National Library
of Canada

Acquisitions and
Bibliographic Services Branch

395 Wellington Street
Ottawa, Ontario
K1A 0N4

Bibliothèque nationale
du Canada

Direction des acquisitions et
des services bibliographiques

395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file Votre référence

Our file Notre référence

NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30, and subsequent amendments.

AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30, et ses amendements subséquents.

Canada

University of Alberta

QUALITY IN THE CLASSROOM: CLASSROOM ASSESSMENT TECHNIQUES

BY

ELAINE SOETAERT ©

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Education

in

Adult and Higher Education

Department of Educational Policy Studies

Edmonton, Alberta

Spring 1996

National Library
of Canada

Acquisitions and
Bibliographic Services Branch

395 Wellington Street
Ottawa, Ontario
K1A 0N4

Bibliothèque nationale
du Canada

Direction des acquisitions et
des services bibliographiques

395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file Votre référence

Our file Notre référence

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées.

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-612-10795-7

Canada

University of Alberta

LIBRARY RELEASE FORM

Name of Author: **Elaine Soetaert**

Title of Thesis: **Quality in the Classroom: Classroom Assessment Techniques**

Degree: **Master of Education**

Year this Degree Granted: **1996**

Permission is hereby granted to the University of Alberta Library to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly, or scientific research purposes only.

The author reserves all other publication and other rights in association with the copyright in the thesis, and except as hereinbefore provided, neither the thesis nor any substantial portion thereof may be printed nor otherwise reproduced in any material form whatever without the author's prior written permission.

Elaine Soetaert

R. R. #1, St. Albert
Alberta
Canada
T8N 1M8

April 12, 1996

University of Alberta

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled **Quality in the Classroom: Classroom Assessment Techniques** submitted by **Elaine Soetaert** in partial fulfillment of the requirements for the degree of **Master of Education** in **Adult and Higher Education**.

AK Deane

Professor Art Deane

Dr. David Collett

Dr. Tracey Derwing

April 9, 1996

DEDICATION

I dedicate this thesis to my family: to Martin, for your support through the long struggle that I had with this thesis; to my children, Breanne and Katrina - I know the many evenings you spent alone while mother was in class. I hope that my involvement with this thesis modeled for you the value of education, independence and hard work.

ABSTRACT

This research explored faculty and student perceptions of the effectiveness of the Cross/Angelo Classroom Assessment Techniques (CATs) as a tool for improving the quality of teaching and learning in a postsecondary technical institute and explored perceptions of classroom environment when Classroom Assessment is being applied.

100% of faculty supported the use of CATs as a tool for improving the quality of the teaching and learning experience. Students felt that Classroom Assessment had improved the quality of their learning experience and that CATs is an appropriate quality improvement tool.

This study found no difference in classroom environment between participant classes and the control group. Classroom environment correlated significantly with CATs. Students feel slightly more involved in their learning when exposed to CATs. Females scored significantly higher than males ($p<0.05$) on the scales of Student Cohesiveness, Task Orientation, and Innovation.

Recommendations for encouraging faculty to apply CATs are included.

ACKNOWLEDGMENTS

I would like to thank the faculty in the Department of Educational Policy Studies who have enriched my learning. I thank Dave Collett for his dry sense of humor that helped me to keep my feet on the ground and keep my enthusiasm tightly reined in so as to embark on a manageable thesis. I thank Tracey Derwing for modeling what a caring professional behaves like in the classroom. Most especially, I thank my advisor, Art Deane for his remarkable ability to impact me, not only in terms of what I know, but more importantly, in terms of how I think. More than once, he opened points of view for me that left me speechless and gave me food for thought for hours. I thank him for his advice and coaching.

Warmest thanks to all of the technical institute faculty who provided guidance or participated in this project, especially: Shirley Auvigne, Rick Cameron, Linda Crawford, Jocelyn Forseille, Peter Friesen, Shelley Gallagher, Denis Guenette, Dorothy Haines, Ray Haswell, Anne Jacobs, Mary Lou Ng, Kevin Shufflebotham, Joan Skoye, Gary Sorensen, and Randy Zutter. Thank you to Bill Isley for his consultation and guidance on my topic choice and research design and to Dominic Willott and Jeff Donnelly for providing demographic information. Thank you to Bill Spaans and Lee Bradshaw for allowing me to conduct my research at the cooperating institution. I appreciate the hours that John Mazur and Carolyn Wentzel spent with me analyzing data with patience and kindness.

I recognize the impact that Susan Obler had on this study. Not only did she train the faculty for the study, but she also urged me to share my findings with the world.

Without her words of encouragement I would never have sought the opportunity to speak at the Second International Conference on Classroom Assessment.

To Mimi Steadman - thank you for your support that came from a long distance, but always timely and appropriately. It is scholars like Mimi that make graduate work a joy.

I thank John Miller and the Professional Development Committee, and Jim Berg and the Executive Committee for their support to attend the Second International Conference on Classroom Assessment. I publicly acknowledge the travel assistance provided by the J. Gordin Kaplan Graduate Student Award, Faculty of Graduate Studies and Research and the Vice-President (Research) of the University of Alberta.

It is said that behind a very good man, there is a good woman. Behind this good woman was another good woman. Thank you Margaret [illegible] for your cheerful support.

I cannot find words big enough or warm enough to thank my family. There were many times when mom was just not there for everyone. Thank you for your patience, Breanne and Katrina. Martin, you plant crops and are proud of what you produce. This thesis will never feed anyone, but it has the same meaning for me as that Canola does for you. Thank you for giving me the time to grow it.

PREFACE

Assessment is an ongoing process aimed at understanding and improving student learning. It involves making our expectations explicit and public; setting appropriate criteria and high standards for learning quality; systematically gathering, analyzing, and interpreting evidence to determine how well performance matches those expectations and standards; and using the resulting information to document, explain, and improve performance. When it is embedded effectively within larger institutional systems, assessment can help us focus our collective attention, examine our assumptions, and create a shared academic culture dedicated to assuring and improving the quality of higher education.

(Angelo, 1995, p. 7).

TABLE OF CONTENTS

Chapter *Page*

CHAPTER I - OVERVIEW OF THE PROBLEM *1*

Introduction 1

Problem Statement and Research Questions 4

Definition of Terms 5

Delimitations 7

Limitations 8

Assumptions 8

Statement of Significance 9

Chapter Summary and Organization of the Thesis 11

CHAPTER II - REVIEW OF THE RELATED LITERATURE *12*

Introduction 12

Total Quality Management - An Overview 13

Total Quality Management and its Application to Higher Education 16

Total Quality Management and its Application to the Teaching and Learning Process 20

Classroom Assessment as a Continuous Quality Improvement Tool 29

Classroom Environment and Its Impact on the Teaching and Learning Process. 34

Classroom Environment as a Measurement of Quality 37

Research Investigating the Cross/Angelo Model of Classroom Assessment 38

"Specific Practical" Research 38

"General Theoretical" Research 41

Concluding Remarks 49

CHAPTER III - METHODOLOGY *51*

Introduction 51

Gaining Access to the Institution 51

Instruments and Techniques 52

The CUCEI Instrument 54

Data Entry 55

Data Preparation 55

The Sample 56

Training of Participants 57

Piloting the Instruments 58

Ethical Concerns and Considerations 59

Conclusion 61

CHAPTER IV - PRESENTATION OF RESULTS *62*

Introduction 62

Faculty Demographics 63

Demographic Characteristics of the Faculty Participant Group 63

Demographic Characteristics of the Faculty Control Group 65

Demographic Characteristics of the Cooperating Institution's Faculty 66

Student Demographics 70

Demographic Characteristics of the Student Participant Group 70

Demographic Characteristics of the Student Control Group 70

Demographic Characteristics of the Cooperating Institution's Student Body 71

Classroom Environment 73

The Scales and Variables of the CUCEI 73

Descriptive Statistics 77

Correlational Statistics 83

T-tests 87

The Office Administration Program 90

CATs, Classroom Environment, Gender and the Office Administration Program 93

Summary of College and University Classroom Environment Inventory Findings 98

Classroom Assessment Techniques Used by Faculty 100

Frequently Used and Most Helpful CATs 102

Difficulties Encountered In the Use of CATs 103

Factors Identified To Support the Effective use of CATs 106

Instructors Would Recommend the Use of CATs to a Colleague 107

Benefits of Using CATs Identified by Instructors 108

Drawbacks in the Use of CATs 109

CATs and the Quality of the Teaching and Learning Experience 110

CATs as a Tool for Improving Quality 112

Faculty Perception of CATs as a Continuous Quality Improvement (CQI) Tool as Found by the CUCEI 113

Student Perception of CATs as Found by the CUCEI 115

Conclusion 119

CHAPTER V - DISCUSSION AND RECOMMENDATIONS *120*

Introduction 120

Classroom Assessment Techniques and Classroom Environment 120

Classroom Assessment Techniques as a Continuous Quality Improvement Tool 123

Problems for Further Research 128

Recommendations 129

- Student Feedback on Instruction and Classroom Assessment 129
- Support for Applying Innovations to the Classroom 130
- Promoting Classroom Assessment Practice to Improve *Student Learning* 135
- Role of Administrative Leadership and Support 138

What Would An Assessment-Oriented Institution Look Like? 140

A Perspective for the Future 141

BIBLIOGRAPHY *143*

APPENDIX *157*

A. Consent Form and Information Documents for Participants 157

B. Modified College and University Classroom Environment Inventory 166

C. Faculty Participant Questionnaire 183

D. Permission to do Research at Cooperating Institution 188

E. Classroom Assessment Techniques Training Materials 190

F. Results of Participant Faculty Questionnaire 222

G. Advertisement for Control Faculty Participants 231

H. Permission to Use the College and University Classroom Environment Inventory 233

I. Copyright Permissions 235

J. Items Added to the College and University Classroom Environment Inventory 239

LIST OF TABLES

Table 1 - Congruence of TQM and ALT ____ *25*

Table 2 - Changes Made to the Original Items of the CUCEI ____ *59*

Table 3 - Demographic Characteristics of Faculty Participant Group ____ *64*

Table 3a - Demographic Characteristics of Faculty Participant Group (n=10) ____ *65*

Table 4 - Demographic Characteristics of Faculty Control Group ____ *66*

Table 5 - Demographic Characteristics of Cooperating Institution's Faculty - 1995 - 1996 Academic Year ____ *67*

Table 6 - Demographics of Student Participant Group ____ *70*

Table 7 - Demographic Characteristics of the Student Control Group ____ *71*

Table 8 - Demographic Characteristics of the Cooperating Institution's Student Body - 1994 - 1995 Academic Year ____ *72*

Table 9 - Descriptive Information for Each Scale in Original CUCEI ____ *76*

Table 10 - Descriptive Statistics of the CUCEI - Student Participant Group (n=230) ____ *78*

Table 11 - Descriptive Statistics of the CUCEI - Faculty Participant Group (n=9)* ____ *79*

Table 12 - Descriptive Statistics of the CUCEI - Student Control Group (n=82) ____ *81*

Table 13 - Descriptive Statistics of the CUCEI - Faculty Control Group (n=4) ____ *82*

Table 14 - Descriptive Statistics of the Classroom Environment Variable for All Groups ______ 83

Table 15 - Intercorrelations Among Classroom Environment Scales and the Classroom Assessment Technique Scale ______ 84

Table 16 - Intercorrelations Among Classroom Environment Scales ______ 86

Table 17 - Correlations Between CATs and Classroom Environment ______ 87

Table 18 - T-tests on Classroom Environment Scales - Student Participant Vs. Student Control Groups ______ 88

Table 19 - T-tests on Classroom Environment Variables - All Students Vs. All Faculty ______ 89

Table 20 - T-tests on Classroom Environment Variables - Office Administration Program Participants Vs. All Other Participants ______ 91

Table 21 - Correlation of CATs and Classroom Environment - Office Administration Program Vs. Other Participants ______ 92

Table 22 - T-test on Classroom Environment - Office Administration Program Vs. Other Participants ______ 93

Table 23 - T-tests on Classroom Environment Scales for Gender - Control Group (n=82) ______ 94

Table 24 - Correlations Between CATs and Classroom Environment -Student Participant Group - Male Vs. Female ______ 95

Table 25 - T-tests on Classroom Environment Scales for Gender - All Student Participants (n=229) ______ 96

Table 26 - T-tests on Classroom Environment Scales for Gender - Non Office Administration Student Participants (n=142) ______ 97

Table 27 - A Comparison of T-test Significance By Gender _______________ *98*

Table 28 - Classroom Assessment Techniques Used By Participant Faculty (n=10) _ *101*

Table 29 - Factors Necessary and Helpful to Support CATs _______________ *106*

Table 30 - Faculty CUCEI Responses Regarding CATs _______________ *114*

Table 31 - Student CUCEI Responses Regarding CATs (n=230) _______________ *116*

Table 32 - Non-Office Administration Student CUCEI Responses Regarding CATs (n=143) _______________ *118*

Table 33 - CATs is Congruent with TQM/CQI _______________ *125*

LIST OF FIGURES

Figure 1 - The Shewhart (PDCA) Cycle ______ 14

Figure 2 - Implementing TQM - System Model ______ 16

Figure 3 - Changing the Culture of an Enterprise ______ 24

CHAPTER I - OVERVIEW OF THE PROBLEM

Higher education is under ever increasing pressure to serve more students, provide high-quality instruction, and produce highly skilled graduates, all with less money. Following in the footsteps of business, higher education is beginning to explore Total Quality Management and the analogous concept of Continuous Quality Improvement as a way of addressing the issue of the demand for high quality instruction during a time of economic restraint (Bogue & Saunders, 1992). Demands for accountability have forced institutions to look at ways "to substantively improve the quality of student learning" (Angelo, 1990b, p. 72). The Classroom Assessment Techniques (CATs) developed by Thomas Angelo and K. Patricia Cross are designed to provide feedback to an instructor about what is, and what is not, being learned in the classroom. For that reason, the techniques allow the instructor to gather "profound knowledge" (Deming, 1986) about which processes are having a positive result on learning and which need improvement. "The purpose of classroom research is to improve the quality of learning in college classrooms by improving the effectiveness of teaching" (Cross & Angelo, 1989). Classroom Assessment Techniques are designed to allow an instructor to improve the teaching and learning process in the classroom.

Introduction

In response to the economic realities of the 90s, postsecondary institutions are exploring Total Quality Management (TQM) and Continuous Quality Improvement

(CQI) initiatives in an attempt to "do more with less" (Bateman, 1993c; Cornesky 1993; Cornesky & Lazarus, 1995; Cornesky, McCool, Byrnes & Weber, 1992; Cornesky et al. 1992; Cross, 1994; Northern Alberta Institute of Technology, 1994; Roberts 1993; Schauerman, 1993). Dr. W. Edwards Deming is credited as being the seminal thinker in Total Quality Management. His work with the Japanese in the years following World War II allowed Deming to crystallize his thinking about management based on data rather than on unsupported judgments. Deming termed this "profound knowledge." In his 1986 book Out of the Crisis, Deming articulated his famous "Fourteen Points of Management." Philip B. Crosby (1979) has a fourteen step plan for improving quality that displays Crosby's faith in the innate desire of employees to do their jobs well. Robert Cornesky (1993) and others (Cornesky et al., 1992a & b, Cornesky & Lazarus, 1995) have been instrumental in writing about the application of TQM concepts to higher education.

Learning management is one of the processes that is critical to any postsecondary institution. There are four phases of learning management: design of the learning process, delivery, feedback, and revision of the learning process (Spaans, 1994) Recognizing the skill, knowledge, commitment and motivation of faculty, postsecondary institutions are challenged to find ways to encourage faculty to increase the quality of the learning process at all four stages (Angelo, 1990a, 1990b, 1994; Cornesky et al. 1992; Cornesky & Lazarus, 1995; Kennedy, 1994; Lund & Brown, 1993; Stetson, 1993). El Camino College in California reports that "the alliance of the Classroom Assessment Project, pioneered by Drs. Patricia Cross and Thomas Angelo, with the philosophy of continuous quality improvement... has finally provided a focus and a forum for the application of TQM principles and practices directly in the classroom" (Schauerman & Peachy, 1993, p. 8). Prior to the recent attention to quality, Sullivan (1985) and Borg (1963) recognized the role of "practical" or "action" research in the improvement of the teaching and learning process. This kind of research is contrasted to the classic definition of research that is scientific in nature with the view of generalizability. Practical or action research is "systematic gathering of data in an attempt to monitor and to improve the user's own teaching performance" (Sullivan, 1985, p. 75-76). The Classroom Assessment Techniques (CATs) as devised by Thomas Angelo and K. Patricia Cross provide a structured methodology for classroom research and/or assessment.

"Classroom Assessment, as developed by Drs. K. Patricia Cross and Thomas A. Angelo, is a procedure which consists of doing small-scale assessments continuously (and anonymously) in college classrooms by discipline based teachers to determine what students are learning in that class" (Catlin & Kalina, 1993, p. 15).

> The "One-Minute Paper" is a good example of a simple quick (Classroom Assessment Technique) CAT...(it) asks students to respond anonymously to the following two questions at the end of the class period: (1) What is the most important thing you learned in class today? and (2) What question remains uppermost in your mind? (Angelo, 1991a, p. 9).

The purpose of gathering this feedback is to adjust instruction to achieve high quality learning (Cross, 1987, 1990, 1994; Schratz, 1990). This process is one of the basic tools of quality management programs: plan, do, study, adjust. Since the first publication of Classroom Assessment Techniques: A Handbook for Faculty in 1988, the use of the techniques has been growing and receiving praise from faculty using the techniques (Angelo, 1991a). Although very little work has been done in Canada to study the effects of CATs in the classroom, various qualitative studies have been done in the United States to determine the effect of the use of Classroom Assessment Techniques (Angelo, 1991a,b,c; Berry, 1992; Kelly, 1991, 1992, 1993). In 1992, Anita Catlin and Michelle Kalina performed a study that attempted to quantify the effects of the application of CATs on student satisfaction and positive outcomes. Their results supported the previously collected qualitative and anecdotal results of the positive effects of the use of CATs. The results of their study showed a positive effect on the retention of students, their grades and grade distribution, and the satisfaction expressed by faculty and students about the classroom environment.

Classroom environment was an important variable measured by Catlin and Kalina. "One consistent outcome of classroom environment studies is the relationship between students' sense of cohesiveness and retention and achievement in the classroom" (Catlin & Kalina, 1993, p. 21). Thus it would seem that improved/positive classroom environment is a desirable outcome of the application of Classroom Assessment since it has a direct link to retention of students in class and their achievement in that class. Indeed, for the purpose of this study, classroom environment is assumed to be an indicator of the quality of the learning experience.

Problem Statement and Research Questions

This research explores faculty and student perceptions of the effectiveness of the Cross/Angelo Classroom Assessment Techniques (CATs) as a method of improving the quality of the teaching and learning processes in a postsecondary technical institute. In addition, this research explores faculty and student perceptions of classroom environment when CATs are being applied. To guide the study, the following research questions were addressed:

1. What are faculty perceptions of the appropriateness of CATs as a method of improving the quality of the teaching and learning process?

2. What are student perceptions of the appropriateness of CATs as a method of improving the quality of the teaching and learning process?

3. What are faculty and student perceptions of the classroom environment as measured by the College and University Classroom Environment Inventory

(CUCEI) in a classroom where Classroom Assessment Techniques are being used?

Definition of Terms

Classroom Assessment

> The process of using informal feedback techniques in which data is systematically gathered from students frequently and anonymously about their understanding of course content and reactions to instruction. Classroom Assessment could also include questions about student attitudes and background which may contribute to or impede their learning (Catlin & Kalina, 1993, p. 8).

Classroom Assessment as a proper name includes the entire process as described by Angelo & Cross (1993) including the reporting of the analyzed data to students. Classroom assessment that is not a proper name could refer to any process by which an instructor gathers data about teaching and learning, but does not necessarily include the analysis of the data and the reporting of that data to students.

CATs (Classroom Assessment Techniques)

The small, continuous, and anonymous assessment exercises done in the classroom as described by Angelo and Cross. CATs in the plural form refers to the techniques as a collection of individual techniques.

CAT (Classroom Assessment Technique)

This term refers to one specific technique rather than the set of techniques

Summative Assessment

Summative assessment is usually done at the end of a section of instruction for the purpose of grading student achievement. This term is synonymous with evaluation.

Formative Assessment

Formative assessment is done during the teaching and learning process and gathers information about what the students know and are confused about, or about the process of instruction. Formative assessment is done for the purpose of altering instruction to provide the desired learning outcomes before the summative assessment takes place.

Classroom Research

Classroom Research is the use of Classroom Assessment Techniques to increase the instructor's knowledge and understanding of the teaching and learning process. "It differs from Classroom Assessment in that it usually addresses a hypothesis or research question" (Catlin & Kalina, 1993, p.8). Classroom research that is not a proper name could refer to any process by which an instructor does research in the classroom - not necessarily using Classroom Assessment Techniques.

Feedback

The data gathered from students as a result of the application of Classroom Assessment which provides helpful information to the instructor.

CUCEI

The College and University Classroom Environment Instrument developed by Drs. David Treagust and Barry Fraser at the Curtin Institute of Technology in Western Australia.

Classroom Environment

Shared perceptions of a class of participants of the psychosocial characteristics of the learning environment.

Perception

A person's response to a stimulus. Perception includes the person's interpretation of the meaning of the stimulus in the light of their experience. Perception of an event can vary radically from person to person because of differences in interpretation of the intention, meaning and impact of the event.

Profound Knowledge

Knowledge gained through effective and appropriate gathering and analysis of data. This term is credited to Dr. W. Edwards Deming.

Delimitations

The experimentally accessible population for this study was the faculty and students of a technical postsecondary institution in Alberta, Canada. The sample for this study consisted of ten instructors. For each of the instructors, one class was sampled with the exception of one instructor who had three classes sampled. This instructor had three sections of the same course and was applying CATs in all three of the classes for consistency. This situation allowed a unique opportunity to include more students in the sample. In addition, there was a control group which consisted of four instructors, one from each division, and one class of each of the instructors. Thus, the total number of instructors involved in the study was fourteen. The total number of classes of students involved in the study was sixteen. The sample instructors consisted of faculty who volunteered for participation in the study and were trained in Classroom Assessment Techniques. The control group of instructors were volunteers solicited by the researcher.

Limitations

This research will be limited by several factors:

1. The ability of the participant faculty to continuously, reliably, and appropriately apply the Classroom Assessment Techniques.
2. The ability of the researcher to manage potential attrition of participants in the study.
3. The possibility of the distortion of results due to the Hawthorne Effect and/or the Pygmalion Effect.
4. The amount of time and energy the researcher and participants have to devote to the study.

Assumptions

The following assumptions underpinned the design and execution of the study.

1. It is assumed that positive classroom environment is desirable and a characteristic of a quality teaching and learning environment.

2. It is assumed that faculty and student participants in the study will respond to questions and surveys honestly and thoughtfully.

3. It is assumed that instructors will abide by the research protocol.

4. It is assumed that instructors will be correctly trained.

5. It is assumed that instructors will apply CATs continuously, reliably and appropriately.

Statement of Significance

This study compared the classroom environments of instructors after implementation of the Classroom Assessment Techniques with classes of instructors who were not trained in Classroom Assessment and were not applying CATs in the classroom. This is a "posttest-only control-group design" (Borg & Gall, 1989, p. 680).

This study is significant because it was done in a Canadian technical institute. This expands the knowledge about the effect of the use of CATs to a previously unexplored context.

This study provided data about the faculty perceptions of the appropriateness and effectiveness of CATs as a quality improvement tool in this educational environment. The institution in which the study took place is one that has embarked on a formal journey to embrace the concepts, tools, and management framework of Continuous Quality Improvement (CQI). This study was an exploration of the suitability of the use of the Cross/Angelo assessment techniques as tools for improving the quality of the teaching and learning experience in a formal institution of higher learning that is in its infancy in adopting and applying the quality principles. Finding appropriate ways to incorporate CQI and/or TQM (Total Quality Management) into the classroom is a challenge that educational institutions are presently attempting to address.

> Nowhere are the positive outcomes of TQM more needed than in the instructional delivery system - that is, TQM in the classroom. But transferring the TQM principles, concepts, and experience from industry to the classroom is not quite so straightforward and will require dramatic changes in the instructional process; the roles of students, faculty, and nonfaculty personnel; and evaluation processes. (Helms & Key, 1994, p. 97)

The research is of value to the cooperating institution as it explored the process of improving quality in the classroom. It provided data to the institution about the effect of the Cross/Angelo classroom assessment model on classroom environment in this specific context. Perceptions of faculty of the suitability of the use of CATs to this specific context was explored. Data regarding students' responses to Classroom Assessment were gathered and organized to demonstrate the "student as customer" (Tribus, 1994a) response to the use of CATs. This study provided data for decision-making around continued training of faculty in, and implementation strategies of, Classroom Assessment. It provided data to Program Heads, Associate Deans and Deans as they continue to seek new and more effective ways to facilitate the teaching and learning process in their divisions. In addition, past research with CATs indicates that faculty often find the application of CATs to be a factor in the revitalization of their teaching process (Kelly, 1991, 1992, 1993). Individual faculty involved in the study gained information regarding their students' perceptions of classroom environment. Individual faculty had the opportunity to learn more about how their students learn and thus had the opportunity to adjust their instructional methodology to improve the teaching and learning process. In this institution, in a previous study, (Kennedy, 1994) focus groups were used to gather information about instructor behaviors that lead to a quality learning environment. CATs could provide a tool through which instructors could receive feedback from their students to aid the instructors in their attempts to improve the quality of the learning environment in response to the Kennedy study. This study is of both theoretical and practical significance.

Chapter Summary and Organization of the Thesis

This chapter has set the stage for and introduced the research problem, identified limitations, delimitations, definitions, and assumptions. The chapter outlined the significance of the study, and provides an overview of the remainder of the thesis.

Chapter two will review the literature related to the study. Chapter three will provide a description of the research methodology employed in the study. Chapter four will report the data collected and report themes identified from the analysis. Chapter five will contain a discussion of significant findings and the implications of those findings. Recommendations will be outlined and problems identified for further research.

CHAPTER II - REVIEW OF THE RELATED LITERATURE

Introduction

This research project explores Classroom Assessment in practice from the perspectives of instructors and students as a method of improving the quality of the teaching and learning process. This review is structured in this way to support the questions examined in this research. The review of the literature is divided into a number of major sections. The first section explores the history of Total Quality Management (TQM). Next is an overview of the application of CQI (Continuous Quality Improvement) and TQM to higher education. The third section focuses on the application of CQI and TQM to the teaching and learning process. The fourth section explores the literature and research focused on classroom assessment as a CQI tool followed by a review of the literature that relates to classroom environment and its impact on the teaching and learning process. The next section looks at classroom environment as an indicator of a quality learning environment. A review of the research directly related to Classroom Assessment Techniques follows, both specific practical research and general theoretical research. The final section consists of concluding remarks.

Total Quality Management - An Overview

To begin to understand Total Quality Management (TQM) and its impact on higher education, we need to understand the beginnings of the TQM movement. In the early 1900's, the attention of management was brought to bear on the efficiencies of production. Frederick Taylor is credited with the popularization of "Scientific Management." He was committed to the improvement of the systems of work to maximize production and output. "His vision included a super-efficient assembly line as part of a management system of operations" (Lewis & Smith, 1994, p. 41). He is credited with the focus of experts on the efficiency of movement with the goal of speeding up work. He, much to his chagrin, ignored the human side of work and focused on the task. "Only after painful experiences did he (Taylor) realize that the human factor, the social system and the mental attitude of people in both management and labor had to be adjusted and changed completely before greater productivity could result" (Lewis & Smith, 1994, p. 44). Taylor ceased his experiments in scientific management in 1912, three years before his death, when "he found that human motivation, not just engineered improvements, could alone increase output" (Lewis & Smith, 1994, p. 44).

Walter Shewhart, an engineer, is viewed as the founding father of the Total Quality Management movement. He focused on a systems approach to production with a notion of zero defects. Historically, specification of a product, its production and inspection was viewed as a linear relationship - that is, each process was performed sequentially, in a straight line manner. Shewhart rethought that view and linked the three processes into a circle to reinforce the fact that specification and production are linked - "it is important to know how well the tolerance limits are being satisfied by the existing process and what improvements are necessary...In the Shewhart wheel, the successful completion of each interlocking component led to a cycle of continuous improvement"

(Lewis & Smith, 1994, p. 48). Thus the concepts of Continuous Quality Improvement (CQI) and PDCA (Plan, Do, Check, Act) were born.

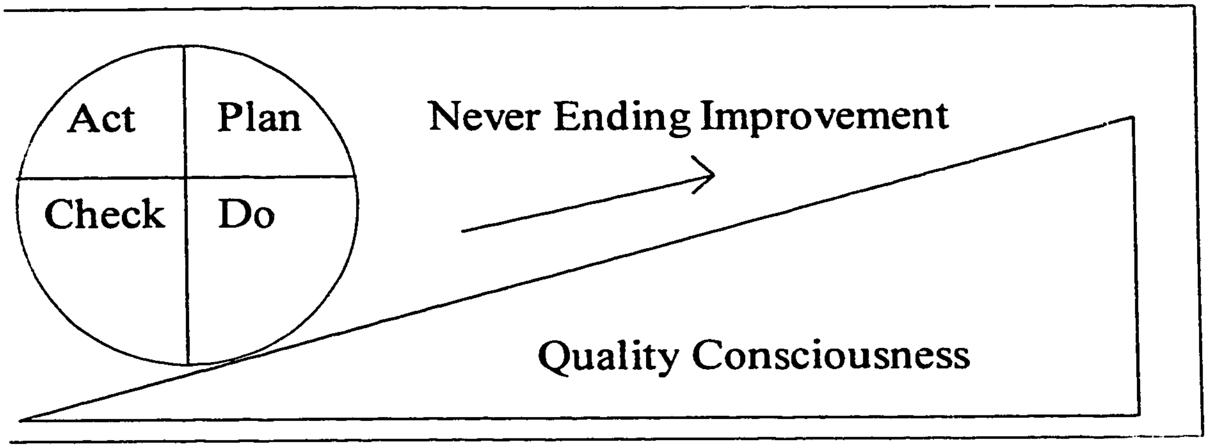

Figure 1 - The Shewhart (PDCA) Cycle

(Seymour D., 1992 , p. 77)

Dr. W. Edwards Deming, is considered to be one of the seminal thinkers of the Total Quality movement. He received his Ph.D. in physics at Yale university in 1927. While he was a graduate student, he was employed doing part-time summer work at the Western Electric Hawthorne plant in Chicago. It was here that he was exposed to sweatshop conditions of the workers and the uncaring and arrogant attitude of management. Here is where he solidified his view that the division of labour between the workers and management was the villain in the production of the sweatshop. The worker was not responsible for the quality of his work - the management was. A worker that produced too many "inferior" products would be fired. This mechanistic view of the worker as only a "part" in the system of production - and a highly unreliable part at that - ignored the human elements of motivation and respect (Lewis & Smith, 1994). Deming and his colleague Joseph Juran, another famous quality "guru," rebelled against the concept of scientific management.

After World War II, Japan set about rebuilding its devastated economy. American and Allied experts were brought in to assist the country's scientists in the rebuilding process. Although Shewhart was asked to come to Japan, he was unable and Deming was solicited to direct the transformation of Japanese industry through the use of statistical process control. The results are self-evident. Japan became a world leader in the production of high quality goods (Walton, 1990).

By the 1970's, America began to feel the competition with the Japanese. Deming returned to the United States and began to teach his Fourteen Points which address the management system and social system (culture) of organizations. He. along with other quality gurus (Juran, Crosby and others), began to educate North America in Total Quality Management.

Joseph Juran was a colleague of Shewhart. His contribution was largely in demonstrating that the entire production chain, from new product design to marketing, had an effect on quality (Seymour, 1992). He was also the first to explore the "costs of quality;" that is, the monetary expense of introducing and using quality concepts (Juran, 1964, 1988).

Philip Crosby is a charismatic and popular speaker for the quality movement. His experience as a corporate vice president for almost fifteen years gave him a base from which to broaden the scope of the quality movement. He encourages managers to "take practical, non-technical steps to improve quality" (Seymour, 1993, p. 10).

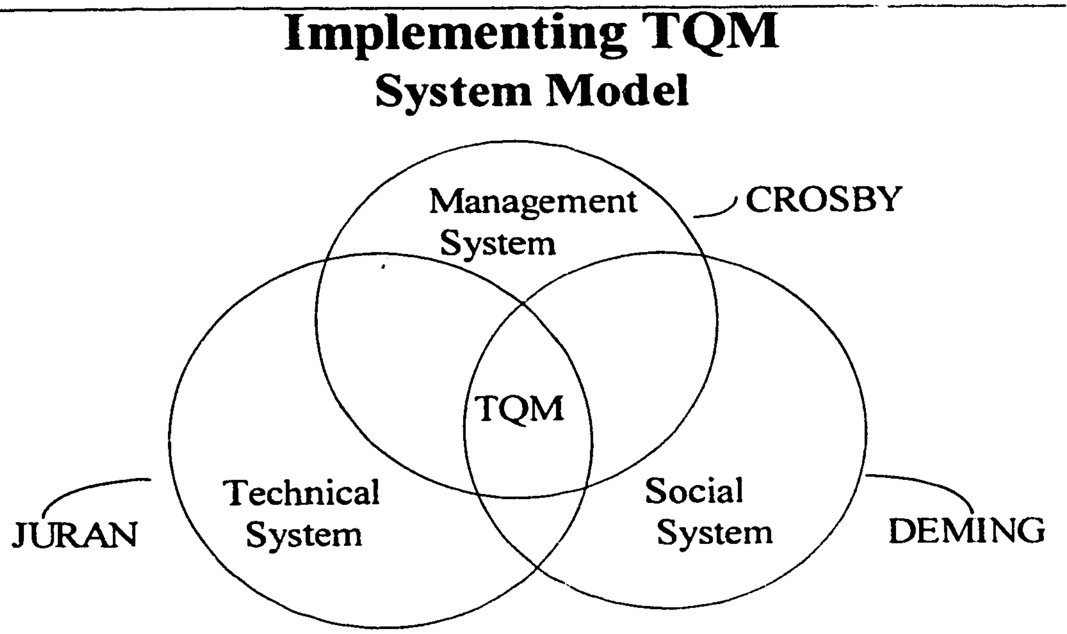

Figure 2 - Implementing TQM - System Model

(Adapted from Lewis & Smith, 1994, p. 33)

Total Quality Management and its Application to Higher Education

Those who deliver education in general and higher education in particular have recently become interested in TQM as a vehicle for creating quality in education. Seymour (1993) postulates that there are four motivating reasons for the adoption of quality in higher education. "(1) survival in an increasingly competitive environment; (2) the escalation of the costs of doing business; (3) a trend to make organizations more accountable for their actions and outcomes; and (4) a blurring of the distinction between 'products' and 'services'" (p. 3). Before we can provide quality in higher education, we need to understand what quality is in an educational environment. Bogue and Saunders (1992) explore many definitions of quality to propose their definition: "Quality is conformance to mission specification and goal achievement - within publicly accepted standards of accountability and integrity" (p. 20). They define accreditation as the test of mission fulfillment and academic program reviews as the test of goal achievement. They do not, however, describe what quality would look like or the process that would operate in the classroom setting.

Continuous Quality Improvement is one of the pillars of the quality movement. Jablonski defines TQM as "A cooperative form of doing business that relies on the talents and capabilities of both labor and management to continually improve quality and productivity using teams" (1991, p. 4). Embedded in this definition is the concept of Continuous Quality Improvement - the acceptance of "small, incremental gains as a step in the right direction toward Total Quality" (Jablonski, 1991, p.5). Jablonski's strategy for implementation of Total Quality "recommends that employees practice their new-found skills on small, achievable victories to improve processes" (1991, p.5). Many educational institutions have adopted the TQM movement around the rallying cry of Continuous Quality Improvement (CQI).

Achieving a quality culture in an organization takes time. Moving people to a commitment to improving the work they do everyday is a fundamental shift in the way we have come to do business in North America. "In order to succeed (in building a quality organization), we all need to be self critical. If we fail to question our assumptions and values we hold, we will probably fail" (Atkinson, 1990, p. 44). Thus, we need to involve everyone in continuous improvement by challenging everyone to be self-critical.

Unfortunately, in higher education, the application of the philosophy, tools and problem-solving inherent in TQM have been, for the most part, limited to the non-academic processes and systems of the institution (Brigham, 1995). Dr. Daniel Seymour and Dr. Casey Collett engaged in a study of 22 higher education institutions including 14 universities, and 8 colleges to determine the extent that TQM was being applied in higher education. They found "Whether the resistance is real or imagined, participants in the study, with only a few isolated exceptions, are reluctant to tackle systematic quality improvement efforts that require the active participation of the professorate" (Seymour & Collett, 1991, p. 3). Indeed, Robert Cornesky is of the opinion that "...probably less than 18 institutions of higher education are really practicing TQM from the Boardroom to the Classroom" (personal communication, October 26, 1995). Mentions of TQM efforts on the academic side came from community colleges and the smaller, private institutions. Due to their size, implementation of TQM has been more rapid, and many of them have been involved in the quality movement for a longer period of time (an average of four years for community colleges compared to an average of two years for universities).

Part of the reluctance of the faculty to embrace TQM and/or CQI efforts may be a fundamental problem with the paradigm of the "customer" of education.

> They *(faculty)* might see the student as an input to the process; 'the vessel I try to fill with knowledge.' They might see students as ouputs when they graduate. Students might even be considered co-workers in the system... But some faculty cannot see the student as someone who can competently express his or her educational needs and justifiably insist that those needs be met. (Chaffee & Sherr, 1992, p. 80).

Faculty fear that students expressed needs will be "straight A's and no work." Although this expressed need may be predictable, it indicates a student who does not see value in learning. "Kaoru Ishikawa, a leading Japanese theorist regarding quality, warned that, 'Yes [the] customer is king. But there are too many kings who are blind.' Embracing a customer focus, therefore, does not mean giving out straight A's and abandoning standards" (Turner, 1995, p. 105). Without the paradigm of "student as customer," faculty will have great difficulty implementing CQI/TQM efforts because they will not be open to student feedback - the most important feedback that they can receive regarding quality.

Indeed, educational institutions recognize the importance of student feedback on instruction. Peter Seldin as referenced by K. Patricia Cross (1987) found a substantial growth between 1978 and 1984 in the reliance of community colleges on student evaluation of instruction for evaluating faculty. In that six year time frame, reliance on student evaluation of faculty rose from 50% of the colleges to 67%. The sad truth is that this feedback is not designed to promote improvement of instruction. "It is too late to make changes for the students whose learning is being assessed, and there is seldom a clear link between the assessment data and specific instructional techniques or strategies" (Mellow, Bowen & Hopcroft, 1992, p. 31). Corbett-Lourenco conducted a study in the cooperating institution in 1995 and the students in her study commented "...may not see/have instructor again, so what is the point" (p. 9). Indeed, these students were even skeptical as to whether instructors use the information provided in the student feedback form: "...don't feel instructors act on the information" (p.9). In addition, even if changes are made due to the feedback, they may not be suitable for subsequent group of students. Thus, a change in the methodology and purpose of student feedback is needed. We need to "develop a different approach, specifically designed for what we want to accomplish, namely, the improvement of undergraduate instruction. I believe that it is time to give classroom teachers more responsibility for doing the type of research that will improve their own teaching" (Cross, 1987, p. 12). Alexander Astin in his benchmark book on assessment states,

> Several principles can be applied to ensure that the direct feedback from assessment can be maximally beneficial to the learner. First, the teacher and the learner should both be committed to the shared goal of enhancing talent development and student satisfaction... Feedback should...include *process* data concerning how the learner approaches the task. Feedback should also be optimally timed... Finally, feedback should be considered the result of an ongoing, iterative process (rather than as a one-time activity done at a single point in time) and the institution should specifically recognize the importance of assessment activities in faculty job descriptions and in the personnel review process. (1991, p. 237).

Classroom research encourages the use of the assessment for continuous improvement with an emphasis on process. "Classroom research is a learning experience...it is an ongoing journey whose destination is continually being expanded and extended. Often, the information and tentative conclusions derived in one semester's research ... become the raw material for research in the subsequent semester" (Sullivan & Seery, 1992, p.19).

Overcoming resistance of faculty to the application of the TQM/CQI movement to the classroom is a major challenge for post-secondary educational institutions. One institution, El Camino College states "we are experiencing difficulty with full-time faculty in accepting the TQM philosophy as such, but are experiencing... tremendous success in using a viable alternative strategy, Classroom Assessment Techniques..." (Schauerman & Peachy, 1993, p. 7). Thus CATs is seen as a tool for introducing TQM philosophy into the teaching and learning process.

Since the "reason for being" of an institution of higher education is teaching and learning, it seems reasonable that we should explore the application of quality management principles to the classroom.

Total Quality Management and its Application to the Teaching and Learning Process

When we begin to explore TQM/CQI and its application to the teaching and learning process, we find a number of authors who have explored this application and have provided us with information exploring the history and nature of the quality movement and often offer advice on the implementation process (Glasser, 1990; Kinlaw, 1992; Lewis & Smith, 1994; Murgatroyd & Morgan, 1992; Rubach & Stratton, 1994; Seymour, 1992). However, these authors give little direction on the application of the principles of quality to the classroom. Indeed "CQI has significant implications for the classroom" (Brown & Jelfo, 1994, p. 3). For information about these implications, we need to turn to authors whose focus has been on the teaching and learning process.

Quality in the delivery of instruction has been an issue for some time and certainly was the subject of discussion prior to the advent of the TQM/CQI movement. "We know, based on decades of research concerning college impact on student learning and development what those basic (quality) behaviors need to be" (Chickering & Potter, 1990, p. 143). The "Principles of Good Practice" were published by Chickering and Gamson in 1987 and are "based on an underlying view of education as active, cooperative, and demanding" (Gamson, 1991, p. 5). The principles are:

1. Encourage student-faculty contact.
2. Encourage cooperation among students.
3. Encourage active learning.
4. Give prompt feedback.
5. Emphasize time on task.
6. Communicate high expectations.
7. Respect diverse talents and ways of knowing.

(Chickering and Gamson, 1987, p. 1).

This set of Principles for Good Practice show some interesting parallels to a set of Fundamental Guiding Principles devised by the cooperating institution. The institution's Quality Council requested a team to examine what quality instructional delivery would look like in the institutional culture and context. The Fundamental Guiding Principles were articulated in the following way:

- The Instructor is committed to the success of all students.
- The Instructor is committed to creating a positive learning environment.
- The Instructor is committed to improving the learning process through real-time feedback.
- The Instructor is committed to encouraging student participation in self-managed learning teams
- The Instructor is committed to incorporating student experience into the learning process
- The Instructor is committed to developing positive interdependent learning and individual accountability.

- The Instructor is committed to offering experiential, practical activities to identify gaps in student competencies.

(Boomer, D., Harrison, K., Hoy, D., Johnson, R., Kachman, R., Manuel, J., Soetaert, E., Smith, G., Trainor, B., Wall, D.; Draft Report to Quality Council, October 23, 1995).

Robert Cornesky and his associates have written prolifically about the application of TQM to higher education. He recognizes the importance of the application of quality principles to the teaching and learning process; "It appears, therefore, that if TQM and TQI (total quality improvement) are to be truly successful at the academy, the professors must not only use TQM and TQI procedures in their classrooms, but they must also be able to teach the students and future practitioners on how to apply them" (Cornesky, 1992, p. 3). He recommends the establishment of a TQI center to, in part, "help faculty develop quality teaching strategies for the classroom" (Cornesky, 1992, p. 10).

Myron Tribus writes about the application of quality management to education. He is adamant that quality management must be applied to the classroom. "...if you're not practicing quality management in the classroom, you should quit saying that you're doing quality management in your school" (Tribus, 1994b, p. 1). He reminds us that there are some

> important differences between education and industry.
> 1. The school is not a factory.
> 2. The students are not the product.
> 3. Their education is the product.
> 4. The customers for the product are several
>   a) The students themselves.
>   b) Their parents.
>   c) Their future employers.
>   d) Society at large.
> 5. Students need to be "co-managers" of their own education.
> 6. There are no opportunities for recalls.
>
> (Tribus, 1994a, p. 1).

Tribus' point that the student is not the product, but rather their learning is the product of education is reinforced by Miles and Williams (1994). "Shifting the point of view from the old paradigm of 'students as (external) customer,' to a new paradigm in which the student is an integral part of the university, actually producing the true product of the university, gives us a start in seeing how to use the methods of quality management to improve the quality of our higher educational system" (p. 8). Involving students in the management of their learning process through the use of Classroom Assessment Techniques, flows naturally from this paradigm shift.

