Academic achievement and its relation to family background and locus of control

Mohammad Khayyer
University of Wollongong

Follow this and additional works at: https://ro.uow.edu.au/theses

Recommended Citation

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library: research-pubs@uow.edu.au
NOTE

This online version of the thesis may have different page formatting and pagination from the paper copy held in the University of Wollongong Library.

UNIVERSITY OF WOLLONGONG

COPYRIGHT WARNING

You may print or download ONE copy of this document for the purpose of your own research or study. The University does not authorise you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site. You are reminded of the following:

Copyright owners are entitled to take legal action against persons who infringe their copyright. A reproduction of material that is protected by copyright may be a copyright infringement. A court may impose penalties and award damages in relation to offences and infringements relating to copyright material. Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.
Academic Achievement and its Relation to Family Background and Locus of Control

A thesis submitted in fulfilment of the requirements for the award of the degree

Doctor of Philosophy

from

University of Wollongong

by

Mohammad Khayyer, B.A., M.A.

Graduate School of Education
1994
# Table of Contents

<table>
<thead>
<tr>
<th>Acknowledgments</th>
<th>i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>ii</td>
</tr>
</tbody>
</table>

## Chapter 1: Introduction

1. Statement of the Problem 1
2. Justification and Educational Implications of the Study 2
3. Objective of the Study 5
4. Key Words 6
5. A Brief Review of Research Relating to the Study 6
6. A Brief Account of the Sources of the Data, the Methods and Procedures 12

## Chapter 2: Theoretical Background

1. Introduction 15
2. Social-Learning Theory 17
2.1 Some Important Principles of Social-Learning Theory 17
2.2 Basic Concepts in Social-Learning Theory 21
2.2.1 Behaviour Potential 21
2.2.2 Expectancy 22
2.2.3 Reinforcement Value 23
# Chapter 3: Literature Review

1. Locus of Control  
2. Academic Achievement  
3. Locus of Control and Academic Achievement  
4. Academic-Achievement Feedback and Locus of Control  
5. Sex, Locus of Control and Academic Achievement  
6. Age or Grade, Locus of Control and Academic Achievement  
7. Socioeconomic Status, Locus of Control and Academic Achievement  
8. Family Size, Locus of Control and Academic Achievement
### Chapter 4: Methods and Procedures

1. **Models for the Present Study**

2. **Definition of Variables**
   - 2.1 Sex
   - 2.2 Grade
   - 2.3 Socioeconomic Status
   - 2.4 Family Size
   - 2.5 Language Background
   - 2.6 Mother's Work
   - 2.7 Locus of Control
   - 2.8 Academic Achievement

3. **Population and Sampling**
   - 3.1 Population
   - 3.2 Sampling

4. **Instruments**
   - 4.1 Family Background Questionnaire
   - 4.2 Reading Comprehension Achievement Test
     - 4.2.1 Test Scoring
     - 4.2.2 Technical Information
     - 4.2.3 Reliability and Validity
   - 4.3 Progressive Achievement Test in Mathematics (PATMATHS)
4.3.1 Scoring 137
4.3.2 Technical Information 137
4.3.3 Reliability and Validity 138
4.4 Nowicki-Strickland Locus of Control Scale 138
4.4.1 Scoring 139
4.4.2 Technical Information 139
4.4.3 Reliability and Validity 140
5. Procedures 142
5.1 Permission 142
5.1.1 New South Wales, Department of School Education, South Coast Region 142
5.1.2 Human Experimentation Ethics Committee in The University of Wollongong 142
5.1.3 Publishers or Authors of Standardized Instruments 143
5.1.4 Principals of the Schools 143
5.1.5 Parents 143
5.2 Pilot Study 144
5.3 Administration of Instruments 144
6. Scoring and Coding 146
6.1 Scoring the Instruments 146
6.2 Coding Information 147
7. Design 148
7.1 Independent and Dependent Variables 148
7.2 Stages of Analysis 149
7.2.1 Stage One 149
7.2.2 Stage Two 150
7.2.3 Stage Three 151
7.2.4 Stage Four 151
7.2.5 Stage Five 153
8. Statistical Procedures 155
8.1 Descriptive Statistics 155
8.2 Inferential Statistics 155

Chapter 5- Results: Academic Achievement and Its Relation to Family Background of the Students

1. Characteristics of the Sample 157
2. Academic Achievement Tests in Relation to Independent Variables 163
2.1 Academic Achievement and Sex 164
2.2 Academic Achievement and Socioeconomic Status 164
2.3 Academic Achievement and Language Background 166
2.4 Academic Achievement and Mother's Work 166
2.5 Relationships between Independent Variables and Academic Achievement 170

Chapter 6- Results: Locus of Control and Its Relation to Family Background and Academic Achievement

