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Student Perspectives and Roles in an Inquiry Mathematics Classroom

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ABSTRACT

This study examines the perspectives and roles of students aged 9-10 years old learning mathematics in an inquiry classroom. It builds on previous work which has advocated students learning mathematics through collaborative interaction as opposed to passive transmission of knowledge and skills. In this study the students' beliefs about what they consider to be important in learning mathematics is compared to the ways in which they engage in mathematics activity. The varying roles students assume while learning mathematics and how this affects their agency are considered.

This investigation is situated in an inquiry classroom. A sociocultural perspective provides the framework for the classroom context. Relevant literature is examined to provide a rationale for how students engaged in mathematical reasoning within this environment. The pedagogic approach of the teacher in developing effective student participation in mathematical reasoning by facilitating the even distribution of authority in the classroom is offered as an alternate to customary practice. Active student engagement in mathematical discussion and debate are all viewed as highly important for the enhancement of mathematical understanding.

A qualitative research approach was implemented. The case study supported a classroom based investigation. Data were collected through individual interviews, participant and video-recorded observations and classroom artefacts. To develop the findings as one classroom case study, on-going and retrospective analyses of data were made.

Significant changes were revealed in the relationship between the students' espoused beliefs about learning mathematics and their enacted beliefs. The investigation illustrated that students were able to develop positive positional identities through active engagement in mathematical reasoning. The interaction patterns created in the classroom explicitly affected the construction of mathematical knowledge. From these findings insights are made into the type of environment which supports enhanced mathematics learning.

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TABLE OF CONTENTS

ABSTRACT ii

ACKNOWLEDGEMENTS iii

TABLE OF CONTENTS iv

CHAPTER 1: INTRODUCTION

1.1 Introduction 1
1.2 Background to the study 1
1.3 Research objectives 2
1.4 Overview 3

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction 5
2.2 Sociocultural theory 5
2.2.1 Zone of proximal development 6
2.3 Inquiry classrooms 8
2.3.1 The role of the teacher in inquiry classrooms 9
2.3.2 Discourse in inquiry classrooms 10
2.4 Classroom norms 11
2.4.1 Social norms 11
2.4.2 Sociomathematical norms 12
2.5 Student perspectives 13
2.6 Student identity 14
2.7 Student agency 17
2.8 Summary 19

CHAPTER 3: RESEARCH DESIGN

3.1 Introduction 21
3.2 Justification for methodology 21
3.3 Researcher role 23

3.4 Data collection 24
3.4.1 The questionnaire 24
3.4.2 Observation 25
3.4.3 Interviews 26
3.4.4 Classroom artefacts 27
3.5 The research study: Setting, sample and schedule 27
3.5.1 The setting and the sample 28
3.5.2 The research study schedule 28
3.6 Data analysis 30
3.7 Validity and reliability 30
3.8 Ethical considerations 30
3.9 Summary 33

CHAPTER 4: THE PERSPECTIVES OF STUDENTS LEARNING MATHEMATICS IN AN INQUIRY CLASSROOM

4.1 Introduction 34
4.2 The questionnaire 34
4.3 Summary statement 40
4.4 Likert attitude scale 40
4.5 Summary 42

CHAPTER 5: THE ROLES OF STUDENTS LEARNING MATHEMATICS IN AN INQUIRY CLASSROOM

5.1 Introduction 43

THE FIRST PHASE

5.2 The classroom context 43
5.2.1 The structure of the learning sessions 44
5.3 Student roles within the classroom context 45
5.3.1 Assuming identity through student positioning 45
5.4 Student agency within the classroom context 47
5.5 The role of the teacher 47
5.6 Students use of social and sociomathematical norms 51
5.7 Collaborative discourse 54
5.8 Summary of the first phase 56

THE SECOND PHASE

5.9 The classroom context 57
5.10 Student roles within the classroom context 57
5.10.1 Assuming identity through student positioning 57
5.11 Student agency within the classroom context 60
5.12 The role of the teacher 61
5.13 Students use of social and sociomathematical norms 61
5.14 Collaborative discourse 63
5.15 Summary 64

CHAPTER 6: DISCUSSION AND CONCLUSION

6.1 Introduction 65
6.2 Student perspectives 65
6.3 Student identity 66
6.4 Student agency 68
6.5 Inquiry classrooms 69
6.5.1 The role of the teacher 70
6.6 Communication and participation patterns 71
6.6.1 Developing social and sociomathematical norms 71
6.6.2 Collaborative discourse 73
6.7 The complex nature of teaching and learning 73
6.8 Opportunities for further research 74
6.9 Concluding thoughts 74

REFERENCES 76

APPENDICES:

Appendix A: The questionnaire (both phases) 88
Appendix B: Likert attitude scale (both phases) 89
Appendix C: Mathematics problems 91
Appendix D: Interview questions 92
Appendix E: Teacher information sheet and consent form 93
Appendix F: Student and parent information sheet and consent form 96

Appendix G: Board of Trustees information sheet and consent form 99

LIST OF TABLES

4.1 Students' responses from phases one and two to the questions: what is mathematics and why should we learn it? 35

4.2 Students' responses from phases one and two to the questions: how do we know if someone is good at mathematics and how do you think real mathematicians do mathematics? 36

4.3 Students' responses from phases one and two to the questions: when you do mathematics in your class: who does the teaching and the talking; and who asks the questions and gives the answers; and what do you do if you get stuck? 37

4.4 Students' responses from phases one and two to questions about working collaboratively to solve mathematics problems 38

4.5 Students' responses from phases one and two to questions about the most difficult and the most fun about doing mathematics 40

4.6 Percentage of students' responses to passive statements about learning mathematics 40

4.7 Percentage of students' responses to active statements about learning mathematics 41