Tribus' definition of quality in education is embedded in the context of the classroom environment: "Quality in education is what makes learning a pleasure and a joy" (1994a, p. 6). "In general you do not learn what a customer means by the word 'quality' by just asking. Usually customers do not know. You find out by discussion negotiation and observations of what it is that gives the customer joy and pleasure" (1994a, p. 7). This observation reinforces the need for an exploration technique that will allow the supplier of the service (in the case of the classroom, the instructor) to determine the students' definition of quality. Classroom Assessment Techniques (CATs) as defined by Angelo and Cross is such a tool. "If students are to have joy in learning, it will be because the *style* in which the teaching/learning process is managed conforms to *their ideas* about what is joy" (Tribus, 1994a, p. 9). Applied CATs is a method of managing the teaching and learning process. "If you want to improve the student's achievements, put your attention on the teaching/learning process and not on the achievements in examinations" (Tribus, 1994a, p. 11). Classroom Assessment focuses on the teaching/learning process.

Tribus also examines the social context in which the teaching and learning process is embedded. He states "It is not possible to consider only the set of tools and techniques without considering the social system in which the processes are imbedded" (1994a, p. 19). Thus he proposes a model for changing the paradigm of a person.

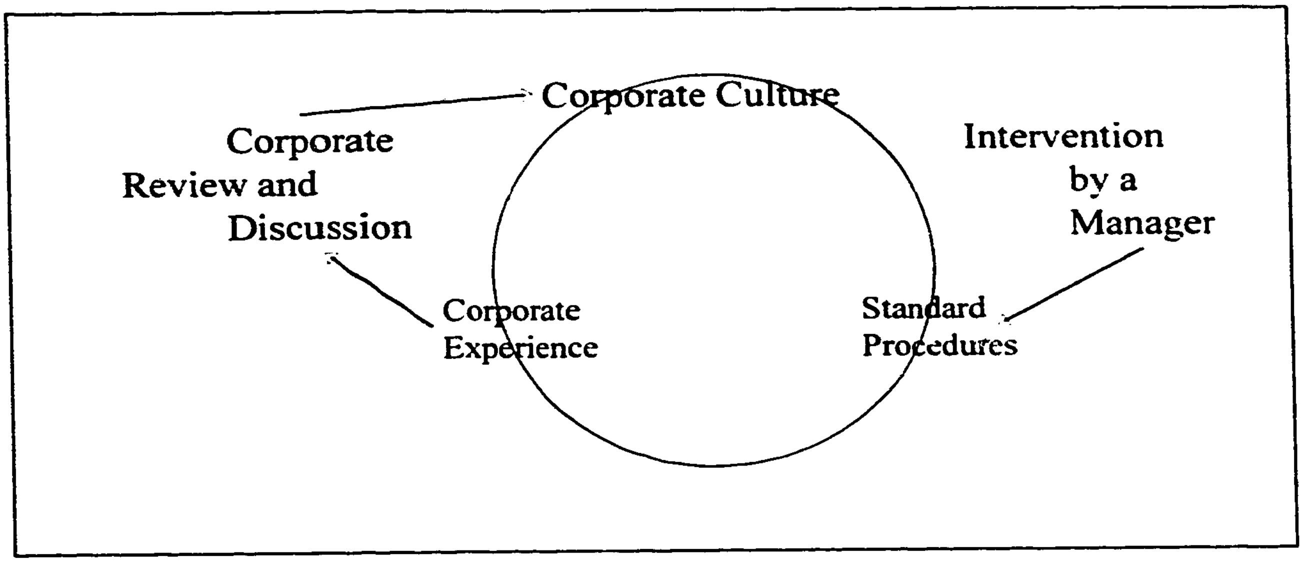

Figure 3 - Changing the Culture of an Enterprise

(Tribus, 1994a, p. 19)

This model "indicates how people are locked into a reinforcing circle unless intervention occurs and an opportunity is afforded for reflection. Instead of the Deming-Shewhart circle of 'Plan-Do-Study-Act' they are caught in a vicious circle of 'Act upon Attitude', 'Gain Experience', 'Reinforce the Attitude'. It requires intervention to break the cycle" (Tribus, 1994a, p. 20). This model supports the concept of a staff training process consisting of an intervention - a workshop - followed by the experience of applying the training supported by the discussion with peers. This model is recommended by those that have implemented the Cross/Angelo techniques in community colleges (Catlin & Kalina, 1992).

Jane Fraser and a group of her colleagues at Ohio State University have been redesigning an introductory course to engineering economy and during that process have delineated the parallels between quality and Adult Learning Theory (Table 1). The commonalities are remarkable and provide a strong impetus for the implementation of quality concepts and tools to the teaching and learning environment.

Table 1 - Congruence of TQM and ALT

Total Quality Management	Adult Learning Theory
top management sets commitment	teacher creates environment
continuous improvement	lifelong learning
self management	self-directed learner
quality is defined by the customer	adult learners know what they need
people want to work	people want to learn
workers should run their own teams	learners should plan their own learning
self managed work teams	student work groups
greater focus on intrinsic rewards	recognition of higher order needs
worker can contribute	students can contribute
workers have experience	students have experience
drive out fear	create friendly environment of adultness
customer orientation	student orientation
cease dependence on inspection for quality	cease dependence on grades
quality is a shared responsibility	learning is a shared responsibility
quality must be operationalized and measured	competency must be defined and assessed
measurement is feedback for improvement	assessment is feedback for improvement
equip workers with problem solving skills	equip students with learning skills
people need help learning how to function in teams	people need help learning how to learn in groups
works best with self-directed, empowered adults	works best with self-directed, empowered adults
employees are one set of customers	students are customers but also co-producers of learning

Total Quality Management	Adult Learning Theory
traditional quota system is a deterrent to quality	traditional grading system is a deterrent to learning
manager works for worker	facilitator helps student
place person in right job	adapt to student's learning style
workers diagnose causes of quality problems	adult performs self diagnosis of learning needs
experiment can isolate causes of problems	diagnostic experiences can help adult learners discover gaps in competencies
inspection at end is too late	testing at end is too late

(Reprinted with permission: Fraser, J., Colburn, M., Lundquist, R., Mount-Campbell, C.A., & Smith, G.L. Jr. (1994). A new paradigm for curriculum redesign: A demonstration in engineering economy. 1994 American Society for Engineering Education Annual Conference Proceedings.)

Applying the principles of TQM to the classroom requires an analysis of the principles and application of those principles to the unique context of the classroom. When creating an Organizational Behavior Course to be managed from a TQM perspective, Jose Eulogio Romero-Simpson, analyzed the TQM literature to extract the principles with a view to applying them to the classroom experience. These principles restated in an educational context became:

1. An orientation to the customer (student);
2. Commitment of management (instructor) to quality and willingness to accept the responsibility for the system's "well-being" and improvement;
3. The crucial role of education and self-improvement for accomplishing any type of change;
4. The spirit of "KAIZEN," or constant improvement through efforts of the entire work force (students and instructor);
5. A process orientation, as opposed to product orientation;
6. The importance of a stimulating environment, free of fear;
7. A teamwork approach;
8. The use of communication rather than inspection to overcome obstacles, improve the system and achieve quality;
9. The relevant role of statistical thinking and the use of traditional/ad hoc tools to measure/reduce variation; and

10. A personal commitment of each author to the diffusion of TQM rooted on a conviction of its value.
(Romero-Simpson, 1992, p. 81).

When applied, the principles manifested into a team structure with a heavy emphasis on feedback.

> The students then form teams...The teams work on the course, periodically holding feedback sessions to evaluate the course on eight factors: absence of fear, usefulness of what is being taught, responsibility for own learning, improvement in problem-solving skills, tests, teamwork, usefulness of exercises, and effectiveness of the media used.
>
> The professor then compiles the students feedback into histograms, control charts, and other analysis tools, sharing the results with the students. The course is modified and refined based on the feedback" (Bemowski, 1991. p.39).

It is interesting to note that the proper application of Classroom Assessment Techniques supports all of the instructional guidelines. The feedback gathered during the course could be gathered using CATs. Sharing the results with students and involving them in the modification and refinement of the course is an integral part of Classroom Assessment. Cross and Angelo (1993) have included an assessment in their text based on the team structure and derived from the Japanese concept of Quality Circles. The approach is more general than that described by Bemowski, but the process is the same.

Another example of TQM principles being used in a business classroom can be seen in the work of David Fearon and colleagues, at the Central Connecticut State University and R. Ivan Blanco and others at Barry University in Miami. Prompted by feedback from employing customers in an invitational forum held in 1990, they began to restructure the learning experiences of their students into a quality management context.

> Quality thinking in the planning, control, and improvement of student learning recasts every aspect of our classroom - the basic academic work system. Managing our entire instructional system for quality cuts us loose from many academic conventions of classroom teaching. In ways the business world is becoming more competitive on the basis of quality - by dislodging, refocusing, and replacing many of the 'usual' operating practices - we are changing how, and even why, students learn from us.

> Three years into our quality teaching journey we notice heartening gains in classroom performance reflected mainly in the stated constructive outlooks of our undergraduate Management majors as continuing learners. Our long-range goal is that students with whom we are learning with quality will be found by their co-workers to be distinctively versatile, yet disciplined participants in continuously improving what matters for total organizational success. Short-term results are apparent mainly in heightened student interaction in many aspects of learning (Fearon & Blanco, 1993, p. 4).

In their paper describing their experience with a TQM managed classroom, Fearon and Blanco outline practices and results occurring in the classroom from quality planning, quality control, and quality improvement perspectives. It is interesting to note that in the quality control perspective, they outline the practice of "Continuous course/team/self improvement goals for students and professors alike. Each course (is) launched as a 'work in progress' and shaped through *feedback* with students doing much of the system and process changing" (Fearon & Blanco, 1993, p.10). Feedback is a crucial component of the continuous improvement system.

Application of CQI principles to the classroom often manifest in a teamwork approach used by the students in their learning (Baugher, 1993, Courtney, 1992, Kimbler, 1994; Kunz, 1995, McDougall, 1985) or in the use of faculty teams for presenting instruction (Hubbard, 1994). This use of teamwork often operates contiguously with continuous assessment of the teaching and learning process (Kunz, 1995). "Project LEARN" at Samford University (AL) and Belmont University (TN) is a process whereby student teams "design, administer, and evaluate feedback measures and implement solutions" (Baugher, 1993, p. 3). The use of CQI/TQM principles in the classroom can cause instructors to implement innovative grading practices (Aamot, 1995; Byrnes & Cornesky, 1994; Chaytor, 1995; Kachurick, 1994; Kimbler, 1994; Kunz, 1995; Langford & Cleary, 1995; Lamkin, 1994), classroom "mission setting" and other such TQM practices. The application of TQM principles to a classroom setting, in practice, is a continuum whereby the classroom can appear to be traditional with some use of teams or continuous assessment to a classroom that begins with the students defining their mission statement and moving through the coursework as teams that then evaluate their product (learning) and process through peer evaluation. Implementing the principles requires understanding and commitment on the part of the instructor and a degree of skill.

David Dozark (1994) summarizes

> the factors that must be considered when implementing TQM in the college classroom:
> 1. Learning processes are widely varied and many are not well understood.
> 2. TQM is not an end in itself, but rather a means for improving processes. It is not clear whether it is an effective method of increasing the understanding of learning processes.
> 3. Quality must be defined by the customers and there are many customers. Consequently, there is no single definition for quality in the college classroom.
> 4. A TQM classroom has characteristics which differentiate it from a non-TQM classroom.
> 5. TQM in the classroom affects the attitudes of those involved.
> 6. Embracing TQM in the classroom requires a paradigm shift for all concerned.
> 7. Alternative methods of assessment and evaluation will be required in the TQM classroom.
> (p. 11 - 12).

Classroom Assessment as a Continuous Quality Improvement Tool

The literature dealing with the application of TQM principles to the classroom deals with many aspects of the teaching and learning process and quality principles. The process of assessment is one that is common to teaching and learning and Continuous Quality Improvement. In these contexts "assessment is seen as developmental, as ongoing and continuing. It takes not a snapshot but a moving picture" ("Assessment: What Should It Mean?" 1994, p. 4). "Classroom Assessment brings assessment into the classroom and joins assessment to the improvement of learning" (Cross, 1993, p. 17). Classroom Assessment Techniques, as well as other feedback mechanisms, have been used to improve the teaching and learning in a number of instances in the recent past.

Michael Schratz in his paper entitled ““Researching While Teaching: A Collaborative Action Research Model to Improve College Teaching” recognizes that “teaching practices soon become routine and remain at the same level once established” (1990, p. 99). In an informal study at the University of Innsbruck, faculty were introduced to “Schon’s concept of *reflection in action* (1983, 1987) and *action research*. Under this program, an initial consultation would be followed by a continuing process of critical reflection aimed at improving professional practice” (1990, p.100). The project was entitled Researching While Teaching (RWT), and employed all of the steps of classroom research as described by Angelo and Cross with the exception of the “closing the loop” done by reporting to students the results of the data collection in the classroom. The RWT model included small faculty group exchanges of information, and support of one another’s assessment work analogous to the small groups recommended when introducing CATs to a college (Catlin & Kalina, 1992). The RWT pilot project was a success. “After assessing the RWT pilot project at the University of Innsbruck, we concluded that the action research approach to teaching in higher education is a valuable experience” (Schratz, 1990, p. 107).

The LEARN process as applied at Samford and Belmont universities is focused on the improvement of teaching and learning. The title of the steps in the process create the acrostic LEARN. Student teams work through the steps in a basic process improvement model:

- Locate an opportunity for improvement
- Establish a team to work on the process
- Assess the current process
- Research the root causes
- Nominate an improvement and enter the Plan-Do-Study-Act (PDSA) cycle

(Baugher, 1993, p. 3).

Student groups communicating feedback for instructor/instructional improvement is also used by in the "Alliances for Change" procedure described by Tiberius, Sackin, Janzen & Preece (1993).

> Pairs of teachers are invited to form 'partnerships' for the purpose of teaching improvement. Each partner gathers information from a random sample of students drawn from the other's class, called the 'Agenda Group' and then summarizes the information in a report. The two partners exchange and discuss their reports. Each teacher then takes her or his own report (i.e. describing her or his own teaching) to a *second* group, composed of a *volunteer* group of students from the teacher's own class who respond to a request to help the teacher. It is this face-to-face, teacher-student discussion group, called the 'Conversation Group' that is the central feature of (the) procedure. Members of the conversation group read and discuss the report with the teacher. (Tiberius, et. al., 1993, p. 12-13).

This process is analogous to the Quality Circles assessment procedure described by Angelo and Cross (1993, p. 339) and Classroom Management Teams (Nuhfer, and others, 1995). Quality Circles were implemented by Philip Cottell, Jr. in his accounting classes as " ...an effective way to monitor and improve the quality of student learning" (1991, p. 43).

George Bateman and Harry Roberts (1993a & b) at the Graduate School of Business at the University of Chicago have been promoting the use of TQM principles in the classroom. An original "lab course" existed that had "teams of students work(ing) with companies to develop and implement new product ideas. Faculty and executives from client companies coached the students" (1993a, p. 2). Based on this concept "Business 712, The Laboratory to Achieve Organizational Excellence: Improvement of Teaching, Curriculum, and Research" (1993a, p.2) was created for students to advise client faculty in the improvement of teaching. The students experimented with various forms of feedback mechanisms to "tell the instructor, continually and quickly, what is and what isn't working...so that the instructor can make appropriate adjustments quickly" (1993a, p. 2) The most effective mechanism "turned out to be a simple fast-feedback questionnaire, used at all or almost all the class sessions" (1993a, p.2). The similarity between the fast feedback questionnaire and the CATs "Minute Paper" is remarkable. "The questionnaire's goal is to get systematic feedback after every class meeting, analyze the results, and make appropriate adjustments" (1993b, p. 3). This is the Plan-Do-Check-Act cycle in operation in the classroom. Ronald Turner (1995) writes of his experience with feedback forms leading to improvement of the instructional process.

> For example, I showed a film that took an entire class period. The next class, I conducted a discussion about the film. The discussion proved to be a dud. The students' feedback suggested I stop the film every 10 minutes to discuss that 10-minute segment. I tried this the next time I showed a film, and the response was enthusiastic...Taking time to collect student feedback hasn't cost me instruction time. Rather, the suggestions I get save me time by improving my teaching effectiveness. I spend less time going back over materials that students didn't understand the first time (p. 107).

As Jean Lamkin worked at implementing TQM ideas into a graduate course, she used "Post-It™" notes to gather feedback quickly, and anonymously from students.

> One method I use for getting input is to draw a 'Parking Lot' on the board. The parking lot is a one-yard, square box divided into four smaller boxes. I label the boxes Ideas, Comments, Questions and Other. I place a pad of Post-It™ notes on the chalk tray and tell the students to feel free to make comments as they see fit. When I see a note on the parking lot, I check it out and respond as appropriate (1994, p.7)

As well as this form of continuous assessment, Ms. Lamkin used "memo's" and "fan letters" to seek out the muddiest and clearest points respectively of each class period. She was applying CATs while using a different term for the process. She finds that she has "taken (her)self out of the center of the course and placed the focus on the students. What they learn in the class depends more on their performance, than on mine" (p. 8). Her experience echoes the comments of educators using CATs who find that their students begin to take more responsibility for their own learning.

Ronald Turner, an Economics Instructor at Eastern Maine Technical College uses a questionnaire that he administers at the end of every class that asks about students' perceptions of the quality and value of that class. Again an example of instructor using

Classroom Assessment, but not labeling it as such. "The student feedback is anonymous, in order to reduce their fear of my retribution" (1994, p. 3). Here we see the anonymity which is embedded in CATs wedded to Deming's principle, drive out fear.

John Kachurick in his incorporation of TQM in the classroom used SPCExpert, a shareware program that generates control charts to develop a control chart for test grades. He "took the control chart into class, discussed the results and asked for input. Using a cause-and-effect diagram, the students identified a number of potential causes for low performance, isolating one -- the instructor covered the material too quickly" (1994, p. 3). Even though Kachurick "attributed the poor performance to student laziness and lack of motivation" (1994, p. 3) he slowed his instruction and was "surprised when (he) found that the test scores did increase substantially" (1994, p.3). As a result of this experience, Kachurick intends "to re-evaluate the 'required' material before the course is offered again with an eye toward reduction" (1994, p.3). This is an example, in context, of the discussion of assessment with students leading to an improvement in a course.

Angelo and Cross (1993) outline the assumptions upon which their form of Classroom Assessment or Classroom Research are based. The congruence of these assumptions with TQM/CQI philosophy is remarkable.

> Assumption 1: The quality of student learning is directly, although not exclusively, related to the quality of teaching. Therefore, one of the most promising ways to improve learning is to improve teaching. (p. 7)
>
> Assumption 2: To improve their effectiveness, teachers need first to make their goals and objectives explicit and then to get specific, comprehensible feedback on the extent to which they are achieving those goals and expectations. (p. 8)
>
> Assumption 3: To improve their learning, students need to receive appropriate and focused feedback early and often; they also need to learn how to assess their own learning. (p. 9)
>
> Assumption 4: The type of assessment most likely to improve teaching and learning is that conducted by faculty to answer questions they themselves have formulated in response to issues or problems in their own teaching. (p. 9)

> Assumption 5: Systematic inquiry and intellectual challenge are powerful sources of motivation, growth, and renewal for college teachers, and Classroom Assessment can provide such challenge. (p. 10)
>
> Assumption 6: Classroom Assessment does not require specialized training; it can be carried out by dedicated teachers from all disciplines. (p. 10)
>
> Assumption 7: By collaborating with colleagues and actively involving students in Classroom Assessment efforts, faculty (and students) enhance learning and personal satisfaction. (p. 11).

Classroom Environment and Its Impact on the Teaching and Learning Process.

Classroom environment has been extensively researched over the past two decades. Based upon earlier work by Lewin (1936), Murray (1938) and Pace and Stern (1958), leaders in the field of classroom environment have created a large body of work that proves that the "quality of classroom life...is important and deserves the serious attention of researchers and educators" (Fraser, 1991). "The perceived environment varies from individual to individual, and everything we do as teachers has an impact on this affective environment" (Heimlich & Norland, 1994, p. 90). Comprehensive overviews of this research are referenced by Fraser (1991) to include articles by Fraser (1986), Fraser (1989), Fraser and Walberg (1991), Moos (1979) and Walberg (1979). These overviews "clearly show that psychosocial characteristics of classroom learning environments demonstrate incremental validity in predicting student achievement, can be cross-culturally replicated, are useful in curriculum evaluation studies and can provide teachers with useful information to arrange more optimally functioning classrooms" (Ellett, Loup, & Chauvin, 1991). More recently (Vahala & Winston, 1994), students perceptions of classroom environments have been shown to vary "depending on institution type and academic discipline and that perceptions of environment differentially affect... students' grades in each discipline area" (p. 99). Such information can support an institutional or program reform such as adopting a program of Continuous Quality Improvement.

Instruments to assess classroom environment have been used as "sources of predictor and criterion variables in a variety of research studies conducted in primary and secondary schools" (Treagust & Fraser, 1986). Despite a strong history of classroom environment research being conducted at the public school level, very little research concerning classroom environment at the post-secondary level was conducted prior to 1986. Treagust and Fraser postulated that this lack of research could be due to the absence of a suitable instrument with which to measure classroom environment at the post-secondary level. Consequently the College and University Classroom Environment Inventory (CUCEI) was developed. Validation of the final form of the inventory included students in a variety of disciplines in multi-purpose educational institutions in Australia as well as students in a university in Illinois, USA. The CUCEI was determined by the researcher to be a suitable instrument for this study.

Past classroom environment research has investigated the association between student learning outcomes and their perception of the classroom environment. The research includes a wide variety of settings and contexts. Williams (1990) has reviewed the literature and found that the classroom environment perceived by female students in post-secondary learning institutions affects their participation in class. Horvath (1992) studied persistence of female students in an introductory economics course and concluded that female students need to overcome classroom climate. Bonsangue (1995) has examined minority students' success in Calculus and suggests that "persistence and success are more related to college classroom experiences and expectations than to pre-college preparation" (p. 23). Gainen (1995) identified "chilly" classroom climate as a barrier to success for college freshmen entering majors in science, mathematics and engineering. Johnson & Walberg (1989) examined the applicability of Walberg's model of educational productivity to a community college setting. Among other variables, they found that social context of the classroom had positive effects on students' grade point averages. A study which explored the emotive and social aspects of an English as a

Second Language (ESL) class for adult Japanese women showed that the opportunity in the class for a student to reflect about her feelings towards her learning had a positive effect on her ESL learning (Swain & Miccoli, 1994). Terenzini (1993) surveyed 210 students and results showed that what happens to students in the class-related experiences in a post-secondary situation made a statistically significant and unique contribution to the explanation of variations in intellectual orientation.

The work of Uri Treisman at the University of California, Berkeley is an interesting contribution to the body of literature that relates classroom environment, cooperative or team learning and feedback to positive student outcomes for Black students in introductory Calculus. When charged with the problem of why Chinese students do well in introductory Calculus and African American students do not, he eliminated the hypotheses that faculty put forth as possible explanations such as lack of parental support, poverty, poor preparation, lack of motivation etc. In desperation, he spent time with the students and found that the Chinese students studied in groups whereas the Black students studied alone. As a result, the Black students did not get feedback from their peers, experience with discussing problems, insight into novel ways of thinking about a problem, etc. Thus, the Mathematics Workshop was born with its primary purpose to improve the deficiencies in minority students' mathematics and study skills in part by building a community of minority freshmen that become a source of peer support (Treisman, 1983). The workshops have been operating successfully since 1982 and have been replicated elsewhere (Fullilove & Treisman, 1990; Garland & Treisman, 1993; Treisman, 1992). The development of classroom cohesiveness and feelings of companionship in the classroom obviously led to the success of the workshop and its students.

"The practical implication from this research is that student outcomes might be improved by creating classroom environments found empirically to be conducive to learning" (Fraser, 1991, p. 7). If the use of Classroom Assessment Techniques can be shown to contribute towards the creation of a positive classroom environment, then there is strong evidence to suggest that CATs should be practiced consistently in the classroom for the purpose of creating a "quality" learning environment.

Classroom Environment as a Measurement of Quality

Investigations into classroom environment are important as indicators of a quality learning environment. Tribus (1994a) reminds us that quality in education is that which makes learning a pleasure and a joy. Romero-Simpson (1992) speaks of a quality educational environment as one that is stimulating and free of fear. Indeed,

> examining classroom learning environments is important because it emphasizes the student-mediating or student cognition paradigm (Knight & Waxman, 1991; Wittrock, 1986). This paradigm maintains that how students perceive and react to their learning tasks and classroom instruction is more important in terms of influencing student outcomes than the observed quality of teaching behaviors. (Waxman, 1991, p. 1).

Classroom environment instruments (such as the CUCEI) can be used to monitor the implementation of innovations in the teaching and learning process. Fraser and Fisher (1986) demonstrated the use of a classroom environment instrument being used in the "check" step of the PDCA (Plan, Do, Check, Act) cycle. They assessed the perceptions of the environment of a class. The teacher examined the evidence and introduced an intervention to improve a component of the classroom environment. The instrument was readministered to see whether students had changed their perception of classroom environment. This case, as well as experience with the PDCA model suggests "the potential usefulness of teachers employing classroom environment instruments to provide meaningful information about their classrooms and a tangible basis to guide improvements in classroom environments" (Fraser, 1991).

Research Investigating the Cross/Angelo Model of Classroom Assessment

There are two types of research being done with the Cross/Angelo model of classroom assessment as their focus. The first is research that has a "micro" point of view. This is research being done *using* Classroom Assessment Techniques to improve the teaching and learning process. This could be categorized as "action," "practical," or "classroom" research. From this research, we gain qualitative, first hand reports by practitioners in the classroom, of the benefits of the use of CATs in specific contexts. A number of these reports are summarized in the following section.

The second type of research is that which focuses on the effect that the use of CATs as the independent variable has on various dependent variables such as student retention, grades, and other quantifiable data. This research is at the general, theoretical, "macro" level. It "tends to be carried out by professional researchers and should involve the use of a theoretical framework, large numbers of subjects, sophisticated measuring instruments, careful analyses of data and logical interpretation of results" (Sullivan, 1985, p. 71). One of the goals of this type of research is generalizability. The remainder of this chapter will focus on this type of research.

"Specific Practical" Research

There is a wealth of information about the success of individual, contextual, Classroom Research using CATs (Angelo, 1990, 1991a,b,c; Angelo & Cross, 1993; Anthony, 1991; Berry, 1992; Brown & Jelfo, 1994; Fideler, 1992; Malinowski, 1994). Indeed, in Angelo and Cross' 1993 edition of the text Classroom Assessment Techniques there are two examples of each of the fifty assessments being used in practice. For the purpose of this thesis some representative examples will be described.

David Nakaji (1991) was interested in exploring the "cognitive processes underlying students' visualization and problem solving in physics" (p. 79). After being trained in Classroom Research and CATs, Nakaji participated in a pilot project on Classroom Research. He and his students spent time examining the visualization process students use when faced with a physics problem. Nakaji and his students became

> more aware of the importance of images and their role and function in problem solving... Informed by this awareness, students report spending more time setting up the problem through visualization before reverting to the mathematical representations... With practice, students also demonstrate an increased ability to change frames and perspectives while visualizing, thereby enlarging their repertoire of problem-solving skills. Finally, since they are continually asked to monitor their own thinking through exercise...students will become more proficient at and more comfortable with metacognitive activities. (p. 86).

Thus, Classroom Research can be used to explore metacognitive function and to improve on it.

Elizabeth Berry (1992) describes an example of an instructor whose students were frustrated trying to understand "legalese" in cases in a law class. The instructor

> assigned the first law case in the book as homework. The next class session she distributed an ungraded questionnaire to see how much students understood about the case. She collected them and analyzed them for common problems. Then she gave a lecture and handouts on 'How to Read A Law Case,' illustrated by her own notes on the case (Berry, 1992, p. 4).

This is an example of gathering information about students' understanding and modeling thinking to improve the students' ability to analyze and understand material.

James Sullivan and Helen Seery (1992) describe their experience with the Massachusetts Bay Community College's Teaching/Learning Project.

> As two members of the mathematics faculty, we are engaged in research spanning classes from Basic Math to Calculus. Past and current projects include a diverse range of topics, such as the role of prior knowledge as the bridge to new learning, effective collaborative learning techniques, problem-

> solving strategies, the use of graphing calculators, and methods for increasing students' awareness of their role in the own learning...
>
> We derive great satisfaction from our efforts to improve the teaching and learning environment of our classrooms...
>
> Classroom research forces us, by choice, to document, revise, reconsider, interpret, share with and learn from others. Each class is the beginning of a process of investigation and self-renewal. (p. 11-12).

They have investigated many aspects of teaching and learning in mathematics and have learned from their investigations. Sullivan reports a time when he asked his students to pretend to write a note to their best friend to explain what a derivative was and discovered, to his dismay, that only a very few students could adequately explain the term. This prompted him to review the concept and the student responses on the test that followed were much improved. This is an example of a gap in learning being closed in response to assessment.

Bob Morris (1994) writes of his experience with the group of assessments Angelo and Cross (1993) call mini-evaluations.

> These techniques ask for immediate feedback on teaching, testing, and assignments. While I did get some good suggestions from the students, the value of these CATs is that they establish a different relationship between the instructor and the students. Because the students get to evaluate and suggest changes in the course while they are still there, they have a different attitude toward the course and toward the instructor (Morris, 1994, p. 17).

Here we have an instructor who sees a change in the classroom environment due to the use of CATs.

Jacque O'Lea (1991) reports that the use of CATs in his Continuing Education ESL (English as a Second Language) class had marked benefits for his ethnic students. "The background of the students is extremely varied, but quite often includes many 'at-risk' students whose previous academic experience is either quite limited or has been negative. These students seem to blossom when they are given the opportunity to provide and receive immediate feedback" (p. 3-28, 3-29).

This anecdotal evidence of the positive effects of CATs on the teaching and learning process prompted researchers to look at the effect of Classroom Assessment and Classroom Research in a more general theoretical manner with a view of generalizing the results.

"General Theoretical" Research

Research has been done investigating the effects of Classroom Assessment and Classroom Research on various dependent variables: retention and grades (Catlin & Kalina, 1993; Kelly, 1991, 1992, 1993; Obler et. al. 1991; Olmsted, 1991; Stetson, 1991; Walker, 1991), classroom environment (Catlin & Kalina, 1993), class completion by gender and ethnicity (Catlin & Kalina, 1993; Obler et al. 1991), emphasis of Classroom Research by teachers (Cuevos, 1991), and the extent to which CATs can lead to improved student learning (Malinowski, 1994; Steadman, 1994; Walker, 1991).

In 1988, The College of Marin (COM) embarked on a pilot project, training faculty in the use of Classroom Research. As Nancy Stetson reports (1991)

> From fall 1988 through spring 1991, sixty-nine faculty members completed at least one semester in the Classroom Research program at COM...During the semesters they were involved in the program, these sixty-nine faculty members involved at least 3,500 of their students in Classroom Research projects (p. 122).

With such a wealth of experience, it was with great interest that COM asked the questions "Did the COM Classroom Research program affect teaching? Did it affect student learning?" (p. 122). The College of Marin found that "experienced Classroom Researchers reported that they had incorporated Classroom Research into their normal pedagogy...(and) that their projects immediately affected their teaching in a variety of positive ways" (p. 123). While addressing the question of the effect of Classroom Research on students, Stetson found that

> While Classroom Researchers often expressed their strong belief that students in classes where they were using Classroom Research were more successful than their other or previous students, there were only a few instances where COM's research could support their impressions with evidence of significantly improved class grade averages or retention rates (p. 123-4).

An explanation for this discrepancy between perception and quantifiable evidence, is that

> Many Classroom Researchers focused their inquiries on developing metacognitive skills, critical thinking, or self-esteem, but did not test or grade students on those elements. If this...hypothesis were true, it would mean that student learning could improve in important ways without necessarily registering on the usual tests or affecting grades (p. 124).

Perhaps the most significant effect of the Classroom Research Projects reported by Stetson is the effect that CATs and Classroom Research had on the teaching practice of faculty at COM. "...faculty reported many observable ways in which students were more actively involved in learning, received prompt feedback, and had more contact with instructors - examples of three important and well-established principles for effective student learning" (p. 125). These well-established principles are articulated by Gamson and Chickering's "Seven Principles for Good Practice in Undergraduate Education" (1987). Overall, the "Classroom Research program at COM has helped faculty and administrators come together to better achieve the college's most important goal; to improve the *quality* [italics added] of student learning" (Stetson, 1991, p. 128).

In a follow-up study done at the College of Marin in the spring of 1993, faculty were surveyed regarding their experiences with Classroom Assessment Techniques. Of the 58 faculty who received a survey, 20, or 35% responded. Nancy Stetson (1993) writes "Although the number of faculty represented by the survey results was modest, their comments provide a useful basis for judging the impact of the CATs training program" (p. 3). She reports that 85% of the respondent faculty

> were still using CATs....Eighty-five percent of the faculty believed their use of CATs had a positive impact on their teaching....Two-thirds of the faculty believed their use of CATs had a positive impact on student learning....Fifty percent of the faculty said they had evidence that their use of CATs had a positive impact on teaching or learning, or both. Half mentioned grades; the other half mentioned other indicators such as student performance on final examinations, increased class participation, improved quality of term projects and portfolios and increased rates of progress (p. 3).

Miami-Dade Community College (MDCC) in collaboration with the University of Miami trained a total of 81 faculty and administrators during the fall semesters of 1988 and 1989 in the use of Classroom Research and CATs. "The implementation of a classroom research project constituted one of the requirements of the course" (Cuevos, 1991, p. 382). Interestingly, both faculty and administrators used Classroom Research to investigate the process of instruction more often than student academic and/or learning skills. They found Classroom Research to be a valuable tool for investigating the effectiveness of various instructional processes. In addition, it was found that there was "a positive use of feedback results in the planning of follow-up instructional activities" (p. 381). "55% of the participants stated they had changed their teaching as a result of the feedback/research activities" (p. 387). Thus, the result of faculty and administrators looking at process was an attempt at improving that process - continuous quality improvement. In fact, "The value of classroom research endeavors appears to have outweighed the time it takes to prepare the assessment instruments, to implement the activities and to analyze the results" (p. 381).

Charles Walker was an instructor in an introductory psychology course and he undertook to improve his "achievement of one fundamental goal: increasing the number of my students who master the subject matter of psychology" (1991, p. 68). He deliberately chose to use classroom assessments that were focused on the mastery by the students of the content of his psychology course.

> To assess how well this goal was achieved, (Walker) compared the test performance of students taught *without* CATs against the performance of those taught *with* CATs. Specifically, (Walker) subjected the total test

> scores of student ...taught in 1988-89 and 1989-90 to tests of statistical significance. Because the course content, texts, and examinations were similar across these two academic years, (Walker) felt the comparison could be useful... On average, students taught *with* CATs scored significantly higher on tests - at the .001 level of statistical significance - than students who learned *without* the benefit of CATs. The total test means of these two groups were 86.3 percent and 76.5 percent, respectively. (p. 74).

There was one other difference that may account for some of the advances students made in the two semesters. In the 1989-90 semester, in addition to the use of CATs, "students were given the opportunity to take 'recovery quizzes,' and the points they earned by mere guessing on these quizzes may have artificially inflated their test scores" (p. 75). Even after adjusting for the effect of recovery quizzes, the mean difference was "still statistically significant at the .05 level" (p. 75). Thus it would appear that using CATs with the specific goal of enhancing students mastery of subject matter can impact student performance significantly.

Susan Obler, Voiza Arnold, Carol Sigala, and Linda Umbdenstock (1991) have used CATs and Classroom Research to investigate a new model of teaching in the Rio Hondo Community College. Their research was done with the goal of "developing a new model of classroom instruction" (p. 115). This model incorporated four principles:

- Create a Pro-Diversity Curriculum
- Treat Students as Inexperienced Adult Learners
- Promote Cooperative Learning
- Use Classroom Assessment

(p. 115-116).

In "semester-long pilot projects, the faculty implement(ed) at least one innovative instructional approach and monitor(ed) its effectiveness through Classroom Assessment Techniques" (p. 115). Although this research did not exclusively study the effect that CATs had on the classroom because there was more than one instructional innovation being practiced, students "report that they are able to apply course content more readily and felt more engaged in the courses that use assessment tools" (p. 121). Faculty commented on the effect that the interaction with other faculty in the meeting groups and the synergy created in the classroom through the use of innovative teaching practices; "our work together has revived my spirit in the classroom, I didn't know that being a student of learning could be so rewarding" (p.122). In addition, the authors noted "a slight increase in retention. The increase is noticeable, though not yet strong enough to be statistically significant" (p. 122).

Kelly (1991, 1992, 1993) investigated the effects of Classroom Research and Classroom Assessment on adult, evening college students at Fullerton College, CA. In 1990 (reported 1991), participants of the study were trained in Classroom Assessment Techniques and asked and supported in their efforts to incorporate these techniques into their classrooms at least five times in the fall semester. The grades and course completion information for the "experimental" classes were collected and compared to the participant faculty's previous spring classes, prior to their training in CATs. Analysis of the data showed that the "course completion rate was significantly higher in the semester in which classroom assessment techniques were used" (Kelly, 1991, abstract). In addition, students were surveyed in the classes where CATs was used and this survey indicated that "classroom assessment increased students' sense of involvement in the class, reduced anxieties about asking question, and effectively met the needs of the adult learners" (Kelly, 1991, abstract).

In the fall of 1991, Fullerton College undertook a project to promote excellence in teaching, and during the fall semester, thirteen faculty "attended workshops on adult learners, learning styles, classroom assessment techniques, and interactive teaching strategies" (Kelly, 1992, abstract). In the spring semester of 1992, the faculty incorporated their new skills into the classroom "while attending monthly meetings to exchange ideas and share experience" (Kelly, 1992, abstract). Students in these classes were surveyed at the beginning, middle and end of the semester to "determine their learning progress and their involvement in learning" (Kelly, 1992, p. 7). Student surveys revealed a high level of interest that was maintained throughout the semester. The final survey showed "that students were generally very satisfied with the class, and many had exceptionally positive comments about the teacher and the instructional methods. They felt involved in the class, and felt that their needs were addressed by the teacher" (Kelly, 1992, p. 8). Retention data showed no significant increase in student retention. Kelly speculates that "student retention is affected by so many other outside variables that the influence of teaching techniques alone may not produce a clear positive student retention outcome" (1992, p. 9).

Kelly's dissertation (1993) is based on the research conducted in 1991 and 1992. She reports that "Grades and students' self-ratings of learning were positively affected by student involvement levels. Students reported that the class activities which helped them to learn were those which involved them directly, promoted interaction with the teacher (including Classroom Research) and allowed them to apply their knowledge" (Kelly, 1993, abstract). In addition, "Classroom Research clearly had a positive effect on faculty involvement in teaching. Classroom Research provided important information about students which helped in teaching, and it caused faculty revitalization through re-thinking their teaching methods for adult learners" (Kelly, 1993, abstract).

In a quantitative study that was conducted over three semesters in eight community colleges in California, Catlin and Kalina investigated the "effects of classroom assessment on student grades, retention, class completion by gender and ethnicity and on student reports of classroom environment" (1992, p. 11).

> forty-nine pairs of classes...were matched by course topic, instructor, and time of day. The independent variable was instructor use of the Cross/Angelo classroom assessment model. In one of the classes, the instructor taught using the Cross/Angelo model; in the second class of the pair, this treatment was either 1) withheld or 2) data was collected from a matched class prior to the instructor's initiation to the model. Data from instructors who had never been taught the method was also collected to provide an additional control group (1992, p.11).

Classes were also surveyed as to their perception of classroom environment using the College and University Classroom Environment Inventory. This was done due to the strong link in the research literature between classroom environment and student outcomes.

"The results of this study do support the qualitative and anecdotal result" (Catlin & Kalina, 1993, p.57) of previously conducted studies, although the results were not as dramatic. The data showed that the use of Classroom Assessment Techniques:

- had an effect on retention, which ranged in the study from between 1 to 8 percent
- correlates with a "more positive grade distribution, especially in the number of 'A' grades given when Classroom Assessment Techniques are used. Grade point averages have been about the same" (Catlin & Kalina, 1993, p. 57)
- has an effect on course completion by gender in that female students showed a nine percent higher retention in classes where CATs were being used
- affects female students more significantly than males in their opinions of the classroom environment
- affects more positively "new majority" students than white students in their opinions of the classroom environment
- affects all students positively in their opinion of classroom environment as compared to classes where CATs were not used.

Leonard Malinowski has reported on an initiative at Finger Lakes Community College in New York state wherein faculty members participated in the use of Classroom Assessment Techniques. One of the goals of the initiative was "to obtain observations and measures... that permit inferences or generalizations about the impact of CATs on the educational experience at FLCC. These should permit a connection between CATs and institutional effectiveness" (1994, p.6). This is an attempt to connect the use of CATs to quality. One of the results of the study which was seen as an indication of the success of the project was the request and willingness of the participants to continue using CATs after its initial implementation, because they saw the "merit of CATs as a device to accomplish...improvement" (p.11). "Further evidence of the success of the project was the animated, interactive discussions by participants in monthly meetings....(and) the most significant evidence was in the form of teachers using the CATs data to improve their instruction" (p. 12).

Mimi Steadman's doctoral dissertation investigated "how Classroom Assessment has been implemented in practice by community college teachers.... the satisfaction of community college students in courses taught by teachers who incorporate Classroom Assessment activities.... (and) the potential of Classroom Assessment Techniques to promote metacognition and the use of learning strategies" (1994, p. 11). She found "that teachers' purposes for using Classroom Assessment influenced how they implemented CATs, what subsequent changes they made in their teaching, and how they perceived the impact of this innovation" (p. 200). Teachers also experienced some unexpected benefits from their use of CATs, "such as a new ability to tune into students' voices, or the chance to be part of a teaching community, that were not part of their original objectives for implementing this innovation" (p. 202).

Student responses were positive and "with surprise in some cases, to the opportunity to voice their opinions and to help control the organization of the classroom" (p. 218). Thus it would seem that Steadman found that CATs positively affected students' perception of classroom environment. "Over half the students indicated that they were 'more' or 'much more' satisfied with classes that incorporated CATs than they were with other classes they had taken at the college" (p. 219).

While investigating the potential of Classroom Assessment Techniques to promote metacognition and the use of learning strategies, Steadman found that

> faculty reported that they believed that participating in CATS, and getting feedback from CAT results, makes students aware of their learning behaviors and helps them monitor their progress. Some faculty reported using Classroom Assessment in an effort to help students improve their learning skills, by requiring them to monitor, rehearse, organize, synthesize and reflect on new material. Interviews with students, however, revealed that they were not aware that in addition to teaching course content, faculty were trying to help them learn how to learn (p 222).

It would seem that faculty did not overtly demonstrate for students how "learning behaviors could be transferred to other learning and study situations" (p. 223). "The findings from this study, along with existing research on learning skills transfer (Sternberg, 1983), suggest that teachers must be very explicit in their efforts to use Classroom Assessment to introduce students to learning strategies" (p. 224).

Existing research has investigated the effects of CATs on various aspects of both faculty and students in their involvement in the teaching and learning process. CATs is valuable because of its potential benefits to both faculty in their attempts to improve their effectiveness and to students in their growth in learning strategies.

Concluding Remarks

This chapter presented an overview of the growth of Total Quality Management, its application to the higher education environment and the teaching and learning process. The literature around the use of Classroom Assessment as a Continuous Quality Improvement tool was summarized. This literature was used to develop the research question on faculty perception of the appropriateness of the implementation of Classroom Assessment as a quality improvement method. It is also used as the theoretical framework for analyzing the research findings around the issue of quality in the classroom. The chapter then reviewed the literature exploring classroom environment and its effect on the teaching and learning process and the use of classroom environment as a measure of quality in the classroom. This literature guides the examination of classroom environment. Finally, this chapter explored the specific research that has been done with respect to Classroom Assessment Techniques. The exploration focused on the potential of CATs to enhance the quality of the teaching and learning process.

CHAPTER III - METHODOLOGY

Introduction

This study employed a posttest-only control-group design (Borg & Gall, 1989). Faculty were trained in the use of Classroom Assessment Techniques. After treatment, observations were made of the faculty and their classes using a modified College and University Environment Inventory which collected information about classroom environment, as well as information about faculty and student attitudes towards CATs. In addition, a survey was completed by faculty exploring their perceptions of the effectiveness and appropriateness of CATs as a Continuous Quality Improvement (CQI) data collection tool. This chapter outlines the process of gaining permission to do the study in the cooperating institution, describes the instruments and techniques used in the study and the methodology for choosing the sample participants and control participants. The piloting process is described as well as the training (treatment) that participant faculty received. The chapter ends by addressing ethical concerns and considerations.

Gaining Access to the Institution

The institution in which this study took place was a postsecondary technical institute in Alberta. The institution had recently embarked on a Continuous Quality Improvement journey. The institution had identified the implementation of the CQI process into the instructional process as one of the major thrusts of their implementation strategy. Knowing this, the researcher approached the manager of the Staff Training department to explore the feasibility of training faculty in Classroom Assessment Techniques. The response was positive and supportive. The researcher then approached the Director of Research and Academic Development of the cooperating institution to explore the feasibility of a study. Again the response was positive and supportive. Upon submission of a formal proposal to the Director of Research and Academic Development, and subsequent routing of the document to the Vice-President Academic, formal permission was granted to embark on the study. In consultation with the researcher, the cooperating institution selected and hired a trainer to train faculty in CATs. (See Appendix D for formal permission.)