1. Locus of Control in Relation to Independent Variables 174
1.1 Locus of Control and Grade of the Student 174
1.2 Locus of Control and Sex 177
1.3 Locus of Control and Socioeconomic Status 177
1.4 Locus of Control and Language Background 179
1.5 Locus of Control and Mother's Work 179
1.6 Relationship of Locus of Control with other Variables of the Study 181
2. Academic Achievement and Its Relation to Locus of Control in Different Sexes 184
3. Comparison of Academic Achievement in Internal-External Locus of Control 185
4. Comparison of Locus of Control between High Achievers and Low Achievers 186
6. Family Size, Locus of Control and Academic Achievement 188
7. Summary of the Above Results 189

Chapter 7- Results: Prediction of Academic Achievement and Locus of Control, and the Effects of Academic-Achievement Feedback on the Locus of Control

1. Prediction of Academic Achievement from Independent Variables of the Study 196
2. Prediction of Locus of Control from Independent Variables of the Study 198
3. Prediction of Academic Achievement from the Independent Variables (Including Locus of Control) 199
4. Prediction of Locus of Control from the Independent Variables (Including Academic Achievement) 200
5. Causal Model of Academic Achievement 202
Chapter 8: Discussion

1. Academic Achievement
   1.1 Sex and Academic Achievement
   1.2 Grade and Academic Achievement
   1.3 Socioeconomic Status and Academic Achievement
   1.4 Language Background and Academic Achievement
   1.5 Mother's Work and Academic Achievement
   1.6 Family Size and Academic Achievement

2. Locus of Control
   2.1 Sex and Locus of Control
   2.2 Grade (Age) and Locus of Control
   2.3 Socioeconomic Status and Locus of Control
   2.4 Language Background and Locus of Control
   2.5 Mother's work and Locus of Control
   2.6 Family Size and Locus of Control

3. Academic Achievement and Locus of Control

4. Academic Achievement and Locus of Control in Relation to Independent Variables

5. Academic Achievement Feedback and Its Effects on Locus of Control

6. Summary of Results and Conclusion
7. Implication of the study

8. Suggestions for Further Studies

8. Limitation of the Present Study

References

Appendix A (permission)

Appendix B (Instruments)

Appendix C (Prediction of mathematics achievement and reading achievement from some demographic, familial and locus of control variables)
List of Tables

Table 4.1: Expectancy-shift model 125

Table 4.2: Selected achievement tests for administration 144

Table 4.3: Control for order effects 145

Table 4.4: Stages and variables in path analysis 153

Table 5.1: Distribution of students according to grade and sex in the sample 157

Table 5.2: Percent distribution of father's occupation in the sample by comparison with ANU 1 scale in 1971 158

Table 5.3: Distribution of father's occupation across students' grade 159

Table 5.4: Distribution of mother's work 160

Table 5.5: Distribution of job status among mothers who work 160

Table 5.6: Distribution of mother's work according to father's occupation 161
Table 5.7: Distribution of English-speaking and non-English-speaking background according to sex of the student 162

Table 5.8: Distribution of family language background according to father's occupation 163

Table 5.9: Mean and standard deviation of scaled scores in achievement tests 165

Table 5.10: Means and standard deviations of scaled scores in achievement tests 165

Table 5.11: Means and standard deviations of mathematics scaled scores in low, middle and high SES 167

Table 5.12: Means and standard deviations of reading-comprehension scaled scores in low, middle and high SES 167

Table 5.13: Means and standard deviations of academic achievement in low, middle and high SES 168

Table 5.14: Means and standard deviations of achievement scaled scores in English-speaking and non-English-speaking background 168
Table 5.15: Means and standard deviations of scaled scores in working and non-working mothers

Table 5.16: Means and standard deviations of scaled scores in job status among working mothers

Table 5.17: Matrix correlation between variables

Table 6.1: Means and standard deviations of LOC in Grade 3-6

Table 6.2: Comparison of LOC means by ANOVA in various grade levels

Table 6.3: Summary of ANOVA (LOC in various grade levels)

Table 6.4: Means and standard deviations of LOC in boys and girls

Table 6.5: Means and standard deviations of LOC at three levels of SES

Table 6.6: Means and standard deviations of LOC in English-speaking and non-English-speaking background

Table 6.7: Means and standard deviations of LOC for children with working mothers and non-working mothers
Table 6.8: Means and standard deviation of LOC in job status among working mothers 181

Table 6.9: Correlations of LOC with the other variables 182

Table 6.10: Pearson product-moment correlations between achievement tests and LOC in Grade 3-6 184

Table 6.11: Pearson product-moment correlations between achievement test and LOC in boys and girls 185

Table 6.12: Comparison of mathematics means in internal and external LOC groups 186

Table 6.13: Comparison of reading comprehension means in internal and external LOC groups 187

Table 6.14: Comparison of academic achievement means in internal and external LOC groups 187

Table 6.15: Comparison of LOC means in high and low achiever groups 187

Table 6.16: Interaction of independent variables and high versus low achievers on LOC 189
Table 7.1: Regression coefficients, and standard errors (in parentheses) of the independent predictors of academic achievement

