>Baking in Samoa</td>
<td>49</td>
</tr>
<tr>
<td>Figure 4.5</td>
<td>Traditional celebration</td>
<td>50</td>
</tr>
</tbody>
</table>
Figure 4.6 Tongan dance task 55
Figure 4.7 Students sharing cultural artifact 58
Figure 4.8 Tapa cloth task 58
Figure 5.1 Frangipani ula-lei: A visual representation 76
of the research study and findings