Instruments and Techniques

The research questions of this study were addressed through the use of a Faculty Participant Questionnaire and the application of a modified College and University Classroom Environment Inventory (CUCEI). Four forms of the modified CUCEI were created: Student Participant, Faculty Participant, Student Control and Faculty Control. Data gathered through the application of the inventory was made available as simple feedback to individual instructors for their classes. For the purpose of the thesis, all data were analyzed anonymously; neither individual instructors nor their students were identified during the analysis.

The research question "What are faculty and student perceptions of the classroom environment as measured by the College and University Classroom Environment Inventory (CUCEI) in a classroom where Classroom Assessment Techniques are being used?" was measured using a modified CUCEI. The methodology consisted of the following steps:

1. Training of faculty in the appropriate use of the Classroom Assessment Techniques occurred in May of 1995.

2. Volunteer faculty for participation in the study were solicited.

3. Upon commencement of classes in September, sample faculty chose a class in which they introduced and applied CATs. Their application of CATs was supported through the use of group meetings and consultations organized and facilitated by the researcher.

4. Volunteers to participate in the study as control were solicited by the researcher in October Four volunteer faculty were selected by the researcher as representative of the four divisions of the institution. Control faculty conducted their classes as they normally would, without the application of CATs.

5. In late October, the four forms of the modified CUCEI (Participant Faculty, Participant Student, Control Faculty and Control Student) were piloted with student and faculty groups.

6. The appropriate forms of the modified CUCEI was administered by the researcher to check both sample and control faculty, and sample and control student perceptions of classroom environment in November.

7. Demographic information was gathered with the modified CUCEI on sample and control faculty, for the purpose of investigating whether the sample was representative of the faculty of the cooperating institution, thus allowing for generalizability of the results. Demographic information was gathered with the modified CUCEI on sample and control students, for the purpose of investigating whether the student sample was representative of the cooperating institution's student body, thus allowing for generalizability of the results.

The research question "What are student perceptions of the appropriateness of CATs as a method of improving the quality of the teaching and learning process?" was addressed by the Participant Student form of the modified CUCEI. Items 50 - 56 explored student perceptions of the appropriateness of CATs as tools to improve student learning. (See Appendix B for a copy of the instrument).

The research question "What are faculty perceptions of the appropriateness of CATs as a method of improving the quality of the teaching and learning process?" was addressed by the Participant Faculty form of the modified CUCEI. (See Appendix B for a copy of the instrument). Items 50 - 60 explored faculty perceptions of the appropriateness of CATs as tools to improve teaching and learning. More specific data describing faculty perceptions of CATs were gathered through the application of a questionnaire designed by the researcher. (See Appendix C for a copy of the Faculty Participant Questionnaire.) The questionnaire was piloted in late October with a group of faculty who had been trained in Classroom Assessment Techniques, but were not involved in the study.

The CUCEI Instrument

The College and University Classroom Environment Inventory (CUCEI) instrument was chosen for this study because it has been used with success in the past by Catlin and Kalina in their 1993 study of the application of CATs to colleges in California. The instrument

> is a 49 question survey which asks students their opinions of the class environment. The instrument was found to be valid and reliable when used in technical schools in Australia and at universities in the United States. (Catlin & Kalina, 1992, p. 28)

Four forms of the CUCEI were created. The Student Control and the Faculty Control forms only had questions gathering demographic data added to the original 49 items. The researcher added 7 items to the Student Participant form that explored student perceptions of Classroom Assessment (See Appendix J). The Faculty Participant form of the modified CUCEI had 11 items added by the researcher to explore faculty participants' perceptions of the effect of the application of CATs (See Appendix J). Demographic data also was gathered on the Faculty and Student Participant groups to aid in the judgment of the generalizability of the data to the population (See Appendix J).

In the period that this instrument was administered, students were given a verbal overview of the research study, assurances of their privacy and anonymity and an opportunity to opt out of the study. Students who volunteered to participate were then asked to sign a consent form. This procedure and the completion of the instrument required approximately 30 minutes. (See Appendix B for copies of the four forms of the modified CUCEI instrument.)

Data Entry

Data gathered through the application of the modified CUCEI were entered into electronic form by a professional data entry firm. All data were entered from its original response form as it was seen - that is, if there was an A in the box, an A was entered. All data were entered twice by two different clerks and then the files verified to ensure accuracy. Blank response boxes or those that contained more than one letter were considered to be invalid responses. One control student response form was eliminated from the study due to 80% invalid responses on the form. The student had entered many letters other than A to D on the form which indicated a lack of understanding of the instructions, the statements and the purpose of the questionnaire. The data were entered into a flat ASCII file.

Data Preparation

Because the data were entered alphabetically, they needed to be transformed into numeric data to facilitate analysis. Items on the modified CUCEI were either positively or negatively worded. An example of a positively worded item is "The students look forward to coming to class." The positively worded item responses were transformed such that A=5 (Strongly Agree). B=4 (Agree). C=2 (Disagree) and D=1 (Strongly Disagree). All invalid responses were given a value of 3. This was done because all of the responses that had more than one letter in the response box for an item were a B/C response, indicating a neutral response to the item. To determine why students might leave a response blank, a class that had completed the inventory was consulted. They indicated that if they left an item blank, it was because they had no feeling about that item. Negatively worded items had the order of transformation to numeric values reversed {A=0 (Strongly Agree), B=1 (Agree), C=4 (Disagree) and D=5 (Strongly Disagree)} with invalid responses scoring a value of 3. An example of a negatively worded item is "Students are dissatisfied with what is done in the class." The negatively worded items were numbers 2, 3, 6, 7, 11, 13, 16, 19, 24, 25, 26, 29, 30, 31, 32, 35, 36, 40. 42, 43, 44, 45, 48, 49, 50 and 53.

The Sample

The sample for this study consisted of ten instructors from the cooperating institution. For each of the instructors, the students of one class were sampled, with the exception of one instructor for whom three classes were sampled. This instructor had three sections of the same course and was applying CATs in all three of the classes for consistency. This situation allowed a unique opportunity to include more students in the sample. In addition, four instructors and an appropriate class of each of the instructors was chosen to be the control.

The sample instructors were self-selected from the pool of faculty trained in Classroom Assessment Techniques. The Faculty Participant group was reduced from the self-selected group of 17. Faculty were eliminated from the study, by the researcher, if they did not teach in a lecture style class (as opposed to a laboratory class), or had classes of a duration other than 16 or 17 weeks. There was also some attrition due to health and time factors. Instructors designated the sample class from their teaching assignment. That is, they chose the class in which they would apply the CATs.

The control instructors were selected by the researcher from faculty who volunteered to be involved in the study as members of a control group and had not had experience or training in CATs. Care was taken to select one faculty member from each of the four divisions of the institute.

The incentives for faculty to participate in the study included receiving training in Classroom Assessment Techniques, a copy of Classroom Assessment Techniques: A Handbook for College Teachers by Angelo and Cross (1993), and support from the researcher, participating faculty and the staff training department of the cooperating institution. All members of the Faculty Participant and Faculty Control groups received a copy of the results of the study, as well as information about their classes, as gathered through the application of the modified College and University Classroom Environment Inventory.

Training of Participants

Through cooperation with the staff training group at the cooperating institution, an appropriate expert trainer was chosen to train all faculty who wished to be trained in CATs. The training was customized to suit the participants' needs, knowledge and experience. An outline of the training session follows.

Workshop Goals:

- To develop an understanding of Classroom Assessment Techniques
- To develop learning goals that fit your students and your curriculum
- To plan a Classroom Assessment project for one class

Agenda, Day One:

- Introductions and Goals
- Classroom Assessment: Overview

- Classroom Assessment Project Scenarios
- Ideal Student Assessment Responses
- Benefits and Barriers to Classroom Assessment
- Break
- Scenarios for Responding to Student Feedback
- The Student's Problem is Our Problem
- Designing Student Learning Goals
- Wrap-up, Assignment for Day 2

Agenda, Day Two:

- Goals for the Day; Assignment Review
- Planning a CATs Project for One Class
- Cautions and Clarifications
- Organizational Snags and Supports
- Break
- More Planning: It's All in the Details
- How Does Culture Affect Learning?
- Going Public: How Will You Share Your Results?
- Loose Ends and Summary

Obler, S. (1995, May 29).

Piloting the Instruments

In October, prior to gathering data, the instruments and the response forms were piloted. The student pilot group consisted of five students who had exposure to Classroom Assessment Techniques and volunteered to be in the pilot group. Two of the students completed the Student Control form of the modified College and University Classroom Environment Inventory (CUCEI) and response form and three completed the Student Participant form of the modified CUCEI and response form. Due to their critique, minor wording and formatting changes were made to the forms.

Firstly, the original CUCEI used SA, A, D and SD as the responses respectively representing Strongly Agree, Agree, Disagree and Strongly Disagree. The modified

CUCEI used in this study used A, B, C, and D to represent these responses respectively. Secondly, the changes in wording of specific items of the original 49 items of the CUCEI were done to facilitate understanding of the meaning of the item. The changes are illustrated in the following table.

Table 2 - Changes Made to the Original Items of the CUCEI

Item	Original Wording	Modified Wording
4	The students look forward to coming to classes.	The students look forward to coming to class.
16	Students "clockwatch" in this class.	Students constantly watch the clock in this class in anticipation of its end.
22	The instructor helps each student who is having trouble with the work.	The instructor makes sure each student who is having trouble with the work receives help.
27	Teaching approaches in this class are characterized by innovation and variety.	Teaching approaches in this class are generally innovative and have variety.

The participant faculty CUCEI and questionnaire were piloted by a group of four instructors who were trained in the use of CATs, but were not involved in the study. No changes were made due to this group's input.

Ethical Concerns and Considerations

Faculty were invited for training in Classroom Assessment Techniques by the processes normally used by the cooperating institution. That is, faculty sought out the training in response to advertising by the cooperating institution. The training was two days long and occurred during the normal inservice period. Mid-morning of the second day, an information document for research participants (See Appendix A) was distributed to the trainees describing the study, including a description of the time commitment, the information that would be gathered, and how that information would be used. Faculty were assured in the information document, as well as verbally, that they would be able to opt out of the study at any time and that all data gathered would not be released by the researcher to any third party. Participants were asked to read the information document and to consider being involved in the study. Faculty were then asked to indicate their interest in being involved in the study by completing a simple instrument (see Appendix A). Thus the consent of faculty to participate was based on information about the study and a familiarity with the techniques (CATs) that they were asked to administer. Faculty were asked to sign a consent form prior to their inclusion in the study (See Appendix A).

In the week prior to the administration of the CUCEI, students in the treatment class from which data was gathered, were informed, through the reading of an open letter (See Appendix A) to students, of the type of data that would be gathered and for what purpose.

At the time that the CUCEI was administered, the researcher began by introducing herself to the class and thanking the classroom teacher for making the time available for the students to complete the survey. The classroom teacher was then excused from the classroom and students were given an explanation about the study (See the Introductory Script in Appendix A). Those who wished to opt out of the study were given the opportunity to leave. This was done so that a student's non-participation in the study would not be known by the classroom instructor, and consequently, students that chose to opt out were assured that their decision would not affect their grade. There were very few students who chose to opt out of the study; that is, student attrition was negligible. Consent forms were distributed and students were asked to sign them and return the form to the researcher as an indication of their willingness to participate in the study. A copy of the consent form is included in Appendix A. The modified CUCEI was completed anonymously by students and random identification numbers were applied to the surveys after completion for the researcher's use only. Thus, individual students could not be identified. Student surveys were coded to their instructor so that instructors could receive information about their class's perception of the classroom environment. All completed student and faculty Modified CUCEIs and Faculty Participant Questionnaires were destroyed on the day after the successful defense of the thesis. During the course of the study, all raw data were stored in a locked room in the researcher's home.

Conclusion

This chapter outlined the process of receiving permission to perform the research in the cooperating institution, described the method of choosing the sample participants and control participants, described the training (treatment) that they received and addressed ethical concerns and considerations. In the next chapter, the data collected through the application of the surveys will be analyzed and reported.

CHAPTER IV - PRESENTATION OF RESULTS

Introduction

This chapter presents the research findings gathered using the modified College and University Classroom Environment Inventory and the open-ended Faculty Participant Questionnaire.

The chapter is organized in two major sections. The first section deals with demographic information and results around classroom environment gathered using the modified College and University Classroom Environment Inventory (CUCEI). The second section deals with the perceptions of faculty about the application of Classroom Assessment Techniques (CATs) and faculty and student perceptions of the appropriateness of CATs as a quality improvement tool. This information was gathered with the long answer Faculty Participant Questionnaire and a section of the modified CUCEI. For clarity, data are organized into tables. Bolded items in the tables are of special interest and are discussed in more detail in the text of the thesis. An alpha level of 0.05 was used for all statistical tests. Some of the minor findings are commented on in this chapter with no further discussion. Findings that are of more interest are discussed more thoroughly in Chapter V.

The first section begins with a description of the faculty sample, followed by a demographic description of the Faculty Control group and the demographics of the entire faculty population of the cooperating institution. This portion concludes with comments on the congruence of the groups used in the study to the population of the institution.

Demographic information of the student population of the study follows and a comparison is made to the demographic information about the entire student population supplied by the cooperating institution. The findings regarding classroom environment are then presented including some serendipitous findings regarding CATs, Classroom Environment, Gender and the Office Administration Program.

The second section of the chapter reports faculties' experience with the application of CATs to their classes and both faculty and student perceptions of the use of CATs as a quality improvement tool. This section reports the findings gathered from faculty with the open-ended Faculty Participant Questionnaire and the portion of the CUCEI that dealt with CATs. This section reports the CATs used by the faculty, the most frequently used and helpful CATs, difficulties encountered in the use of CATs, and the difficulties faculty encountered in their application of CATs. The benefits and drawbacks of CATs as perceived by faculty are reported. The last portion of this section deals with CATs and the quality of the teaching and learning experience, CATs as a tool for improving quality, and faculty and student perceptions of CATs as a CQI tool. The chapter ends with a conclusion.

Faculty Demographics

Demographic Characteristics of the Faculty Participant Group

Ten faculty were involved in the study as the participant group. There were five males and five female instructors, with teaching experience ranging from less than one year to more than ten years of experience. Two instructors were from each of the Engineering Technologies Division and Health Sciences Division, five from the Business Division and one from the Industrial Division. All instructors were from different programs with the exception of three instructors from the Office Administration Program.

The Office Administration Program is unique in that it resides at a satellite campus and has an exclusively female faculty and student body. Participant Faculty demographic data is displayed in Table 3.

Table 3 - Demographic Characteristics of Faculty Participant Group

Participant Faculty	Gender	Age	Education	Experience (Years)	Division
1	Male	45-55	Bachelor's	10+	Engineering
2	Male	35-45	Bachelor's	10+	Business
3	Female	35-45	Diploma	4-6	Business
4	Female	35-45	Bachelor's	4-6	Business
5	Female	35-45	Bachelor's	7-10	Business
6	Male	25-35	Diploma	4-6	Health Sciences
7	Male	25-35	Bachelor's	4-6	Industrial
8	Female	45-55	Bachelor's	7-10	Business
9	Female	25-35	Diploma	0-3	Health Sciences
10	Male	45-55	Bachelor's	10+	Engineering

Alternatively, the demographic information can be arranged according to the characteristics of the group to aid in determining the representability of the Faculty Participant group of the larger population (See Table 3a).

Table 3a - Demographic Characteristics of Faculty Participant Group (n=10)

Gender	**Male**	**Female**		
n=10	5	5		
Percent	50%	50%		
Age	**25-34 Years**	**35-44 Years**	**45-54 Years**	**55+ Years**
n=10	3	4	3	0
Percent	30%	40%	30%	0%
Education	**Journeyman**	**Diploma**	**Bachelor's**	**Post Grad Degree**
n=10	0	3	7	0
Percent	0%	30%	70%	0%
Experience	**0-3 Years**	**4-6 Years**	**7-16 Years**	**10+ Years**
n=10	1	4	2	3
Percent	10%	40%	20%	30%
Division	**Industrial**	**Health Sciences**	**Engineering**	**Business**
n=10	1	2	2	5
Percent	10%	20%	20%	50%

Demographic Characteristics of the Faculty Control Group

The Faculty Control group consisted of one instructor from each of the four divisions. These faculty were volunteers and were accepted into the study because their classes were of the same duration (16 or 17 weeks) as the Faculty Participant group's classes. The demographic characteristics of the Faculty Control group are summarized in Table 4.

Table 4 - Demographic Characteristics of Faculty Control Group

Control Faculty	Gender	Age (Years)	Education	Experience (Years)	Division
1	Female	35-45	Post Grad Deg	4-6	Health Sci.
2	Female	35-45	Bachelor's	4-6	Business
3	Male	45-55	Bachelor's	7-10	Industrial
4	Female	35-45	Bachelor's	7-10	Engineering

Demographic Characteristics of the Cooperating Institution's Faculty

In consideration of the generalizability of results of the study, demographic information was solicited from the Employee Relations department of the cooperating institution for all the salaried academic staff for the 1995-96 academic year (Table 5).

Table 5 - Demographic Characteristics of Cooperating Institution's Faculty - 1995 - 1996 Academic Year

Gender	**Male**	**Female**			
n=726	589	137			
Percent	81%	19%			
Age	**25-34**	**35-44**	**45-54**	**55+**	
n=726	34	237	322	133	
Percent	4.7%	32.6%	44.3%	18.3%	
Education	**Journeyman**	**Diploma**	**Bachelor's**	**Post Grad**	**Other**
n=726	132	154	286	140	14
Percent	18.2%	21.2%	39.4%	19.3%	1.9%
Experience	**0-3 Years**	**4-6 Years**	**7-10 Years**	**10+ Years**	
n=726	94	115	89	428	
Percent	12.9%	15.8%	12.3%	58.9%	
Division	**Industrial**	**Health Sciences**	**Engineering**	**Business**	**Other**
n=726	219	85	225	156	41
Percent	30.2%	11.7%	31.0%	21.5%	5.6%

Source: D. Willott, personal communication, December 11, 1995, January 2, 1996.

It is very difficult with such a small sample for both the participant and control groups to make any strong claims for representability of the sample to the population of the institution. Certainly, the study contained a much higher percentage of females than the larger population would predict. This higher representation of females could be due to a number of reasons. Firstly, the Office Administration Program had three instructors involved in this study, all of whom were female because the Office Administration Program is exclusively female. It is logical that a relatively large number of instructors from this program would volunteer to be trained in CATs and be involved in the study as the Office Administration Program is one of the most advanced programs in terms of their involvement in Continuous Quality Improvement (CQI) principles. Since CATs was advertised in the training brochure as a method of improving the teaching and learning experience, it is logical that these instructors would be open to such an innovation. In addition, one of the three instructors was familiar with CATs before the training and inception of this study and encouraged her colleagues to attend and become involved. One of the five characteristics Rogers (1983) outlines as important to the adoption of innovations is observability - whether a potential adopter has seen others using this innovation.

The Office Administration Program faculty are a relatively cohesive unit that are attempting to use the team/cooperative structure both in their management of the program and in their classes. Thus, two other characteristics that Rogers (1983) describes as important to the adoption of innovations would be applicable: (a) perceived relative advantage of the use of the innovation to the context and, (b) compatibility with existing values.

Secondly, the relatively high representation of females in this study could be due to a general predisposition of females to be open to innovations and change. Wangen (1982) conducted a study "of the relationships between organizational and personal characteristics and responses to innovation (in schools)" (p. 1). "Although differences were not significant, females were slightly more receptive to change, were somewhat more group-identified, and felt a lower sense of power. Multiple regression analysis revealed a strong female pattern predictive of receptivity (to change and innovation)" (p. 8).

Thirdly, the Office Administration Participant Faculty felt that females tend to value interpersonal relationships and communication skills in their teaching styles and so are attracted to an innovation that lends itself to having a positive impact on these skills.

The mean age of the faculty involved in the study (40 years) was slightly lower than the mean age of the general population of the institute (48 years). Similarly, the years of teaching experience (70% in the 4-10 year range) is less than the general population of the institute (59% in the 10+ years range). This too is logical as the older population would again be less open to innovations as they begin to look forward to retirement. Also, the older, more experienced population would be relatively secure in their employment and may not feel pressured to work towards improving the teaching and learning environment in the same way that untenured staff might. Thus, they would be less likely to become involved in innovative methods of teaching out of fear of losing their employment. More experienced staff have been retained over the years and so have reason to believe that their present method of presenting instruction is of acceptable quality. They are satisfied with their performance and do not necessarily seek ways of improving it.

The highest educational level achieved by the faculty involved in the study is congruent with the education levels of the faculty throughout the institute. Over 61% of the population of the cooperating institution have either diplomas or baccalaureate degrees. The participants of the study had 93% fall in this range (10 participant faculty and 3 control faculty).

Considering the demographic information as a whole, with the exception of gender, the participant and control faculty groups appear to be reasonably representative of the faculty of the cooperating institution.

Student Demographics

Demographic Characteristics of the Student Participant Group

The Student Participant group consisted of twelve classes representing all four divisions of the institute. Seven of the classes were from the Business Division with five of them from one program - the Office Administration Program. There were two classes each from the Health Sciences Division and the Engineering Technologies Division and one class from the Industrial Division. Demographic characteristics of the Student Participant group are summarized in Table 6.

Table 6 - Demographics of Student Participant Group

Gender	**Male**	**Female**		
n=228	78	150		
Percent	34.2%	65.8%		
Age	**17-21**	**22-26**	**27-31**	**32+**
n=228	132	66	11	19
Percent	57.9%	28.9%	4.8%	8.3%
Education	**High School**	**1 Yr. Post Sec.**	**2 Yr. Post Sec.**	**Journeyman**
n=228	100	65	52	11
Percent	43.9%	28.5%	22.8%	4.8%

Demographic Characteristics of the Student Control Group

The Student Control group consisted of four classes, one from each division of the cooperating institution. The class sampled from the Engineering Technologies Division was smaller than usual due to a high number of students from that class declining to participate in the completion of the CUCEI. The demographic characteristics of the Student Control group are summarized in Table 7.

Table 7 - Demographic Characteristics of the Student Control Group

Gender	**Male**	**Female**		
n=82	36	46		
Percent	43.9%	56.1%		
Age	**17-21 Years**	**22-26 Years**	**27-31 Years**	**32+ Years**
n=82	54	19	5	4
Percent	65.8%	23.2%	6.1%	4.9%
Previous Education	**High School**	**One Year Post Sec.**	**Two Years Post Sec.**	**Journeyman**
n=82	53	18	9	2
Percent	64.6%	22.0%	11.0%	2.4%

Demographic Characteristics of the Cooperating Institution's Student Body

Demographics for the student body of the cooperating institution were supplied to the researcher by the Research and Academic Development unit of the institution. The most recent demographics for students available were for the 1994-5 academic year (Table 8). Since the demographics change only in very minor ways from year to year, it was decided that this information could be used as a reference. Only those students registered in full-time programs were included in these demographics as the Participant and Control Student groups were only in full-tine programs.

Table 8 - Demographic Characteristics of the Cooperating Institution's Student Body - 1994 - 1995 Academic Year

Gender	**Male**	**Female**		
n=6460	4091	2369		
Percent	63.3%	36.7%		
Age	**17-21 Years**	**22-26 Years**	**27-31 Years**	**32+ Years**
n=6240	3626	1397	455	762
Percent	58.1%	22.4%	7.3%	12.2%
Education	**High School**	**Some Post Sec.**		
	62%	38%		

Source: Jeff Donnelly, Research and Academic Development, personal communication, December 21, 1995.

The demographics for both the Student Control and Student Participant groups are congruent with the demographics for the student body of the cooperating institution when we look at the age of the students. The mean ages were 22.7 years, 21.8 years and 22.9 years respectively for the Student Participant, Student Control and student body groups. Interestingly, although the members of the Student Participant group in this study were as young as the general population of the institution, they appear to have a higher level of education prior to attending the institution with 56.1% having some post secondary education as compared to 38% for the general population. This could be due to the second year classes involved in the study counting their first year as "Previous

Education." The control group however, is congruent with the general population with 35.4% having previous post secondary education.

Due to the high number of classes from the Office Administration Program which has an exclusively female student body, there is an over-representation of females in the participant and control groups - 65.8% and 56.1% respectively. This is high when compared to 36.7% in the general population. The control group has a higher than expected number of females because the class from the Health Sciences Division was almost exclusively female (only one male student out of a class of 25) and the class from the Engineering Technologies Division which is normally highly represented by males was poorly attended (13 out of a potential 40).

Classroom Environment

The Scales and Variables of the CUCEI

Results regarding classroom environment were gathered using the modified College and University Classroom Environment Inventory (Treagust & Fraser, 1986). The original inventory contains seven scales that describes the psychosocial characteristics of the learning environment. For the purpose of this study, the sum of these seven scales describes the Classroom Environment Variable. Thus, the seven classroom environment scales examine components of the Classroom Environment Variable.

The Personalization (PERS) scale focuses on the relationship dimension of student interaction with the instructor. The "emphasis is on opportunities for individual students to interact with the instructor and on concern (of the instructor) for students' personal welfare" (Treagust & Fraser, 1986, p. 8). Students feel more comfortable in a learning environment if they feel that they have a personal relationship with the instructor.

The Involvement (INV) scale explores the students' relationship with the learning activities that occur in the learning environment. It measures the "extent to which students participate actively and attentively in class discussion and activities" (Treagust & Fraser, 1986, p. 8). Students are most satisfied with their learning environment if they are actively involved.

The Student Cohesiveness (STCO) scale focuses on the relationship dimension of students' interactions with each other. This scale measures the "extent to which students know, help and are friendly toward each other" (Treagust & Fraser, 1986, p. 8). In a classroom that has a high rating of Student Cohesiveness, students will feel comfortable interacting in groups that vary in their membership as they feel that they are accepted and liked by their peers.

The Satisfaction (SAT) scale measures a students' overall enjoyment of the class. A high score on the Satisfaction Scale would indicate that a student enjoys the class and looks forward to attending.

The Task Orientation (TSKO) scale focuses on the personal development of the students of the class. This scale measures the degree to which students are clear on what needs to be accomplished and that the task is appropriate for the learning goals of the class. Treagust and Fraser (1986) describe this scale as the "extent to which class activities are clear and well organized" (p. 8).

The Innovation (INN) scale examines the system change dimension of the class. That is, it measures "the extent to which the instructor plans new, unusual class activities, teaching techniques, and assignments" (Treagust & Fraser, 1986, p. 8). Students like a variety of activities to be offered in a class.

The Individualization (IND) scale also focuses on the system change dimension of the class. This change is focused on adaptation of the system to individual needs, interests, and strengths. This scale measures the "extent to which students are allowed to make decisions and are treated differentially according to ability, interest, and rate of working" (Treagust & Fraser, 1986, p. 8). Students want to be treated as unique individuals.

Descriptions of the seven original scales of the College and Classroom Environment Inventory are presented in Table 9.

Table 9 - Descriptive Information for Each Scale in Original CUCEI

Scale Name	Scale Description	Sample Item
Personalization (PERS)	Emphasis on opportunities for individual students to interact with the instructor and on concern for students' personal welfare.	The instructor goes out of his/her way to help students.
Involvement (INV)	Extent to which students participate actively and attentively in class discussions and activities.	The instructor dominates class discussion.
Student cohesiveness (STCO)	Extent to which students know, help and are friendly toward each other.	Students in this class get to know each other well.
Satisfaction (SAT)	Extent of enjoyment of classes.	Classes are boring.
Task orientation (TSKO)	Extent to which class activities are clear and well organized.	Students know exactly what has to be done in our classes.
Innovation (INN)	Extent to which the instructor plans new, unusual class activities, teaching techniques, and assignments.	New and different ways of teaching are seldom used in this class.
Individualization (IND)	Extent to which students are allowed to make decisions and are treated differentially according to ability, interest, or rate of working.	Students are allowed to choose activities and how they will work.

Treagust & Fraser, 1986, p. 8.

In addition to these seven scales, an eighth scale was added by the researcher to look at Student and Faculty Participants' perceptions of the application of Classroom Assessment Techniques (CATs) to the teaching and learning situation. An example of a CATs item on a student inventory is "All instructors should use classroom assessments." A faculty inventory example is "CATs is an easy tool to use."

Descriptive Statistics

Student Participant and Faculty Participant forms of the CUCEI contained the 7 original classroom environment scales and the eighth scale added by the researcher to investigate student perceptions of Classroom Assessment. The descriptive statistics of the responses of these groups are summarized in Tables 10 and 11 respectively. Since each scale contains seven items, and the responses to each scale were valued ranging from 1 to 5, the lowest score a scale could receive is 7 and the highest 35.

Table 10 - Descriptive Statistics of the CUCEI - Student Participant Group (n=230)

Scale	Mean	Minimum	Maximum	Standard Deviation
Personalization	28.53	12	35	4.76
Involvement	25.75	13	34	4.09
Student Cohesiveness	29.57	14	35	4.59
Satisfaction	25.94	7	35	6.18
Task Orientation	27.17	10	35	5.07
Innovation	22.78	10	35	5.31
Individualization	19.98	9	34	4.65
Classroom Assessment	27.65	9	35	5.15

Table 11 - Descriptive Statistics of the CUCEI - Faculty Participant Group (n=9*)

Scale	Mean	Minimum	Maximum	Standard Deviation
Personalization	31.56	27	35	3.00
Involvement	25.11	22	29	2.42
Student Cohesiveness	28.78	20	35	5.54
Satisfaction	28.22	20	32	3.46
Task Orientation	28.00	24	31	2.60
Innovation	20.56	14	27	5.08
Individualization	18.33	13	27	5.07
Classroom Assessment	45.44** (28.92)***	37** (11.3)***	53** (33.7)***	5.03** (3.20)***

* n=9 for this table because one Participant Faculty member did not complete the first 49 items of the modified CUCEI which comprise these scales.

** The Classroom Assessment scale on the Participant Faculty form consisted of 11 items. Thus the minimum possible score is 11 and the maximum possible score is 55.

*** These are the proportionate values for the Classroom Assessment scale based on a total possible of 35. These are the values that were used for all subsequent statistical analysis.

When we exame Tables 10 and 11 we note that the student minimum scores are substantially lower than the faculty minimum scores. This would indicate that in the Student Participant group, there was at least one student that was somewhat disatisfied with that particular aspect of classroom environment. and thus scored the scale low. The high student maximum of 34 or 35 would indicate that there is at least one student that was very satisfied with that environment scale and scored it highly. Faculty were more moderate in their perceptions, shown by the moderate scores in both the minimum and maximum columns. The inflated value for the Classroom Assessment scale in the Faculty Participant group (Table 11) is due to that scale having 11 items rather than the normal 7. The value in brackets is the proportionate score out of a possible 35 that was used in all the statistical analysis.

The following two tables describe the Student and Faculty Control groups' results of the CUCEI (Table 12 and 13 respectively). Note that only seven scales are reported as the scale describing respondents attitudes towards Classroom Assessment Techniques (CATs) was not included in the Faculty and Student Control forms of the CUCEI as these groups had no experience with CATs.

Table 12 - Descriptive Statistics of the CUCEI - Student Control Group (n=82)

Scale	**Mean**	**Maximum**	**Minimum**	**Standard Deviation**
Personalization	28.66	14	35	5.06
Involvement	24.63	9	34	5.45
Student Cohesiveness	28.00	11	35	5.68
Satisfaction	26.56	7	35	6.68
Task Orientation	27.68	16	35	4.50
Innovation	22.22	9	34	6.00
Individualization	19.35	7	30	5.29

Table 13 - Descriptive Statistics of the CUCEI - Faculty Control Group (n=4)

Scale	Mean	Maximum	Minimum	Standard Deviation
Personalization	28.75	25	33	3.50
Involvement	21.00	15	26	4.55
Student Cohesiveness	25.50	23	28	2.38
Satisfaction	28.00	27	30	1.41
Task Orientation	30.75	21	35	6.65
Innovation	15.50	8	24	7.33
Individualization	16.00	11	21	4.16

To facilitate analysis of a general variable of Classroom Environment, the seven scales that refer to the components of classroom environment measured by the CUCEI were summed to create a Classroom Environment Variable. The minimum and maximum that could appear for the Classroom Environment Variable are 49 and 245, respectively. The Classroom Environment Variable for each of the four groups are summarized in Table 14.

Table 14 - Descriptive Statistics of the Classroom Environment Variable for All Groups

Group	Mean	Maximum	Minimum	Standard Deviation
Student Participant	179.72	114.00	233.00	23.95
Student Control	177.11	98.00	222.00	30.07
Faculty Participant	180.56	158.00	206.00	13.53
Faculty Control	165.50	148.00	188.00	8.45

Correlational Statistics

Pearson Product Moment correlations were performed on the data, grouping the sample to reveal interesting correlations. First, all participants (students and faculty) were grouped together and correlations run on all the CUCEI scales including the Classroom Assessment Techniques (CATs) scale (Table 15). Secondly, correlations were run on the classroom environment scales contained in the CUCEI without the CATs scale on the entire control group (faculty and students) (Table 16). Thirdly, the sum of the seven classroom environment scales, the Classroom Environment Variable was correlated with the CATs scale (Table 17).

Table 15 - Intercorrelations Among Classroom Environment Scales and the Classroom Assessment Technique Scale

Faculty and Student Participant Groups (n=239)

Scale	PERS	INV	STCO	SAT	TSKO	INN	IND	CATS
PERS*	1.00							
INV*	0.61	1.00						
STCO*	0.15	0.25	1.00					
SAT*	0.49	0.57	0.31	1.00				
TSKO*	0.39	0.52	0.28	0.74	1.00			
INN*	0.36	0.46	0.16	0.48	0.46	1.00		
IND*	0.33	0.40	0.17	0.21	**0.11****	0.37	1.00	
CATS*	0.36	0.31	0.11	0.45	0.48	0.23	0.12	1.00

Note: **= Not significant at p=0.05 (One-tailed probability)
* PERS = Personalization
* INV = Involvement
* STCO = Student Cohesiveness
* SAT = Satisfaction
* TSKO = Task Orientation
* INN = Innovation
* IND = Individualization
* CATS = Classroom Assessment Techniques

All of the correlation coefficients in Table 15 were statistically significant at p<0.0500 with the exception of Individualization crossed with Task Orientation. This may be an indication of the amount of influence that group and team work has in the group of classes involved in the study. Four of the classes involved in the study were working with cooperative learning techniques. Students do not necessarily have to feel that they are being treated as an **individual** to feel that they are on task. Faculty perceive that treating students as members of a **group** can increase task orientation. Most importantly, all of the 7 scales of classroom environment correlated significantly with the CATs variable.

Next, correlations were run on the classroom environment scales contained in the CUCEI without the CATs scale on the entire control group (faculty and students). The CATs scale was not included for these two groups as they had no experience with Classroom Assessment Techniques. It would be reasonable to assume that all of the variables would correlate as the inventory was designed to look at those aspects of environment that lead to a satisfying, quality environment. The data from these correlations are summarized in Table 16.

Table 16 - Intercorrelations Among Classroom Environment Scales

Faculty and Student Control Groups (n=86)

SCALE	PERS	INV	STCO	SAT	TSKO	INN	IND
PERS*	1.00						
INV*	0.71	1.00					
STCO*	0.49	0.63	1.00				
SAT*	0.80	0.77	0.49	1.00			
TSKO*	0.45	0.38	0.34	0.58	1.00		
INN*	0.57	0.64	0.36	0.58	**0.07****	1.00	
IND*	0.58	0.61	0.45	0.48	0.23	0.51	1.00

Note: **= Not significant at p=0.05 (One-tailed probabilty)
* PERS = Personalization
* INV = Involvement
* STCO = Student Cohesiveness
* SAT = Satisfaction
* TSKO = Task Orientation
* INN = Innovation
* IND = Individualization

Again, all correlations in Table 16 are statistically significant at p<0.0500 with the exception of Innovation correlating with Task Orientation. It would seem that control students and faculty do not see a relationship between Innovation and Task Orientation. These groups may not feel that increases in innovation will **necessarily** positively affect task orientation. The participant groups did perceive a relationship between task orientation and innovation, perhaps because they had been exposed to the innovation of Classroom Assessment. Since the control groups may not have experienced an innovation that affected task orientation, they did not perceive a relationship between the two variables.

To determine whether the application of Classroom Assessment Techniques (CATs) made an impact on classroom environment, the seven classroom environment scales of the CUCEI were summed to give an overall score which was named the Classroom Environment Variable. Correlations were done with the CATs scale and the Classroom Environment Variable.

The use of Classroom Assessment Techniques correlated moderately with the Classroom Environment Variable for the Student Participant group with a statistically significant (p<0.0001) correlation coefficient of 0.5335. When the Faculty Participant group was included with the Student Participant group to examine all participants, the correlation coefficient showed a low moderate correlation of 0. 4402. This data is summarized in Table 17.

Table 17 - Correlations Between CATs and Classroom Environment

Group	Classroom Environment Vs CATs	
Student Participant (n=230)	0.5335	p<0.0001
Student Participant + Faculty Participant (n=239)	0.4402	p<0.0001

T-tests

T-tests were done comparing the classroom environment scales for the Student Participant group and the Student Control group (Table 18). Only two scales showed a significant difference in the means with the Student Participant group scoring higher.

Table 18 - T-tests on Classroom Environment Scales - Student Participant Vs. Student Control Groups

Scale	Mean		t Value	p	Valid N	
	Participant	Control			Participant	Control
Involvement	25.75	24.63	0.797	0.054	230	82
Student Cohesiveness	29.57	28.00	2.484	0.014	230	82

The t-tests summarized in Table 18 show that, with the addition of Classroom Assessment Techniques, students felt slightly more involved in their learning and had a stronger sense of cohesiveness than the control group students. Since four of the student participant classes were also involved in the cooperative learning process. some of this sense of involvement and cohesiveness could be due to this influence.

A set of t-tests were run comparing the means of the classroom environment scales of the CUCEI for faculty with the student means to see if there was a marked difference in perceptions about classroom environment between faculty and students (Table 19). Only two scales showed a significant difference ($p<0.05$) between faculty and students - those of Satisfaction and Innovation. These results must be viewed with a critical eye due to the large difference in numbers between the two groups (Student $n=312$, Faculty $n=13$).

Table 19 - T-tests on Classroom Environment Variables - All Students Vs. All Faculty

Scale	**Mean**		**t Value**	**p**	**Valid N**	
	Students	**Faculty**			**Students**	**Faculty**
Satisfaction	26.11	28.15	-1.16	0.033	312	13
Innovation	22.63	19.00	2.33	0.021	312	13

It would appear that faculty are significantly more satisfied with the classroom environment than their students are (Table 19). This is not unusual; "...instructors perceived their classes more favorably on several environment scales than did their students in the same classrooms (Treagust & Fraser, 1986, p. 16). Faculty often miss the subtle influences that students perceive in the classroom.

Students, on the other hand, are significantly more "impressed" with the innovativeness of their instructors than the instructors are (Table 19). This could be due to the inexperience of the students with the newer methods of enhancing teaching and learning that the instructors view as routine.

T-tests were done comparing the Classroom Environment Variable for the entire participant group (Faculty plus Student Participant groups) and the control group (Faculty plus Student Control groups). There was no significant difference between the measures of the Classroom Environment Variable for either group. Thus, from this study, we cannot assume that the application of Classroom Assessment Techniques, in itself, affects classroom environment significantly. However, the control group was formed by a group of instructors who volunteered to be in the study. These self-selected participants were instructors who were highly thought of in the institute and, not surprisingly, have a positive classroom environment.

The Office Administration Program

Since the Office Administration Program participants were such a large group in the study and had many unique characteristics (exclusively female, isolated on separate campus, CQI environment), some statistical analysis was done investigating this group. First, t-tests were run comparing all eight scales from the modified CUCEI (Personalization, Involvement, Student Cohesiveness, Satisfaction, Task Orientation, Innovation, Individualization and Classroom Assessment Techniques) for the Office Administration Student Participant group and the Non-Office Administration Student Participants (Table 20). With the exception of the Student Cohesiveness and Satisfaction scales, all of the t-tests showed a significant difference ($p<0.05$) with the Office Administration (Office Admin.) participants consistently scoring higher.

Table 20 - T-tests on Classroom Environment Variables - Office Administration Program Participants Vs. All Other Participants

Scale	Mean		t-Value	p	Valid N	
	Office Admin.	Other			Office Admin.	Other
Personalization	29.94	27.66	3.61	0.000	87	143
Involvement	27.49	24.69	5.35	0.000	87	143
Student Cohesiveness	29.66	29.51	0.23	0.817**	87	143
Satisfaction	26.49	25.61	1.05	0.293**	87	143
Task Orientation	28.16	26.57	2.32	0.021	87	143
Innovation	24.14	21.96	3.08	0.002	87	143
Individualization	21.69	18.94	4.52	0.000	87	143
Classroom Assessment	28.83	26.93	2.75	0.007	87	143

Note: **= Not significant

When correlations were run comparing the responses to the Classroom Assessment scale and the Classroom Environment Variable, a moderate (0.5385) and significant ($p<0.0001$) correlation for the Office Administration participant students and a moderate (0.4984) and significant ($p<0.0001$) correlation for the Non-Office Administration student participants were found (Table 21). A t-test was done comparing the Classroom Environment Variable for the Office Administration participant group (faculty and students) and the Non-Office Administration participant group (faculty and students) (Table 22). There was a significant difference between these two groups at p<0.0001 with respect to the Classroom Environment with the Office Administration students scoring higher than the Non-Office Administration students. The question then arose, "Is this a programmatic difference or is it a divisional difference?" So the Office Administration participant group was combined with the other Business Division participants and a t-test was done comparing the measures of the Classroom Environment Variable of this larger group to the classes from the other divisions. There was no significant difference. Thus, the more positive classroom environment appears to be unique to the Office Administration Program. Further research would need to be done to determine which variable or combination of variables (CQI environment, gender, isolated campus, etc.) creates this a unique and very positive environment.

Table 21 - Correlation of CATs and Classroom Environment - Office Administration Program Vs. Other Participants

Group	**Classroom Environment Vs CATs**	
Office Administration (n=87)	0.5385	p<0.0001
Other Participants (n=143)	0.4989	p<0.0001

Table 22 - T-test on Classroom Environment - Office Administration Program Vs. Other Participants

Variable	**Mean**		**t Value**	**p**	**Valid N**	
	Office Admin.	**Other**			**Office Admin.**	**Other**
Classroom Environment	187.57	174.94	4.00	0.000	87	143

CATs, Classroom Environment, Gender and the Office Administration Program

When Catlin and Kalina conducted their research using the CUCEI, they found that there was a significant difference in the way females viewed the use of CATs and its impact on classroom environment. With this in mind, correlations and t-tests were done to explore the relationships between the Classroom Environment Variable, the Classroom Assessment Techniques scale, and gender. The statistical analysis that was done moved from the more general groupings of gender through to the more specific relationships between the Classroom Environment Variable and gender considering the impact of the Office Administration Program.

First, t-tests were run on the seven classroom environment scales of the CUCEI for the Student Control group to determine if there was a significant difference in the way males and females view classroom climate generally (Table 23). There was no significant difference on 5 of the 7 scales. Males scored significantly higher on the Task Orientation Scale, whereas females scored higher on the Innovation scale.

Table 23 - T-tests on Classroom Environment Scales for Gender - Control Group (n=82)

Scale	**Mean**		**t Value**	**p**	**Valid N**	
	Male	**Female**			**Male**	**Female**
PERS*	28.53	28.76	-0.21	0.838	36	46
INV*	25.33	24.09	1.03	0.307	36	46
STCO*	29.06	27.17	1.50	0.137	36	46
SAT*	26.97	26.24	0.49	0.625	36	46
TSKO*	29.25	26.46	2.91	**0.005****	36	46
INN*	20.72	23.39	-2.04	**0.045****	36	46
IND*	19.58	19.17	0.35	0.730	36	46

Note: **= Significant
* PERS = Personalization
* INV = Involvement
* STCO = Student Cohesiveness
* SAT = Satisfaction
* TSKO = Task Orientation
* INN = Innovation
* IND = Individualization

A correlation was run for males and females of the Student Participant group relating the Classroom Assessment Techniques scale with the Classroom Environment Variable (Table 24). The purpose was to determine if there was a significantly stronger relationship between CATs and Classroom Environment when one considered gender. There was no significant difference in the correlation coefficients for males (0.4183) and females (0.4220) when correlating CATs and classroom environment. That is, both correlations were low moderate.

Table 24 - Correlations Between CATs and Classroom Environment - Student Participant Group - Male Vs. Female

Group	**Classroom Environment Vs CATs**
Male Student Participant (n=82)	0.4183 p<0.0001
Female Student Participant (n=156)	0.4220 p<0.0001

When t-tests were done comparing the means of the scores of the scales on the CUCEI for all **Student Participants** (Table 25), females (n=151) scored significantly higher (p<0.05) than males (n=78) on all of the scales with the exception of Satisfaction. When one compares this result to the Student Control group (Table 23), where females score significantly higher than males only on the scale of Innovation, it would appear that CATs did affect the females more positively than the males.

