

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

**A STRENGTH-BASED APPROACH TO DEVELOP PĀSIFIKA STUDENTS'
CULTURAL IDENTITIES AND MATHEMATICAL DISPOSITIONS**

A Thesis presented in partial fulfillment of the requirements for the degree of
Master of Educational Psychology at Massey University, Auckland, New
Zealand

Rosemary Curwen

2017

ABSTRACT

This study examines cultural identity and mathematical disposition development of Pāsifika students aged 11-13 years from a strengths-based perspective. It builds on previous work that advocates for culturally responsive mathematics teaching in collaborative learning environments built around Pāsifika values. Current research also urges pedagogical actions of promoting students' use of home languages and connecting students' "lived" lives to the mathematics classroom. These teaching practices have been described to affirm student identities as well as foster stronger relationships with mathematics.

A case study approach utilizing qualitative design from a socio-cultural perspective was implemented. Data was collected through group interviews with students and individual interviews with students and teachers. The Year 8 students and their teachers within the study were from two urban Auckland schools that have participated in professional development and learning opportunities focused on culturally responsive inquiry classrooms. Coded analysis of interview transcripts was used to uncover the perspectives of students and teachers and formulated the findings of this research.

Findings revealed that home language use, connecting cultural contexts to the mathematics class, drawing on Pāsifika values to promote mathematical practices and social norms, and the role of the responsive and caring teacher validated students' cultural identities and supported the development of positive mathematical dispositions. The findings provide insights into how culturally responsive mathematics teaching can draw upon the cultural languages and values of Pāsifika students to affirm their identities and mathematical dispositions.

ACKNOWLEDGEMENTS

I would like to acknowledge the unwavering support I have received throughout my studies this year. I wish to thank the two schools that generously let me interview their students and teachers. I would like to thank the students I interviewed for their keen participation and positive attitudes in the interview process. I would like to thank the teachers I interviewed for their thoughtful engagement and considered experiences they shared with me.

I am extremely appreciative of the support, feedback and dedication of my supervisors, Professor Roberta Hunter and Professor Glenda Anthony. I would like to sincerely thank Roberta Hunter for her careful guidance, and dedicated support throughout the year. I am also extremely thankful for Glenda Anthony's professional insight and support.

I would like to thank my colleagues at school, for their continued support and flexibility throughout the year.

Finally, I would like to thank the wonderful support of my friends and family. Their love and encouragement has been invaluable this year.

TABLE OF CONTENTS

LIST OF TABLES.....	VII
CHAPTER ONE – INTRODUCTION	8
1.1 INTRODUCTION	8
1.2 BACKGROUND TO THE STUDY	8
1.2.1 Pāsifika students in New Zealand.....	8
1.2.2 Mathematics for Diverse learners	9
1.2.3 Culturally Responsive Teaching	10
1.3 RESEARCH OBJECTIVES	11
1.4 OVERVIEW.....	11
CHAPTER TWO – LITERATURE REVIEW	13
2.1 INTRODUCTION	13
2.2 CULTURAL IDENTITIES OF PĀSIFIKA LEARNERS	14
2.3 MATHEMATICAL DISPOSITION	16
2.3 CULTURALLY RESPONSIVE TEACHING	19
2.3.1 The Role of Language.....	20
2.3.2 Social and Socio-mathematical Norms	22
2.3.3 Mathematical Practices.....	24
2.3.4 Pāsifika Values	26
2.3.5 Connecting Cultural Context to the Mathematics Class	28
2.3.6 Responsive Teacher Actions that Foster a Constructive Learning Environment	29
2.4 SUMMARY	31
CHAPTER 3 - METHODOLOGY	33
3.1 INTRODUCTION	33
3.2 JUSTIFICATION FOR METHODOLOGY	33
3.2.3 Sociocultural Perspective.....	34
3.3 DATA COLLECTION METHODS	35
3.3.1 Interviews.....	35
3.3.2 The Role of the Researcher	38
3.4 THE PROJECT: SETTING SAMPLE AND SCHEDULE	39
3.4.1 Developing Mathematical Communities of Inquiry (DMIC)	39
3.4.2 Research Timeline.....	40

3.5 QUALITY CRITERA	42
3.5.1 Reliability	42
3.5.2 Validity.....	43
3.5.3 Ethical Considerations.....	44
3.5.4 Cultural Considerations	44
3.6 SUMMARY	46
CHAPTER FOUR - FINDINGS	47
4.1 INTRODUCTION	47
4.2 THE ROLE OF PĀSIFIKA LANGUAGES	47
4.3 CONNECTING STUDENTS’ CULTURAL LIVES TO THE MATHEMATICS CLASSROOM.....	50
4.4 DRAWING ON PĀSIFIKA VALUES TO SUPPORT MATHEMATICAL PRACTICES AND SOCIAL NORMS.....	51
4.4.1 Collectivism supporting Group Participation	51
4.4.2 Respect Shaping Students’ use of Mathematical Practices	53
4.4.3 Pāsifika Value of Communalism and Family in Supporting Students to Engage in Risk Taking.	55
4.5.1 Teacher Actions that Promote Student Participation.....	57
4.5.2 High Expectations of Students	59
4.6 MATHEMATICAL DISPOSITION	61
4.6.1 Learning and Using Mathematical Strategies	61
4.6.2 Being Challenged by Mathematics	62
4.6.3 Future Orientations and Seeing the Value in Mathematics	63
4.7 CULTURAL IDENTITIES.....	65
CHAPTER 5 – DISCUSSION AND CONCLUSION.....	68
5.1 INTRODUCTION	68
5.2 THE ROLE OF PĀSIFIKA LANGUAGES	68
5.3 CONNECTING CULTURAL CONTEXT TO THE MATHEMATICS CLASS	71
5.4 DRAWING ON PĀSIFIKA VALUES TO SUPPORT MATHEMATICAL PRACTICES AND SOCIAL NORMS.....	72
5.5 ENACTING AN ETHIC OF CARE AND RESPONSIVE TEACHER ACTIONS.....	75
5.6 MATHEMATICAL DISPOSITION	76
5.7 CULTURAL IDENTITY	78

5.8 TEACHING IMPLICATIONS.....	79
5.9 LIMITATIONS	79
5.10 OPPORTUNITIES FOR FURTHER RESEARCH	80
5.11 CONCLUDING THOUGHTS.....	81
REFERENCES	81
APPENDIX A – INTERVIEW QUESTIONS	94
APPENDIX B- TEACHER INFORMATION SHEET & CONSENT FORM	96
APPENDIX C – PARENT INFORMATION SHEETS & CONSENT FORM ...	99
APPENDIX D – STUDENT INFORMATION SHEET AND CONSENT FORM	102
APPENDIX E – PRINCIPAL CONSENT FORM	105

LIST OF TABLES

Table 1. Summary timeline of research schedule	40
---	----