Table 7.2: Regression coefficients and standard errors (in parentheses) of the independent predictors of the LOC

Table 7.3: Stepwise regression coefficients of the independent predictors (including LOC) of academic achievement

Table 7.4: Stepwise regression coefficients of the independent predictors (including academic achievement) of LOC

Table 7.5: Regression coefficients, standard errors (in parentheses) of the independent predictors (including LOC) of the academic achievement

Table 7.6: Intercorrelation between exogenous variables

Table 7.7: Means of raw scores (mathematics and reading) and LOC1 in feedback and non-feedback groups

Table 7.8: Distribution of socioeconomic status of the students in non-feedback and feedback groups

Table 7.9: Distribution of language background of the students in non-feedback and feedback groups
Table 7.10: Means of raw scores (reading and mathematics) in feedback and non-feedback groups by comparison with approximate means of normative data

Table 7.11: Correlation coefficient between LOC1 and LOC2 in the non-feedback and feedback groups

Table 7.12: Mean of LOCs in feedback and non-feedback groups with type of information in feedback group

Table 7.13: Two way analysis of variance between internal-external LOC1 and type of feedback (independent variables) and LOC2 (dependent variable) in feedback groups

Table 7.14: Comparison of shifts of LOC1 and LOC2 in various feedback groups
List of Figures

Figure 4.1: Prediction of academic achievement from independent variables 121

Figure 4.2: Prediction of LOC from independent variables 122

Figure 4.3: Prediction of academic achievement from independent variables (including LOC) 122

Figure 4.4: Prediction of LOC from independent variables (including academic achievement) 123

Figure 4.5: Causal model of academic achievement 124

Figure 7.1: Causal model of academic achievement (modified) 207
Acknowledgments

The investigator wishes to acknowledge, with deep appreciation, the valuable advice and encouragement of the supervisors of the study, Associate Professor P. de Lacey (principal supervisor) and Professor K. Gannicott (co-supervisor), for their technical and professional advice, personal assistance and commitment to the study.

Thanks are also due to Professor S. Nowicki and to the Australian Council for Educational Research (ACER) for their permission to the investigator for using their instruments in this study. I am also grateful to the ACER for their agreement to reproduce relevant passages of the TORCH and PATHMATHS tests as Appendix B of this thesis.

Also, thanks are due to Dr. T. R. Burke, Assistant Director-General, Department of School Education, South Coast Region, for permission to conduct the field work in Departmental Schools.

The investigator wishes to express appreciation to the Shiraz University for a full scholarship for this study, and also to the Graduate School of Education, University of Wollongong for their financial support, in order to present a part of this study at the AAER Conference in 1994.

The assistance of the principals, teachers, and students of the schools in the Illawarra region, who were involved in this study, is also greatly appreciated.
Abstract

The relationship between academic achievement and locus of control is considered with some key demographic and familial factors that can affect both academic achievement and locus of control. The size of the effects of each of these factors on both academic achievement and locus of control was investigated. The effect of academic-achievement feedback on the locus of control was also considered.

Six primary public schools, in the Illawarra region, New South Wales, were selected by stratified random sampling. In each school, one class in each year (3, 4, 5 and 6) was selected to provide subjects, consisting of 502 students, 235 boys and 267 girls. Four kinds of instruments were administered to the subjects of the study: a demographic and family background questionnaire, a locus-of-control questionnaire (Nowicki-Strickland), a reading-comprehension test (TORCH) and a mathematics test (PATMATHS). In order to investigate the effects of academic-achievement feedback on locus-of-control attitude, two of the six schools, were selected randomly. In one of these schools the general results of students' academic achievement were used as group achievement feedback, while in the second school the group feedback was not administered. Group-achievement feedback appeared to influence locus-of-control attitude subsequently.

The results of the study showed that the girls' academic achievement was significantly higher than the boys' academic achievement. No significant difference was found between the locus-of-control means of boys and girls. The academic achievement significantly increased with SES from low to high levels. Also, the internal locus-of-control attitude increased with SES from low to high levels. The academic achievement of the English-speaking students was significantly higher than the academic achievement of the non-English-speaking students. Also, the non-English-speaking students had a more external locus-of-control attitude than English-speaking students. Also, the results showed that the locus of control of students receiving encouraging feedback for both tasks (reading comprehension and mathematics) shifted towards internality, while the locus of control of other groups who received encouraging-discouraging or discouraging-discouraging feedback, did not change significantly.
Locus of control, socioeconomic status, grade, sex, and language background had significant direct effects in determining academic achievement, while grade, socioeconomic status and language background had significant direct effects in determining locus of control. Neither mother's work patterns nor family size had significant effects on academic achievement or locus of control.

Although the results showed that locus of control is the best predictor of academic achievement, it cannot be concluded that locus of control is the cause of academic achievement.

Some implications are indicated for educational policy.