Table 25 - T-tests on Classroom Environment Scales for Gender - All Student Participants (n=229)

Scale	Mean		t Value	p	Valid N	
	Male	**Female**			**Male**	**Female**
Personalization	27.63	29.01	-2.09	**0.0380****	78	151
Involvement	24.22	26.52	-4.18	**0.0000****	78	151
Student Cohesiveness	28.44	30.16	-2.73	**0.0070****	78	151
Satisfaction	24.96	26.44	-1.72	0.0862	78	151
Task Orientation	25.36	28.13	-4.03	**0.0001****	78	151
Innovation	21.09	23.69	-3.60	**0.0004****	78	151
Individualization	18.96	20.44	-2.32	**0.0212****	78	151
Classroom Assessment	26.26	28.41	-3.06	**0.0025****	78	151

** = Significant $p<0.05$

Due to the large influence of Office Administration student participants on the larger female group, they were removed and t-tests were done again on all of the scales (Table 26). Now, only Student Cohesiveness, Task Orientation, and Innovation showed significant differences with the Non Office Administration females scoring these variables higher than males.

Table 26 - T-tests on Classroom Environment Scales for Gender - Non Office Administration Student Participants (n=142)

Scale	**Mean**		**t Value**	**p**	**Valid N**	
	Male	**Female**			**Male**	**Female**
Student Cohesiveness	28.53	30.69	-2.70	**0.008****	77	65
Task Orientation	25.38	28.02	-2.92	**0.004****	77	65
Innovation	21.09	23.05	-2.13	**0.035****	77	65

** = Significant $p<0.05$

When we compare the gender differences between all student participant males and females who belong to the smaller sample of Non Office Administration students, and all the female participants including the Office Administration Program students (Table 27), it would appear that some of the differences that could appear to be due to gender are due to the influence of the Office Administration Program. It is interesting to note that the Classroom Assessment and Satisfaction scales did not show a significant difference in any t-test; both males and females think highly of the use of CATs and are satisfied with the classroom environment.

Table 27 - A Comparison of T-test Significance By Gender

Scale	**Non Office Administration Females Vs All Males**	**All Females (Including Office Administration) Vs All Males**
Personalization		Females Significantly Higher
Involvement		Females Significantly Higher
Student Cohesiveness	Females Significantly Higher	Females Significantly Higher
Satisfaction		
Task Orientation	Females Significantly Higher	Females Significantly Higher
Innovation	Females Significantly Higher	Females Significantly Higher
Individualization		Females Significantly Higher
Classroom Assessment		Females Significantly Higher

Summary of College and University Classroom Environment Inventory Findings

In summary, the data gathered by the modified forms of the College and University Classroom Environment Inventory (CUCEI) indicate the following findings.

1. For the Student and Faculty Participant groups in the study, all of the classroom environment scales correlate positively with each other and with Classroom Assessment Techniques with the exception of Individualization vs. Task Orientation. Students do not necessarily have to feel they are being treated as an *individual* to perceive that they are on task. That is, students perceive that *groups* can be task oriented (Table 15).

2. For the Student and Faculty Control groups, Innovation does not correlate significantly with Task Orientation. Control subjects do not feel that increasing the amount of innovation in the classroom will *necessarily* increase the level of task orientation (Table 16).

3. The use of Classroom Assessment Techniques (CATs) correlates moderately with the Classroom Environment Variable with a statistically significant ($p<0.0001$) correlation coefficient of 0.5335 (for the Student Participant group) (Table 17).

4. Students feel more involved in their learning when Classroom Assessment is used in their class (Table 18).

5. Students in this study had a stronger sense of Cohesiveness - that is the "extent to which students know, help and are friendly toward each other" (Treagust & Fraser, 1986, p. 8). This could be due to the application of CATs, but also could be due to the cooperative learning techniques that were being used in some of the participant classes (Table 18).

6. Faculty appear to be significantly more satisfied with the classroom environment than their students are (Table 19).

7. Students perceive their instructors to be more innovative than the instructors perceive themselves to be (Table 19).

8. Office Administration students enjoy a significantly more positive Classroom Environment ($p<0.0001$) having scored significantly higher ($p<0.05$) on the Personalization, Involvement, Task Orientation, Innovation, Individualization and Classroom Assessment Techniques scales of the modified CUCEI that Non Office Administration participant students. This positive classroom environment appears to be unique to the Office Administration Program as the larger, more inclusive Business

Division group of participants did not show this significantly more positive classroom environment (Table 20).

9. Males and females generally view classroom environment similarly (as determined by the Student Control group in this study)(Table 23).

10. Both males and females perceptions of classroom environment are affected similarly by the application of Classroom Assessment Techniques (CATs) (Table 24). (That is, the correlation coefficient of the Classroom Environment Variable correlating with CATs was low moderate for both genders.)

11. The application of Classroom Assessment Techniques affected female participants more than male participants when one compares the t-tests of the Student Participant group (Table 25) to the t-tests of the Student Control group (Table 23). Some of the positive effect can be explained by the influence of the Office Administration Program on a large number of the female participants.

In the next section of the chapter, we begin to specifically look at faculty's experience with Classroom Assessment Techniques during the duration of this study. We will look at both faculty and students' perceptions of the applicability of CATs as an appropriate tool for quality improvement in the classroom.

Classroom Assessment Techniques Used by Faculty

Faculty were asked which Classroom Assessment Techniques they used and how often. These are summarized in Table 28.

Table 28 - Classroom Assessment Techniques Used By Participant Faculty (n=10)

Classroom Assessment Technique	Number of times applied	Percent %
Background Knowledge Probe	11	20.37
Muddiest Point	7	12.96
Minute Paper (Clearest and muddiest points)	6	11.11
Teacher designed feedback form	6	11.11
Course Related Self-Confidence Survey	4	7.41
Classroom Opinion Polls	3	5.56
Assignment Evaluation	3	5.56
Pro and Con Grid	2	3.70
One sentence summary	2	3.70
RSQC2	2	3.70
Exam Evaluation	2	3.70
Empty outlines	1	1.85
Memory Matrix	1	1.85
Concept Mapping	1	1.85
What's the principle?	1	1.85
Group Instructional Feedback Technique	1	1.85
Group-work Evaluation	1	1.85
Total	**54**	**100**

From the previous table, it is apparent that the Background Knowledge Probe was used by virtually all of the instructors in the sample. This is due to the fact that the researcher suggested the use of the Background Knowledge Probe as an acceptable "First CATs" to kick off the study and the semester. Many instructors already use some form of the probe so found it an easy and timely CAT. In addition, at the regularly scheduled support meetings, instructors shared the CATs they had used and how they were received by students. As a result of this sharing, instructors often used CATs that had worked well for others. Also, at the meetings, the researcher facilitated a presentation of the "Featured CAT of the Week" and instructors would tend to try that CAT after it had been presented.

Frequently Used and Most Helpful CATs

Instructors were asked why particular CATs were used more than once. Instructors said that the Muddiest Point and Minute Paper assessments were popular because of their convenience and ease of use. They take little or no preparation, analysis of the results is easy and quick, and very valuable information is received by the instructor. "They were quick and easy & provided info that I could act on quickly to direct the course. If I missed something, these let me know" (Participant). One instructor used the Opinion Poll as a pre- and post-test to determine if there was a shift of opinion on the part of the students. One instructor designed and used two Teacher-Designed Feedback Forms "to assess student preferences and opinions on new delivery of instruction method" (Participant) This instructor was using cooperative learning techniques with students and was probing their response to these techniques.

Although some of the simpler CATs were used a great number of times, when instructors were asked which CAT was the most helpful to them and their class, they most often focused on the assessments which take more time in preparation, application, analysis and feedback. It would seem that when faculty really focus on what they want to get out of the assessment, they are most pleased with the result.

One instructor used an adapted Empty Outline to improve students' learning process in capturing a large amount of material from their classmates. The Memory Matrix was used by the students to organize large amounts of material and they found this helped to fit all the concepts together. The Assignment Assessment was commented on by two instructors who found this CAT was a good way to monitor the amount of work an assignment required and how much learning was gained by the use of the assignment.

Instructors who used an Exam Evaluation for their midterm exams were pleased with the results. One instructor had a small class and so did not receive many suggestions for improvement, but found that students' affirmation of the appropriateness of the exam format and questions valuable. Another instructor felt this CAT allowed students to feel more involved in the process of exam preparation.

Instructors commented on the value of the Course-Related Self-Confidence Surveys. One felt that the use of the survey averted a morale problem because the instructor was able to address the students' feelings of insecurity that were discovered through the use of the probe. Another used the results of the survey to focus on those skills and concepts that students identified as needing more work. Thus the class was able to use its time more wisely. A third instructor identified a gap in instruction and was able to fill that gap in a timely fashion.

Difficulties Encountered In the Use of CATs

When instructors were asked which assessments provided the least helpful information, the responses revealed some of the problems with using assessments without being fully prepared. One instructor used the opinion poll to gather results but the issue that was addressed was one over which the class and instructor did not have control so the class and the instructor were simply frustrated by gathering the data and then not being able to act on it. This highlights the need of instructors to ask "What will I do with the information I receive from this assessment?" when choosing and designing the CAT (Steadman, 1994). Another instructor commented that the use of the Minute Paper was too rushed with insufficient explanation given to students. This was simply due to inexperience in planning and applying CATs. Students do need to be trained in the use of CATs and the purpose of doing a CAT be made very explicit and overt. This will give more reliable feedback that focuses on the purpose being addressed by the CAT.

Several instructors said that all the CATs that they used were valuable adding the caveat, "as long as the students were honest." This points out the need to promote trust when applying CATs. By reporting to students the results of the CATs and using these results in an honest and open manner to improve learning, without responding defensively, students will begin to trust the process and become more open and honest with their feedback An instructor comments "Sometimes students do not complete the CATs as diligently and completely as I would like. (Students think that)... 'evaluations are more work for me to do'...(but) Once the students see that their comments make a difference in the classroom, they are more willing to make detailed comments." Classroom assessment has a synergistic quality. As students begin to trust that their comments will be taken seriously, they begin to make more reflective and well-thought-out responses that an instructor can respond to more effectively. As these improvements take effect, the synergistic effects increase and the classroom environment becomes even more positive.

When responding to the modified CUCEI only one faculty member agreed with the statement "The use of CATs was difficult for me." To gain more information, instructors were asked on the open-ended Faculty Participant Questionnaire what problems or difficulties they encountered when using CATs. Instructors commented on the need for the questions asked (whether in an opinion poll or assignment evaluation) to be very specific. General questions did not reveal elements that could be improved upon. A participant commented, "(I) had to be very specific or (I) got all kinds of info!

Sometimes, I asked for feedback too soon and they didn't know yet, what they didn't know!" In response to the question - what did you do to overcome the difficulty, this participant responded, "(I) learned to ask specifics and phrase questions to obtain the info I wanted." A second instructor echoes these comments, "(I had problems) stating a question which is specific enough to get valid feedback. (I overcame this by) thinking about how the students might answer." Training, experience and dialogue with peers will allow faculty to become adept at asking good questions.

In addition to the skill required to ask good questions, instructors had difficulty with finding enough time to incorporate the assessments into their courses at a time when the assessments would provide the best data. On the modified College and University Classroom Environment Inventory (CUCEI), three members agreed that CATs was a time-consuming process. Instructors in this study commented many times in the support meetings about the heavy demands of their teaching loads (indeed, several instructors cited this as their reason for withdrawing from the study) and often instructors joked at the support meetings about how they had done their assessment the previous day because they knew they would have to report at the meeting. In response to the question "What problems or difficulties did you encounter in the use of CATs?" an instructor responded "Insufficient planning (by myself) on which CATs to use and when - they were used in preparation for our CAT group meetings, rather than being incorporated into the course planning." Others replied, "Making time," and "Building it into the lesson. Time factor. Analysis later was time consuming." However, when asked how they overcame the obstacle the same instructors commented, "(Reminded myself that) the student does benefit" and "(Researcher's) expectations that I would use CATs helped me to ensure I used them. I learned to do the analysis more effectively over time." This comment reinforces the need for support meetings to help instructors deal with the frustration of learning a new behavior and dealing with assessments while still inexperienced and slow.

Factors Identified To Support the Effective use of CATs

Faculty were asked two questions about factors that would support their use of Classroom Assessment Techniques. They were asked what factors they identified as **necessary** and those that are **helpful**. A summary of the results are presented in Table 29.

Table 29 - Factors Necessary and Helpful to Support CATs

Factor	Number of Times Mentioned	
Student Support - Trust	5	21%
Instructor Attitude - Openness to change	4	17%
Reporting Results Back to the Class	3	13%
The Handbook - Training	3	13%
Support Group - Peer Meetings	2	8%
Administrative/Management Support	2	8%
Pre-planning of Instruction to include CATs	2	8%
Time	2	8%
More instructors using	1	4%
Total	24	100%

The two most mentioned factors focus on the relationship between the instructor and his/her students. Instructors recognize that the success of Classroom Assessment is a shared responsibility. Students must be encouraged to respond to assessments honestly and to trust the instructors' motivation. The faculty in this study recognized the value of completing the feedback loop and reporting the data gathered back to the class. Instructors can build on each successful Classroom Assessment: "(The) instructor must value the process and share responses (+ and -) with the class" (Participant). The necessary trust is built "If the students are made to feel that they are an integral & valuable part of a team (they & the instructor) whose goal is to improve teaching & learning and that there are no hidden agendas. When they reach that point, they "buy" into the process and learning becomes 'cooperative'" (Participant).

The next five factors in the table focus on management details. Accessibility to support in the form of a copy of the Handbook (Angelo & Cross, 1993), peer support groups and management endorsement and approval are important to faculty. They also recognize the need to preplan activities such that the assessments become a routinely used system in the class. Instructors see the need to embed CATs in their lessons, "Design instruction with specific CATs included in the lesson/unit plans"(Participant). Time is a factor in the use of CATs. Instructors need "Sufficient Time - (for) preparation/student energy/ evaluation" (Participant).

Instructors would like to see the process become common as this would aid in the effective use of CATs. If students were used to completing assessments in the majority of their classes, no individual instructor would have to invest a lot of time in training the students. "If it was commonplace, the students would be used to it, better prepared as to what is expected from them." Also, if students could see that the process is supported by their entire program, they are much more likely to trust the process.

Instructors Would Recommend the Use of CATs to a Colleague

To determine the strength of instructors commitment to the use of Classroom Assessment Techniques (CATs) to improve the teaching and learning situation, instructors were asked if they would recommend the use of CATs to a colleague. Unanimously, they said that they would recommend the use of CATs.

"Results are invaluable," comments one instructor. "I believe it (CATs) to be an enhancement to the learning process," comments another. Faculty see the use of the assessments to be a method of improving the communication between the instructor and the students. "(The use of CATs) provides on-going communication with the students on the effectiveness of instruction" (Participant). "It's great to get an overall view of the class attitude & thinking... They will write things they would never say" (Participant).

Instructors recognize the value of a positive classroom environment and would use that to convince a colleague to try CATs. "(Classroom Assessment) improves the atmosphere in the class & the trust level between me & my students. As well. I get honest feedback re content knowledge" (Participant).

Being sensitive to the need for a positive instructor attitude, one instructor stated that he would recommend the use of CATs to a colleague, but he added a caveat: "Yes, but only if the colleague was serious about taking the time to do them, and felt secure enough to really be willing to change their lessons to improve their classes."

Benefits of Using CATs Identified by Instructors

When asked to identify the greatest benefits that instructors discovered about the application of Classroom Assessment Techniques to their classes, the majority of instructors commented on the "Instant feedback from the students" (Participant) as the biggest benefit. Instructors recognized the benefits of improved communication. "Improved communication between students and instructor, leading to better learning climates" (Participant). CATs can improve the students' sense of efficacy; "(The use of CATs) Involves the class more and makes their opinions count for something" (Participant).

Instructors found the feedback rewarding because it gave them more understanding of what was happening with their students. "(The use of CATs) kept things in perspective...usually it was only a few who weren't 'getting it,' not the whole class" (Participant). "I get honest feedback re content knowledge" (Participant). The use of CATs "Increased awareness of the distance there can be between what I perceive I am teaching and the students are learning and what they are actually learning" (Participant).

All of the benefits that instructors mention are interpersonal in nature. Further study would have to be done to determine if there is a benefit to students that is reflected in higher grades.

Drawbacks in the Use of CATs

The responses to the question "In your opinion, what was the greatest drawback(s) of using CATs?" overwhelmingly, focused on the issue of time. Instructors are feeling the pressure of full timetables and heavy instructional demands and, although they recognize the benefits of the use of Classroom Assessment, are very cognizant of the amount of time the skillful application of CATs demands. Instructors see time as a barrier; "Time constraints due to content-learning courses and increased instructor workloads" (Participant).

Other concerns that were identified in response to this questions were not really drawbacks of CATs, but rather concerns that can be overcome with experience. For example, "In one case, the feedback suggested changes that I couldn't make, I wasn't sure how to deal with that" (Participant), or "knowing which CAT to use"(Participant). One instructor was concerned about the possibility of instructors responding to the feedback in a defensive and therefore destructive way, "Some instructor(s) may take the feedback wrong" (Participant).

CATs and the Quality of the Teaching and Learning Experience

Instructors persisted through the difficulties because they saw the benefit to their classes. When asked "In your opinion, did the use of CATs improve the quality of the teaching and learning in your class?" every instructor replied with a resounding yes.

Through the analysis of instructor comments, it was clear that the assessments were often used to focus on student learning. When using such CATs, the instructors could identify concepts that were unclear, confused or indeed, missed completely. Instructor comments included, "The muddiest point CAT, for example, allowed us to go back and clear up areas where students were struggling," and "The RSQC2 showed that during the class surveyed, most students were confused. I used this information and went back to the class & revisited the area that was causing confusion." "The self-confidence survey told (showed) me that I forgot to teach a skill."

Classroom Assessment Techniques were used by some of the instructors to sense students response to the process of the instruction. One instructor commented "At the start of semester, I was going too fast, I didn't realize how much the material would need to be broken down. - the CATs made it clear which areas needed to be emphasized." CATs that focus on process were used to monitor the implementation of new instructional strategies. In response to the question about the improvement of quality, an instructor replied "Yes, (the use of CATs improved the quality of the class) especially with respect to the new process of coop(erative) learning."

Instructors recognized the effect the use of CATs had on the classroom environment for learning in the class. They felt it improved the quality of the student learning experience. "Students felt their opinion was valued and important, therefore increased commitment to being in class and being successful" (Participant).

Classroom Assessment was used to promote student cognition by enabling the students to organize concepts and clarify their thinking about those concepts. "The muddiest point was helpful re content and review," comments an instructor. Another states, "They (the CATs) helped students to consolidate information (minute paper/pros-cons) and reflect on their experiences and strengths (assignment assessment/self-confidence survey.)"

In addition to sensing a more quality instructional experience, instructors were asked about their actual teaching behavior to determine if the assessments actually prompted instructors to act. Instructors were asked "Did you change your planned instruction due to the feedback received from students?" Two instructors did not make any changes during the period of this study due to the feedback received through the assessments. One instructor's class requested less homework and the instructor felt that this was not a viable option. This reinforces the fact that an instructor can recognize feedback that he/she does not agree with, and does not necessarily have to act on it. This instructor explained to the class that the homework was needed and he did not feel that he could reduce it and maintain the level of learning. The second instructor commented, "No, (I did not make changes to my instruction), but the feedback confirmed some future directions that I want to incorporate." So, even though no changes were made for improvement during the period of the study, the instructor had plans to change future instruction.

The remaining instructors did respond to the feedback by altering what they did in the classroom. The instructors report: "They wanted more student involvement - I am now trying to give them that" and "I gave more detailed instructions (written) & tried to do more demo's." The vast majority of the changes commented upon by instructors had to do with reviewing confusing or complicated material: "I postponed teaching a new lesson until the 'confusing material was cleared up and the students felt comfortable;" "I'll be reviewing certain theories before the final exam & I might not have done so otherwise;" "(I) would review past material if necessary, but without CAT may not have done this." It seems clear that with all these changes, instructors ensured that students had more opportunity to use instructional time in the way that most benefited them.

CATs as a Tool for Improving Quality

To solicit comments about instructors' views of CATs as a tool for improving the quality of the teaching and learning situation, instructors were asked, "In you opinion, is CATs an appropriate tool for the improvement of the teaching and learning process in the classroom?" The responses were very positive.

Instructors responded: "Yes, I need to know if they are learning what they have to and students must feel involved & responsible for their learning - If they are taking part in it and can see changes, they become more involved;" and "YES. If an instructor truly desires to improve teaching & learning in the classroom, CATs provides the tools that can be used to implement and measure the processes. Its so great to have all these ideas in a book right at hand." Instructors even addressed the issue of time. "With sufficient planning to include CATs, they can be used without severe time allotments. They are convenient and simple assessment tools."

Instructors perceive that CATs encourage students to become more involved in their learning and more responsible for that learning. "Some of the CATs can be used to encourage students' understanding of why certain instruction/assignments were employed, while others encourage student processing of material learned. All of the CATs involve active, rather than passive, student involvement and this will encourage learning. Basically, the students become more involved in the process of learning through the use of CATs" (Participant). "If students are allowed to provide input on the learning process, they will generally strive to ensure they benefit from improvements and feel part of the process" (Participant).

The instructors in this study heartily endorse CATs as tool for the improvement of the quality of teaching and learning.

Faculty Perception of CATs as a Continuous Quality Improvement (CQI) Tool as Found by the CUCEI

Faculty also showed their support of the use of Classroom Assessment Techniques as a tool for improving the quality of the teaching and learning process in their completion of the modified College and University Classroom Environment Inventory. The faculty inventory contained 11 statements that directly related to the use of CATs. Two of the items, "The use of Classroom Assessment Techniques in my classroom contributed to an improvement in the teaching and learning process" and "In my opinion, CATs is an effective tool for improving the teaching and learning process" showed 100% of the responses being in the Agree or Strongly Agree category.

From the inventory, faculty seemed to negate any difficulties they were experiencing in the application of CATs as only one faculty member agreed with the statement "The use of CATs was difficult for me." Three members agreed that CATs was a time-consuming process. The support of the CATs meetings was appreciated by all of the faculty as they agreed or strongly agreed that they enjoyed the sharing of information that occurred at the meetings. All of the faculty that participated in this study plan to use CATs again and would recommend the use of the process to their colleagues. All but one plan to introduce CATs to all of their classes. Faculty generally feel more effective in the classroom through the use of CATs (90%) and are energized and excited (70%) about their teaching when using CATs. Faculty responses are summarized in Table 30.

Table 30 - Faculty CUCEI Responses Regarding CATs

Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
• The use of CATs in my classroom contributed to an improvement in the teaching and learning process.	3	7	0	0
• The use of CATs was difficult for me.	0	1	7	2
• CATs is an easy tool to use.	4	5	1	0
• The use of CATs is a time-consuming process.	1	2	7	0
• I will use CATs again	6	4	0	0
• I plan to introduce CATs to all my classes.	3	6	1	0
• I would recommend the use of CATs to a colleague.	3	7	0	0
• The use of CATs made me feel more effective in the classroom.	4	5	1	0
• I enjoyed the sharing of information with my colleagues in our CATs meetings.	4	6	0	0
• I feel more excited about my teaching since I have started using CATs.	3	4	3	0

Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
• In my opinion, CATs is an effective tool for improving the teaching and learning process.	6	4	0	0

Student Perception of CATs as Found by the CUCEI

Students also had very strong opinions about the use of CATs in the classroom. A summary of their responses is tabulated in Table 31. Over 75% of participant students agreed or strongly agreed that the use of CATs in their class improved the quality of their educational experience in that class. Participant students found that the time used during class in the gathering and reporting of assessments to be time well spent as 93% of them disagreed or strongly disagreed with the statement "Classroom assessment is a waste of time." Over 86% of students felt that CATs was an important tool to aid in the communication between students and instructors and 82.61% of them felt that CATs enabled them to feel more involved with their learning. Students were so impressed with CATs as an instructional, communication tool that over 83% of students felt all instructors should use Classroom Assessment and almost 88% would choose to be in a class with an instructor who is using CATs if they had a choice.

This support of the use of Classroom Assessment Techniques by students is an important finding. Students' enthusiasm for the use of CATs as an appropriate means to improve their learning experience provides us with information about the student customers' response to the use of the tools of Classroom Assessment. Although, to the researcher's knowledge, this is the first study that directly explores the student customers' response to Classroom Assessment as a Continuous Quality Improvement tool, Kelly

(1991, 1992, 1993) and Steadman (1994) report similar positive student responses to CATs.

Table 31 - Student CUCEI Responses Regarding CATs (n=230)

Statement	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**
• Classroom assessment is a waste of time.	3	11	116	98
Percent	1.30%	4.78%	50.43%	42.61%
• Classroom assessments allowed me to communicate in a positive way with my instructor.	83	116	24	5
Percent	36.09%	50.43%	10.43%	2.17%
• If I had a choice, I would choose to be in a class with an instructor who uses classroom assessments.	92	110	21	4
Percent	40.00%	47.83%	9.13%	1.74%
• The use of classroom assessments had little or no effect on my learning.	11	52	126	37
Percent	4.78%	22.61%	54.78%	16.09%

Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
• The use of classroom assessments made me feel more involved in my learning.	62	128	30	8
Percent	26.96%	55.65%	13.04%	3.48%
• The use of classroom assessments improved the quality of my educational experience in this class.	38	135	44	11
Percent	16.52%	58.70%	19.13%	4.78%
• All instructors should use classroom assessments.	87	104	20	7
Percent	37.83%	45.22%	8.70%	3.04%

If we make the assumption that the Office Administration Program students are unique, not only because they are exclusively female, but also because of the distinct CQI culture in that program, and remove them from the data set, we find that the results of the CATs questions change very little (Table 32). Over 70% of Student Participants agreed or strongly agreed that the use of CATs in their class improved the quality of their educational experience in that class as compared to 75% for the larger participant sample. All other results are virtually the same with the exception of "All instructors should use classroom assessment." Non-Office Administration participant students felt even stronger (87% as compared to 83% that all instructors should indeed use this tool.

Table 32 - Non-Office Administration Student CUCEI Responses Regarding CATs (n=143)

Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
• Classroom assessment is a waste of time.	0	8	73	58
Percent	0.00%	5.76%	52.52%	41.73%
• Classroom assessments allowed me to communicate in a positive way with my instructor.	43	76	17	5
Percent	30.50%	53.90%	12.06%	3.55%
• If I had a choice, I would choose to be in a class with an instructor who uses classroom assessments.	55	68	13	4
Percent	39.29%	48.57%	9.29%	2.86%
• The use of classroom assessments had little or no effect on my learning.	8	39	76	16
Percent	5.76%	28.06%	54.68%	11.51%

Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
• The use of classroom assessments made me feel more involved in my learning.	33	79	23	6
Percent	23.40%	56.03%	16.31%	4.26%
• The use of classroom assessments improved the quality of my educational experience in this class.	19	80	33	9
Percent	13.48%	56.74%	23.40%	6.38%
• All instructors should use classroom assessments.	52	68	13	5
Percent	37.68%	49.28%	9.42%	3.62%

Conclusion

This chapter has summarized the results of the open-ended survey completed by participant faculty in this study around their perceptions of Classroom Assessment Techniques (CATs) as well as the data gathered with the Modified College and University Classroom Environment Inventory (CUCEI). The first section dealt with demographic information and results around classroom environment gathered using the Modified CUCEI. The second section of the chapter dealt with the perceptions of faculty about the application of CATs and faculty and student perceptions of the appropriateness of CATs as a quality improvement tool. Discussion and recommendations around the findings presented in Chapters IV are presented in the following chapter.

CHAPTER V - DISCUSSION AND RECOMMENDATIONS

> Assessment would be very different if college teaching were viewed as an ongoing reciprocity among students, instructors, and materials, a collaborative venture with shared responsibility for what goes into a class and what comes out of it.
>
> Evaluation would be built into the daily routine. Participants would often ask and answer questions such as:
>
> "What did we intend to do today?
> How did we go about it?
> What helped or hindered our progress?
> Do our goals need redefining? What will students learn about their learning from this CAT? What is my definition of "improved student learning"? Will this activity help students synthesize, organize, or retain new information? How can I help students transfer learning behaviors from this CAT to other settings?
> Is everyone getting a fair chance to learn?
> Is everyone carrying his/her weight?" (Lauer, 1993, p. B4).

Introduction

This chapter discusses the findings of the study in two groupings: (a) those that deal with classroom environment and, (b) those that address the applicability of CATs as a quality improvement tools. Following a discussion of the major findings, areas of future research are identified. This chapter concludes with recommendations evolving from the findings.

Classroom Assessment Techniques and Classroom Environment

This research was not designed to determine whether the use of Classroom Assessment Techniques (CATs) causes an improvement in classroom environment for a particular class or for a particular instructor. This researches compares the classroom environment of classes in which CATs was applied to classes that had no such exposure to CATs. In this research, comparison of these environments showed no statistically significant difference. This finding may be due, in part, to the fact that the control group consisted of self-selected members. Instructors who self-select for such an activity are already concerned with the quality of their students' educational experience as witnessed by their interest in the study. This interest may translate into a caring attitude in the classroom which would help to create a more positive classroom environment.

The use of Classroom Assessment Techniques, however, correlates with all of the classroom environment scales on the modified College and University Classroom Environment Inventory (CUCEI). Participant students feel significantly more involved in their learning with the use of CATs. This is consistent with the findings of Catlin and Kalina (1993). Stetson's (1991) report that "students were more actively involved in learning" (p. 125) when faculty were using CATs is echoed by Obler, Slark and Umbdenstock (1993), Kelly (1991, 1992, 1993) and Steadman (1994).

The use of Classroom Assessment has a greater impact on females' perception of classroom environment than males. Although correlations of CATs with the Classroom Environment variable showed no difference between males and females in the Student Participant group (Table 24), when we compare t-tests between the control (Table 23) and the participant group (Table 25) some interesting findings are revealed. The control group shows a statistically significant difference between males and females in their perceptions of innovation (females higher) and task orientation (males higher). When Classroom Assessment is applied, however, females score higher on all scales except that of Satisfaction. That is, females have a more positive perception of Personalization, Involvement, Student Cohesiveness, Task Orientation, Innovation and Individualization than males in classes where CATs is applied. CATs causes women to be much more satisfied with classroom environment than classes that do not use CATs. This is consistent with the literature that states that female students find the environment in a male-dominated, "technical," environment "chilly" (Bayley, 1992; Burge & Culver, 1990; Canadian Teachers' Federation, 1990; Ehrhart & Sandler, 1987; Gainen, 1995; Kock, 1990; Kramarae & Treichler, 1990; Mura, Kimball & Cloutier, 1987; Overdijk, 1990; Sadker & Sadker, 1990; Sax, 1992; Sloat, 1990). Thus, it is logical that a communication tool like CATs will be welcomed more enthusiastically by women. This finding is important for educational institutions to recognize in light of the findings of Williams (1990) and Horvath (1992). Williams found that the classroom environment perceived by female students in post-secondary learning institutions affects their participation in class. Horvath (1992) studied persistence of female students in an introductory economics course and concluded that female students need to overcome classroom climate. CATs can be used to make females feel more welcome in a male-dominated environment.

In this light, it is interesting to consider the Office Administration Program. Since this program is exclusively female, the "chilly climate" effect should not be present. The program enjoys a much more positive perception of classroom environment than the other classes in the study (Table 22). If this finding could have been predicted, it would have been interesting to have a control class selected from Office Administration to determine the effect of CATs while controlling for the variables of gender, isolated campus and CQI environment. Unfortunately, without such a control group, one cannot conclude which factor most affected classroom environment in this study for the Office Administration Program participants.

This study confirms that faculty tend to have a more positive perception of classroom climate than their students do (Table 19). Although the number of faculty involved in the study is small (14), there is a statistically significant difference in their view of classroom environment as compared to their students. This is consistent with the findings of Treagust and Fraser (1986). "...(I)nstructors perceived their classes more favorably on several environment scales than did their students in the same classroom" (p. 16).

Waxman (1991) connects what we know about classroom environment, improvement and classroom assessment:

> There are several areas in the study of learning environments that hold promise for improving education. One aspect, for example, that is especially promising is 'teacher as researcher' or 'survey feedback' projects, where teachers receive systematic feedback or classroom profiles from their own class(es) and consequently change their classroom instruction or learning environment. Several studies have found that teachers can improve their classroom environment be receiving such feedback and then through reflection and/or discussion and intervention improve their classroom environment (Fraser & Fisher, 1986; Fraser, Seddon, & Eagleson, 1982). (p.2).

Thus classroom environment and instruction can be improved through the use of CATs.

Classroom Assessment Techniques as a Continuous Quality Improvement Tool

> Regardless of the disciplines, college teachers have many concerns in common One concern we share is for the quality of students' learning... Interested in improving student learning, many of them (faculty) experiment with new teaching approaches, but find it difficult to tell if their modifications make a difference. ...faculty need accurate, well-focused information on student learning throughout the semester. Classroom Assessment Techniques (CATs)... offer college teachers an effective way to monitor and improve the quality of student learning (Cottell, 1991, p. 43).

Instructors in this study were highly motivated to aid their students in their pursuit of learning. The CATs applied were used to gather information about what the students were learning and whether the process that the instructor was applying was suitable for the students. Assignments and exams were evaluated and opinion polls taken. Overall, instructors received a great deal of data that they could use for the improvement of the teaching and learning process.

Instructors repeatedly supported the use of CATs as an appropriate quality improvement tool for the context in which they work. They felt their use of CATs impacted their teaching in a positive way. The majority of instructors in this study modified their planned instruction as a result of data gathered with an assessment. Classroom assessment influenced instructors to improve the instructional process.

The faculty in this study recognize the value of completing the feedback loop and reporting the data gathered back to the class. The reporting to students of the results of the feedback gathered facilitates two important processes. First, this reporting to students makes students responsible for their comments and overtly validates their comments. This validation promotes positive classroom climate. Secondly, because feedback will be reported to students, the instructor is encouraged to analyze the feedback for themes. Without the commitment to share information with students, it would be far too easy to quickly peruse the data and then ignore it. The analysis and reporting the findings makes the data useable. "Measurement without feedback is just data; feedback without measurement is just opinion" (Seymour, 1994, p.75). The closure of the feedback loop is critical to the process of improvement.

There is a metacognitive goal for instructional staff that is met by the use of CATs. The use of Classroom Assessment Techniques is equivalent to using the Shewhart Cycle of Plan, Do, Check, Act. The behavior at a micro level in the classroom prepares the instructor [illegible] the kind of thinking that is necessary for the completion of large projects at the macro level. The leaders of the Cuyahoga Community College in Cleveland, Ohio state, "It is our contention that the enhancement of those research skills within the faculty are a necessary precondition for a full institutional commitment to CQI" (Brown & Jelfo, 1994, p. 4). "Before propagating the philosophy of TQM through the organization, the application of a few simple tools at the working level can serve to mold behaviour" (Jablonski, 1991, p. 7). Thus the use of CATs can be a training ground for faculty to hone their quality improvement skills in preparation for larger projects.

Students felt that the use of CATs improved the quality of their learning. In a CQI environment, a process which improves the quality of a customer's experience is to be valued. Because the process is analogous to the Shewhart Cycle (Plan, Do, Check, Act) it is consistent with the literature on quality improvement. "Classroom assessment is designed to improve the productivity of teachers and students through continuously focusing the attention of both on the quality of students' learning. Merging management-oriented TQM with academically-oriented classroom assessment offers an unprecedented opportunity for addressing the quality challenge" (Cross, 1994, p. 149).

Since the cooperating institution has made a commitment to a CQI/TQM philosophy, it is self-evident that the institution would seek a mechanism to apply this philosophy to the classroom. Marchese (1991) identified 12 themes of TQM/CQI. The following table illustrates the congruence between TQM/CQI and Classroom Assessment Techniques.

Table 33 - CATs is Congruent with TQM/CQI

Themes of TQM/CQI	Analogous Themes of CATs
TQM focuses on quality	The best known CAT is the "minute paper" - What did you learn today? Causes students and instructors to focus on quality of the learning
TQM is customer-driven	"The purpose of classroom assessment is to systematically determine how well instruction is meeting student needs" (Cross, 1994, p. 150)
TQM emphasizes continuous improvement	Improvements in instruction can be done "on the fly" rather than responding to the traditional end-of-term student feedback.

Themes of TQM/CQI	Analogous Themes of CATs
TQM concentrates on making processes work better	CATs are designed to make instructors more sensitive to the processes of learning.
TQM reaches in all directions	The use of the background knowledge probe allows instructors to reach backward to assess students previous learning.
TQM involves the discipline of information	CATs is the continuous collection of data.
TQM eliminates rework	Because classroom assessment involves constant checking on understanding, gaps in knowledge are identified and remedied immediately, eliminating the need for remediation.
TQM emphasizes teamwork	The use of assessments creates a sense that all members of the class are a team with a goal of high quality student learning.
TQM empowers people	Classroom assessment empowers instructors and students to "take charge" of the learning process and make it work for those involved.
TQM invests in training and recognition	Classroom assessment is a powerful form of faculty development. Faculty are encouraged to reflect on their process and share with their peers.
TQM requires vision	The first step in the use of CATs is instructors identifying their teaching goals

Themes of TQM/CQI	Analogous Themes of CATs
TQM requires leadership	Classroom assessment succeeds best on campuses where there is strong leadership in support of quality instruction.

Because of the evidence in the literature, it was expected that the faculty in the study would support the use of Classroom Assessment. Students' support for the process was an interesting finding. The majority of the students in this study found their instructor's use of CATs to have a positive impact on their educational experience. Students like the process and would choose to be in a class where an instructor is using CATs. The use of CATs is a method by which the cooperating institution can meet the needs of its student customers and, indeed, may even exceed their expectations. This student customer support of Classroom Assessment Techniques as appropriate quality improvement tools is an important reason for the use of CATs to be encouraged throughout the cooperating institution.

Instructors identified factors that are helpful in the implementation of Classroom Assessment. An atmosphere of trust must be established to allow the assessments to be as effective as possible. Instructors recognize that the success of this process is not in their hands alone. Students must be invited to be partners in the system of improving the teaching and learning in the class. If the instructor is open to change and willing to value the input of the students, trust will emerge. The careful planning and implementation of CATs and the feeding back of data to the class, begins to build the trust required to enable the process to work effectively. Instructors can build on each successful Classroom Assessment; "(The) instructor must value the process and share responses (+ and -) with the class" (Participant). Eventually, the class becomes a team with the instructor as their leader working in a true CQI environment. "If the students are made to feel that they are an integral & valuable part of a team... whose goal is to improve teaching & learning and that there are no hidden agendas. When they reach that point, they "buy" into the process and learning becomes 'cooperative' " (Participant).

Instructors would like to see the process become common as this would aid in the effective use of CATs. If students were used to completing assessments in the majority of their classes, no individual instructor would have to invest a lot of time in training the students. "If it was commonplace, the students would be used to it, better prepared as to what is expected from them." Also, if students could see that the process is supported by their entire program, they are much more likely to trust the process.

Problems for Further Research

During the process of this study, areas of further research became apparent. The following are a number of problems that have been identified for future research.

1. What effect does the use of Classroom Assessment Techniques have on objective measures of student learning such as grades, skill development and graduation rates?

2. What factors create the highly positive classroom environment of the Office Administration Program at the cooperating institution?

3. What factors encourage, support and facilitate the spread and growth of the use of Classroom Assessment in an institution?

4. How can faculty be encouraged, motivated and aided to expand their use of Classroom Assessment into Classroom Research?

5. What factors encourage, support and facilitate the use of Classroom Research to address questions about teaching and learning?

Recommendations

Student Feedback on Instruction and Classroom Assessment

***Recommendation**: The introduction, use, and support of Classroom Assessment Techniques should be formalized and instituted as one strategy of an overall Student Feedback on Instruction System.*

During 1995, a study was done at the cooperating institution that looked specifically at the Student Feedback on Instruction (SFI) system which is presently used to gather data regarding students' perceptions of the quality of instruction. Corbett-Lourenco (1995) reports that one of the "primary objectives of the process at (the cooperating institution) (is to provide) formative feedback to the instructor"(p.3).

Unfortunately, Corbett-Lourenco also reports that some instructors feel that "it is an administrative task; political...get it done" (p.7). Students commented that "students who attend on a regular basis are the only ones who should complete" (p.8) because they felt that the instructor should pay attention to the responses of students who consistently attend and not to the comments of "poor [skipping] students (who) make negative comments or are complainers" (p.8). When asked if the SFI instrument reflected a true assessment, instructors felt that "students lack maturity" (p.9) and "students use it as a tool of revenge to discredit an instructor"(p. 9). As to whether or not the data that was collected was used and acted upon for the improvement of instruction, Corbett-Lourenco found that as time goes on, it is acted upon minimally by faculty. In addition, there is minimal feedback to students because there is no feedback loop designed into the system. All of these issues are addressed by CATs. Only students who are in attendance complete Classroom Assessments. By disclosing the data to students, the "revenge" weapon is taken away from students. They see that vengeful comments do not initiate productive change. Also, the fact that the data is reported to students keeps the instructor accountable to act on, or at least explain inaction to, specific suggestions.

In her presentation Corbett-Lourenco recommends that the process of Student Feedback on Instruction should be reviewed to "clearly differentiate between formative and summative feedback" (p. 12). Certainly, feedback gathered for formative purposes should not be used for summative purposes. In addition, Corbett-Lourenco recommends that the cooperating institution implement a system consistent with the Plan, Do, Check, Act cycle (Shewhart cycle). The use of Classroom Assessment Techniques is congruent with the Shewhart cycle. Classroom Assessment should be implemented at the cooperating institution and supported by management to provide formative feedback to instructors.

Support for Applying Innovations to the Classroom

***Recommendation**: Classroom Assessment/Research support groups (teaching circles) should be organized and supported for faculty who are implementing innovations in their classrooms.*

When new techniques are introduced into the classroom, faculty are feeling somewhat discomforted by the process due to its unfamiliarity. This may lead to the appearance of being disorganized, unprepared and tentative. This may not be the case, but due to the unfamiliarity of the territory the instructor is venturing into, this unsureness may be communicated to students. Students are alerted to the instructor's tentativeness and often respond negatively as they perceive that the instructor is not clear about what he/she is doing.

In addition, students have clearly formulated expectations of what the teaching and learning process should look like. They expect a lecture and homework and to work as an individual with little or no interaction with their peers and limited interaction with their instructor. Their expectations are based on their prior experience which is often exclusively traditional. Thus, when first exposed to new techniques, the students often respond with a great deal of defensiveness and may even become hostile.

These attitudes can cause a valuable teaching tool to be discarded before it has had an opportunity to prove its worth. This relates to Bandura's self-efficacy theory. Turner & Dirkx (1993) apply Bandura's theory to the adoption of innovations by faculty:

> Bandura...argues that perceived self-efficacy plays an important role in behavioral changes. The self-efficacy of participants in staff development can have a direct influence on the choice of activities or strategies. Efficacy expectations will determine how much effort people will expend and how long they will persist in the fact of obstacles. Consequently, self-efficacy theory can be helpful in describing individuals reactions to change. If individuals feel they do not have sufficient command or understanding of a ... particular method or strategy, it is unlikely they will attempt to make practice changes in that area, or if they do attempt change, it is more likely they will be frustrated by barriers or obstacles (p. 203).

With this in mind, faculty need strong support for their attempts to integrate new techniques (cooperative learning), new forms of feedback (Classroom Assessment), and efforts to improve the quality of teaching and learning. To gain this support, faculty need to be prepared to seek assistance from various sources. The institution must provide systems that can offer support.

Kozma (1979) identified factors that influence the adoption and dissemination of classroom innovations in higher education. "These factors include the: 1) informal network (social interaction), 2) formal network (resources and consultants) 3) intrinsic reward (satisfaction derived from the activity) and 4) extrinsic reward (such as the encouragement of administrators)" (Steadman, 1994, p. 205).

The teaching circle - a group of faculty who meet regularly to discuss an aspect of the teaching and learning process - is a very valuable method of using the informal network to support in implementation of innovations. Through the teaching circle, participants gain a sense of camaraderie and interconnectedness with other faculty. Faculty speak about their experiences, explore relevant literature and learn from each other. Dialogue enables deep processing of information and is considered by the researcher to be a requirement for critical thinking. "...One of the major benefits of participating in the program (a classroom research pilot project) was the crystallization and refinement of my overall goals, objectives and desired outcomes. A second major benefit was the opportunity, within a structured setting, to carry out the assessments aided by continuous and constructive feedback and encouragement from colleagues" (Nakaji, 1991, p. 80). "Faculty report that they enjoy the contact and the richness of talking with each other on substantive issues in teaching and learning. Regular meetings and time for problem solving are an integral part of the training model..." (Obler, Slark & Umbdenstock, 1993 , p. 220).

