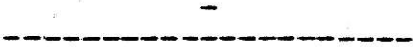


A COMPARISON OF LECTURE AND INTERACTIVE TRAINING DESIGNED  
TO REDUCE THE INFLUENCE OF INTERFERING MATERIALS:  
AN APPLICATION TO SOIL SCIENCE

by

GARY J. GAETH

B.S., Northern Michigan University, 1974  
M.S., University of Wyoming, 1977



A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER'S OF SCIENCE

Department of Psychology

KANSAS STATE UNIVERSITY  
Manhattan, Kansas  
1980

Approved by:

  
Major Professor

Spec. Coll.  
LID  
2668  
.T4  
1980  
G33  
c.2

## ACKNOWLEDGEMENTS

First, I would like to thank the thirteen soil judges who were willing to give five hours of their valuable time to this project. I would also like to thank their coach, Dr. C. W. Bidwell, soil scientist, for his invaluable guidance from the conception to the completion of this project. In this case the old cliché is true; without his help this project would not have been possible. During several frustrating times committee members, Dr. Frank (Skip) Saal, and Dr. Richard J. Harris, provided encouragement and critical comments. I would also like to thank my advisor, Dr. James Shanteau, for his useful comments, suggestions, and his faith in my abilities. Finally, I dedicate this manuscript to my father, John H. Gaeth.

## Table of Contents

	Page
Acknowledgements.....	ii
List of Figures.....	v
List of Tables.....	vi
Introduction.....	1
Review of the Literature.....	2
Outcome Versus Process Feedback Training.....	4
Outcome Feedback Training.....	5
Process Feedback Training.....	10
Impact of Nondiagnostic Information.....	12
Soil Judgment.....	19
Soil Texture-Classification Assessment.....	20
Accuracy of Soil Texture Assessment.....	24
Interfering Materials.....	26
Purpose and Rationale of Study.....	29
Method.....	32
Participants and Stimuli.....	33
Participants.....	33
Soil Stimuli.....	34
Soil Preparation.....	38
Procedure.....	41
General Procedure.....	41
General Evaluation Procedure.....	41
General Training Procedure.....	44
Specific Procedures.....	45
Pre-Evaluation.....	45
Lecture Training.....	46
Mid-Evaluation.....	53
Interactive Training.....	53
Final-Evaluation.....	56
Feedback.....	57
Results.....	58
Tests of Original Hypotheses.....	59
Raw-Score Results.....	59
Effect of Soils.....	60
Influence of Interfering Materials.....	60
Overall Impact of Training Procedures.....	62
Confidence and Time Measures.....	63
Difference-Score Analyses.....	63
Overall Impact of Training on % Estimates.....	66
Overall Impact of Training on Texture Judgments.....	69
Individual Judge Analyses.....	70
Graphical Consideration of Difference-Score Results....	70
Impact of Lecture Training.....	71
Impact of Interactive Training.....	75
Impact of both Lecture and Interactive Training.....	75
Miscellaneous Individual Judge Results.....	75
Tests of Coverage to a Standard.....	75

Performance.....	80
Effect of Soils.....	80
Influence of Interfering Materials.....	81
Overall Influence of Training on % Estimates.....	82
Overall Impact of Training on Texture Judgments.....	82
Comparison of the two Training Programs.....	85
Validity.....	85
Overall Impact of Training on % Estimates.....	86
Discussion.....	87
Summary of Results.....	87
Limitations.....	88
Psychological Implications .....	89
Were the Materials Interfering?.....	89
Did the Training Have any Impact?.....	94
Did the Training Improve Performance?.....	95
Did the Impact of the Training Programs Differ?.....	97
Implications for Applied Judgments.....	99
Implications for Soil Judges.....	100
General Comments and Directions for Future Research.....	101
Conclusions.....	104
Reference Notes.....	106
References.....	107
Footnotes.....	115
Appendix.....	117

## List of Figures

Figure	Page
1. USDA soil textural-classification.....	23
2. Textural classification of evaluation soils.....	40
3. Evidence used in lecture training.....	49
4. Seven suggestions used in the interactive training.....	52
5. Change in difference-scores over the evaluations.....	68
6. Two judges showing impact of lecture training.....	74
7. Two judges showing impact of interactive training.....	77
8. Two judges, one showing impact of both and one neither..	79
9. Changes in performance over the evaluation sessions.....	84
10. Influence of interfering materials on performance.....	93

## List of Tables

Table	Page
1. Survey of kansas soil scientists.....	28
2. Contents of evaluation, training and filler soils.....	35
3. Number of judges showing one of four forms of training...	72