Instructors in this study commented on the need for the questions asked (whether in an opinion poll or assignment evaluation) to be very specific. General questions did not reveal elements that could be improved upon. Instructors need help in framing questions that will give them the data they need to improve teaching and learning. One of the best ways for instructors to get this help is through their peers reviewing the assessment before it goes to students. That is, faculty could use a teaching circle or some other form of support group as a "pilot" group. This would help them identify the problems with the questions and allow them a resource group in helping to frame the questions in a more useable way. Steadman (1994) illustrates how a teaching circle could encourage reflective practice and summarizes her perspective in her Table 6b (p. 224).

> Facilitators of Classroom Assessment groups can help faculty consider if their current practice is contributing to the achievement of teaching and Classroom Assessment goals.... The table below combines commonly reported purposes for using Classroom Assessment with questions to promote reflective practice.

Table 6b: Questions to Promote Reflective Classroom Assessment Practice

Purposes for Using CATs	Questions to Consider about Potential CATs
To obtain feedback on teaching and classroom activities	What do I expect to learn about my teaching? What teaching practices or class activities do I want feedback on?
To improve teaching	What skills am I interested in improving? How will I use feedback to make changes in teaching?
To monitor student learning	What will I learn about student learning? Will I have to change presentation format or review based on CAT results?
To improve communication and collaboration with students.	How does this CAT offer students a voice and a stake in controlling the class?
To improve student learning.	What will students learn about their learning from this CAT? What is my definition of "improved student learning"? Will this activity help students synthesize, organize, or retain new information? How can I help students transfer learning behaviors from this CAT to other settings?

Steadman, 1994, p. 224.

Instructors need the resource of their peers to critique their assessments to make them as appropriate as possible for the improvement of the teaching and learning situation. Instructors need to practice their critical thinking with respect to the questions used in their assessments. Without the proper assessment/questions, instructors will not get the information that they are seeking and need to make improvements.

It is of primary importance that the teaching circles or support groups connote a positive image (Berry, Filbeck, Rothstein-Fisch, & Saltman, 1991). No one is interested in joining an activity that hints at being aimed at a group of ineffective teachers in need of help. Choosing a positive name for the activity, perhaps Classroom Research Group, or Classroom Assessment Group, would connote a positive image. In keeping with the Continuous Quality Improvement aspect of Classroom Research, Classroom Quality Improvement Group might be an appropriate title.

Faculty should seek support from their supervisors before embarking on their journey of innovation. Notifying supervisors of one's intent to begin incorporating an innovation has a number of benefits. Firstly, a supervisor cannot offer support and encouragement to the instructor if they are uninformed about what the instructor is doing. Secondly, informing the supervisor of the intent to incorporate innovations brings a deeper commitment to following through on the intention when the process gets difficult. time-consuming or discomforting. Knowing that the supervisor will be asking about the innovation provides motivation to follow through. Thirdly, if students react negatively to the innovation (which is predictable due to the nature of change), the administrator is less likely to see student complaints as an indication of poor quality instruction. Also, if the administrator is the person who has "primary responsibility for evaluating ... instructional activities, ...he should understand what I (the instructor) was doing and why" (Cottell, 1991, p. 44). Involvement of the supervisor allows the instructor to tap into the external source of motivation referred to by Kozma (1979).

Further, any formal or informal organization of faculty that are involved in incorporating innovative practice, be it cooperative learning techniques or Classroom Assessment/Research, could be coordinated through the department of Staff Training and

Development to tap into the knowledge of the organization (Watkins & Marsick, 1993). This would allow faculty access to just-in-time training and support as needed as they move through the implementation process. This would incorporate Kozma's (1979) finding that access to training and expert support is one of the four cornerstones to the implementation and dissemination of innovative practice.

Field reports of innovations and the results should be written by participant faculty and made available to other faculty. This could be supported by Staff Training and Development or a new unit such as a Center for Teaching Excellence. Faculty would then have a resource to refer to when they are planning their innovation. Certainly there are a large number of published articles and research reports that could be of value to faculty, but reports generated by peers in the same organizational culture are invaluable. They provide contextual, credible data that can inspire others to incorporate innovations into their teaching repertoire. This recording, reporting, and subsequent use of information builds a "Learning Organization" culture (Watkins & Marsick, 1993; Senge, 1990). In addition to the public benefit, the instructor receives a great deal of personal benefit by being required to maintain a log and submitting reports. Writing provides a method of personal reflection. The thinking that is involved in expressing one's experience in the written word aids deep processing, reinforces the learning experienced by the instructor and provides an opportunity to analyze the process from a different perspective removed from the "heat of the moment" in the classroom.

Promoting Classroom Assessment Practice to Improve *Student Learning*

Recommendation: *Instructors be supported and encouraged to move beyond using Classroom Assessment to improve instruction to the use of Classroom Assessment practice to improve* ***student learning****.*

Classroom Assessment is an excellent tool for improving the quality of the teaching and learning situation. The faculty involved in this study are intrinsically motivated to help others learn. However, they, as well as the vast majority of faculty in the cooperating institute, possess little background knowledge in theories of teaching and learning. Most are untrained in approaches to help students transfer what they have learned about learning from their experience with Classroom Assessment to other learning situations (Steadman, 1994).

Unfortunately, transfer of learning from one situation to another is not as automatic as educators have historically assumed. Instructors constantly bemoan the poor ability of their students to apply a concept they have learned in one situation to another situation. Thus, faculty need to be explicit to students about the potential applications of Classroom Assessment Techniques to varying learning situations. To be able to do so, instructors need to be familiarized with the relationship between CATs and cognitive learning theory.

Although the text Classroom Assessment Techniques: A Handbook for College Teachers (Angelo & Cross, 1993) provides references and resources that provide the background cognitive theory for the assessments, instructors rarely have the time to pursue those references to increase their knowledge. The descriptions of the assessments themselves in the Handbook provide an outline of how the assessment fits with cognitive theory, but again, faculty need to make these connections overt for themselves and their students. To enable faculty to use Classroom Assessment to actively enhance learning strategies for students, in a learning circle structure, a facilitator could help faculty to make the connections more explicit by involvement in application activities.

One possible application activity would require faculty to design short learning strategy lessons to accompany a few of their favorite CATs (Steadman, 1994). For example, the faculty in this study used the “Muddiest Point” and “The Minute Paper” (clearest and muddiest point) a total of 13 times. Instructors ask students to reflect on their learning and outline what they understood and what they did not. Students take a few moments to write down their reflections, then share this feedback anonymously with the instructor. This assessment forces students to reflect on their classroom learning and assess the level of comprehension of new information. "...This process reinforces (collaborative learning) environment...The process also has the added advantage that when it is used regularly the students begin to think about their one minute paper during class in anticipation of being asked what they learned and this helps them focus on the concepts as well as the skills they are dealing with" (Panitz, 1995, p.1).

As part of a small group application activity, faculty would consider what learning strategies the assessments "Muddiest Point" and "Minute Paper" are related to, such as metacognition. Next, faculty would develop a simple definition of the learning strategy for students, and generate additional recommendations for using the strategy outside of class. Small group activities like this one can provide faculty with practice in building connections between Classroom Assessment and learning theory, and making these connections explicit to students.

When instructors embark on their journey for using CATs as a tool for improving the teaching and learning in their classes, they should be encouraged to complete the Teaching Goals Inventory in Angelo and Cross' Handbook (1993). With information in hand regarding their goals for a class, instructors can better choose and design CATs that allow them to pursue their teaching and learning goals.

The opportunity for reflection on questions related to their goals or other questions raised by group members or facilitators provide faculty the opportunity to engage in critical thinking around their teaching practice. "In addition, exposure to other faculty's goals for Classroom Assessment and teaching practice may lead faculty to refine and expand their own goals" (Steadman, 1994, p. 214).

Creating connections between CATs and student learning will not suit all faculty. Some faculty, depending on their goals will use CATs exclusively for feedback on instruction. This section is included to promote a consideration of the expansion of the use of Classroom Assessment **beyond** that of improvement of *instruction* to improvement of *learning*. The beauty of Classroom Assessment lies in the fact that it can be designed to meet faculty's individual goals and interests.

Role of Administrative Leadership and Support

***Recommendation**: Administration should formally and informally support the implementation and use of Classroom Assessment.*

Any program of faculty development or Continuous Quality Improvement requires the visible support of administration for it to succeed. There will always be a group of individual faculty that will access programs due to the inner motivation for improvement. For a program to succeed on a campus-wide basis, however, faculty need to be encouraged to become involved and stay involved in Classroom Assessment projects. "Getting people to do not just one thing right, but to adopt the new behavior as a consistent way of working, takes a long time" (Atkinson, 1990, p. 47).

The president and vice-presidential levels of administration need to encourage Deans to support programs of Classroom Research throughout their schools. Program Heads could organize teams of faculty in their programs to embark on quality improvement projects using Classroom Research. The importance of such work could be communicated to the faculty by including a category about Continuous Quality Improvement in the classroom on annual evaluations. Consideration for the time and effort such improvement takes should be recognized by taking Classroom Research activity into account in workloads. A facilitator and/or team leader should be assigned to organize and support teams, quality circles, teaching circles and individuals in their work with Classroom Research and Quality Improvement. This person would need to bring "personal credibility and visibility on issues and concerns of teaching and learning, the authority to promote and reward faculty development efforts, and the capacity to provide necessary funding and administrative support" (Berry, et al. 1991, p. 94).

Communicating information about successful Classroom Research/Classroom Quality Improvement projects is a mode by which the use of the process of Continuous Quality Improvement could be celebrated and spread throughout the campus. Reports about successful projects could be included in CQI publications and faculty newsletters.

Cuevos (1991) states

> If the concept of classroom feedback/research is to be successfully implemented at the community college level, there needs to be an institutional support system to facilitate faculty research activities. This support system may involve:
>
> - networks for faculty to assist each other in the development and implementation of assessment strategies,
> - availability of a variety of assessment "tools" which can be readily used or adapted to learning/teaching situations,
> - assistance with data analysis,
> - availability of "model" instructional strategies which faculty can use to follow-up assessment results, and
> - release time for classroom research
>
> (p. 389).

Assessment tools can be provided by making available Angelo and Cross's text Classroom Assessment Techniques, 1993 edition. Indeed, faculty in this study identified access to this text as a requirement for the success of the use of Classroom Assessment. "Model" instructional strategies and advice on modifying strategies can be gained through faculty support groups and from the Staff Training and Development group.

Faculty in this study identified "Administrative support and encouragement" as important for the success of the use of Classroom Assessments for the improvement of instruction. It would seem reasonable and necessary to support and reward those people who strive for excellence in their classrooms. K. Patricia Cross outlines what administrators can do to improve teaching.

> Classroom research has its own built-in incentives, because the process itself is intellectually challenging, promotes discussion and recognition across disciplinary and even institutional boundaries, and enhances the status and satisfaction of teaching. There are, however, many things administrators can do to encourage classroom research, including the following:
>
> 1. Devise a promotion and tenure system that recognizes teaching performance and efforts to engage in professional activities such as classroom research.
>
> 2. Provide and support opportunities for teachers to engage in classroom research, individually, in small clusters of interested and motivated faculty, and as an important aspect of departmental improvement and evaluation.
>
> 3. Provide opportunities for teachers to increase their knowledge base and gain professional recognition through attendance at professional meetings and participation in graduate-level courses or faculty development activities emphasizing the collection and analysis of classroom research.
>
> 4. Promote local discussions of classroom research projects affording teachers an opportunity to share designs and findings and to receive local recognition for participation in growth-enhancing professional development.
>
> (1990, p. 140).

What Would An Assessment-Oriented Institution Look Like?

Recently, the Government of Alberta has initiated funding of educational institutions based on Key Performance Indicators (KPIs). As a result of this shift in funding, institutional assessment is becoming the norm for postsecondary institutions in Alberta. Institute-wide assessment is supported by the Continuous Quality Improvement paradigm. What would an assessment-oriented institution look like?

> If an institution were to commit itself to its talent development mission and attempt to implement a comprehensive assessment program designed to further that mission, how would such an institution change? How would its climate for learning and teaching differ from the typical institution? Below are just a few of the many ways in which such an institution might be unique.
>
> - The environment will be characterized by a widespread spirit of inquiry and self-study. The comprehensive student data base will provide a common tool for all members of the community - students, administrators, faculty, and staff - to engage in a continuous process of self-examination.
> - A much higher priority will be given to teaching, advising, mentoring, and similar institutional functions that are designed to enhance talent development.
> - There will be a much greater spirit of experimentation and innovation, not only to improve areas of institutional functioning that are found to be in need of change, but also because a built-in mechanism for assessing the effectiveness of innovations (the data base) will be available.
> - More of the faculty's expertise in research and scholarship will be devoted to studies of teaching, learning, and student development.
> - Discussions about pedagogy will become more commonplace.
> - Rigid lines between departments and disciplines will begin to break down.
> - Hiring of faculty and administrators will give greater weight to the candidate's interest in and capacity to enhance the talent development function.
> - Administrators will be expected to be educational leaders rather than mere managers.
>
> Astin 1991 p. 251, 252.

A Perspective for the Future

Faculty's use of Classroom Assessment Techniques improves the quality of students' learning experience. The techniques are appropriate tools for assessing teaching and learning products and processes. Groups of faculty using CATs provide a forum for the investigation of teaching and learning, critical thinking and reflection, and a celebration of quality learning and instruction. As faculty get more involved in a process that is intrinsically motivating, they feel revitalized and interested in their classes once again. The culture of the organization begins to change as instructors begin to build their belief system to accommodate the attitude that improvement is not only possible, but also rewarding. Faculty can begin to build "a belief system that spreads hope...that results from the act of pursuing personal involvement and sharing power - a feeling of self-determination" (Seymour, 1995, p. 162). "Personal involvement in the classroom, along with the idea that enabling students to influence their environment has a direct effect on (faculty's) willingness and ability to perform, is (an attitude) that is long overdue on most campuses" (Seymour, 1995, p. 168). Students feel more involved in their learning when Classroom Assessment Techniques are being used. As a component system of an institutional culture focused on Continuous Quality Improvement, the continued use, support and promotion of Classroom Assessment has the potential to move the institution forward on its journey of Continuous Quality Improvement.

BIBLIOGRAPHY

Aamot, M.C. (1995). CQI in the classroom. Available e-mail: LISTSERV@UKANVM.BITNET or LISTSERV@UNKANVM.CC.UNKANS.EDU Message: GET TQM-L LOG 9505B.

Angelo, T. (1990). Bridging the gap between education research and college teaching. National Center for Research to Improve Postsecondary Teaching and Learning, Ann Arbor, MI. (ERIC Document Reproduction Service No. ED 332615).

Angelo, T. (1990). Classroom assessment: Improving learning quality where it matters most. New Directions for Teaching and Learning, 42, 71-82.

Angelo, T. (Ed.). (1991a). Classroom research: Early lessons from success (Special issue). New Directions for Teaching and Learning, 46.

Angelo, T. (Ed.). (1991b). Ten easy pieces: Assessing higher learning in four dimensions. In T. Angelo (Ed.) (Special issue). New Directions for Teaching and Learning, 46, 17-31.

Angelo, T. (Ed.). (1991c). Introduction and overview: From classroom assessment to classroom research. In T. Angelo (Ed.) (Special issue). New Directions for Teaching and Learning, 46, 7-15.

Angelo, T. (1994). Transformative faculty development. In T. O'Banion (Ed.) Teaching & Learning in the Community College. (pp. 115-142). Washington, DC: American Association of Community Colleges.

Angelo, T. (1995). Reassessing (and defining) assessment. The AAHE Bulletin, 48(2), 7-9.

Angelo, T. & Cross, K.P. (1993). Classroom assessment techniques: A handbook for college teachers (2nd ed.). San Francisco, CA: Jossey-Bass.

Anthony, MA (1991). RSV classroom research consortium project: 1990-91/year-two report. (ERIC Document Reproduction Service No. ED 341423).

Assessment: What should it mean? (1994). The Teaching Professor. p. 4.

Astin, A. (1991). Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education. New York, NY: American council on Education MacMillan Publishing Co.

Atkinson, P.E. (1990). Creating culture change: The key to successful total quality management. San Diego, CA: Pfeiffer & Co.

Bateman, G., & Roberts, H. (1993a). TQM for professors and students. TQM in Higher Education. 2(9), 1-2.

Bateman, G., & Roberts, H. (1993b). TQM for professors and students. TQM in Higher Education. 2(10), 2-6.

Bateman, G., & Roberts, H. (1993c). TQM for professors and students. Unpublished manuscript, University of Chicago, Graduate School of Business, Chicago, Ill.

Baugher, K. (1993). Using student teams to improve teaching and learning. TQM in Higher Education. 2(11), 2-6

Bayley, L.J. (1992). Changing aspirations: An analysis of college student status aspirations. General Report. (ERIC Document Reproduction Number ED 347 936)

Bemowski, K. (1991). Restoring the pillars of higher education. Quality Progress, 24(10), 37-42.

Berry, E. (1992). Classroom research: If it's so simple, how can it be any good? Paper presented at the Annual Meeting of the Speech Communication Association, Oct. 29 - Nov. 1, 1992. Chicago, IL. (ERIC Document Reproduction Service No. ED 355610).

Berry, E., Filbeck, M., Rothstein-Fisch, C. & Saltman, H. (1991). Implementing classroom research in a state university: A developmental process. New Directions for Teaching and Learning, 46, 91-104.

Bogue, E.G. & Saunders, R.L. (1992). The evidence for quality. San Francisco, CA: Jossey-Bass.

Bonsangue, M.V. (1995). Increasing minority students' success in calculus. New Directions for Teaching & Learning, 61 23-33.

Boomer, D., Harrison, K., Hoy, D., Johnson, R., Kachman, R., Manuel, J., Soetaert, E., Smith, G., Trainor, B., Wall, D. (1995). Draft report to Quality Council, October 23, 1995.

Borg, W.R., (1963). Educational research. NY: David McKay Co.

Borg, W.R., & Gall, M.D. (1989). Educational research: An introduction (Fifth edition). NY: Longman.

Brigham, S. (1995). CQI success stories. Available: http://www.digmark.net/educ/www/quality/cqisucc.html.

Brown, V. & Jelfo, D.T. (1994). Faculty as researcher initiative. Paper presented at the Annual International Conference of the National Institute for Staff and Organizational Development on Teaching Excellence and Conference of Administrators (16th, Austin, TX, May 22-25, 1994). (ERIC Document Reproduction Service No. ED 371803).

Burge, P.L. & Culver, S.M. (1990). Sexism, legislative power, and vocational education. In S. Gabriel & I. Smithson (Eds.). Gender in the classroom (pp. 161-175). University of Illinois Press.

Byrnes, M.A., & Cornesky, R.A. (1994). Quality fusion: Turning total quality management into classroom practice. Port Orange, FL: Cornesky & Associates Inc.

Canadian Teachers' Federation (1990). A Cappella: A report on the realities, concerns expectations and barriers experienced by adolescent women in Canada. Available through the Alberta Teachers' Association.

Catlin, A., & Kalina, M. (1992). How to institute the Cross/Angelo classroom assessment training program on a college campus or How to create a dynamic teaching/learning partnership between teachers and students. Napa Valley College, Napa, CA. (ERIC Document Reproduction Service No. ED 359994).

Catlin, A., & Kalina, M. (1993). What is the effect of the Cross/Angelo model of classroom assessment on student outcome? A study of the classroom assessment project at eight California community colleges. Napa Valley College, Napa, CA. (ERIC Document Reproduction Service No. ED 359995).

Chaffee, E.E. & Sherr, L.A. (1992). Quality: Transforming Postsecondary Education. ASHE-ERIC Higher Education Report No. 3, 1992. (ERIC Document Reproduction Service No. ED 351922).

Chaytor, G.T. (1995). Total quality management in higher education: A classroom approach. Unpublished manuscript. Westviking College: Corner Brook Campus, Corner Brook, NF.

Chickering, A. & Gamson, Z. (1987). Seven principles for good practice in undergraduate education. Racine, Wisc.: Johnson Foundation.

Chickering, A. & Potter, D. (1990). Linking campus and state initiatives. In P. Seldin (Ed.), How administrators can improve teaching. San Francisco, CA: Jossey-Bass.

Corbett-Lourenco, D. (1995, November). Student feedback on instruction process at NAIT. Paper presented at the meeting of NAIT Academic Council, Edmonton, Alberta.

Cornesky, R. (1992). Six steps for implementing total quality management and total quality improvement programs at colleges and universities: How to plan, implement and recognize an institution-wide quality improvement program. Bunnell, FL: Cornesky & Associates.

Cornesky, R. (1993). The quality professor: Implementing TQM in the classroom. Madison, WI: Magna Publications.

Cornesky, R. & Lazarus, W. (1995). Continuous quality improvement in the classroom: A collaborative approach. Bunnell, FL: Cornesky & Associates.

Cornesky, R. & McCool, S. (1992). Total quality improvement guide for institutions of higher education. Madison, WI: Magna Publications.

Cornesky, R., McCool, S., Byrnes, L., & Weber, R. (1992). Implementing Total Quality Management in higher education. Madison, WI: Magna Publications

Cornesky, R., et al. (1992). Using Deming to improve quality in colleges and universities. Madison, WI: Magna Publications.

Cottell, P.G. Jr. (1991). Classroom research in accounting: Assessing for learning. New Directions For Teaching and Learning, 46. San Francisco, CA: Jossey-Bass.

Courtney, D.P. (1992). The effect of cooperative learning as an instructional practice at the college level. Paper presented at the Annual Meeting of the Mid-South Educational Research Association, Knoxville, TN, Nov. 11-13, 1992. (ERIC Document Reproduction Service No. ED 354808).

Crosby, P.B. (1979). Quality is free. New York: New American Library.

Crosby, P.B. (1984). Quality without tears: The art of hassle-free management. New York: McGraw-Hill Book Co.

Crosby, P.B. (1992). Completeness: Quality for the 21st century. New York: Penguin Books, Ltd.

Cross, K.P. (1987). The need for classroom research. In J. Kurfiss (Ed.), To improve the academy: Resources for student, faculty, and instructional development, 1987. (pp. 3-17). Stillwater, OK: New Forums Press.

Cross, K.P. (1990). Classroom research: Helping professors learn more about teaching. In P. Seldin (Ed.), How administrators can improve teaching. San Francisco, CA: Jossey-Bass.

Cross, K.P. (1990). Teaching to improve learning. Journal on Excellence in College Teaching 1, 9-22.

Cross, K.P. (1993). Closing the gaps between teaching and learning. Paper presented at the 28th Annual Conference of the College Reading and Learning Association, Kansas City, April 2, 1993.

Cross, K.P. (1994). Involving faculty in TQM through classroom assessment. In T. O'Banion (Ed.) Teaching & Learning in the Community College. (pp. 143-159). Washington, DC: American Association of Community Colleges.

Cross, K.P. & Angelo, T.A. (1989). Faculty members as classroom researchers. Community, Technical and Junior College Journals, 59(5), 23-25.

Cuevas, G.J. (1991). Feedback from classroom research projects. Community-Junior College Quarterly of Research & Practice 15(4), 381-90.

Deming, W.E. (1986). Out of the crisis. Cambridge, MA: MIT Press.

Dozark, D.L. (1994). Total quality management in the college classroom. Unpublished manuscript. Kirkwood Community College, Cedar Rapids, IA.

Ellett, C.D., Loup, K.S. & Chauvin, S.W. (1991). Development, validity and reliability of a new generation of assessments of effective teaching and learning: Future directions for the study of learning environments. Journal of Classroom Interaction, 26 25-39.

Ehrhart, J.K. & Sandler, B.R. (1987). Looking for more than a few good women in traditionally male fields. Association of American Colleges, Washington, D.C. Project on the Status and Education of Women. (ERIC Document Reproduction Number ED 282 476)

Fearon, D.S. & Blanco, R.I. (1993). Teaching business management as and with quality management. Paper presented and published in the Proceedings of the IMPRO 93 - Juran Eleventh Annual Conference on Managing for Quality, November 1993, Chicago, Il.

Fideler, E.F. (Ed.) (1992). Educational Forum: A Journal of Teaching, Learning & Professional Development 3(1). Wellesley Hills, MA: Mass Bay Press.

Fraser, B.J. (1986). Classroom Environment. London: Croom Helm.

Fraser, B.J. (1989). Twenty years of classroom climate work: Progress and prospect. Journal of Curriculum Studies 21, 307-327.

Fraser, B.J. (1991). Validity and use of classroom environment instruments. Journal of Classroom Interaction 26(2), 5-11.

Fraser, B.J. & Fisher, D.L. (1986). Using short forms of classroom climate instruments to assess and improve classroom psychosocial environment. Journal of Research in Science Teaching, 5, 387-413.

Fraser, B.J., Seddon, T., & Eagleson, J. (1982). Use of student perceptions in facilitating improvement in classroom environment. Australian Journal of Teacher Education, 7, 31-42.

Fraser, B.J. & Walberg, H.J. (Eds.). (1991). Educational environments: Evaluation, antecedents, and consequences. London: Pergamon Press.

Fraser, J., Colburn, M., Lundquist, R., Mount-Campbell, C.A., & Smith, G.L. Jr. (1994). A new paradigm for curriculum redesign: A demonstration in engineering economy. 1994 American Society for Engineering Education Annual Conference Proceedings.

Fullilove, R.E. & Treisman, P.U. (1990). Mathematics achievement among African American undergraduates at the University of California, Berkeley: An evaluation of the Mathematics Workshop Program. Journal of Negro Education, 59(3), 463-78.

Gainen, J. (1995). Barriers to success in quantitative gatekeeper courses. New Directions for Teaching & Learning, 61 5-14.

Gamson, Z., (1991). A brief history of the seven principles for good practice in undergraduate education. New Directions For Teaching and Learning, 47. San Francisco, CA: Jossey-Bass.

Gamson, Z., & Chickering, A. (1987). Seven principles for good practice in undergraduate education. AAHE Bulletin, March, pp. 51-110.

Garland, M. & Treisman, P.U. (1993). The mathematics workshop model: An interview with Uri Treisman. Journal of Developmental Education, 16(3), 14-16, 18, 20, 22.

Glasser, W. (1990). The quality school: Managing students without coercion. New York, NY: HarperCollins Publishers Inc.

Heimlich, J.E. & Norland, E. (1994). Developing teaching style in adult education. San Francisco: Jossey-Bass.

Helms, S. & Key, C.H. (1994). Are students more than customers in the classroom? Quality Progress, September, 1994. (pp. 97-99).

Horvath, J. (1992). Persisting in the introductory economics course: An exploration of gender differences. Journal of Economic Education, 23(2), 101-108.

Hubbard, D. (1994). Making the journey toward a "Culture of Quality." TQM in Higher Education, 3(3), 1-3.

Jablonski, J.R. (1991). Total quality management: An overview. San Diego. CA: Pfeiffer & Co.

Johnson M.L. & Walberg, H.J. (1989). Factors influencing grade point averages at a community college. Community College Review, 16(4), 50-60.

Juran, J. (1964). Managerial breakthrough: A new concept of the manager's job. New York: McGraw-Hill Book Co.

Juran, J. (1988). Juran on planning for quality. New York: the Free Press.

Kachurick, J. (1994). TQM empowers students. Appears in TQM in Higher Education, 3(2), p 3. Available: http://deming.eng.clemson.edu/pub/tqmbbs/education/clastls.txt.

Kelly, D. (1991). The effects of classroom research by part-time faculty upon the retention of adult learners. Fullerton College, CA. (ERIC Document Reproduction Service No. ED 335076).

Kelly, D. (1992). Part-time and evening faculty: Promoting teaching excellence for adult evening college students. Fullerton College, CA. (ERIC Document Reproduction Service No. ED 348088).

Kelly, D. (1993). Classroom research and interactive learning: Assessing the impact on adult learners and faculty. (Doctoral dissertation, The Claremont Graduate School, Claremont, California, 1993). Dissertation Abstracts International. (Order Number DA9330348).

Kennedy, M. (1994). Quality instruction focus group results for Engineering Technologies Division. Unpublished manuscript, Research & Academic Development (READ), Northern Alberta Institute of Technology, Edmonton.

Kimbler, D.L. (1994). Teaching while using TQM methods. Available: http://deming.eng.clemson.edu/pub/tqmbbs/education.

Kinlaw, D.C. (1992). Continuous improvement and measurement for total quality: A team-based approach. Toronto, ON: Pfeiffer & Co.

Knight, S.L. & Waxman, H.C. (1991). Students' cognition and classroom instruction. In H.C. Waxman & H.J. Walberg (Eds.) Effective teaching: Current research p.239-255. Berkeley, CA: McCutchan.

Kock, H.L. (1990). "How will the Princess win half the kingdom of technology?" Contributions from the European and Third World GASAT Conference, Jonkoping, Sweden, May 1990. (ERIC Document Reproduction Number ED 343 797)

Kozma, R.B. (1979). Communication, rewards, and the use of classroom innovations. Journal of Higher Education, 50(6), 761-771.

Kramarae, C. & Treichler, P.A. (1990). Power relationships in the classroom. In S. Gabriel & I. Smithson (Eds.). Gender in the classroom (pp. 42-59). University of Illinois Press.

Kunz, R. (1995). Quality education: A concept in reality. TQM in Higher Education, 4(1), 5-7.

Lamkin, J. (1994). Converting a course to quality. TQM in Higher Education, 3(5), 6-8.

Langford, D.P. & Cleary, B.A. (1995). Orchestrating learning with quality. Milwaukee: ASQC Press.

Lauer, R.M. (1993, September 8). The Chronicle of Higher Education, p. B4.

Lewin. K. (1936). Principles of topological psychology. New York: McGraw.

Lewis, R.G. & Smith, D.H. (1994). Total quality in higher education from the Total Quality in... Series. Delray Beach, FL: St. Lucie Press.

Lund, J. & Brown, (1993). Critical Factors of Quality. In K. Freer & E. Gary (Eds.), Proceedings of the Annual Midwest Research-to-Practice Conference. A Conference in Adult, Continuing & Community Education, 12th Columbus, Ohio, October 13-15, 1993.

Malinowski, P.A. (Ed.) (1994). Classroom implementation: Issues in assessment. (ERIC Document Reproduction Service No. ED 375167).

Malinowski, L.T. (1994). Enhancing effective teaching in multiple disciplines: An overview of a college-wide classroom research project. In P.A. Malinowski (Ed.) Classroom implementation: Issues in assessment. (ERIC Document Reproduction Service No. ED 375167).

Marchese, T. (1991). TQM reaches the academy. AAHE Bulletin, 44(3), 8-9.

McDougall, K. (1985). Cooperative learning strategies for teaching small group communication: Research and application. Paper presented at the Annual Meeting of the Speech Communication Association, Denver, CO, Nov. 7-10, 1985. (ERIC Document Reproduction Service No. ED 271800).

Mellow, G.O., Bowen, D. & Hopcroft D.S. (1992). Classroom research and institutional assessment: Prospects for success. Educational Forum: A Journal of Teaching & Professional Development 3(1) 29-35. Wellesley Hills, MA: Mass Bay Press.

Miles, R. & Williams, F. (1994). Understanding the TQM metaphor in higher education. TQM in Higher Education , 3(12), 7-8.

Moos, R.H. (1979). Evaluating educational environments: Procedures, measures, findings and policy implications. San Francisco, CA: Jossey-Bass.

Morris, B. (1994). Reinvigorating our classrooms: Positive results of using classroom assessment techniques. In P.A. Malinowski (Ed.) Classroom implementation: Issues in assessment. p.14-20. (ERIC Document Reproduction Service No. ED 375167).

Mura, R., Kimball, M., & Cloutier, R. (1987). Girls and science programs: Two steps forward, one step back. In J. S. Gaskell & A. T. McLaren (Eds.). Women and education: A Canadian perspective (pp. 133-150). Calgary: Detselig Enterprises Ltd.

Murgatroyd, S. & Morgan, C. (1992). Total quality management and the school. Philadelphia, PA: Open University Press.

Murray, H.A. (1938). Explorations in personality. New York: Oxford University Press.

Nakaji, D.M. (1991). Classroom research in physics: Gaining insights into visualization and problem solving. In T. Angelo (Ed.) (Special issue). New Directions for Teaching and Learning, 46, 79-87.

Northern Alberta Institute of Technology, (1994). Continuous Quality Improvement. Edmonton, AB: Author.

Nuhfer, E.B. , and others (1995). A handbook for student management teams. Available from The Office of Teaching Effectiveness, University of Colorado at Denver.

Obler, S. (1995). Classroom assessment and student learning. Two-day faculty workshop, May 29 & 30, 1995. Unpublished manuscript.

Obler, S., Arnold, V., Sigala, C. & Umbdenstock, L. (1991). Using Cooperative learning and classroom research with culturally diverse students. New Directions for Teaching and Learning 46, Jossey-Bass. Reprinted in A. Catlin and M. Kalina (Eds.) How to institute the Cross/Angelo classroom assessment training program on a college campus or How to create a dynamic teaching/learning partnership between teachers and students. Napa Valley College, Napa, CA. (ERIC Document Reproduction Service No. ED 359994).

Obler, S., Slark, K., Umbdenstock, L. (1993). Classroom assessment. In T. Banta (Ed.), Making a difference: Outcomes of a decade of assessment in higher education. San Francisco: Jossey-Bass.

O'Lea, J. (1991). Classroom research report. In M.A. Anthony (Ed) RSC Classroom research consortium project: 1990-91/Year-two report. p.3-28, 3-29. (ERIC Document Reproduction Service No. ED 341423).

Olmsted, J. (1991). Using classroom research in a large introductory science class. . New Directions for Teaching and Learning, 42, 56-65.

Overdijk, K. (1990). Sex differences in responses to the study environment of a technological university. Contributions from the European and Third World GASAT Conference, Jonkoping, Sweden, May 1990. (ERIC Document Reproduction Number ED 343 797)

Pace, C.R. & Stern, G.G. (1958). An approach to the measurement of psychological characteristics of college environments. Journal of Educational Psychology 49, 269-277.

Panitz, T.(1995). How do you end your class? Available e-mail: LISTSERV@PSUVM.PSU.EDU. Message: GET L-ACLRNG LOG 9512.

Roberts, H. (1993). Grass-roots TQM in education: A case history from Chicago. Unpublished manuscript, University of Chicago, Graduate School of Business, Chicago, Ill.

Rogers, E.M. (1983). Diffusion of innovations: Third edition. New York: The Free Press.

Romero-Simpson, J.E. (1992). A total quality management (TQM) organizational behavior course. In J.W. Harris & J. M. Baggett (Eds.), Quality quest in the academic process (pp. 79-93). Birmingham, Al: Samford University.

Rubach, L. & Stratton, B. (Eds.). (1994, February). Teaming up to improve U.S. education. Quality Progress, p. 65-68.

Sadker, M. & Sadker, D. (1990). Confronting sexism in the college classroom. In S. Gabriel & I. Smithson (Eds.). Gender in the classroom (pp. 176-190). University of Illinois Press.

Sax, L. (1992). Predicting persistence of science career aspirations: A comparative study of male and female college students. Paper presented at the American Educational Research Association Conference (San Francisco, CA, April 24, 1992). (ERIC Document Reproduction Number ED 345 657)

Schauerman, S., & Peachy, B. (1993). Strategies for implementation: The El Camino TQM story. (ERIC Document Reproduction Service No. ED 355988).

Schon, D.A. (1983). The reflective practitioner: How professionals think in action. New York: Basic Books.

Schon, D.A. (1987). Educating the reflective practitioner: Toward a design for teaching and learning in the professions. San Francisco: Jossey-Bass.

Schratz, M. (1990). Researching while teaching: A collaborative action research model to improve college teaching. Journal on Excellence in College Teaching 1, 98-108.

Senge, P. (1990). The fifth discipline: The art and practice of the learning organization. New York: Doubleday Currency.

Seymour, D. T. (1992). On Q: Causing quality in higher education. Phoenix, AZ: The Oryx Press.

Seymour, D. T. (1995). Once upon a campus. Phoenix, AZ: The Oryx Press.

Seymour, D., & Collett, C. (1991). Total quality management in higher education: A critical assessment. GOAL/QPC 1991 Application Report No. 91-01. Methuen, MA: GOAL/QPC.

Sloat, B.F. (1990). Perspectives on women and the sciences. LSAmagazine, v13 n2 p13-17 Spring 1990. (ERIC Reproduction Number ED 331 704)

Spaans, W. (1994). NAIT critical processes. Unpublished manuscript, Research & Academic Development (READ), Northern Alberta Institute of Technology, Edmonton.

Steadman, M.H. (1994). Implementation and impact of classroom assessment techniques in community colleges. Unpublished doctoral dissertation, Berkeley, California.

Sternberg, R.J. (1983). Criteria for intellectual skills training. Educational Researcher, 12. 6-12, 26.

Stetson, N. (1991). Implementing and maintaining a Classroom Research Program for faculty. In T. Angelo (Ed.) (Special issue). New Directions for Teaching and Learning, 46, 117-130.

Stetson, N. (1993). Professional development for two-way teaching and learning. Leadership Abstracts, 6(7), 1-3

Sullivan, A.M. (1985). The role of two types of research on the evaluation and improvement of university teaching. In J.G. Donald & A.M. Sullivan (Eds.), Using research to improve teaching, New Directions for Teaching and Learning, 46. San Francisco: Jossey-Bass.

Sullivan, J. & Seery H. (1992). Classroom research in mathematics. Educational Forum: A Journal of Teaching & Professional Development 3(1) 11-19. Wellesley Hills, MA: Mass Bay Press.

Swain, M. & Miccoli, (1994). Learning in a content-based, collaboratively structured course: The experience of an adult ESL learner. Tesl Canada Journal, 12(1), 15-28.

Terenzini, P.T. (1993). In- and out-of-class influences affecting the development of students' intellectual orientations. Paper presented at the 18th Annual Meeting of the Association for the Study of Higher Education, Pittsburgh, PA, Nov. 4-10, 1993. (ERIC Document Reproduction Service No. ED 365183).

Tiberius, R.G., Sackin, H.D., Janzen, K.R., & Preece, M. (1993). Alliances for change: A procedure for improving teaching through conversations with learners and partnerships with colleagues. Journal of Staff, program and Organizational Development, 11(1), 11-23.

Treagust, D.F., & Fraser, B.J. (1986). Validation and application of the College and University Environment Inventory (CUCEI). Paper presented at the American Educational Research Association, San Francisco, CA, April 16-20, 1986. Curtin Institute of Technology, Western Australia. (ERIC Document Reproduction Service No. ED 274692).

Treisman, P.U. (1983). Improving the performance of minority students in college-level mathematics. Innovation Abstracts, 5(17).

Treisman, P.U. (1992). Studying students studying calculus: A look at the lives of minority mathematics students in college. College Mathematics Journal, 23(5), 362-72.

Tribus, M. (1994a). Quality management in education. Hayward, CA: Exergy, Inc. Available: http://deming.eng.clemson.edu/pub/tqmbbs/education/qualed.txt

Tribus, M. (1994b). New ideas come more easily to those accustomed to change. Appears in TQM in Higher Education, 3(10), p. 1-3. Available: http://deming.eng.clemson.edu/pub/tqmbbs/education/tribint.txt.

Turner, R. (1994). Always room for improvement. TQM in Higher Education, 3(3), p. 3.

Turner, R. (1995). TQM in the college classroom. Quality Progress, October, p. 105.

Turner, M.K. & Dirkx, J.M. (1993). Fostering adoption of innovation and change in adult education practice: The commitment to change strategy. Paper presented at the Annual Midwest Research-to-Practice Conference, Columbus, Ohio, October 13-15, 1993. (ERIC Document Reproduction Service No. ED 362663).

Vahala, M.E. & Winston, R.B. Jr. (1994). College classroom environments: Disciplinary and institutional-type differences and effects on academic achievement in introductory courses. Innovative Higher Education, 19(2), 99-122

Wangen, N.R. and others (1982). Receptivity to change in small schools: A study of teachers' willingness to accept the risks of innovation. Adapted from a paper presented at the Annual Meeting of the American Educational Research Association, New York, NY, March 19-23, 1982. (ERIC Document Reproduction Service No. ED 242082).

Walberg, H.J. (Ed.) (1979). Educational environments and effects: Evaluation, policy and productivity. Berkeley, CA: McCutchan.

Walker, C.J. (1991). Classroom research in psychology: Assessment techniques to enhance teaching and learning. In T. Angelo (Ed.) (Special issue). New Directions for Teaching and Learning, 46, 67-78.

Walton, M. (1990). Deming management at work. New York: G.P. Putman's Sons.

Watkins, K.E. & Marsick, V.J. (1993). Sculpting the learning organization: Lessons in the art and science of systemic change. San Francisco: Jossey-Bass.

Waxman, H.C. (1991). Investigating classroom and school learning environments: A review of recent research and developments in the field. Journal of Classroom Interaction, 26(2), 1-4.

Williams, D. (1990). Is the post-secondary classroom a chilly one for women? A review of the literature. Canadian Journal of Higher Education, 20(3), 29-42.

Wittrock, M. (1986). Students' thought processes. In M. Wittrock (Ed.), Handbook of research in teaching (3rd ed.) pp. 297-314. New York: MacMillan.

APPENDIX

A. Consent Form and Information Documents for Participants

Name	**Division**	**Phone Number**

Please indicate your preference by putting an X in the blank by the appropriate statement.

_____ I would be interested in participating in the study of Classroom Assessment Techniques.

_____ I would like more information about participating in the study of Classroom Assessment Techniques.

_____ I am not interested in participating in the study of Classroom Assessment Techniques.

CLASSROOM ASSESSMENT TECHNIQUES RESEARCH

Here is an exciting opportunity for you to apply the knowledge you have just gained in this workshop. In cooperation with Staff Training and Development and the Faculty of Educational Policy Studies, I am conducting research for the completion of my Master's degree. Faculty who are selected for the project will have the opportunity to continue to apply CATs with the support of myself and their peers. You and your classes will experience increased learning, and increased involvement in the teaching and learning process. Your involvement in this project will give you information about how your class perceives the classroom environment after the application of CATs. Your involvement will provide data to NAIT about the applicability of CATs as a tool to improve the teaching and learning process in the classroom

Only sixteen faculty will be selected to participate in this project by applying CATs. All interested faculty are asked to sign a potential participant list. The sixteen faculty will be selected at random from the pool of names of their division. Thus four faculty will be selected from each division.

Faculty participants will be asked to:

1. Select a class in which they will use CATs.
2. Apply a minimum of five CATs to that class.
3. Complete with the class a survey to assess classroom environment.
4. Complete a survey exploring faculty perceptions of the applicability of CATs as a tool to improve teaching and learning in the classroom.
5. Participate in a maximum of four meetings during the fall semester, 1995, at a time to be determined by the group.

Faculty participants are assured that:

1. All data will be kept confidential by the researcher.
2. Participants have the right to opt out of the study at any time, for any reason.

Please consider being involved in this exciting and significant opportunity to increase the teaching and learning effectiveness in your classroom. With minimum effort on your part, you can contribute to the growing body of knowledge about a method of improving classroom instruction. I deeply appreciate your contribution.

Elaine Soetaert
471-7465 (work)
459-3133 (home)

CONSENT FORM - FACULTY PARTICIPANTS

Thesis Title: Continuous Quality Improvement in the Classroom - Classroom Assessment Techniques

Researcher: Elaine Soetaert
University of Alberta
Faculty of Education
Department of Educational Policy Studies

This is to certify that I agree to participate in the above study. Having been contacted by the researcher, a graduate student in the Department of Adult Career and Technology, and a faculty member in my institution, I understand that:

1. The purpose of this study is to explore the applicability of Classroom Assessment Techniques (CATs) as devised by Thomas Angelo and K. Patricia Cross as a quality improvement tool for the classroom. The study will survey staff and student perceptions of classroom environment and the applicability of CATs as a Continuous Quality Improvement Tool.
2. My name will not be used in the resulting thesis.
3. Any information I provide to the researcher will be kept confidential and used solely for the purposes of this research study. No information will be released to a third party unless requested by me in writing to the researcher.
4. I am participating in this study on a purely voluntary basis. Therefore, I have the right to quit or refuse to participate at any time.
5. The results of the study will be made available to me.
6. I have been fully informed as to the nature of the study and my involvement in it.
7. The thesis this study leads to will be available for examination at the University of Alberta Library.

Signature of participant ________________________________ Date ________________

Consent Form - Student Participants

Thesis Title: Continuous Quality Improvement in the Classroom - Classroom Assessment Techniques

Researcher: Elaine Soetaert

This is to certify that I agree to participate in the above study. Having been contacted by the researcher, a graduate student in the Department of Adult Career and Technology, and a faculty member in my institution, I understand that:

1. The purpose of this study is to explore the applicability of Classroom Assessment Techniques as a quality improvement tool for the classroom
2. I will not be identified in any way, except as a member of this class. I understand that the results of my class's surveys will be shared with my instructor, but no individuals will be identified.
3. Any data I provide to the researcher will be kept confidential and used solely for the purposes of this research study.
4. I am participating in this study on a purely voluntary basis. Therefore, I have the right to quit or refuse to participate at any time. My participation or non-participation in the study will not affect my status in class or my grades in any way.
5. I have been fully informed as to the nature of the study and my involvement in it.

Signature of participant ______________________ Date ____________________

Consent Form - Student Participants

Thesis Title: Continuous Quality Improvement in the Classroom - Classroom Assessment Techniques

Researcher: Elaine Soetaert

This is to certify that I agree to participate in the above study. Having been contacted by the researcher, a graduate student in the Department of Adult Career and Technology, and a faculty member in my institution, I understand that:

1. The purpose of this study is to explore the applicability of Classroom Assessment Techniques as a quality improvement tool for the classroom
2. I will not be identified in any way, except as a member of this class. I understand that the results of my class's surveys will be shared with my instructor, but no individuals will be identified.
3. Any data I provide to the researcher will be kept confidential and used solely for the purposes of this research study.
4. I am participating in this study on a purely voluntary basis. Therefore, I have the right to quit or refuse to participate at any time. My participation or non-participation in the study will not affect my status in class or my grades in any way.
5. I have been fully informed as to the nature of the study and my involvement in it.

Signature of participant ____________________ Date ______________

Continuous Quality Improvement - Classroom Assessment Techniques

Participant Classes

This is an open letter to be read to your participant class approximately one week prior to the administration of the College and University Classroom Environment Inventory.

During this semester, we have been using a technique called Classroom Assessment Techniques (CATs) that allows you to give me, your instructor, feedback that gives me information that can be used to improve the teaching and learning process. This has been done as part of a study managed by a graduate student in the Education Faculty at the University of Alberta and a NAIT staff member. I have agreed to allow her to gather data about the classroom environment in this class and information about your perception of Classroom Assessment Techniques as being an appropriate tool for improving instruction in the classroom. This data will be gathered in class in approximately one week's time. It consists of a simple questionnaire similar to the Student Feedback on Instruction form that NAIT uses. The data that is collected will be used to help NAIT make decisions about how to improve the teaching and learning process. You can make a substantial contribution to the growth of NAIT as a world-class teaching institution through your participation in the study. The data will also be used by the researcher to complete her Master's thesis. In addition, the information about the class's perception of classroom environment will be shared with me, your instructor.

If you wish to contribute to the betterment of the teaching and learning process at NAIT, I encourage you to be involved in this study by completing the questionnaire that you will receive in class. You will be given an opportunity to opt out if you so wish. All data will be gathered anonymously. You will not be identified in any way. Identification numbers will be added to your response sheets after you complete the survey simply to track this specific class as a unit. Your participation or non-participation in this study will not affect your status in this class nor your grades in any way.

If you have any questions, please feel free to contact the researcher, Elaine Soetaert, directly. Her number is 459-3133.

Thank you for your contribution!

Continuous Quality Improvement - Classroom Assessment Techniques

Control Classes

This is an open letter to be read to your class approximately one week prior to the administration of the College and University Classroom Environment Inventory.

During this semester, a number of instructors at NAIT have been involved in a study that looks at the use of Classroom Assessment Techniques (CATs) and its effect on classroom environment. This has been managed by a graduate student in the Education Faculty at the University of Alberta who is also a NAIT staff member. I have agreed to allow her to gather data about the classroom environment in this class so that she can use the data as a control for comparison. This data will be gathered in class in approximately one week's time. It consists of a simple questionnaire similar to the Student Feedback on Instruction form that NAIT uses. Overall, the data that is collected for this study will be used to help NAIT make decisions about how to improve the teaching and learning process. You can make a substantial contribution to the growth of NAIT as a world-class teaching institution through your participation in the study. The data will also be used by the researcher to complete her Master's thesis. In addition, the information about the class's perception of classroom environment will be shared with me, your instructor.

If you wish to contribute to the betterment of the teaching and learning process at NAIT, I encourage you to be involved in this study by completing the questionnaire that you will receive in class. You will be given an opportunity to opt out if you so wish. All data will be gathered anonymously. You will not be identified in any way. Identification numbers will be added to your response sheets after you complete the survey simply to track this specific class as a unit. Your participation or non-participation in this study will not affect your status in this class nor your grades in any way.

If you have any questions, please feel free to contact the researcher, Elaine Soetaert, directly. Her number is 459-3133.

Thank you for your contribution!

Introductory Script

Student Control Classes

Your instructor has already informed you I am sure, about the study that I have been doing here at NAIT this semester, in part to finish my Master's degree.. A number of instructors have been involved in a study that looks at the use of Classroom Assessment Techniques and its effect on classroom environment. I am a graduate student in the Education Faculty at the University of Alberta who is also a NAIT staff member. Your instructor has agreed to allow me to gather data about the classroom environment in this class so that I can use the data as a control for comparison. What I need you to do is to complete a simple questionnaire similar to the Student Feedback on Instruction form that NAIT uses. In fact, similar to the way that NAIT does, the information about the class's perception of classroom environment will be shared with your instructor. Overall, the data that is collected for this study will be used to help NAIT make decisions about how to improve the teaching and learning process. You can make a substantial contribution to the growth of NAIT as a world-class teaching institution through your participation in the study.

I want you to understand that by completing this questionnaire, you will be contributing to the betterment of the teaching and learning process at NAIT. This questionnaire will easily be completed in less than 40 minutes. All information will be gathered anonymously. You will not be identified in any way. Identification numbers will be added to your response sheets after you complete the survey simply to track this specific class as a unit. Your participation or non-participation in this study will not affect your status in this class nor your grades in any way. Anyone who feels that they do not wish to participate in this study may leave now.

If you have any questions, after the completion of this questionnaire, please feel free to contact me, Elaine Soetaert, directly. My number is 459-3133.

I ask all of you who have remained to complete the Consent form and when you have returned it to me, I will give you a copy of the questionnaire booklet and the answer sheet. Please do not make any marks in the questionnaire booklet.

Thank you very much for your participation in this study.

Introductory Script

Student Participant Classes

During this semester, this class, as well as several others throughout the institute have been using a technique called Classroom Assessment Techniques (CATs) that allows you to give your instructor feedback that can be used to improve the teaching and learning process. This has been done as part of a study that I have been managing as part of my Master's thesis. I am a graduate student in the Education Faculty at the University of Alberta and a NAIT staff member. Your instructor has agreed to allow me to gather data about the classroom environment in this class and information about your perception of Classroom Assessment Techniques as being an appropriate tool for improving instruction in the classroom. You will be asked to complete a simple questionnaire similar to the Student Feedback on Instruction form that NAIT uses. Similar to the manner in which NAIT does, the information about this class's perception of classroom environment will be shared with your instructor. The data that is collected will be used to help NAIT make decisions about how to improve the teaching and learning process. You can make a substantial contribution to the growth of NAIT as a world-class teaching institution through your participation in the study.

If you wish to contribute to the betterment of the teaching and learning process at NAIT, I encourage you to stay today and complete the questionnaire that you will receive. It will easily be completed in under 40 minutes. All information will be gathered anonymously. You will not be identified in any way. Identification numbers will be added to your response sheets after you complete the survey simply to track this specific class as a unit. Your participation or non-participation in this study will not affect your status in this class nor your grades in any way. Anyone who feels that they do not wish to participate in this study may leave now.

If you have any questions, after the completion of this questionnaire, please feel free to contact me, Elaine Soetaert, directly. My number is 459-3133.

I ask all of you who have remained to complete the Consent form and when you have returned it to me, I will give you a copy of the questionnaire booklet and the answer sheet. Please do not make any marks in the questionnaire booklet.

Thank you for your contribution!

APPENDIX

B. Modified College and University Classroom Environment Inventory

MODIFIED COLLEGE AND UNIVERSITY CLASSROOM ENVIRONMENT INVENTORY (CUCEI) - CONTROL STUDENT

Directions:

The purpose of this questionnaire is to find out your opinions about the class you are attending right now.

This questionnaire is designed for use in gathering opinions about classes at universities or colleges.

This form of the questionnaire assesses your opinion about what this class is actually like. Indicate your opinion about each questionnaire statement by filling in the appropriate boxes on the response form with the letter of your choice.

Write A if you STRONGLY AGREE that the statement describes what this class is actually like

Write B if you AGREE that the statement describes what this class is actually like

Write C if you DISAGREE that the statement describes what this class is actually like

Write D if you STRONGLY DISAGREE that the statement describes what this class is actually like

1. The instructor considers students' feelings.
2. The instructor talks rather than listens
3. The class is made up of individuals who don't know each other well.
4. The students look forward to coming to class.
5. Students know exactly what has to be done in our class.
6. New ideas are seldom tried out in this class.
7. All students in the class are expected to do the same work, in the same way and in the same time.

8. The instructor talks individually with students.
9. Students put effort into what they do in classes.
10. Each student knows the other members of the class by their first names.
11. Students are dissatisfied with what is done in the class.
12. Getting a certain amount of work done is important in this class.
13. New and different ways of teaching are seldom used in this class.
14. Students are generally allowed to work at their own pace.

15. The instructor goes out of his/her way to help students.
16. Students constantly watch the clock in this class in anticipation of its end.
17. Friendships are made among students in this class.
18. After the class, the students have a sense of satisfaction.
19. The group often gets sidetracked instead of sticking to the point.

20. The instructor thinks up innovative activities for students to do.
21. Students have a say in how class time is spent.

22. The instructor makes sure each student who is having trouble with the work receives help.
23. Students in this class pay attention to what others are saying.
24. Students don't have much chance to get to know each other in this class.
25. Classes are a waste of time.
26. This is a disorganized class.
27. Teaching approaches in this class are generally innovative and have variety.
28. Students are allowed to choose activities and how they will work.

29. The instructor seldom moves around the classroom to talk with students.
30. Students seldom present their work to the class.
31. It takes a long time to get to know everybody by his/her first name in this class.
32. Classes are boring.
33. Class assignments are clear so everyone knows what to do.
34. The seating in this class is arranged in the same way each week.
35. Teaching and learning is managed in this class to allow students to proceed at their own pace.

36. The instructor isn't interested in students' problems.
37. There are opportunities for students to express opinions in this class.
38. Students in this class get to know each other well.
39. Students enjoy going to this class.
40. This class seldom starts on time.
41. The instructor often thinks of unusual class activities.
42. There is little opportunity for a student to pursue his/her particular interest in this class.

43. The instructor is unfriendly and inconsiderate towards students.
44. The instructor dominates class discussions.
45. Students in this class aren't very interested in getting to know other students.
46. Classes are interesting.
47. Activities in this class are clearly and carefully planned.
48. Students seem to do the same type of activities every class.
49. It is the instructor who decides what will be done in our class.

The following information is being collected from you only to demonstrate that this class's students are representative of students who attend this institution. Write in the appropriate letter on the answer sheet.

50. Gender	(A) Male	(B) Female		
51. Age	(A) 17-21	(B) 22-26	(C) 27-31	(D) 32+
52. Previous Education	(A) High School	(B) One Year Postsecondary	(C) Two Years Postsecondary	(D) Journeyman

MODIFIED COLLEGE AND UNIVERSITY CLASSROOM ENVIRONMENT INVENTORY (CUCEI) - CONTROL FACULTY

Directions:

The purpose of this questionnaire is to find out your opinions about the class you are attending right now.

This questionnaire is designed for use in gathering opinions about classes at universities or colleges.

This form of the questionnaire assesses your opinion about what this class is actually like. Indicate your opinion about each questionnaire statement by filling in the appropriate boxes on the response form with the letter of your choice.

Write A if you STRONGLY AGREE that the statement describes what this class is actually like

Write B if you AGREE that the statement describes what this class is actually like

Write C if you DISAGREE that the statement describes what this class is actually like

Write D if you STRONGLY DISAGREE that the statement describes what this class is actually like

1. The instructor considers students' feelings.
2. The instructor talks rather than listens
3. The class is made up of individuals who don't know each other well.
4. The students look forward to coming to class.
5. Students know exactly what has to be done in our class.
6. New ideas are seldom tried out in this class.
7. All students in the class are expected to do the same work, in the same way and in the same time.

8. The instructor talks individually with students.
9. Students put effort into what they do in classes.
10. Each student knows the other members of the class by their first names.
11. Students are dissatisfied with what is done in the class.
12. Getting a certain amount of work done is important in this class.
13. New and different ways of teaching are seldom used in this class.
14. Students are generally allowed to work at their own pace.

15. The instructor goes out of his/her way to help students.
16. Students constantly watch the clock in this class in anticipation of its end.
17. Friendships are made among students in this class.
18. After the class, the students have a sense of satisfaction.
19. The group often gets sidetracked instead of sticking to the point.

20. The instructor thinks up innovative activities for students to do.
21. Students have a say in how class time is spent.

22. The instructor makes sure each student who is having trouble with the work receives help.
23. Students in this class pay attention to what others are saying.
24. Students don't have much chance to get to know each other in this class.
25. Classes are a waste of time.
26. This is a disorganized class.
27. Teaching approaches in this class are generally innovative and have variety.
28. Students are allowed to choose activities and how they will work.

29. The instructor seldom moves around the classroom to talk with students.
30. Students seldom present their work to the class.
31. It takes a long time to get to know everybody by his/her first name in this class.
32. Classes are boring.
33. Class assignments are clear so everyone knows what to do.
34. The seating in this class is arranged in the same way each week.
35. Teaching approaches allow students to proceed at their own pace.

36. The instructor isn't interested in students' problems.
37. There are opportunities for students to express opinions in this class.
38. Students in this class get to know each other well.
39. Students enjoy going to this class.
40. This class seldom starts on time.
41. The instructor often thinks of unusual class activities.
42. There is little opportunity for a student to pursue his/her particular interest in this class.

43. The instructor is unfriendly and inconsiderate towards students.
44. The instructor dominates class discussions.
45. Students in this class aren't very interested in getting to know other students.
46. Classes are interesting.
47. Activities in this class are clearly and carefully planned.
48. Students seem to do the same type of activities every class.
49. It is the instructor who decides what will be done in our class.

50. Gender	(A) Male	(B) Female		
51. Age	(A) 25-35	(B) 35-45	(C) 45-55	(D) 55+
52. Educational Background	(A) Journeyman	(B) Technical Diploma	(C) Bachelor's Degree	(D) Post graduate degree
53. Number of Years Teaching Experience	(A) 0 - 3 years	(B) 4 - 6 years	(C) 7 - 10 years	(D) 10+ years
54. Division	(A) Industrial	(B) Health Sciences	(C) Engineering Technologies	(D) Business

MODIFIED COLLEGE AND UNIVERSITY CLASSROOM ENVIRONMENT INVENTORY (CUCEI) - STUDENT PARTICIPANT

Directions:

The purpose of this questionnaire is to find out your opinions about the class you are attending right now.

This questionnaire is designed for use in gathering opinions about classes at universities or colleges.

This form of the questionnaire assesses your opinion about what this class is actually like. Indicate your opinion about each questionnaire statement by filling in the appropriate boxes on the response form with the letter of your choice.

Write A if you STRONGLY AGREE that the statement describes what this class is actually like

Write B if you AGREE that the statement describes what this class is actually like

Write C if you DISAGREE that the statement describes what this class is actually like

Write D if you STRONGLY DISAGREE that the statement describes what this class is actually like

1. The instructor considers students' feelings.
2. The instructor talks rather than listens
3. The class is made up of individuals who don't know each other well.
4. The students look forward to coming to class.
5. Students know exactly what has to be done in our class.
6. New ideas are seldom tried out in this class.
7. All students in the class are expected to do the same work, in the same way and in the same time.

8. The instructor talks individually with students.
9. Students put effort into what they do in classes.
10. Each student knows the other members of the class by their first names.
11. Students are dissatisfied with what is done in the class.
12. Getting a certain amount of work done is important in this class.
13. New and different ways of teaching are seldom used in this class.
14. Students are generally allowed to work at their own pace.

15. The instructor goes out of his/her way to help students.
16. Students constantly watch the clock in this class in anticipation of its end.
17. Friendships are made among students in this class.
18. After the class, the students have a sense of satisfaction.
19. The group often gets sidetracked instead of sticking to the point.
20. The instructor thinks up innovative activities for students to do.
21. Students have a say in how class time is spent.

22. The instructor makes sure each student who is having trouble with the work receives help.
23. Students in this class pay attention to what others are saying.
24. Students don't have much chance to get to know each other in this class.
25. Classes are a waste of time.
26. This is a disorganized class.
27. Teaching approaches in this class are generally innovative and have variety.
28. Students are allowed to choose activities and how they will work.

29. The instructor seldom moves around the classroom to talk with students.
30. Students seldom present their work to the class.
31. It takes a long time to get to know everybody by his/her first name in this class.
32. Classes are boring.
33. Class assignments are clear so everyone knows what to do.
34. The seating in this class is arranged in the same way each week.
35. Teaching approaches allow students to proceed at their own pace.

36. The instructor isn't interested in students' problems.
37. There are opportunities for students to express opinions in this class.
38. Students in this class get to know each other well.
39. Students enjoy going to this class.
40. This class seldom starts on time.
41. The instructor often thinks of unusual class activities.
42. There is little opportunity for a student to pursue his/her particular interest in this class.

43. The instructor is unfriendly and inconsiderate towards students.
44. The instructor dominates class discussions.
45. Students in this class aren't very interested in getting to know other students.
46. Classes are interesting.
47. Activities in this class are clearly and carefully planned.
48. Students seem to do the same type of activities every class.
49. It is the instructor who decides what will be done in our class.

50. Classroom assessment is a waste of time.
51. Classroom assessments allowed me to communicate in a positive way with my instructor.
52 If I had a choice, I would choose to be in a class with an instructor who uses classroom assessments.
53 The use of classroom assessments had little or no effect on my learning.
54. The use of classroom assessments made me feel more involved in my learning.
55. The use of classroom assessments improved the quality of my educational experience in this class.
56. All instructors should use classroom assessments.

The following information is being collected from you only to demonstrate that this class's students are representative of students who attend this institution. Write in the appropriate letter on the answer sheet.

57. Gender	(A) Male	(B) Female		
58. Age	(A) 17-21	(B) 22-26	(C) 27-31	(D) 32+
59. Previous Education	(A) High School	(B) One Year Postsecondary	(C) Two Years Postsecondary	(D) Journeyman

MODIFIED COLLEGE AND UNIVERSITY CLASSROOM ENVIRONMENT INVENTORY (CUCEI) - FACULTY PARTICIPANT

Directions:

The purpose of this questionnaire is to find out your opinions about the class you are instructing right now.

This questionnaire is designed for use in gathering opinions about classes at universities or colleges.

This form of the questionnaire assesses your opinion about what this class is actually like. Indicate your opinion about each questionnaire statement by filling in the appropriate boxes on the response form with the letter of your choice.

Write A if you STRONGLY AGREE that the statement describes what this class is actually like

Write B if you AGREE that the statement describes what this class is actually like

Write C if you DISAGREE that the statement describes what this class is actually like

Write D if you STRONGLY DISAGREE that the statement describes what this class is actually like

1. The instructor considers students' feelings.
2. The instructor talks rather than listens
3. The class is made up of individuals who don't know each other well.
4. The students look forward to coming to class.
5. Students know exactly what has to be done in our class.
6. New ideas are seldom tried out in this class.
7 All students in the class are expected to do the same work, in the same way and in the same time.

8. The instructor talks individually with students.
9. Students put effort into what they do in classes.
10. Each student knows the other members of the class by their first names.
11. Students are dissatisfied with what is done in the class.
12. Getting a certain amount of work done is important in this class.
13. New and different ways of teaching are seldom used in this class.
14. Students are generally allowed to work at their own pace.

15. The instructor goes out of his/her way to help students.
16. Students constantly watch the clock in this class in anticipation of its end.
17. Friendships are made among students in this class.
18. After the class, the students have a sense of satisfaction.
19. The group often gets sidetracked instead of sticking to the point.
20. The instructor thinks up innovative activities for students to do.
21. Students have a say in how class time is spent.

22. The instructor makes sure each student who is having trouble with the work receives help.
23. Students in this class pay attention to what others are saying.
24. Students don't have much chance to get to know each other in this class.
25. Classes are a waste of time.
26. This is a disorganized class.
27. Teaching approaches in this class are generally innovative and have variety.
28. Students are allowed to choose activities and how they will work.

29. The instructor seldom moves around the classroom to talk with students.
30. Students seldom present their work to the class
31. It takes a long time to get to know everybody by his/her first name in this class.
32. Classes are boring.
33. Class assignments are clear so everyone knows what to do.
34. The seating in this class is arranged in the same way each week.
35. Teaching approaches allow students to proceed at their own pace.

36. The instructor isn't interested in students' problems.
37. There are opportunities for students to express opinions in this class.
38. Students in this class get to know each other well.
39. Students enjoy going to this class.
40. This class seldom starts on time.
41. The instructor often thinks of unusual class activities.
42. There is little opportunity for a student to pursue his/her particular interest in this class.

43. The instructor is unfriendly and inconsiderate towards students.
44. The instructor dominates class discussions.
45. Students in this class aren't very interested in getting to know other students.
46. Classes are interesting.
47. Activities in this class are clearly and carefully planned.
48. Students seem to do the same type of activities every class.
49. It is the instructor who decides what will be done in our class.

50. The use of Classroom Assessment Techniques (CATs) in my classroom contributed to an improvement in the teaching and learning process.
51. The use of CATs was difficult for me.
52. CATs is an easy tool to use.
53. The use of CATs is a time-consuming process.
54. I will use CATs again.
55. I plan to introduce CATs to all my classes.
56. I would recommend the use of CATs to a colleague.
57. The use of CATs made me feel more effective in the classroom.
58. I enjoyed the sharing of information with my colleagues in our CATs meetings.
59. I feel more excited about my teaching since I have started using CATs.
60. In my opinion, CATs is an effective tool for improving the teaching and learning process.

The following information is being collected from you only to demonstrate that the sample of instructors in this study is representative of the instructors in this institution. Write in the appropriate letter on the answer sheet.

61. Gender	(A) Male	(B) Female		
62. Age	(A) 25-35	(B) 35-45	(C) 45-55	(D) 55+
63. Educational Background	(A) Journeyman	(B) Technical Diploma	(C) Bachelor's Degree	(D) Post graduate degree
64. Number of Years Teaching Experience	(A) 0 - 3 years	(B) 4 - 6 years	(C) 7 - 10 years	(D) 10+ years
65. Division	(A) Industrial	(B) Health Sciences	(C) Engineering Technologies	(D) Business

Modified College and University Classroom Environment Inventory (CUCEI) - Student Participant

Answer Sheet

Please fill in your responses to the CUCEI on the response form below.

This form of the questionnaire assesses your opinion about what this class is actually like. Indicate your opinion about each questionnaire statement by filling in the appropriate boxes on the response form with the letter of your choice.

Write A if you STRONGLY AGREE that the statement describes what this class is actually like

Write B if you AGREE that the statement describes what this class is actually like

Write C if you DISAGREE that the statement describes what this class is actually like

Write D if you STRONGLY DISAGREE that the statement describes what this class is actually like

1. ☐
2. ☐
3. ☐
4. ☐
5. ☐
6. ☐
7. ☐
8. ☐
9. ☐
10. ☐
11. ☐
12. ☐
13. ☐
14. ☐
15. ☐
16. ☐
17. ☐
18. ☐
19. ☐
20. ☐
21. ☐
22. ☐
23. ☐
24. ☐
25. ☐
26. ☐
27. ☐
28. ☐
29. ☐
30. ☐
31. ☐
32. ☐
33. ☐
34. ☐
35. ☐
36. ☐
37. ☐
38. ☐
39 ☐
40. ☐
41. ☐
42. ☐

Student Participant Answer Sheet - Page 2

Write A if you STRONGLY AGREE that the statement describes what this class is actually like

Write B if you AGREE that the statement describes what this class is actually like

Write C if you DISAGREE that the statement describes what this class is actually like

Write D if you STRONGLY DISAGREE that the statement describes what this class is actually like

43. ☐
44. ☐
45. ☐
46. ☐
47. ☐
48. ☐
49. ☐
50. ☐
51. ☐
52. ☐
53. ☐
54. ☐
55. ☐
56. ☐
57. ☐
58. ☐
59. ☐

Name:________ ___

Modified College and University Classroom Environment Inventory (CUCEI) - Faculty Participant Answer Sheet

Please fill in your responses to the CUCEI on the response form below.

This form of the questionnaire assesses your opinion about what this class is actually like. Indicate your opinion about each questionnaire statement by filling in the appropriate boxes on the response form with the letter of your choice.

Write A if you STRONGLY AGREE that the statement describes what this class is actually like

Write B if you AGREE that the statement describes what this class is actually like

Write C if you DISAGREE that the statement describes what this class is actually like

Write D if you STRONGLY DISAGREE that the statement describes what this class is actually like

1. ☐	8. ☐	15. ☐	22. ☐	29. ☐	36. ☐
2. ☐	9. ☐	16. ☐	23. ☐	30. ☐	37. ☐
3. ☐	10. ☐	17. ☐	24. ☐	31. ☐	38. ☐
4. ☐	11. ☐	18. ☐	25. ☐	32. ☐	39 ☐
5. ☐	12. ☐	19. ☐	26. ☐	33. ☐	40. ☐
6. ☐	13. ☐	20. ☐	27. ☐	34. ☐	41. ☐
7. ☐	14. ☐	21. ☐	28. ☐	35. ☐	42. ☐

Faculty Participant Answer Sheet - Page 2

Write A if you STRONGLY AGREE that the statement describes what this class is actually like

Write B if you AGREE that the statement describes what this class is actually like

Write C if you DISAGREE that the statement describes what this class is actually like

Write D if you STRONGLY DISAGREE that the statement describes what this class is actually like

43. ☐
44. ☐
45. ☐
46. ☐
47. ☐
48. ☐
49. ☐
50. ☐
51. ☐
52. ☐
53. ☐
54. ☐
55. ☐
56. ☐
57. ☐
58. ☐
59. ☐
60. ☐
61. ☐
62. ☐
63. ☐
64. ☐
65. ☐

Modified College and University Classroom Environment Inventory (CUCEI) - Control Student Answer Sheet

Please fill in your responses to the CUCEI on the response form below.

This form of the questionnaire assesses your opinion about what this class is actually like. Indicate your opinion about each questionnaire statement by filling in the appropriate boxes on the response form with the letter of your choice.

Write A if you STRONGLY AGREE that the statement describes what this class is actually like

Write B if you AGREE that the statement describes what this class is actually like

Write C if you DISAGREE that the statement describes what this class is actually like

Write D if you STRONGLY DISAGREE that the statement describes what this class is actually like

1. ☐
2. ☐
3. ☐
4. ☐
5. ☐
6. ☐
7 ☐

8. ☐
9. ☐
10. ☐
11. ☐
12. ☐
13. ☐
14. ☐

15. ☐
16. ☐
17 ☐
18. ☐
19. ☐
20. ☐
21. ☐

22. ☐
23. ☐
24. ☐
25. ☐
26. ☐
27. ☐
28. ☐

29. ☐
30. ☐
31. ☐
32. ☐
33. ☐
34. ☐
35. ☐

36. ☐
37. ☐
38. ☐
39. ☐
40. ☐
41. ☐
42. ☐

43. ☐
44. ☐
45. ☐
46. ☐
47. ☐
48. ☐
49. ☐

50. ☐
51. ☐
52. ☐

Modified College and University Classroom Environment Inventory (CUCEI) - Control Faculty
Answer Sheet

Please fill in your responses to the CUCEI on the response form below.

This form of the questionnaire assesses your opinion about what this class is actually like. Indicate your opinion about each questionnaire statement by filling in the appropriate boxes on the response form with the letter of your choice.

Write A if you STRONGLY AGREE that the statement describes what this class is actually like

Write B if you AGREE that the statement describes what this class is actually like

Write C if you DISAGREE that the statement describes what this class is actually like

Write D if you STRONGLY DISAGREE that the statement describes what this class is actually like

1. ☐
2. ☐
3. ☐
4. ☐
5. ☐
6. ☐
7 ☐
8. ☐
9. ☐
10. ☐
11. ☐
12. ☐
13. ☐
14. ☐
15. ☐
16. ☐
17 ☐
18. ☐
19. ☐
20. ☐
21. ☐
22. ☐
23. ☐
24. ☐
25. ☐
26. ☐
27. ☐
28. ☐
29. ☐
30. ☐
31. ☐
32. ☐
33. ☐
34. ☐
35. ☐
36. ☐
37. ☐
38. ☐
39. ☐
40. ☐
41. ☐
42. ☐
43. ☐
44. ☐
45. ☐
46. ☐
47. ☐
48. ☐
49. ☐

50. ☐
51. ☐
52. ☐
53. ☐
54. ☐

APPENDIX

C. Faculty Participant Questionnaire

Faculty Participant Questionnaire

1. Please list the Classroom Assessment Techniques (CATs) that you used this past semester?

2. Please list any of the CATs that you used more than once. Why were these used more than once?

3. Which of the CATs did you and your class find most helpful? Why?

4. Which of the CATs did you and your class find least helpful? Why?

5. What problem(s) or difficulty(s) did you experience using CATs?

6. What factor(s) allowed you to overcome the difficulty or problem?

7. In your opinion, did the use of CATs improve the quality of the teaching and learning in your class? Please give an example that would support your opinion.

8. Did you change your planned instruction due to the feedback received from students? If yes, please give a brief description of the change.

9. What factor(s) do you identify as **necessary** to support the effective use of CATs?

10. What factors do you identify as **helpful** to support the effective use of CATs?

11. Would you recommend the use of CATs to a colleague? Why or why not?

12. In your opinion, what was the greatest benefit(s) of using CATs?

13. In your opinion, what was the greatest drawback(s) of using CATs?

14. In your opinion, is CATs an appropriate tool for the improvement of the teaching and learning process in the classroom? Please comment in support of your opinion.

15. In your opinion, does the use of CATs heighten students awareness of problems and/or expectation of solutions and therefore cause students to act and react differently to the teaching and learning process? Please comment in support of your opinion.

APPENDIX

D. Permission to do Research at Cooperating Institution

NORTHERN ALBERTA INSTITUTE OF TECHNOLOGY

Date: May 1, 1995

To: Lee Bradshaw

From: Bill Spaans

MEMORANDUM

Re: **E. Soetaert Proposed Research Project**

Elaine Soetaert has requested support for a research project to be completed at NAIT. Her detailed proposal is attached. The proposed project has the following objectives and characteristics:

The study proposes to study faculty and student perceptions of the effectiveness of the Cross/Angelo Classroom Assessment Techniques (CAT) as a method for improving the teaching/learning process.

CAT is a procedure for collecting continuous feedback from students on the effectiveness of the instructional process in helping them to learn.

The research will be based on a sample of four instructors in each of the four instructional Divisions. A fifth instructor in each Division will be chosen as a control group for the study.

Instructors participating in the study will be randomly chosen from a list of instructors who volunteer to participate.

Program Head support will be obtained before the study commences. Instructors in the sample group will be trained in the use of CAT, during May, 1995. Data collection will occur during the period September to December, 1995.

CAT has previously been shown at other institutions to have a positive effect on student retention, grades and satisfaction. The research project findings will provide a valuable source of data on the use of CAT at NAIT.

I recommend support for this project. I believe it is consistent with NAIT's commitment to monitor and improve the effectiveness of the teaching/learning process. Participation in the project will be voluntary, and student feedback will anonymous.

W. Spaans

WS/jlw

Enclosure

Approved: Lee F Bradshaw

APPENDIX

E. Classroom Assessment Techniques Training Materials

CLASSROOM ASSESSMENT
and
STUDENT LEARNING

Two-Day Faculty Workshop
Northern Alberta Institute of Technology
May 29 & 30, 1995

Susan Obler, Ph.D.

Addenda: Tom Angelo, Assessment Forum, AAHE,
Washington, D.C.

WORKSHOP GOALS:

To develop an understanding of Classroom Assessment practices
To develop learning goals that fit your students and your curriculum
To plan a Classroom Assessment project for one class

AGENDA, DAY ONE:

8:30	Introductions and Goals
9:00	Classroom Assessment: Overview
9:30	Classroom Assessment Project Scenarios
10:30	Ideal Student Assessment Responses
11:30	Benefits and Barriers to Classroom Assessment
12:00	LUNCH
1:00	Scenarios for Responding to Student Feedback
2:00	The Student's Problem is Our Problem
3:00	Designing Student Learning Goals
3:45	Wrap-up, Assignment for Day 2
4:00	Day 1 Ends

AGENDA, DAY TWO:

8:30	Goals for the Day; Assignment Review
9:30	Planning a CATs Project for One Class
10:30	Cautions and Clarifications
11:30	Organizational Snags and Supports
12:00	LUNCH
1:00	More Planning: It's All in the Details
2:00	How Does Culture Affect Learning?
3:00	Going Public: How Will You Share Your Results?
3:45	Loose Ends
4:00	Workshop Ends

What is "Classroom Research"?

Classroom research is the systematic study, by faculty, of what and how their students are learning in a particular course.

What is "Classroom Assessment"?

Systematic use of simple classroom assessment tools provide anonymous student feedback on learning progress.

Sources:

Traditional Educational Research

Faculty Development

The Assessment Movement

CLASSROOM ASSESSMENT IS:

Learner-Centered; Faculty-Directed

Active-Learning Oriented

Driven By Course Goals and Curriculum

Intellectually Stimulating

An Integral Part of Effective Teaching

Useful for Documenting Learning Progress

Valuable and Engaging for Students

"CATs" are most useful when they:

- fit the instructor's approach
- fit students' learning needs
- fit course material or skills
- require critical thinking skills
- require active learning
- encourage student self-assessment
- foster faculty/students learning together

Classroom Assessment works when we:

- Give Clear Directions
- Limit Tasks to 1-2 Minutes
- Vary Their Types and Uses
- Assess a Specified Goal
- Report Results to Students
- Review Results Across a Term
- Keep Notes Along the Way

SIMPLE INDIVIDUAL CATs

goal matching: students/teachers

the one-sentence, main idea

the one-minute paper

a list of key concepts

clearest point; muddiest point

one concept; one question

direct para-phrasing

background knowledge probe

define terms; distinguish ambiguous terms

Application of concept or skill

Rating the ease of an assignment

COLLABORATIVE CATs

Adapted CATs above

blackboard or computer list of key concepts

round-robin paragraph (one sentence each)

the one-minute report on key ideas

CAVEATS AND GUIDELINES

- Think through your goals.
- What do you want students to DO?
- Start small; set limits on the time you can invest.
- Get feedback from colleagues on your progress.
- Be flexible and willing to try new approaches.
- Help students learn to give useful feedback.
- Share assessment results with students.
- Enjoy the process WITH your students.

CHANGING PARADIGMS IN TEACHING AND LEARNING

THEN	NOW
Teaching behaviors	Learning Behaviors
Passive learners	Active Learners
Teacher as Dispenser	Teacher as Coach
"Bitting" Material	Meta-Curriculum
Competitive	Collaborative
Tedious Tasks	Use Computers
Teachers Assess	Students Assess
Withhold Scaffolding	Provide Scaffolding
Prescribe	Empower

RIO HONDO COLLEGE, WHITTIER, CALIFORNIA
Teaching-Learning Center: Overview & Update
Spring, 1995
The Teaching-Learning Center

The TLC was formed in 1989 via funding by Title III and other grants in order to:

- Increase the focus on students: how they learn and how teaching affects learning
- Foster the uses of classroom innovation and new technologies for teaching and learning across disciplines and programs
- Increase awareness of how culture, diversity, and bias affect learning
- Support the use of Cross-Angelo Classroom Assessment Techniques
- Encourage the systematic study of learning and teaching
- Develop, share models of piloting & assessing innovations directly with students

Spring, 1995 Pilot Projects

Rio's new Title III project (1994-99) is developing, through the TLC, a program to increase student persistence that we call Learning Communities. It's focus is developing increased contact among students and faculty in spite of a commuter campus; this contact will be supported by new learning technologies such as electronic class discussions. (The federal grant also provides for a Decision-Support System on the main frame which links faculty, managers, staff, and students to planning and assessing student & college needs.)

The current courses using electronic conferencing for class discussions are:

Micro Economics, Andy Howard - Career Orientation, Katie O'Brien
Mexican Literature, Mary Ann Pacheco - Astronomy, Dewayne Highfill
Comparative Government, Owen Newcomer - English, Lenore Dowling
Literature, Art Apprec, Sheila Lynch, Jim Matthis - Sociology, Tom Waller

Student and Faculty Access to New Technologies

The TLC has two primary lab areas for students and faculty to test new uses of interactive software and communications system: S-203 with 7 networked multi-media computer stations and S-202 with 21-stations for the classroom learning, for Internet access, and for electronic meetings. We also have 5 work stations in an adjoining alcove of S-203 for faculty to develop software, use class records software, and learn existing programs across programs or courses. The TLC expects to:

- Increase the uses of new technologies for student learning where appropriate.
- Expose faculty to the student learning possibilities for these new technologies.
- Provide training and equipment access for developing & adapting new technologies.

Electronic Meetings and On-Line Discussions, Internet Access

* Ventana's GroupWare for WINDOWS serves the needs of groups-both classes and committees-to brainstorm, sort ideas, assess alternatives, draft projects. Group members use these tools simultaneously and anonymously, using time more productively and diffusing the politics of meetings or class discussions.
* Via guests of BESTLA, California State University, Los Angeles, we provide Internet e-mail accounts to staff and students in our pilot courses and use VAXNotes for class discussions.

The "Large Format" Pilots

Co-sponsored by the TLC, Academic Affairs, we are in our second semester of using TLC labs for multi-media uses supplementing Economics and Psychology courses. Andy Howard and Judi Henderson have developed extensive presentations and interactive quizzes to personalize the larger classroom format. In Spring, 1995, one of Dr. Howard's courses will add on-line discussions to increase learning and to build community among students in such a large-enrollment class.

Title III Support: 1987-Present

First: 1987-1992: Rio's First Title III supported development of matriculation support for students, the Teaching-Learning Center, development of the mainframe for MIS reporting, the Multi-Cultural Center, and the Foundation.
Second: 1989-1994: The Title III Consortium allowed Rio, as the lead college, Mt.SAC, Cerritos, Rancho Santiago to develop a model to pilot innovative teaching and learning directly in the classroom.
Third: The current projects, described first, above.

Classroom Assessment (CATs = Classroom Assessment Techniques)

Classroom Assessment, as developed by Tom Angelo, Assessment Forum, MHE, and Pat Cross, University of California at Berkeley, is a way to find out if students are learning what we say we are teaching. In various ways - 3 X 5 cards, GroupWare, faculty-designed multi-media, or on-line conferences - students respond anonymously to brief questions about how and what they are learning in a particular course. For example, depending on his or her goals, the instructor might ask students to state the clearest/muddiest points in a lecture, or have students write a one-sentence definition of a key point. Faculty tabulate responses (by hand or electronically) to get a sense of how students are doing as a group. Then they report assessment results back to students. Through this process, faculty report that students are more engaged in learning; students report that they learn more when using these tools. Classroom assessment was a key feature in common across all three Title III-sponsored projects of the Teaching-Learning Center.

Links: the Teaching-Learning Center, Professional Development, FLEX

The TLC, Professional Development, and the FLEX requirement program work cooperatively (and share offices) to expand the goals of each and to:

* Increase student learning through the professional growth and training of faculty and staff.
* Encourage faculty and staff to strengthen their work through technology.
* Strengthen the contributions of each program while reducing inappropriate overlaps.
* Increase the cost effectiveness for all of the above.
* Conduct intensive courses for the awareness of current research and practice for new faculty hires.

Rio Hondo College
TEACHING-LEARNING CENTER ELECTRONIC FORUM PROJECT
Spring, 1995

What is the purpose of electronic conferences?

- To increase contact among students and instructors.
- To encourage collaborative learning.
- To provide a forum for discussing course ideas and skills.

Which classes are using on-line conferences in the Spring 1995 pilot?

MICROECON - RIO, Andy Howard -- COUNSELING101 - RIO, Katie O'Brien
MEXICANLIT117, Mary Ann Pacheco -- ASTRONOMY110, Dewayne Highfill
COMPGOVT - RIO, Owen Newcomer -- ENGLISH101 - RIO, Lenore Dowling
ARTLIT - RIO, Sheila Lynch, Jim Matthis -- SOCIOLOGY101, Tom Waller

How is it different from class discussions or study groups?

- On-line discussions allow students to enter their ideas and read others' at their own pace from college labs or from an off-campus computer and modem.
- As students think about what to write on line, they will be more engaged in the course material and they will also learn from a range of other opinions.
- Electronic discussions are often easier for those who dislike speaking in class or in groups; some people feel freer writing on the screen.
- Students and faculty share in the learning process; both enter topics for discussion and submit responses.
- All participants can use the other resources of the Internet -libraries, data bases, and colleagues around the world - in the conversations and debates on line.

NOTE: We are the first community college in California to use electronic conferences in this way. We found the on-line forum at the Maricopa Colleges in Phoenix, Arizona, where over 8000 students in over 350 courses use their Electronic Forum. Karen Schwalm, the Coordinator of their forum, is the trainer and evaluator for our project at Rio Hondo.

"ON THE INFORMATION HIGHWAY, YOUR MILEAGE MAY VARY."

USING AND ASSESSING LEARNING ON-LINE
"Virtual Classrooms; Virtual CATs"

Students use on-line (Internet) networks to

* engage in informal discussions of class issues.
* participate in directed discussions of course issues
* locate research material for term papers or projects
* discover ideas from other people, other cultures
* practice language for ESL students in any course
* construct and express knowledge through writing
* develop ideas for projects and papers
* make contact with the instructor (virtual office hours)
* read course materials and syllabi
* give instructors feedback on course assignments
* develop portfolios of course assignments
* create an on-going record of discussions and study of course work
* increase application, reinforcement, expansion of ideas and skills through writing
* extend contact time with other students that is otherwise impossible
* use anonymous classroom assessment techniques for feedback on learning
* increase active learning and critical thinking

Instructors use on-line networks to

* provide feedback to students on their papers or projects
* provide assessment of student work or student discussion
* provide library and data base resources of the Internet for course assignments
* find out how students are doing and how they develop their thinking
* discuss issues with other faculty in US and around the world
* discover other teachers' approaches to their discipline or program
* direct discussion and focus students' thinking on course material
* use "extended class time" to increase knowledge together
* engage students in the social construction of knowledge
* distribute class notes, study/test questions, or overheads to students
* gather anonymous classroom assessment techniques (see below)

Faculty and students together with on-line networks

* share information and skills
* strengthen cross-cultural contact
* increase retention via on-line learning communities
* become active, cooperative learners
* save a lot of trees

Adapted Classroom Assessment Techniques assess on-line learning via

* anonymous sessions on BBS (bulletin boards) or conferences (VAX notes, etc.)
* well-designed prompts from instructors, very similar to CATs that would be given verbally or in writing in the "real" classroom, adapted from Angelo/Cross book
* Samples of on-line CATs:
  -Review your E-mail folder of classroom notes and discussions and write a sentence or two about the most valuable discussion thread we have had this term and why it helped you learn.
  -In VAX notes, enter a one or two-sentence comment about the easiest and hardest part of our test last week on Chapter 5.
  -What aspects of using E-mail and on-line resources were the most difficult and how did you overcome this difficulty?
  -Regarding the short story we read this week, with which character did you identify the most and why?
  -In the lab assignment you did Tuesday, what new skills did you learn?
  -When using the software "Moneywise," which risk calculation was the most applicable to a "real life" situation? Why? Can you think of other calculations that could be added to the program?
* Advantages of on-line CATs:
  -Patterns in the responses are easier & faster to calculate (search strings
  -Feedback on CATs responses can be issued on line
  -Response entries can be printed up in full for class review if students like concrete, hard copy
  -An on-going record of CATs are available on line for review for those with the password
  -The range of CAT responses in one or more terms could be very useful for classroom research project

USING GROUP SOFTWARE FOR CLASSES & MEETINGS
Rio Hondo College, Whittier, California

WHAT IS "GROUPWARE"?

* Networked group software allows participants to work simultaneously and anonymously on an agenda or assignment

* A printout of all individual and group work is ready at session's end.

TOOLS AVAILABLE:

* Divergent Tools: Brainstorming, Idea Organization, Topic Commenter

* Convergent Tools: Alternative Evaluator, Group Writer, Outliner

TYPICAL USES:

* Students list alternatives and criteria for a complex issue and evaluate it

* Students record notes in "folders" for tests or study notes; have printed results

* Students list examples of a sensitive topic & share the anonymous information

* A college planning committee creates criteria on which to make budget reductions

* A consortium in economic development evaluates their past year and plans the next

* Community committees develop agenda, develop partnerships, prepare grants.

ADVANTAGES:

* Ideas are generated simultaneously so that productivity is increased.

* Anonymity reduces political nature of classrooms & meetings; all views are recorded.

* Ideas are evaluated on their merit, not who speaks the most or has the most power.

* Students who rarely speak in class--due to cultural values--have their voices heard.

* Students and other groups receive a printed copy or a disk before they leave.

* Entries, notes, and stats on group consensus is readily available.

* Notes of meeting progress can be saved and used in subsequent sessions.

CAUTIONS:

- A trained facilitator must work with session leader or teacher to manage the software.
- Time must be given to the goals and results expected in a given session.
- Using the software can reveal the ragged edges of poor planning or goal ambiguities.
- The software can be costly (10K and up) and the hardware/network must be 486+.

CLASSROOM ASSESSMENT TECHNIQUES:

- Adaptations of many Angelo/Cross CATs can assess group progress
- The simplest prompts work the best.
- In Topic Commenter, for example, 2 folders could be used, one labeled Clearest Point, the other labeled Muddiest Point.
- Groups rank the most useful assignments in a series with agreed-upon criteria.
- Often, we use a summary sentence or a one-minute paper at the end of a session.
- For techno-phobics, we stop work about 15 minutes into the session and use low-tech 3 X 5 cards to ask about problems with the system.

WORKING DEFINITIONS for
PRO-DIVERSITY, ANTI-BIAS GOALS

Curricular Goals

Pro-diversity: Increase the range of cultural information, sources, ideas, influences, and communities in the curriculum.

Anti-Bias: Reduce the negative imagery, limited information, and narrow views of marginal societal groups.

Pedagogical Goals

Pro-Diversity: Increase strategies that foster student communication across groups, expand range of teaching and learning styles, and support active learning of ALL students.

Anti-Bias: Reduce methods that alienate one group from another or limit learning of any given group.

ASSESSING PRO-DIVERSITY GOALS

Example: INTRODUCTION TO HEALTH CARE

LONG-RANGE PRO-DIVERSITY GOALS:

- To increase students' skills with patients of ALL cultural/socio-economic groups.
- To increase students' information on culturally-driven, patient beliefs and attitudes.

SHORT-TERM GOAL

Students will be able to demonstrate understanding of patient needs and appropriate health-care worker responses to those in cultures outside their own.

LEARNING ACTIVITY

In groups of 3-4, arranged across cultures, students discuss two health care scenarios which could stymie those from another culture. (For example, a middle-class, dominant-culture student interprets the use of a "curandera" as a patient's delay in getting "real" health care.)

PRO-DIVERSITY CAT

Students do a One-Minute Paper, individually or in groups, by responding to the following prompt: "In 2-3 sentences, describe an appropriate way to respond to the patient in one of the scenarios."

STUDENT RESPONSES

Before our discussion, I thought that an older Mexican lady who came to the emergency room with an advanced lesion was just denying her condition. Our group discussed the fact that she spoke Spanish, but understood some English. We decided that both culture and economics could affect her apparent "delay."
Next time, I wouldn't as' why she waited so long; I would I listen to her fears, comfort her, and proceed with required procedures.

TEACHER RESPONSE

The teacher reports the range of cultures and socio-economic groups used in the scenarios, praising those that demonstrate appropriate responses. Copies of 2-3 of the most astute one-minute papers could be provided to all.

CLASSROOM ASSESSMENT OF PRO-DIVERSITY GOALS

Example: INTRODUCTION TO BUSINESS

LONG-RANGE PRO-DIVERSITY GOALS

*To increase students' awareness of cultural issues in business management.

*To exchange benefit from the diverse backgrounds of students in the class as their cultures relate to business issues.

SHORT-TERM GOAL

*To increase information and understanding about various cultural contributions to American corporate leadership development.

LEARNING ACTIVITY

Students listen to a 20 minute lecture by an executive from Toyota of North America. He emphasizes the contrasts between typical corporate expectations of leadership and the contrasts between Theory X and Theory Y as related to Japanese culture.

PRO-DIVERSITY CAT

Students do a One-minute Paper, by responding to the following prompt: "State in three to four sentences how Theory Y is affected by Japanese culture."

STUDENT RESPONSES

Theory Y includes the view that work is a spiritual thing, not drudgery that workers hate. That means that leaders can rely on workers' teamwork and personal investment in quality products.

I can't see how work can ever be fun. Maybe you just have to be raised that way. (My boss could never get it!)

TEACHER RESPONSE

One good example and one weak example of the one-minute papers are copied for all students and two inadequate responses are clarified in order to reduce misinformation about the theories. The teacher might mention current change in Japanese organizations; no cultural influence on leadership is static, any more than our adaptation is static.

FUNCTIONS OF CLASSROOM ASSESSMENT ACROSS TIME

WHEN	PURPOSES	EXAMPLE CATS
Course beginning	Assess knowledge	Knowledge Probe
		Misconception Check
	Assess interests	Interest Check
		Goal Ranking
	Assess confidence	Autobiographical Sketches
		Confidence Survey
Before a class	Improve study skills	Productive Study Log
	Support active reading	Word Journals
	Improve problem solving	Process Analysis
Start of a class	Class-to-class transition	RSQC2
	Set coverage priorities	Focused Listing
		Muddiest Point
Middle of a class	Assess listening	Punctuated Lecture
	Assess teaching	Chain Notes
End of a class	Assess content communication	Empty Outlines
	Promote elaboration	Application Cards
After a class	Promote learning integration	Directed Paraphrase
	Promote critical thinking	Invented Dialogue
After a unit	Assess student reactions	Minute Paper
	Promote synthesis	Group Feedback, SGID
		Generated Questions
		Paper Prospectus
After a course	Assess student opinions	Feedback Form
		Course Evaluations

Note: *CATs used to collect data before or at the start or a course, unit, or class day can be repeated to assess changes in student characteristics, opinions, and performance after a course, unit, or class day.*

A Hierarchy of Higher Education Assessment: Types and Levels

Types of Assessment	Level(s) on which Assessment Focuses
System-wide	State community college, four-year, or university systems
Institutional	Individual college or university
Program Review/ Program Evaluation	School, program, or department
Classroom Research	Individual course
Classroom Assessment	Individual class meeting or assignment within a specific course

FIVE DIMENSIONS OF HIGHER LEARNING

DECLARATIVE LEARNING

Learning *What*

Learning facts and principles

PROCEDURAL LEARNING

Learning *How*

Learning skills and procedures

CONDITIONAL LEARNING

Learning *When and Where*

Learning applications

REFLECTIVE LEARNING

Learning *Why*

Learning to understand one's self

METACOGNITIVE LEARNING

Learning *How to Learn*

Learning to manage one's learning

T. A. Angelo - Phase 11 Classroom Research Project - 6-C4

Pro and Con Grid

DIRECTIONS: **Considering everything you know about Classroom Assessment at this point, what do you see as the most important *pros* and *cons*, or costs and benefits of using this approach. List at least three important *cons* (costs) and at least three *pros* (benefits) below.**

Cons / Costs of using Classroom Assessment

Pros / Benefits of using Classroom Assessment

Reference: Angelo, T. A. & Cross, K. P. Classroom Assessment Techniques: A Handbook for College Teachers, 2nd edition. San Francisco: Jossey-Bass, 1993, pp. 168-171.

Applications Card

DIRECTIONS: **Please take a moment to recall the ideas, techniques, and strategies we've discussed - and those you've thought up - to this point in the session. Quickly list as many possible applications as you can. Don't censor yourself! These are merely possibilities. You can always evaluate the desirability and/or feasibility of these application ideas later.**

Interesting IDEAS/TECHNIQUES from this session	*Some possible APPLICATIONS of those ideas, techniques to my work*

T.A. Angelo - Phase 11 Classroom Research Project - 6/94

Directed Paraphrasing

First, in 1 or 2 concise sentences, define (or explain or describe) what (an Important concept in your course) is so that (a type of client, customer, patient, etc.) will understand you clearly. Make sure your paraphrase is both accurate and appropriate to your audience.

Second, paraphrase that same concept again, but this time for(a second, very different type of client, customer, patient, etc.) Make sure your second paraphrase is just as accurate as the first, but appropriate to the new audience.

What did you change when you created the second paraphrase? Why?

Reference: Angelo, T.A. & Cross. K.P. Classroom Assessment Techniques A Handbook for College Teachers, 2nd edition. San Franciso: Jossey-Bass, 1993, pp. 232-235

Focused Listing

Select one of your courses to focus on. From that course, choose one central concept that your students must understand in order to master the material. Consider using this technique to assess students' understanding of that concept. To prepare, list several words or short phrases that you use to describe or define (fill in blank with that central concept from your course). You can then compare students' responses to yours.

Reference: Angelo, T.A. & Cross, K.P. Classroom Assessment Techniques: A Handbook for College Teachers, 2nd edition. San Franciso: Jossey-Bass, 1993, pp. 126-131.

The Minute Paper

Please answer each question in 1 or 2 sentences:

1) What was the most useful or meaningful thing you learned during this session?

2) What question(s) remain upper-most in your mind as we end this session?

Reference: Angelo, T.A. & Cross, K.P. Classroom Assessment Techniques: A Handbook for College Teachers, 2nd edition. San Francisco: Jossey-Bass, 1993, pp. 148-153.

T. A. Angelo - Phase 11 C R. Project - 6/94

Political Science 100, Section 20 - T.A. Angelo -1/28/91

Background Knowledge Probe #l

In response to each name, term, or concept in bold print below, circle the number that best represents your current knowledge:

1. Federalism

(1) Have never heard of this	0
(2) Have heard of it, but don't really know what it means	14
(3) Have some idea what this means, but not too clear	15
(4) Have a clear idea what this means and can explain it	1

2. Separation of Powers

(1) Have never heard of this	1
(2) Have heard of it, but don't really know what it means	6
(3) Have some idea what this means but not too clear	18
(4) Have a clear idea what this means and can explain it	5

3. Republic

(1) Have never heard of this	0
(2) Have heard of it, but don't really know what it means	5
(3) Have some idea what this means, but not too clear	23
(4) Have a clear idea what this means and can explain it	2

4. The *Constitution* of the U. S.

(1) Have never heard of this	0
(2) Have heard of it, but don't really know what it means	2
(3) Have some idea what this means, but not too clear	8
(4) Have a clear idea what this means and can explain it	18

5. The *Articles of Confederation*

(1) Have never heard of this	7
(2) Have heard of it, but don't really know what it means	13
(3) Have some idea what this means, but not too clear	6
(4) Have a clear idea what this means and can explain it	4

6. James Madison

(1) Have never heard of this person	3
(2) Have heard of him, but don't really know who he was	8
(3) Have some idea who this was, but not too clear	15
(4) Have a clear idea who this was and can explain	4

T. A. Angelo - Boston College Academic Development Center - 6/g4

Introductory Statistics Example

Background Knowledge Probe

In response to each problem below, circle the number (1-4) that best represents your current knowledge. If you circle (4), please go ahead and solve the problem.

I. Suppose that you have a bag of M&M candies (plain, no peanuts) that contains 22 light brown, 20 dark brown, 18 yellow, 14 green, 12 orange, and 11 red M&Ms. If you draw one of these M&Ms out at random, what are the probabilities that it will be:

(a) yellow? (b) red? (c) neither yellow nor red?

(1) I have no idea how to solve this problem
(2) I once knew how to solve problems like this, but have forgotten
(3) I think I could solve it, given enough time
(4) I'm sure I can solve it right now

II. In Smallville, 8% of all adults over 50 have diabetes. If a clinic in this community correctly diagnoses 95 percent of all persons with diabetes as having the disease, and incorrectly diagnoses 2% of all persons without diabetes as having the disease. What is the probability that an adult over 50 diagnosed by this clinic as having diabetes actually has the disease?

(1) I have no idea how to solve this problem
(2) I once knew how to solve problems like this, but have forgotten
(3) I think I could solve it, given enough time
(4) I'm sure I can solve it right now

III. In Lost Wages, Nevada, incompatibility is given as the reason for 60% of all divorces. What is the probability that three of the next six divorce cases filed in this city will claim incompatibility as the reason? (Use the attached table)

(1) I have no idea how to solve this problem
(2) I once knew how to solve problems like this, but have forgotten
(3) I think I could solve it, given enough time
(4) I'm sure I can solve it right now

T. A. Angelo - Boston College Academic Development Center - 11/93

BENEFITS AND BARRIERS

Please make three lists for this part of the discussion.

1. The benefits to students of using classroom assessment:

2. The benefits to faculty/teachers of using classroom assessment:

3. The barriers to using classroom assessment:

NOTES:

DESIGNING STUDENT LEARNING GOALS

1. Individually, list the signs or evidence of student learning (outside of tests) that you watch for in one class you usually teach each year.

2. Share the list of signs of learning with your colleagues. Then write out one goal using two or three of those signs as specific learning goals:

3. Together, review the list of CATs in the handouts, video, or discussion thus far. Use your colleagues' help in choosing one or two CATs you could use to assess the goal above:

Which of your own signs of learning, goal statements, and assessment techniques are similar to your colleagues'? Which are distinct? Why?

NOTES:

DRAFTING SIMPLE CATs FOR ONE CLASS

Identified Course:

1. LONG-RANGE LEARNING GOALS (3-4 student learning goals)

2. SHORT-TERM GOAL (Specify what students should write, say, demo in this class)

3. LEARNING ACTIVITY (what will they be doing; what will you be doing)

4. SPECIFIC 3 or 4 CATs YOU COULD ADAPT

5. IDEAL STUDENT RESPONSES (what you hope they will say on the CATs)

6. YOUR RESPONSE IF THE CATs ARE POSITIVE:

7. YOUR RESPONSE IF THE CATs ARE NOT AS POSITIVE:

8. YOUR RESPONSE IF THE CATs ARE AMBIGUOUS:

PRO-DIVERSITY LEARNING GOALS & ASSESSMENT PLANNING SHEET

Course:

1. A LONG-RANGE PRO-DIVERSITY COURSE GOAL (for a term or a large unit)

2. A SHORT-TERM GOAL (...for one class or a clinical setting for about an hour)

3. A PRO-DIVERSITY LEARNING ACTIVITY (What will students actually do?)

4. A SPECIFIC CAT (adapted one that fits the pro-diversity goal)

APPENDIX

F. Results of Participant Faculty Questionnaire

Note researcher comments are enclosed in [ ] brackets

1. List the Classroom Assessment Techniques that you used this past semester.

#1	Background Knowledge Probe	11
#4	Empty outlines	1
#5	Memory Matrix	1
#6	Minute Paper (Best and least clear points)	6
#7	Muddiest Point	7
#10	Pro and Con Grid	2
#13	One sentence summary	2
#16	Concept Mapping	1
#20	What's the principle?	1
#28	Classroom Opinion Polls	3
#32	Course Related Self-Confidence Survey	4
#43	Teacher designed feedback form	6
#44	Group Instructional Feedback Technique	1
#46	RSQC2	2
#47	Group-work Evaluation	1
#49	Assignment Evaluation	3
#50	Exam Evaluation	2

****

2. List CATs used more than once. Why were they used more than once?

Clearest/Muddiest point
short, simple effective tool to pick out problem areas
Gave me a "quick" perception check of student understanding on the particular topic or individual concept
easy to use
Opinion Poll
used more than once to see if there was any shift in opinion [pre and post test]
Two teacher designed feedback forms (re cooperative learning)
to assess student preferences and opinions on new delivery of instruction method
Memory Matrix/Minute Paper/ Muddiest Point/ One Sentence Summary
ease of use/ little preparation/ quick results
Muddiest Point/ Assignment assessments
they were quick and easy & provided info that I could act on quickly to direct the course. If I missed something, these let me know.

****

3. Which of the CATs did you and your class find most helpful? Why?

* The midterm feedback [this was an exam evaluation of the midterm exam] - with only the 8-9 people [this was a very small class] they always said "nice, good" things. Maybe there was not much they wanted changed. [I take this to mean that the CATs did not identify areas for improvement as was expected. It did however, reaffirm the instructor's approach.]
* Empty Outlines - The students felt that completing the outline after doing the reading forced them to focus on what they had read. They felt it was a good learning experience.
* Assignment Assessments - Because my course is primarily lab (90%), I needed feedback on their ongoing assignments (only 7 this semester). It's very difficult to watch 18 people working on individual projects and catch all their errors.
* Midterm Evaluation [this was an exam evaluation of the midterm exam] Students felt part of process of exam preparation and I know preferential questioning and how it enhanced learning.
* The combined Assignment Assessment and Self-Confidence Survey [this instructor combined these two CATs into one after giving the students a major, difficult, intricate and complicated technical assignment] helped to avert a morale problem and gave the students a psychological boost, when it was needed.
* Memory Matrix - help summarize large amounts of info. [This instructor teaches in respiratory technology and the students have masses of variables to keep track of in unison in the operation of various pieces of equipment. Also, the margin for error is almost non-existent because these people work in life-threatening situations.]
* All of them - [used groupwork evaluation, concept mapping, muddiest point and two teacher designed CATs re cooperative learning process.] The "process" ones helped us all to evaluate **cooperative** learning. The muddiest point helped me to learn which concepts needed review.
* Muddiest Point - short, simple effective tool to pick out problem areas.
* Course Related Self-Confidence Survey - It gave them [the students] an idea of how much they knew or did not know - and it helped me to focus on those things.

****

4. Which of the CATs did you and your class find least helpful? Why?

* Opinion Poll - because the opinion was on something we had no control over. [This instructor needed to think further ahead to ask "what will I do with the information I get from this CATs.]
* None - All were helpful.
* All useful
* The Minute Paper (I) most important thing learned, ii) unanswered questions) was too rushed, with insufficient explanation to the students. Even so, it did produce some responses that were worth discussing with the group. [Instructor did not allot enough time. This was his second CATs after the Background Knowledge Probe. He was inexperienced and thought the "paper" could really be done in a minute. Also, the

students were not as yet well-trained in completing a CAT and were not yet sure if their input would be "heard."]

- Pro and Con Grid - Very helpful for the "pro" but very few helpful or insightful responses on the "con" side. Possibly students were apprehensive in general to comment (in their opinion) negatively. [Here we see a typical class where the trust has not yet been established - they fear reprisal or they don't want to hurt the instructor's feelings. The culture of the class has to be developed to the point where students realize that feedback (criticism, critique, negative) is used as a base for improvement - not as punishment!]
- Opinion Polls - I received a lot of feedback that had nothing to do with the course - more personal in nature; things that I couldn't really change. [Again, the instructor needs to ask the right question, focus in the right area or at the very least, respond honestly about what they can and cannot change. Sometimes students take an assessment as an opportunity to express something that they would not normally communicate to the instructor. Perhaps this is what happened here. They just wanted the instructor to know about the issue - not that they expected her to do anything about it!]
- Assignment Evaluation. We didn't receive enough information from the questions asked to be able to make any real change. [I would be interested to see the questions asked because they were probably quite general in nature. If we want to know about something specific, we need to ask a specific question!]
- They were helpful if the students were honest.

{{**Summary** It would seem that the faculty need some help, practice, experience, etc. in asking good questions, in the appropriate form and at the right time. This process of having responses come back that are not really helpful - if instructors are introspective and honest - should enable them to sharpen their critical thinking skills and ask better questions that align with their goal in asking the question!!!!}}

****

5. What problem(s) or difficulty(s) did you experience using CATs?
6. *What factor(s) allowed you to overcome the difficulty or problem?*

- None. *N/A*
- Small class - no "negative" feedback that identified a need for change. *Just smiled and did another one.*
- Sometimes students do not complete the CATs as diligently and completely as I would like. Human nature seems to play a role in "evaluations are more work for me to do." *Once the students see that their comments make a difference in the classroom, they are more willing to make detailed comments.*
- Had to be very specific or you got all kinds of info! Sometimes, I asked for feedback too soon and they didn't know yet, what they didn't know! *Learned to ask specifics and phrase questions to obtain the info I wanted, somewhat.*
- Students very receptive. My problem was in the preparation and analysis time required for each CAT. *Time management*
- Insufficient planning (by myself) on which CATs to use and when - they were used in preparation for our CAT group meetings, rather than being incorporated into the course planning. Also, content packed courses with little time to "waste." *An ability to*

"scramble"/ react quickly. Choosing some CATs that required LOW levels of faculty/student energy and time.

* Making time. Felt like a lot of work. *(Reminded myself that) the student does benefit.*

* Building it into the lesson. Time factor. Analysis later was time consuming. *Elaine's (Researcher's) expectations that I would use CATs helped me to ensure I used them. I learned to do the analysis more effectively over time.*

* Stating a question which is specific enough to get valid feedback. *Thinking about how the students might answer.*

****

7. In your opinion, did the use of CATs improve the quality of the teaching and learning in your class? Please give an example that would support your opinion.

* Yes

* YES. The muddiest point CAT, for example allowed us to go back and clear up areas where students were struggling.

* yes, especially with respect to the new process of coop(erative) learning. - also the muddiest point was helpful re content and review.

* Yes - self-confidence survey told (showed) me that I forgot to teach a skill.

* Yes - they provided feedback which I can use to direct future instruction (e.g. my sixth CAT - teacher designed feedback form). - they helped students to consolidate information (minute paper/pros-cons) and reflect on their experiences and strengths (assignment assessment/self-confidence survey.)

* Yes. Students felt their opinion was valued and important, therefore increased commitment to being in class and being successful.

* Yes, at the start of semester, I was going too fast, I didn't realize how much the material would need to be broken down. - the CATs made it clear which areas needed to be emphasized.

* Yes!! The RSQC2 showed that during the class surveyed, most students were confused. I used this information and went back to the class & revisited the area that was causing confusion.

* Yes. If nothing else, I told the students they could provide feedback. - They said they liked the quote on the board [This instructor puts a thought-provoking quote on the blackboard each day.] It made me look for more quotes. [This is the instructor with the small class who did not point out any areas for improvement.]

****

8. Did you change your planned instruction due to the feedback received from students? If yes, please give a brief description of the change.

* In some instances - they wanted more student involvement - I am now trying to give them that.

* Yes! I postponed teaching a new lesson until the "confusing material" was cleared up and the students felt comfortable.

* Yes, I gave more detailed instructions (written) & tried to do more demo's.

* I made several changes throughout (the) semester as a result of the feedback. Changes: 1) exam preparation, 2) more classroom discussion.

* No, but the feedback confirmed some future directions that I want to incorporate.

* Yes, more time on review.

* Yes - I'll be reviewing certain theories before the final exam & I might not have done so otherwise.

* Somewhat - would review past material if necessary, but without CAT may not have done this.

* Yes, I looked for more quotes [for the blackboard]. Nobody asked for changes other than less homework - but we need the homework. [This instructor did not choose to change something that the students requested because in his judgment, it would not aid their learning.]

****

9. What factor(s) do you identify as necessary to support the effective use of CATs?

* - instructor commitment - student feedback and interest

* Trust between instructor and student - the instructor being open for (to) change.

* Must report results back to the class - results must be meaningful (need to design CAT effectively.)

* The book, Classroom Assessment Techniques (or other???) **and** a training course of at least one day in length.

* Student support

* Pre-planning - design instruction with specific CATs included in the lesson/unit plans.

Sufficient Time - preparation/student energy/ evaluation

Instructor Attitude (openness) - instructor must value the process and share responses (+ and -) with the class.

* 1. Open communication with students. 2. Ongoing feedback.

* - must be able to make changes due to feedback. - good instructor to student relationship.

* 1. Willing instructor who is strong enough to take the heat if students have constructive criticism.

2. Planned CATs time - worked into lecture or lab time.

****

10. What factor(s) do you identify as helpful to support the effective use of CATs?

* Administrative support and encouragement.

* Management support is helpful

* If it was commonplace, the students would be used to it, better prepared as to what is expected from them.
* 1) Student input on alternative forms of CAT 2) Student "Buy In" to process.
* - further experience/comfort with a repertoire of CATs - willingness to experiment - both students and instructor.
* support group
* 1] support group 2] follow-up training/debriefing in the next year to compare notes/ideas.
* having resource book to find ideas and examples.
* classes larger than 10

****

11. Would you recommend the use of CATs to a colleague? Why or shy not?

* Yes. I felt that it helped to improve the class and also helped build rapport with the students.
* Yes. I think it can and does help in the class.
* YES. I believe it to be an enhancement to the learning process.
* Yes - improves the atmosphere in the class & the trust level between me & my students. As well, I get honest feedback re content knowledge.
* Yes. Results are invaluable.
* Yes - it provides on-going communication with the students on the effectiveness of instruction.
* Yes. Provides instant feedback to student and instructor.
* Yes, its great to get an overall view of the class attitude & thinking, they will write things they would never say.
* Yes, but only if the colleague was serious about taking the time to do them, and felt secure enough to really be willing to change their lessons to improve their classes.

****

12. In your opinion, what was the greatest benefit(s) of using CATs?

* - Immediate feedback which allowed for immediate response!
* - getting honest feedback overall, & even some praise!

- kept things in perspective, usually it was only a few who weren't "getting it," not the whole class.

* feedback received
* Improved communication between students and instructor, leading to better learning climates.
* Better education for the student.
* Improves the atmosphere in the class & the trust level between me & my students. As well. I get honest feedback re content knowledge.
* Involves the class more and makes their opinions count for something.
* Instant feedback from the students.

* Increased awareness of the distance there can be between what I perceive I am teaching and the students are learning and what they are actually learning.

****

13. In your opinion, what was the greatest drawback(s) of using CATs?

* Preparation of the CATs ahead of time - it didn't take long, but it's one of those things that goes to the bottom of the list.

* In one case, the feedback suggested changes that I couldn't make, I wasn't sure how to deal with that.

One student in my class is difficult to deal with at the best of times & writes unnecessary comments

* Time commitment

* Time constraints due to content-learning courses and increased instructor workloads. [This academic year was a year of heavily increased workloads and larger class sizes for instructors. So in the midst of trying to adapt to those changes they were also trying to find the time to work with CATs. - A challenge!]

* None - Benefits out weighed any inconveniences.

* Time! - for administering and for analyzing

Also knowing which CAT to use.

* None, really

* Some instructor may take the feedback wrong [This is a concern that "someone else" might respond defensively.]

* Finding the time to effectively plan the CATs into lessons and respond to the students

****

14. In you opinion, is CATs an appropriate tool for the improvement of the teaching and learning process in the classroom? Please comment in support of your opinion.

* Yes.

* Yes. Anything that provides communication between instructor and student is good.

* Yes. Involves the class more and makes their opinions count for something.

* Yes. Improves the atmosphere in the class & the trust level between me & my students. As well, I get honest feedback re content knowledge.

* Absolutely.

* Yes - with sufficient planning to include CATs, they can be used without severe time allotments. They are convenient and simple assessment tools.

* Yes. It tends to encourage trust and communication.

* Yes, I need to know if they are learning what they have to and students must feel involved & responsible for their learning - If they are taking part in it and can see changes, they become more involved.

* YES. If an instructor truly desires to improve teaching & learning in the classroom, CATs provides the tools that can be used to implement and measure the processes. Its so great to have all these ideas in a book right at hand.

****

15. In your opinion, does the use of CATs heighten students awareness of problems and/or expectation of solutions and therefore cause students to act and react differently to the teaching and learning process? Please comment in support of your opinion.

* Yes
* Only if the students are made to feel that they are an integral & valuable part of a team (they & the instructor) whose goal is to improve teaching & learning and that there are no hidden agendas. When they reach that point, they "buy" into the process and learning becomes "**cooperative**."
* Yes, it makes them aware of the instructor's difficulties somewhat & if a solution is not simple, at least they are aware. - problems don't "magically disappear."
* Yes. If students are allowed to provide input on the learning process, they will generally strive to ensure they benefit from improvements and feel part of the process.
* Some of the CATs can be used to encourage students' understanding of why certain instruction/assignments were employed, while others encourage student processing of material learned. All of the CATs involve active, rather than passive, student involvement and this will encourage learning. Basically, the students become more involved in the process of learning through the use of CATs.
* Yes
* Yes - Improves the atmosphere in the class & the trust level between me & my students. As well, I get honest feedback re content knowledge
* In this class not necessarily, but I can see this as a possibility if CATs properly designed.
* Yes. It causes them to think about the problem & therefore a solution. - They may be aware of the whole class more.

****

APPENDIX

G. Advertisement for Control Faculty Participants

Classroom Assessment Techniques Study: At this moment, NAIT instructors are involved in applying Classroom Assessment Techniques to improve the teaching and learning experience. A study being conducted regarding these techniques requires a pool of volunteers to act as a control group. These control group participants will be drawn randomly from the pool of volunteers. Volunteers who are chosen will be asked to donate one hour of instructional time in November to the researcher for the purpose of administering the College and University Classroom Environment Inventory. All staff and student participants will remain anonymous. Instructors will receive the results of the inventory for their class.

This is an opportunity for you to contribute to the growing body of knowledge about the applicability of Classroom Assessment Techniques to the technical institution and to gain knowledge about your classroom environment. Please call Elaine Soetaert at 459-3133 to be included in the pool of volunteers. (This study has been approved by Research and Academic Development and has been accepted by the University of Alberta, Ethics Review Committee.)

APPENDIX

H. Permission to Use the College and University Classroom Environment Inventory

Message-Id: <19950221100n.AA06959@info.curtin.edu.au>
Date: Tue, 21 Feb 1995 18:00:37 +0800
To: elaines@nait.ab.ca
From: itreagus@info.curtin.edu.au (David Treagust)
Subject: CUCEI

95-02-21 03:01:17

Dear Elaine Soetaert

Many thinks for your letter of 30.1.95 regarding your interest in using the CUCEI for your research.

You certainly have our permission to use the instrument and we wish you well with your research. Do you have a copy of the instrument? If not we will be pleased to send you a copy.

Best wishes

David F Treagust

David F Treagust
Science and Mathematics Education Centre
Curtin University of Technology
GPO Box U1987
Perth Western Australia 6001
Australia
Phone: 61 9 351 7924
Fax: 61 9 351 2503

APPENDIX

I. Copyright Permissions

From: Myron Tribus <104055.2663@compuserve.com>
To: Elaine Soetaert <elaines@nait.ab.ca>
Date: Thursday, February 22, 1996 4:59 pm
Subject: Re: Permission to Reprint

Please go ahead and use the figures with my blessing.
Myron Tribus

From: <fraser@ccl2.eng.ohio-state.edu>
To: nait.ext("elaines@nait.ab.ca")
Date: Thursday, February 22, 1996 10:07 am
Subject: RE: Permission to Reprint

Elaine - I give you permission to reprint in your Master's thesis the table showing the congruence of TQM and ALT from the paper Fraser et al, 1994 ASEE proceedings. Please cite that paper on the page with the thesis (that way , if the table gets copied from your thesis by someone else, the citation goes with it.)

Thank you very much for asking for permission.

As a favor, could you let me have a copy of your thesis when completed? electronic version? or point me to web site? as last resort, would you mind sending me a printed copy? I realize that may be a burden, but it sounds like a *very* good study.

Thanks again.

Jane fraser.1@osu.edu

From: Mimi Harris Steadman <steadman@garnet.berkeley.edu>
To: Elaine Soetaert <elaines@nait.ab.ca>
Date: Saturday, February 24, 1996 3:21 pm
Subject: Re: Copyright permission

Dear Elaine,

Please feel free to reprint any tables from my dissertation Implementation and Impact of Classroom Assessment Techniques. I am pleased you have found my research valuable in your thesis efforts!

Sincerely,

Mimi Harris Steadman
Graduate School of Education
UC Berkeley

APPENDIX

J. Items Added to the College and University Classroom Environment Inventory

MODIFIED COLLEGE AND UNIVERSITY CLASSROOM ENVIRONMENT INVENTORY (CUCEI) STUDENT PARTICIPANT - ITEMS ADDED TO THE ORIGINAL CUCEI

50. Classroom assessment is a waste of time.
51. Classroom assessments allowed me to communicate in a positive way with my instructor.
52 If I had a choice, I would choose to be in a class with an instructor who uses classroom assessments.
53 The use of classroom assessments had little or no effect on my learning.
54. The use of classroom assessments made me feel more involved in my learning.
55. The use of classroom assessments improved the quality of my educational experience in this class.
56. All instructors should use classroom assessments.

The following information is being collected from you only to demonstrate that this class's students are representative of students who attend this institution. Write in the appropriate letter on the answer sheet.

57. Gender	(A) Male	(B) Female		
58. Age	(A) 17-21	(B) 22-26	(C) 27-31	(D) 32+
59. Previous Education	(A) High School	(B) One Year Postsecondary	(C) Two Years Postsecondary	(D) Journeyman

MODIFIED COLLEGE AND UNIVERSITY CLASSROOM ENVIRONMENT INVENTORY (CUCEI) STUDENT PARTICIPANT - ITEMS ADDED TO THE ORIGINAL CUCEI

50. The use of Classroom Assessment Techniques (CATs) in my classroom contributed to an improvement in the teaching and learning process.
51. The use of CATs was difficult for me.
52. CATs is an easy tool to use.
53. The use of CATs is a time-consuming process.
54. I will use CATs again.
55. I plan to introduce CATs to all my classes.
56. I would recommend the use of CATs to a colleague.
57. The use of CATs made me feel more effective in the classroom.
58. I enjoyed the sharing of information with my colleagues in our CATs meetings.
59. I feel more excited about my teaching since I have started using CATs.
60. In my opinion, CATs is an effective tool for improving the teaching and learning process.

The following information is being collected from you only to demonstrate that the sample of instructors in this study is representative of the instructors in this institution. Write in the appropriate letter on the answer sheet.

61. Gender	(A) Male	(B) Female		
62. Age	(A) 25-35	(B) 35-45	(C) 45-55	(D) 55+
63. Educational Background	(A) Journeyman	(B) Technical Diploma	(C) Bachelor's Degree	(D) Post graduate degree
64. Number of Years Teaching Experience	(A) 0 - 3 years	(B) 4 - 6 years	(C) 7 - 10 years	(D) 10+ years
65. Division	(A) Industrial	(B) Health Sciences	(C) Engineering Technologies	(D) Business

National Library
of Canada

Acquisitions and
Bibliographic Services Branch

395 Wellington Street
Ottawa, Ontario
K1A 0N4

Bibliothèque nationale
du Canada

Direction des acquisitions et
des services bibliographiques

395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file Votre référence

Our file Notre référence

NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30, and subsequent amendments.

AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30, et ses amendements subséquents.

Canada

University of Alberta

Predeparture Orientation for Study Abroad: Perceived Importance of Components

by

Michelle E. Szabo ©

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Education

in

Adult and Higher Education

Department of Educational Policy Studies

Edmonton, Alberta
Spring 1996

National Library
of Canada

Acquisitions and
Bibliographic Services Branch

395 Wellington Street
Ottawa, Ontario
K1A 0N4

Bibliothèque nationale
du Canada

Direction des acquisitions et
des services bibliographiques

395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file Votre référence

Our file Notre référence

The author has granted an irrevocable non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of his/her thesis by any means and in any form or format, making this thesis available to interested persons.

L'auteur a accordé une licence irrévocable et non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de sa thèse de quelque manière et sous quelque forme que ce soit pour mettre des exemplaires de cette thèse à la disposition des personnes intéressées.

The author retains ownership of the copyright in his/her thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without his/her permission.

L'auteur conserve la propriété du droit d'auteur qui protège sa thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

ISBN 0-612-10796-5

Canada

University of Alberta

Library Release Form

Name of Author: Michelle E. Szabo

Title of Thesis: Predeparture Orientation for Study Abroad: Perceived Importance of Components

Degree: Master of Education

Year this Degree Granted: 1996

Permission is hereby granted to the University of Alberta Library to reproduce single copies of this thesis and to lend or sell such copies for private, scholarly, or scientific research purposes only.

The author reserves all other publication and other rights in association with the copyright in the thesis, and except as hereinbefore provided, neither the thesis nor any substantial portion thereof may be printed or otherwise reproduced in any material form whatever without the author's prior written permission.

4204 - 107 Street
Edmonton, Alberta
Canada T6J 2R9

January 31, 1996

University of Alberta

Faculty of Graduate Studies and Research

The undersigned certify that they have read, and recommended to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled Predeparture Orientation for Study Abroad: Perceived Importance of Components submitted by Michelle E. Szabo in partial fulfillment of the requirements for the degree of Master of Education in Adult and Higher Education.

Paula A. Brook

Dr. Paula A. Brook

Dr. David Baine

Dr. Toh Swee-Hin

Barry Tonge

Mr. Barry Tonge

Michelle Sz

Jan. 23, 1996

This work is dedicated to the memory of my grandparents,
Ruth S. Hansen and William E. Hansen.

ABSTRACT

Study abroad is a powerful tool for serving student as well as institutional interests. Yet without adequate student orientation prior to departure, the effectiveness of study abroad programming can be greatly affected. This study explored the importance of components of predeparture preparation for study abroad as perceived by academics and practitioners, the sponsoring institution, students preparing to study abroad, and past participants of study abroad. A focus group, two interviews, and a questionnaire were used. Findings show that students want specific, personalized information; they want to meet with other exchange students; they perceive immediately applicable components to be the most important; and they do not value culture-general and adjustment issues as highly as do practitioners and academics. Findings also demonstrate the importance of area- and culture-specific learning, re-entry programming, an experiential approach, and global education for departing sojourners. Interests of the University of Alberta are not entirely shared by participants and must be more clearly articulated. The Education Abroad Program should consider restructuring its predeparture orientation programs for study abroad participants to ensure quality and to include alternate delivery methods.

Acknowledgements

No work is ever completed without the support and encouragement of many people. Several people deserve a special word of appreciation for their contribution to the success of this project.

My thanks go to Dr. Paula Brook, without whose guidance and personal encouragement this study might never have been finished. Thanks also go to Barry Tonge, Coordinator of the Education Abroad Program, for suggesting the project in the first place, underwriting the expense of the study, and waiting patiently through many delays. The International Centre staff have been terrifically supportive and welcoming during the year-long project. Thanks in particular to Bruce Caldwell for allowing me to approach the staff in the first place, to Salima Bandali for her excellent design work on the questionnaire, and to Doug Wier for sharing his knowledge of the intercultural field. My thanks also goes to Drs. Baine and Toh, who graciously agreed to stand by me in this project and to give their blessing to the final product. To those program providers who responded to my requests for orientation information, including those represented in Appendix A, many thanks.

Thanks to my family and friends for their encouragement, forgiveness, and unswerving faith in me.

Thanks also to the participants of the study, who believed enough in the value of their experiences abroad (past or still to come) to share with us their candid perspectives.

TABLE OF CONTENTS

- CHAPTER I: Predeparture Orientation for Study Abroad.....1
  - Study Abroad: A Growing Concern.....1
  - Internationalization of Higher Education.....3
  - The Role of Study Abroad and Predeparture Orientation.....6
  - Paradigms of Internationalization.....8
    - Possible Approaches.....8
    - The University of Alberta.....9
  - Education Abroad and Predeparture Orientation at the University of Alberta.....15
  - The Scope of the Study.....17
  - Organization of the Thesis.....21
  - Definitions.....21
- CHAPTER 2: LITERATURE REVIEW.....24
  - Introduction.....24
  - Related Topics in the Literature.....24
  - Types of Literature.....25
  - The Value of Orientation for Sojourners.....27
  - Components of Cross-Cultural Training.....29
    - Practical Arrangements.....30
    - Academic Life Abroad.....33
  - Interaction.....36
    - Culture-General Information.....38
    - Learning How to Learn.....42
    - Area- and Culture-Specific Information.....43
    - Adjustment.....46
    - Re-entry.....50
    - Self-Awareness.....52

Global Perspective....53
Summary....54
CHAPTER 3: METHODOLOGY....56
Introduction....56
Purpose of the Study....56
The Research Design....57
Focus Group....58
Rationale....58
Groundwork....59
Conducting the Session....60
Data Analysis....62
Interviews....65
Sample....65
Format....66
Conducting the Interviews....67
Analysis....69
Questionnaire....69
Objectives....70
Sample....70
Constructing the Questionnaire....71
Outline....73
Pilot....77
Layout....78
Conducting the Survey....79
Response....79
Analyses....80
Coding of Broad Themes....82

Summary....82
CHAPTER 4: FINDINGS....84
Introduction....84
Purpose of the Study....84
Problem Statement....84
Focus Group....86
Components to be Included in Predeparture Orientation....86
Sources of Information Participants Might Access....89
Summary of Focus Group Data....90
Interviews....91
Introduction....91
Interview # 1....91
Interview # 2....94
Summary of Interview Data....97
Questionnaire....98
Methodology and Data Analyses....98
Quantitative Data....100
Open-Ended Questions....120
Summary of Questionnaire Data....127
Summary....128
CHAPTER 5: CONCLUSIONS AND IMPLICATIONS....130
Introduction....130
Purpose of the Study....130
Findings By Source....131
Focus Group....131
Interviews....131
Questionnaire....132

Issues Particular to Focus Group........133
Discussion of Broad Themes........136
    Introduction........136
    Practical Components........136
    Academic Concerns........138
    Other Exchange Participants........139
    Cultural Shock/Adjustment........141
    National or Cultural Issues........142
    Re-entry/Readjustment........143
    Self-Awareness........144
    Global Perspective/Social Justice........145
    Preparation Process........147
    Experiential Approach........149
    Pragmatism........151
    Institutional or Regional Interests........152
The University of Alberta's Interests........152
Conclusions and Implications........155
Recommendations for Practice........163
Recommendations for Further Research........166
Summary........167
BIBLIOGRAPHY........169
APPENDICES........180

LIST OF TABLES

Table 1 Research Design for this Study.....57

Table 2 Information About Respondents.....100

Table 3 Reported Importance of Predeparture Components.....105

Table 4 Reported Helpfulness of Resources.....117

Table 5 Reported Importance of Statements About Study Abroad.....119

Table 6 Reported Importance of Practical Components by Weighted Rating (Q. 11).....215

Table 7 Reported Importance of Academic Components by Weighted Rating (Q. 12).....216

Table 8 Reported Importance of Self-Awareness Components by Weighted Rating (Q. 13).....217

Table 9 Reported Importance of Adjustment Components by Weighted Rating (Q. 14).....218

Table 10 Reported Importance of National, Institutional, and Regional Issues in Canada by Weighted Rating (Q. 15).....219

Table 11 Reported Importance of Regional, Institutional, and Regional Issues in Host Country by Weighted Rating (Q. 15).....220

Table 12 Reported Importance of Cultural Issues in Canada by Weighted Rating (Q. 16).....221

Table 13 Reported Importance of Cultural Issues in Host Country by Weighted Rating (Q. 16).....222

LIST OF FIGURES

Figure 1 Desired Outcomes of Internationalization for the University of Alberta..............11

Figure 2 Most Important Part of Preparing to Study Abroad..126

Chapter 1 Predeparture Orientation for Study Abroad

The effect of globalization on our society as a whole and on the University in particular is undeniable. Our horizons must change.
--Senate Task Force Report on the International Dimensions of the University,
University of Alberta

Study Abroad: A Growing Concern

For centuries, students have undertaken the challenge of studying outside of their nation's borders. As early as the fourth century B.C. there were groups of foreign students in the schools of philosophy and rhetoric in Greece; in the fourth century A.D., special provisions were made for dealing with the large numbers of foreign students flocking to Rome; in the seventh century, there were more than eight thousand students in China described as coming from the "barbarian peoples" (Breitenbach, 1970). Ganguli (1975) reports that exchanges between India and China started as far back as the third century B.C. When the European universities were founded around the twelfth century A.D., they were truly "universal," with foreign students as the rule rather than the exception (Klineberg, 1981).

Given the current trend in the public and private sectors toward increasing globalism, the recent focus of the Canadian government on international education, the "third pillar" of Canadian foreign policy, comes as no surprise. The exchange of students and scholars across national and regional boundaries is a time-tested facilitator of international trade, the exchange of advances in technology and expertise, and mutual understanding and goodwill. International savvy is fast becoming the hallmark of the well-qualified graduate of the future.

In this fertile conceptual climate for globalization, the field of education abroad is receiving unprecedented attention. NAFSA: Association of

International Educators (formerly the National Association for Foreign Student Affairs, now known by its acronym) has identified education abroad as one of its five main professional interest divisions, a division which currently includes 2000 of the organization's 7500 members. Since 1987, the European Union has invested significant resources in its European Action Strategy for the Mobility of University Students (ERASMUS) and similar programs. Thanks to ERASMUS, more than 248,000 students and 23,000 faculty members participated in exchanges in the period 1987-1994 (de Wit, 1995). In November 1995, Canada signed an agreement with the European Union, as did the United States, to further academic and scientific collaboration, including the exchange students between member states. In December 1995, the first edition of a refereed journal focusing exclusively on study abroad, Frontiers, was published. Despite funding challenges facing international education, particularly in the U.S. federal government, education abroad is definitely an emerging field in higher education today.

In Canada, the phenomenon of study abroad is relatively new. Following World War II, Canadians who studied overseas tended to undertake foreign degrees rather than incorporate their foreign study into a Canadian degree program. The first designated education abroad offices at Canadian universities were not established until the mid 1980s, at the University of Alberta and the University of British Columbia. Many universities and colleges in Canada still do not have designated staff or programming related to education abroad. The intentional inclusion of foreign study as part of a postsecondary degree has become common practice in Canada only in the past two decades.

Internationalization of Higher Education

The growing interest in study abroad exists within a wider context: the internationalization of higher education. Goodwin and Nacht (1991) posit three waves of internationalization to have hit the U.S. higher education system: the pressure to act as "leader of the free world" following World War II, the flood of foreign students which "lapped" American shores in the 1970s and 1980s, and the swelling tide of globalism both in- and outside academe during the 1990s. As a result, increasing numbers of U.S. institutions of higher education are including international dimensions in their policy and mission statements. In a recent report from the American Council on Education, U.S. college presidents outlined their own call to action for the internationalization of higher education (American Council on Education, 1995).

In Canada, "three national organizations and one provincial one have identified internationalization as an issue of critical importance" (Knight, 1994, p. 1). According to the Canadian Bureau for International Education (CBIE), "Canada's universities must become bastions of internationalism if Canada is to improve or even maintain its position in a variety of sectors through the 1990s... Internationalization will be the measure of quality of universities in the 1990s" (Canadian Bureau for International Education, 1991). In 1989, the presidents of Canadian universities, through the Association of Universities and Colleges of Canada (AUCC), stated that "internationalization of the undergraduate curriculum is essential for the effective survival of Canada. This is a high priority for Canadian universities and it must be a high priority for the Government of Canada and the provinces" (as quoted in Knight, 1994, p.2). In 1992 AUCC found that 63% of its members referred to an international role in their mission statements (Association of Universities and Colleges of Canada, 1994).

Study abroad has a significant role to play in the internationalization of higher education. As an educational and social tool, study abroad has historically served as a finishing school for Europe's youth (in the days of the "grand tour"), as a mechanism for broadening the intellectual capacity of the élite, as an aid in foreign language acquisition, as a tool for self-discovery, and to fulfill a distinct institutional mission and improve international relations (Goodwin and Nacht, 1988). Yet study abroad may also serve as an institutional and administrative lever by attracting more students, attracting the best students, acceding to the entrepreneurial drives of faculty, selling "the kids" what they want, giving students "a break," and facilitating inter-institutional linkages (Goodwin and Nacht, 1988, pp. 21-28).

As education abroad has been introduced in Canadian postsecondary institutions, there has been a predisposition to start with and largely focus on reciprocal exchanges. Evidence suggests that the vast majority of Canadians who study abroad as part of a Canadian degree are on exchange programs; at the University of Alberta, exchanges account for 90% of study abroad participation. Education abroad in Canada has developed in a time of fiscal restraint and downsizing, in contrast to the postwar prosperity which characterized its development in the U.S. For this reason, academic exchanges have occupied a favored place within Canadian institutions. Exchanges tend to require minimal financial investment on the part of the institution and may facilitate recruitment of foreign graduate students, promote exchange of faculty and collaboration on areas of mutual interest, and enhance the university's reputation abroad.

Another factor making exchanges the more common mode of study abroad versus junior year abroad models is the relatively low tuition and fees paid by Canadian students. Choosing a program in the UK/Australia or abroad elsewhere for Americans involves those students in a different fiscal reality than Canadian students. (personal correspondence from Barry Tonge, Coordinator, Education Abroad Program, University of Alberta, January 23, 1996)

Academic exchanges serve a further role in promoting multi-level linkages between postsecondary institutions. The development of institutional partnerships is a growing trend in postsecondary education. Constructive alliances in education formed the theme for the CBIE's 1995 annual conference, and a recent presentation at the conference of the Council on International Educational Exchange (CIEE) highlighted strategic partnerships between universities in the U.S. and Mexico (García and Medeiros, 1995). Notable is the expansion of single-level linkages, such as student exchanges, into multi-level agreements, which might involve joint research projects, exchange of staff and faculty, or even the issuance of joint degrees. These multi-level linkages often serve larger institutional interests, making them particularly attractive in times of economic restraint and emphasis on quality assessment. Student mobility is often a key component in such agreements. Student exchanges may follow the establishment of larger agreements, such as the Group of Ten (GOT) Canadian universities which support the Group of Ten Student Exchange program (GOTSEP), or they may pave the way for the development of wider collaboration.

From a student services perspective, the advent of direct enrollment exchanges at Canadian postsecondary institutions is consistent with the research-oriented model which influenced the development of many universities and colleges in Canada. The trend in Canada, particularly at larger institutions, has been to see students as independent adults who come to university primarily for an academic rather than personal or spiritual experience. Exchanges are well suited to this model; this normally unchaperoned, "total immersion" (Goodwin and Nacht, 1988, p. 34) approach to foreign study requires students to take more or less full responsibility for their well being while abroad. It is not surprising that exchanges have been the favored approach to study abroad in Canada.

The Role of Study Abroad and Predeparture Orientation

Study abroad programs can significantly benefit the student participants as well as the universities and larger communities to which they travel and in which they study. As a result of their sojourn, students can gain maturity, increase their tolerance and awareness of diversity, develop a critical distance to their own culture, clarify their values, and gain specific knowledge and skills (Tonkin & Edwards, 1981).

> Study abroad seems to promote the ability to adjust to unfamiliar situations, to deal with different kinds of people, to be prepared to take on new duties and new working conditions, to get to know previously unknown subject matters, to manage in unaccustomed circumstances and to learn from comparisons--attributes which are clearly important both professionally and socially and whose significance extends far beyond the specific framework of internationally oriented jobs. (Opper, Teichler, and Carlson, 1990, p. 213)

In addition, study abroad programs can foster the development of an internationally informed citizenry and a cadre of graduates well prepared for careers in fields of worldwide activity (Council on International Educational

Exchange, 1988). Yet without adequate orientation prior to departure, the effectiveness of the study abroad experience can be greatly affected (Tonkin & Edwards, 1981). In the words of Robert Kohls (1984), author of the standard issue text on preparing to go overseas, "there may be many unknowns or uncertainties but it's possible to lay the groundwork for a productive time overseas" (p. 1).

Predeparture orientation, like many topics within study abroad, attracts a great deal of interest from practitioners in the field, but significantly less academic and research-based interest. Predeparture orientation is a core subject in NAFSA's standardized "Study Abroad 101" curriculum and several comprehensive guides have been published in the U.S. dealing with the subject. A recent request on the Internet yielded dozens of responses outlining current predeparture orientation practices (see Appendix A for listing of institutions which provided materials). Many responded that they, too, would welcome information on the subject.

However, materials prepared in the U.S. are not always suitable for Canadian audiences. The distinctiveness of Canadian culture is often lost when U.S. American materials are used in orientation, and Canadian participants complain that the materials do not speak to their experience. In an effort to redress the situation, seven Ontario institutions of higher education recently created a training video to be used as or in a predeparture orientation program (World Within Reach, 1995). More efforts are needed to tailor predeparture orientation materials to the needs of Canadian participants.

At the same time as study abroad practitioners in the U.S. and Canada are eagerly swapping expertise and scrambling to develop programs to prepare their students, there is a paucity of research dealing specifically with the subject of predeparture orientation for study abroad. Common practice in study abroad preparations, the needs of participants, and the interests of sponsoring institutions are matters about which experts seem eager to comment but reticent to research.

Paradigms of Internationalization

Possible Approaches

If study abroad is to serve larger institutional interests, than it is crucial for study abroad professionals to understand the direction the institution is taking with regard to internationalization. Understanding the strength of an institution's commitment to internationalization does not indicate the nature of the desired change. If the institutional focus is not clearly defined, efforts to internationalize will be fragmented at best. A well coordinated effort is the result, among other things, of a well articulated paradigm for change. Several broad paradigms of internationalization have been delineated in the literature and will guide this discussion.

Warner (1993) outlines three generalized models which describe underlying assumptions and imperatives in the internationalization of a university. In the competitive model, international dimensions of the university are introduced in order to make the student, the institution, and the country more competitive in the global marketplace. In the liberal model, the primary goal of education is to increase understanding of and cooperation with people from other countries. The third model, social transformation, is driven by the determination to give students and scholars a deeper awareness of and resolve to act upon international and intercultural issues related to equity and justice.

Toh (1993) describes two primary paradigms of globalization, the liberal-technocratic and the social transformative. Adherents to the liberal-technocratic paradigm are characterized by an ethnocentric, often covertly paternalistic perspective toward other countries and cultures and by an interest in economic and other forms of competition. In broad strokes, subscribers to the social transformative paradigm acknowledge the basic interdependence of all people and strive to reduce social injustice and inequity between richer and poorer nations and peoples.

The implication of these approaches to internationalization for study abroad is profound. A university which is primarily interested in developing the competitiveness of its students on a global scale would be ill-advised to focus its study abroad programming efforts on technical assistance projects in nations of the South. Similarly, an institution which prides itself on its social conscience and in promulgating this attitude amongst its students will do well to include some elements of North-South exchange and eschew, for example, internship programs with transnational corporations whose respect for the environment is questionable. If the study abroad program is to support and uphold an institution's goals with respect to internationalization, the models or paradigms underlying the institution's policies and procedures must be articulated.

The University of Alberta

At the University of Alberta, the particular paradigm of internationalization has not been articulated as such, but close examination of University documents yields some insight into the policy ethos. In its strategic plan, Degrees of Freedom (University of Alberta, 1993), the University recently proclaimed its commitment to developing an international perspective across the campus. The document recommends that the University generate a proposal for the coordination and organization of an international perspective at the University of Alberta.

In 1994, the University Senate created an annual Task Force to explore the international dimensions of the campus. The Task Force concluded that "educational curricula must be internationalized; the campus must become global in its perspective" (Senate Task Force Report, 1994, p.4). In addition, the Task Force reported that "the effect of globalization on our society as a whole and on the University in particular is undeniable. Our horizons must change" (Senate Task Force Report, 1994, p. 3). While the report was accepted by the Senate, it remains a recommendation and as such is not binding.

Four pillars of internationalization outlined by the Senate Task Force on the International Dimensions of the University (1994) include an international perspective infused within the curriculum (see also University of Alberta, 1993), student and scholar mobility across national borders (see also Fraser, 1995; also mentioned in University of Alberta panel discussion "What is an International University?", January 30, 1996), a commitment to development education and cooperation, and an element of ambassadorship on and off campus. In addition, the mission statement of the University and numerous other University documents indicate that the standards by which the University judges its own performance and that of its students and scholars are both national and international.

Internationalization is unquestionably a key priority for the University of Alberta. Just this fall, in a memo to Dean's Council on October 4, 1995, the Vice-President (Academic) of the University wrote of the necessity of creating a new academic appointment which would gather the University's international affairs under a single, senior and academic figure (International Affairs, 1995). In his December 18, 1995 newsletter to the faculty and staff of the University, newly inaugurated President Rod Fraser identified internationalization as one of the four external initiatives of the institution. Internationalizing the university, among other tasks, currently occupies a full 50% of his time.

The desired outcomes of internationalization for the University of Alberta can be categorized as they relate to students, the institution, larger regional and national interests, and society as a whole (see Figure 1). Desired outcomes of internationalization related to students as outlined in various university documents include interculturally competent and sensitive

---

Figure 1 Desired Outcomes of Internationalization for the University of Alberta

Related to students

producing interculturally competent and sensitive graduates
(University of Alberta, 1993; University of Alberta, 1995)

developing staff and students who are trained for local and global service and citizenship
(Senate Task Force, 1994)

developing students who have had a significant international experience
(Fraser, 1995)

producing graduates who can compete with other graduates worldwide
(Fraser, 1995)

Related to institutional outcomes

becoming recognized internationally as an institution of excellence
(University of Alberta, 1993; University of Alberta, 1995)

becoming the university of choice of the best students and scholars in the world
(University of Alberta, 1993)

achieving global status and leadership
(Senate Task Force, 1994)

becoming one of Canada's best universities
(Fraser, 1995)

becoming a highly respected university for the discovery and dissemination of knowledge
(University of Alberta, 1993)

(figure continues)

Related to institutional outcomes	
increasing stature of the university and its students	(Senate Task Force, 1994)
developing strong partnerships overseas	(University of Alberta, 1993)
attracting world class research faculty	(Senate Task Force, 1994)
maintaining a professoriate of international leaders in their field	(Fraser, 1995)
Related to national and regional outcomes	
a positive impact on local, provincial, and national economies	(Senate Task Force, 1994)
helping to develop economic trading partners for the province	(Senate Task Force, 1994)
Related to social outcomes	
social and cultural benefits to Canadians and development partners and generally "sharing the wealth"	(Senate Task Force, 1994)

Note. Items within each section are listed in no particular order.

graduates (University of Alberta, 1993; University of Alberta, 1995), staff and students who are trained for local and global service and citizenship (Senate Task Force, 1994), students who have had a significant international experience (Fraser, 1995), and graduates who can compete with other graduates worldwide (Fraser, 1995). In terms of institutional outcomes, the list ranges from becoming recognized internationally as an institution of excellence (University of Alberta, 1993; University of Alberta, 1995) and becoming the university of choice of the best students and scholars in the world (University of Alberta, 1993) to the development of strong partnerships overseas (University of Alberta, 1993) and attracting world class research faculty (Senate Task Force, 1994). Desired national and regional outcomes include a positive impact on local, provincial, and national economies and helping to develop economic trading partners for the province (Senate Task Force, 1994). On a societal level, the University's tacit goals of internationalization include social and cultural benefits to Canadians and development partners and generally "sharing the wealth" (Senate Task Force, 1994).

The University of Alberta's desired outcomes for internationalization must further be set in the context of larger institutional strategies. As outlined in the university president's inaugural speech (Fraser, 1995), eight key strategies for the University of Alberta include a focus on quality, unrelenting assessment and monitoring of programs, teaching students to learn, service to the university's communities, being measured by national and international standards, more fluid management style, selective allocation of resources, and better employ of new and existing partnerships. Given these strategies, it is imperative that study abroad at the University of Alberta support institutional interests; with the current focus on quality assessment and selective allocation of resources, it is more important than ever to be able to rationalize university programs based on clearly articulated institutional goals and interests.

The University's approach to internationalization as articulated to date is an eclectic mix of competitive and liberal frames of reference with a nod to a more socially conscious perspective. University documents reflect a significant interest in enhancing the University's reputation abroad as an institution of world class standing, peopled by scholars and students who have achieved or will command respect in the global arena. This drive for enhanced reputation, along with a documented interest in the impact of internationalization on the local, provincial, and national economies, indicates a focus which is justifiably self-promoting and advocates competition with foreign graduates and institutions as much as it speaks for collaboration. The University's stated interest in increasing students' intercultural sophistication may be read either as an attempt to produce internationally competitive graduates, as a liberal bid to give students tools for international cooperation and understanding, or as both. A liberal concern for cross border cooperation is evidenced in the University's desire to accrue social and cultural benefits for its development partners as well as for Canadians. Finally, although numerous submissions mentioned in the Senate Task Force Report (1994) advocate international development work and awareness of social transformation issues (see International Centre, 1994 and the submission of the Centre for International Education and Development, not dated), the summary statements of the Task Force are not so clear on the subject of the University's role as a global citizen. More to the point, in other University documents which articulate the University's position on internationalization, the social transformation perspective is noticeably absent, suggesting that social conscience is only a marginal focus as the University pursues its international goals.

This discussion so far has begged the question: can a large, multi-faculty institution ever adopt a single perspective and remain true to its mandate? The University of Alberta has a responsibility to its stakeholders to represent a wide range of interests. In addition, each area within the University operationalizes the mission of the University in a slightly different way. It is not realistic to expect that one policy statement is going to magically align all perspectives across the campus and in the wider community, nor would one wish for that to happen. However, without strong guiding principles to contextualize the journey, a university community may find it has arrived at an overly materialistic or overly idealistic mode of internationalization which the university cannot and should not support.

Implications. The University's approach to internationalization as outlined above has several implications for study abroad and particularly predeparture orientation. In supporting the competitive outcomes of the University's internationalization efforts, study abroad should provide an academically rigorous and personally challenging international experience to students. To this end, predeparture orientation should prepare participants for the academic and personal rigors of the abroad experience. Moreover, participants should be prepared in such a way that they are able to uphold the fourth of the Task Force's stated pillars of internationalization--ambassadorship. Although the ambassador role is not clearly delineated in the University documents, it follows intuitively that students who are good ambassadors of the University will in turn give strength to the University's good name abroad by creating a positive and lasting impression in the name of the home institution. In supporting the University's liberal aims for internationalization, study abroad should in fact be a conduit for mutual interest sharing between the University and its partner institutions. Again, predeparture orientation is implicated in that students should be prepared to be ambassadors of that mutual goodwill which ultimately paves the way to collaboration on wider interests. Finally, to accommodate the University's nod to social justice and North-South development issues, it is important that study abroad programs incorporate North-South linkages and that student preparation spell out the university's interests, albeit limited to date, in this regard (see end of chapter for definitions of North and South).

Education Abroad and Predeparture Orientation at the University of Alberta

The Education Abroad Program (EAP) at the University of Alberta forms one part of the International Centre, which opened its doors as the Office of International Student Affairs in 1983, branched off to include the International Student Centre in 1984, and was restructured in 1988 to include its present divisions of development education, foreign student services and programming, and education abroad.

The Education Abroad Program currently offers a predeparture orientation program for many of the students who participate in its approximately 80 arrangements for students in 17 countries each year, yet the goals of the University with regard to study abroad, the needs and interests of student participants and the resources available through academics and practitioners in the field have never been systematically examined. Valuable knowledge and expertise are lost each semester as new orientation coordinators redesign the program as they see fit, with minimal knowledge of institutional foci, participant needs, or theoretical considerations. The disadvantage is to student participants, the institution's vested interests in the program, as well as to the wider community.

The Education Abroad Program has experienced tremendous growth in student participation since it was officially launched in May 1991 (International Centre, 1994). Greater numbers of students are participating in student exchange and other education abroad programs and increasing numbers of students are approaching the International Centre for information regarding study, work, volunteer and educational travel opportunities. In 1986, six students participated in formal academic exchanges. By 1993, that number had jumped to 125. Prior to 1991, little support existed for students interested in education abroad, whereas the University currently offers students one of the most comprehensive education abroad services of any Canadian institution (International Centre, 1994), including 80 exchange agreements in 17 countries and a resource room containing information on over 5000 opportunities to work, volunteer, study, or travel abroad or elsewhere in Canada.

The vision for the Education Abroad Program at the University is intricately linked with the University's goals for increased internationalization (International Centre, 1994). In the spirit of the accord between the strategic plan, the Senate and the International Centre, the Education Abroad Program has set a goal of "2,000 students on campus each year by the year 2000 who have received academic credit for study outside Alberta" (International Centre, 1994, p. 9). In a panel discussion on the question entitled "What is an international university?" University of Alberta Chancellor Lou Hyndman declared his interest in seeing significant numbers of University of Alberta students and scholars abroad in the next decade.

Given the university-wide commitment to expand and develop internationally, and in light of the "2000 by 2000" goal of the Education Abroad Program, it is in the university's best interest to continue to undergird the programs which impact the value of study abroad experience. Excellent predeparture preparation could significantly impact students' readiness to fully participate in and gain maximum benefit from their international experiences. In addition, the institutional and administrative functions of the study abroad program (and of the University itself) could be seriously undermined if students are not properly prepared for their experiences abroad.

The Scope of the Study

Having articulated the institutional interests in study abroad and predeparture orientation, the question remains: how are students, in particular Canadian students, most effectively prepared to study abroad? Goals of the sponsoring institution must be taken into account, but the needs of participants and the voices of practitioners in the field must also be heard in order to fully understand what is important as students prepare for their experience abroad.

This study answers the question by considering the literature of sojourner preparation for the abroad experience, the perspectives of the sponsoring institution, other providers of predeparture preparation programs, participants who are preparing to go abroad, and returned participants who have completed a study abroad program.

This study is significant in that it provides valuable information about what is important in predeparture orientation according to experts, providers, and participants. The findings will enable study abroad program planners to tailor predeparture orientation programs to accommodate the goals of both students and program providers within the context of the literature. The findings will assist the University of Alberta and other study abroad providers, particularly in Canada, in improving the educational value of study abroad programs, to benefit the individual participants and the organization, agency or institution which offers the program. The ultimate impact of the study will be to enhance the effectiveness of orientation programming for study abroad and thereby advance toward the goal of greater international awareness across the campus and beyond.

Specifically, the purpose of this study is to determine the perceived importance of components of predeparture orientation for study abroad as perceived by experts, providers, and participants. Four questions guided this study.

1. How important are components of predeparture orientation for study abroad as perceived by academics and practitioners who are associated with international/intercultural education?

2. How important are components of predeparture orientation for study abroad in light of recent University of Alberta documents?

3. How important are components of predeparture orientation for study abroad as perceived by University of Alberta students who are planning to study abroad?

4. How important are components of predeparture orientation for study abroad as perceived by University of Alberta students who have already studied abroad?

The study was delimited as follows:

1. For the survey, only past participants of a University of Alberta formal academic exchange during the period 1990-95 inclusive were considered.

2. Language and language preparation were excluded from the study as possible topics of discussion as these topics fall outside the parameters of most study abroad predeparture orientation programs and involve expertise which most study abroad professionals do not possess.

Limitations of the study are discussed below.

1. The nature of the University of Alberta's academic exchange program was a limitation. Participants in the focus group and questionnaire had been or were going to be fully integrated into the life of the host campus, with minimal support from host university staff. Aside from advance access to on-campus housing in some cases, on-site foreign student orientation for some, and limited support from the exchange liaison officer at the host university, students in the University of Alberta's academic exchange programs were expected to function in the normal host university environment without extra support. They enrolled in regular classes, usually given in the language of the host university,

alongside host nationals. This is a limitation in that predeparture orientation for full integration (sometimes called total immersion) programs without on-site staff from the home university will have different concerns than for example a fully supported residential program where regular home university classes are taught in an isolated villa by home university faculty in the language of the home university exclusively for students from the home university.

2. The fact that nearly all survey and focus group participants had studied or were going to study in Western, industrialized, English speaking countries was a limitation. Students who study in cultures which are less like their home culture will have somewhat different issues than would students who perceived that the place they were going or have gone was not very different from home.

3. A further limitation of the study was that numerous complex concepts or technical terms were involved which were difficult to operationalize. Concepts such as culture shock and cultural values could not be fully outlined for respondents but neither could they be excluded from the study.

4. A fourth limitation was the participants' varying experiences with predeparture orientation, particularly for the focus group members, who had participated in an orientation two weeks prior to the focus group. It is expected that previous orientation experience provided a framework for respondents' thinking but as such influenced their perceptions of what is important in preparing to study abroad.

Organization of the Thesis

Chapter 1 introduces the topic of predeparture orientation in the context of internationalization of higher education. The first chapter also outlines the scope and purpose of the study. Delimitations, limitations and definitions are also included.

Chapter 2 provides an overview of the literature, including related topics, types of literature accessed for the study, the value of orientation, and components of predeparture orientation extracted from the literature.

Chapter 3 outlines the methodology used in the study. The purpose, design, and sample of the study are explained, followed by a detailed description of methods of data collection and analysis.

Chapter 4 presents the findings of the research with specific reference to the focus group, interviews, and qualitative and quantitative portions of the questionnaire.

Chapter 5 contains a discussion of 12 themes from across the data, with reference to the literature, conclusions from the study, implications for practice, and recommendations for further research.

Definitions

The following definitions or operationalizations used in this study are presented here in alphabetical order.

In this study, an expert is considered to be an academic or a practitioner in one of the several fields associated with international/intercultural education, e.g., education abroad coordinators, peace educators, or cross-cultural trainers.

For the purposes of this study, importance is operationalized as the significance respondents attribute to a particular item. Importance is expressed by focus group members in terms of how often the theme was reintroduced into the discussion, the emphasis placed on the theme in the form of word choice, the number of speakers, and the number of verbal agreements ("yeah," "exactly"). Importance is expressed by interviewees in the length of time devoted to a topic and the emphasis placed on it in discussion. Importance in the questionnaire is operationalized as the high rating or ranking or both of a given item.

"Nations that were formerly categorized as First, Second, Third and Fourth worlds, or as developed or developing, are now referred to as nations of either the North or South. This new terminology is sensitive to the fact that each partner in development both provides and receives benefits, and neither is superior or inferior to the other. Far northern regions of the globe, although they technically are part of the North, share many of the developmental concerns of the South" (Senate Task Force, 1994, p. 58).

Orientation is used in this study to refer to programs, lasting from a half-day to one week, which prepare people to "understand and function effectively in a new or radically different environment" (Kohls, 1987, p. 91).

In this study, a study abroad participant refers to a student who is actively planning to study abroad or has already studied abroad.

Predeparture orientation refers to orientation programs which are conducted prior to a traveler's departure. Currently, at the University of Alberta, predeparture orientation programs are voluntary, one or two day workshops offered to students preparing to study abroad.

For the purposes of this study, preparation is taken to mean any activities or experiences undertaken by participants, on their own or with assistance, which affect their readiness to go abroad. A last minute trip to buy winter boots may be just as much a part of the preparation process as is a formalized predeparture orientation program.

For the purposes of this study, a provider is an organization, agency or institution which offers one or more study abroad programs.

A sojourner is defined as a person who spends a period of time (usually at least a month) in a country to which he or she is not native. For the purpose of this study, the term sojourner was used to include study abroad participants as well as people whose experience abroad is not directly related to academic study. For instance, the literature related to cross-cultural corporate training makes frequent use of the term.

Study abroad as defined by the University of Alberta's International Centre refers to students' opportunities for or experiences with formal education outside of their home country (International Centre, 1994).

Student exchange refers to the movement of students from one institution to another based on an official agreement between departments, faculties or central administrations of two or more educational institutions whereby arrangements are made for students from each institution to study at the partner institution(s) (International Centre, 1994).

Chapter 2 Literature Review

Introduction

The purpose of this study is to determine the importance of components of predeparture orientation for study abroad as perceived by academics and practitioners in international education; organizations, agencies and institutions which send sojourners abroad; and preparing and returned participants of study abroad programs. The input of the first two groups is most readily accessible in the form of publications, guidebooks, and other documents, academic and otherwise, which implicate predeparture preparation for study abroad.

This chapter shows what type of literature was included in this study and highlights important components of predeparture orientation drawn from the selected literature.

Related Topics in the Literature

Although there is a growing body of literature dealing specifically with predeparture preparation for study abroad, a myriad of related topics form the foundation of this fledgling field. These topics will be mentioned here but will not form part of the larger discussion as such.

Topics which have potential implications for predeparture preparation for study abroad participants include theories of intercultural communication (Bennett, 1986; Brislin, 1981; Samovar and Porter, 1994; Sarbaugh, 1979), intercultural competence (Dinges, 1983; Kealey, 1990), and personal and cultural adjustment (Adler, 1975; Anderson, 1994; Furnham and Bochner, 1986; Gullahorn and Gullahorn, 1963; Lysgaard, 1955; Oberg, 1960; Sewell and Davidsen, 1956). The extensive literature around the foreign student experience has relevance to predeparture orientation as well, as study abroad participants are considered foreign students during their sojourn. Other related fields include the nature and management of stress (seeing cultural adaptation to be a stressor; see Barna, 1983), the literature of grief (seeing cultural adaptation as grieving a loss of the familiar), and the literature around life stage development (focusing on the developmental tasks sojourners face notwithstanding their sojourn).

The literature ranges from rigorously academic treatises, such as Janis' (1985) study on anticipatory stress, to highly practical how-to manuals, such as Robert L. Kohls' (1984) handbook on preparing to go overseas. Some authors present intensely personal accounts of the sojourn itself, such as Jennifer Ladd's pseudo-memoirs about leading a semester abroad program in India, while others present a compendium of perspectives, as in Lewis and Jungman's (1986) international anthology.

Types of Literature

There seems no end of approaches to the phenomenon of people crossing cultures. At the same time, the literature dealing specifically with predeparture orientation for study abroad participants seems predominantly to target U. S. American audiences. No published work was found which specifically addressed predeparture needs for students from Canadian universities who were planning to study abroad. For this reason, this chapter includes writings which focus on structured preparatory programs for sojourners in general, not just those planning to pursue academic study while abroad. It will not distinguish between predeparture and in-country programming, nor between nationalities of author or audience.

As this is an exploratory study, the extent of the preparatory programs will not be taken into consideration. Obviously, the optimal content of a preparatory program will vary depending on the length of time, frequency of sessions, and other resource-related factors. However, as resource allocation is a component of curriculum development which is external to this study, preparatory programs will be considered regardless of their rigor. The terms "orientation" and "training" will be used interchangeably throughout this study, without respect to the intensity which one may imply over the other.

The literature which relates to predeparture orientation for study abroad comes from a range of sources. Refereed journals and scholarly texts, documenting both theoretical postulations and research findings, form the skeleton of the available literature. What is needed to flesh out the body of literature, are the guidebooks, orientation agendas, and other tools used by practitioners in their orientation programs. Discussion in this chapter will draw from a mix of scholarly writings and practitioner documentations.

The practitioners' materials mentioned in this chapter are taken from readily available sources, such as the published guidebook of AFS (formerly American Field Service, now known by its acronym) (Grove, 1989), or were supplied by practitioners at 16 universities in response to my request over the Internet for materials currently used in predeparture orientation for study abroad.

The scholarly writings referenced in this chapter all have implications for predeparture orientation for study abroad, although not all of them are directed toward that topic in particular. For example, extensive use is made in this study of the literature around cross-cultural training.

> Cross-cultural training is designed to address those issues that arise when people of different cultural origins must work, study, or play together, at more than a superficial level. The concern is that they be able

> to interact successfully, accomplish what is important to them, and develop meaningful relationships. (Pusch, 1994, p. 109)

Cross-cultural training includes predeparture, in-country (during-the -sojourn), and re-entry programs of varying duration offered to students, technical assistance personnel, business people, the families accompanying sojourners abroad, and other sojourners. Other recipients of cross-cultural training include staff and faculty in higher education, host families, management of a multicultural work force, and trainers (Pusch, 1994).

The Value of Orientation for Sojourners

There is much speculation that orientation has a positive effect on the success (self-reported or otherwise) of people who are crossing cultures, particularly in relation to issues of cultural adjustment (Black and Mendenhall, 1991; Brislin and Pedersen, 1976; Brislin and Yoshida, 1994; Tonkin and Edwards, 1981). In their classic work on cross-cultural orientation, Brislin and Pedersen (1976) contend that the traditional "sink or swim" method of cultural exchange, i.e., without any kind of training, is neither the most efficient nor the most effective. As they point out, "'doing what comes naturally' varies from one culture to another and can be a perilous guideline for the sojourner" (p. 28). Goodwin and Nacht (1988) identify predeparture orientation as a crucial step in integrating international education into the life of the campus.

> Over the past 25 years, a large number of researchers have become involved in the careful evaluation of various intercultural training programs. The many benefits they have documented can provide very helpful guidance to administrators contemplating the development of new programs. Administrators can realistically adopt the goals of

> training represented in this list because they have been achieved by others. (Brislin and Yoshida, 1994, p. 169-170)

The many benefits identified by Brislin and Yoshida (1994) include the development of complex rather than oversimplified thinking about another culture (Gim, Atkinson, and Kim, 1991; Landis, Day, McGrew, Miller, and Thomas, 1976; Malpass and Salancik, 1977; Wade and Bernstein, 1991); decreases in reported levels of stress (Befus, 1988; Johnson, 1989); and greater ease in interacting with hosts, as perceived by the hosts themselves (Landis, Brislin, and Hulgus, 1985; Randolph, Landis, and Tzeng, 1977; Weldon, Carlston, Rissman, Slobodin, and Triandis, 1975).

One of the most common arguments in favor of orientation is the relatively high amount of difficulty related to adjustment sojourners report (Black and Mendenhall, 1991; Moore, 1987). Black and Mendenhall (1991, p. 178) note that

> despite the need for cross-cultural skills and the shortage of managers who possess these skills, most human resource decision makers do nothing in terms of cross-cultural training (CCT) for the employees in general or for selected employees embarking on international assignments (Baker and Ivancevich, 1971; Black, 1988; Runzheimer, 1984; Tung, 1984).... studies have found between 16 and 40 percent of all expatriate managers sent on foreign assignments return home before they are supposed to because of poor performance or the inability of the employee and/or the family to effectively adjust to the foreign environment (Baker and Ivancevich, 1971; Black, 1988; Dunbar and Ehrlich, 1986; Tung, 1981).

"More recent evident suggests that each [expatriate] failure could cost between $250,000 to $1 million per mission..." (Mead, 1994, p. 5).

Although it has not been shown conclusively that orientation reduces the risk of sojourner distress or premature return, there is a strong feeling among interculturalists and cross-cultural trainers that orientation can accomplish that and more (Black and Mendenhall, 1991; Brislin and Pedersen, 1976; Foust, 1981; Goodwin and Nacht, 1988).

Numerous studies have demonstrated the importance of adequate language preparation for sojourners (Deutsch and Won, 1963; Hammer, Gudykunst, and Wiseman, 1978; Harris, 1973; Pruitt, 1978; Sewell and Davidsen, 1956). Klineberg (1981) asserts that students should have adequate academic preparation including language preparation and subject-specific prowess in order to fulfill the role of cultural and institutional ambassador. There is a growing field examining the connection between language and culture learning (see the recent special issue of the International Journal of Intercultural Relations, Fantini, 1995). However, the question of optimal language competence for study abroad typically falls in the realm of linguistics and language studies rather than in cross-cultural or intercultural communication. As a result, this study did not address the question of language.

Components of Cross-Cultural Training

The remainder of this chapter documents components of predeparture orientation which are discernible across the literature. Each component is discussed in terms of its treatment in various types of literature. In some cases, the written materials are contradictory; an attempt is made to give voice to the opposing viewpoints. The list of components following is by no means the only way of categorizing the hundreds of elements advocated for sojourner preparation by academics and practitioners, but it provides a useful scheme by which to organize the concepts at hand.

Practical Arrangements

In their classic book on intercultural orientation (for the purposes of this study, "intercultural" and "cross-cultural" orientation are used interchangeably), Brislin and Yoshida (1994) identify "immediate concerns" as the most urgently needed component of preparatory programming for sojourners. The authors define immediate concerns as "issues that would otherwise distract trainees from fully involving themselves in the workshop" (p. 32). Examples of immediate concerns include housing, immigration information, health insurance, and other basic necessities.

Brislin and Yoshida (1994) explicitly identify immediate concerns with the lower levels of Maslow's (1954) hierarchy:

> unless basic human needs such as food, shelter, belongingness, and esteem are fulfilled, people are not psychologically prepared to seek further intellectual stimulation... Not only are these excellent starting points for discussion, but adding relevance to the participants' work leads to increased attention and interest, as well as to a higher likelihood of skills transfer. (Brislin and Yoshida, p. 34)

Other sources concur. In the NAFSA guide to education abroad (Summerfield, 1993), practitioners are advised to include the following practical information in orientations they offer:

- passports and visas

- international travel arrangements
- housing, host families, and meals
- packing, luggage, and shipping regulations
- phoning, mail, and other communications
- foreign currency, transferring money abroad, credit cards, etc.
- post arrival travel information (Eurail passes, international ID cards, youth hostel cards, guidebooks, etc.)
- legal considerations and responsibilities, waiver forms, etc.
- health and safety issues (see Summerfield, 1993 for extensive list of health and safety issues). (p. 141)

Among the 16 universities responding to my Internet request for orientation materials, all included practical components in their orientations. Specific components mentioned ranged from jet lag and measurement conversions to health and safety. See Appendix A for complete listing of these components.

Watts (1988) reports that of 197 education abroad professionals surveyed, 73% indicated that "survival" information is given primary emphasis in their preparation programs. According to the AFS orientation guidebook (Grove, 1989), a key objective of predeparture orientation is to give practical and logistical information as needed. Grove (1989) uses a model based on multiple concentric circles to describe the needs of newcomers, in which shelter, nourishment, elimination, and sleep form the core; social patterns, nonverbal behavior learning, cultural values, and other needs are on the periphery. "When those [needs] inside the center ring are dealt with satisfactorily, those inside the next ring become uppermost in mind" (Grove, 1989, p. 124). Foust (1981) states that preparatory orientation should give top priority to addressing sojourners' immediate physical needs, as sojourners will be preoccupied until these needs are satisfied.

In a training video recently produced through the concerted efforts of several Ontario universities, some practical tips are given (World Within Reach, 1995). Tips include arranging for birth control, learning how to use electronic mail, and packing things from one's own culture as reminders of home.

In order to further understand the immediate concerns of people preparing to go abroad, it is helpful to look to the research around expectations or concerns sojourners have prior to departure. Two studies in particular provide useful information. In the most extensive study on sojourner expectation to date, Koester (1985, 1987), in cooperation with the Council on International Educational Exchange (CIEE), surveyed approximately 5,000 study abroad participants from the United States and identified nine areas of predeparture concern, four of which could be considered logistical or practical concerns: housing, food, sufficient money, and health. In a follow up study with U.S. students studying at western European universities, Martin and Rohrlich (1991) identified 13 areas of concern, 7 of which could be considered practical concerns: housing, food, health, sufficient money, unfamiliar currency, extracurricular travel while abroad, and local transportation.

Other practical concerns advocated for inclusion in preparatory orientations include survival issues, legal status, and outlets for personal interests (Foust, 1981). In prescribing components of predeparture orientation for students in the U.K., Barnes (1991) includes work, transport, money, and phones as immediate concerns to be addressed with sojourners.

Academic Life Abroad

In the context of immediate concerns, numerous authors stress the importance of providing orientation related to the primary task of the sojourner while abroad, be it vocational, academic, domestic, or some other kind of task. For employees working abroad and their families, primary tasks might include domestic information, management and technical factors (Mead, 1994; see also Black and Mendenhall, 1990); for students the tasks relate to academic issues. Related to student concerns, the NAFSA guide to education abroad advocates briefing students on the following academic items: pre-arrival forms for course work (if required), credit-approval policies upon return, and pre-registration for the next term (Summerfield, 1993). Barnes (1991) includes university registration, grading, and timetables for classes in the academic section of an optimal orientation. Klineberg (1981) stresses that the student should be well informed about the nature of the host university, including rules and regulations, the relations between students and faculty, in order to fulfill the role of ambassador for the culture and the institution.

Academic issues were mentioned by nearly every university which responded to the Internet request for orientation materials. Academic and other home institution concerns include financial aid, registration, credit transfer, academic advising, housing upon return, independent study, the role of the International Office, and career advising.

A frequent topic of discussion among study abroad professionals is how academic work carried out at a foreign institution can be assigned commensurate credit and sometimes grades at the home institution. Often students do not know until they return how much academic recognition in the form of transfer credit (or the equivalent) they will receive for foreign course work. Klineberg (1981) suggests that "this whole issue of equivalencies may cause frustration and even heartbreak to many students, consequently affecting their degree of satisfaction with their foreign sojourn and contributing to their sense of success or failure. In the latter case, the role of culture-carrier will hardly be facilitated" (p. 122). Any effort on the part of sending institutions both to create structures to facilitate credit transfer and to inform students of these structures is to be applauded. According to Klineberg, information about the administration of transfer credit should ideally be included in orientation for people preparing to study abroad.

As a gauge of the importance of credit transfer in the field of study abroad, a number of national and international associations and agencies in international education sponsor ongoing projects related to credit transfer and foreign credential evaluation. These interested parties include NAFSA: Association for International Educators (Handbook, 1990), Nuffic: Netherlands Organization for International Cooperation in Higher Education (van der Wende, 1994), and the British Council (1991). In 1994, UNESCO and the Council of Europe published a joint brochure offering updated information on the European National Information Centres (ENIC) and recognition and mobility of students in higher education. One of the main functions of the ENIC, established in June 1994, is to provide information assisting institutions in evaluating course work students complete abroad. In 1994, the Canadian government established the Canadian Information Centre for International Credentials (CICIC), which handles referrals, information sharing and data gathering for international recognition of educational and occupational credentials.

Closer to home, also in 1994, the Alberta government established the International Qualifications Service which performs a similar function at the provincial level. This office services the credential evaluation needs of a number of Alberta postsecondary institutions. Concurrent to this study, the University of Alberta conducted a campus wide project with the goal of standardizing credit transfer practices to facilitate program advising as well as approval of credit transfer. Credit transfer is a going concern in international educational exchange today.

An additional academic consideration for study abroad preparation is the recognition that teaching and learning methods differ significantly around the world. Opper, Teichler, and Carlson (1990) found that over half the European and U.S. orientation programs they studied included orientation related to study patterns and teaching methods at the partner institution. Other topics which could significantly impact students' readiness to function optimally overseas include cognitive styles and the structuring of papers and arguments (Lieberman, 1994; Moore, 1987; Powell and Andersen, 1994).

The developers of the recent Ontario predeparture orientation video recommend that students find out about academic procedures, facilities, and relationships to professors before departing to study abroad (World Within Reach, 1995). The video further warns students that their academic performance may worsen but advises them to learn about the academic system beforehand, study in a consistent fashion, and try not to get frustrated with the different approach to learning.

Tailored to study abroad, then, academic concerns to be addressed in orientation include the grading system at the host university, university registration procedures at both the home and host institutions, selecting classes at the host institution, academic skills needed abroad, getting home university credit for coursework completed abroad (credit transfer), and study patterns and teaching methods at the host institution.

Interaction

Numerous authors advocate interaction during orientation with host nationals or "old hands" who have spent a significant amount of time in the host country (Brislin, Landis, and Brandt, 1983; Brislin and Pedersen, 1976; Gudykunst and Hammer, 1983; Harris and Moran, 1991). For purposes of study abroad, the interaction approach might involve people from the host country or university or people who have studied or are studying abroad at the host institution or elsewhere in the host country. Although not strictly a content item for orientation, this interaction approach to orientation is noteworthy because so many orientation programs currently use it in some form. Gudykunst and Hammer (1983) advocate interaction-based training as one of three major building blocks of cross-cultural training design.

The interaction approach is appealing because it can accomplish several agendas. It allows for credible presentation of area- and culture-specific information. Host nationals may feel valued in that they are set up to be the experts. This in turn can lead to a greater level of commitment to and sense of integration at the host institution. This is particularly important if retention or recruitment of host national on the home campus are goals of the program. Past participants can experience a similar sense of "being useful" and valued by the home institution, which may increase the likelihood that they will be active advocates for study abroad among their peers. In addition, the interaction approach can facilitate ongoing linkages between returning host national and students preparing to go. In this way, the connection between individuals and institutions carries on during the sojourn.

In describing predeparture orientation programs for study abroad, Opper, Teichler, and Carlson (1990) noted that even in the context of formalized orientation programs offered by institutions, students were none the less prepared to a large extent by their peers.

> The most frequent procedure (in 84% of the programmes) is to put the group about to go abroad in contact with those who have just returned from the same programme. In a majority (61%) of the programmes, students at the partner institutions abroad also have some input into the preparation of study abroad participants. (Opper, Teichler, and Carlson, 1990, p. 42)

The recent Ontario predeparture video also advocates students making contact with past participants as well as exchange students on their campuses in order to be better prepared for the abroad experience (World Within Reach, 1995). In fact, the video is itself an example of the interaction approach in the age of multi-media: it consists largely of past and current exchange students giving candid advice to the viewers, who are presumably preparing to study abroad. In this case, video is the next best thing to being there.

Past participants and exchange students currently on campus were included in the orientations of the majority of universities which responded to the Internet request for materials. Involvement of these students includes meeting in small groups by program or country, discussing dos and don'ts for study abroad, presenting practical information, and providing reports and photos. One orientation leader writes, "Past participants are an excellent source of information... I think these are usually the best sessions and new participants feel like this is the most helpful" (electronic mail submission to Internet request for orientation materials).

Culture-General Information

At the heart of cross-cultural training is the concept of culture. This section will show some common concepts of culture from the literature with a view to identifying the importance of culture related components in preparation programs for sojourners. It should be noted that the term "culture-general" refers to aspects of culture which may be said to be universal, in contrast to constructs specific to a particular culture or group of cultures (Brislin and Pedersen, 1976; Brislin and Yoshida, 1994; Gudykunst and Hammer, 1983). For example, the classification of all cultures on a continuum from task-orientation to relationship-orientation would fall under the heading culture-general, while the description of task-orientation in Germany constitutes a culture-specific position.

Culture has been defined in many ways (see for example Hall, 1976a; Kluckhohn, 1949). According to Brislin (1993) and Brislin and Yoshida (1994, pp. 118-119), culture (a) consists of concepts, values, and assumptions about life that guide behavior and are widely held, (b) is passed from generation to generation, and (c) becomes clearest when people interact with others from very different backgrounds. According to Sikkema and Niyekawa (1987), "We need oxygen to survive, but, because it is all around us, we do not notice it until we are deprived of it. The best way to become aware of how culture-bound we are is to step our of our own culture" (p. 36). Kohls (1984) puts it this way:

> Culture is an integrated system of learned behavior patterns that are characteristic of the members of any given society. Culture refers to the total way of life of a particular group of people. It includes everything that group of people thinks, says, does, and makes -- its systems of

> *attitudes and feelings*. Culture is *learned* and *transmitted* from generation to generation. (p.17, emphasis in the original)

Perhaps the most concise yet useful definition of culture is Lustig and Koester's (1993): "We define *culture* as a *learned set of shared perceptions about beliefs, values, and norms, which affect the behaviors of a relatively large group of people*" (p. 41).

Hall (1976a, p. 16) suggests that "culture is man's medium: there is not one aspect of human life that is not touched and altered by culture." He calls culture a silent language consisting of "words, actions, postures, gestures, tones of voice, facial expressions" that make up "complete communication systems" (p. 42). Hall describes culture as a kind of sensory screen: "Selective screening of sensory data admits some things while filtering out others, so that *experience as it is perceived* through one set of culturally patterned sensory screens is quite different from experience perceived through another" (1966, p. 2). He goes on to say, "...culture therefore designates what we pay attention to and what we ignore. This screening function provides structure for the world and protects the nervous system from "'information overload'" (1976, p. 85). As Thiederman (1991) puts it, "Culture simplifies the everyday decisions of living" (p. 3).

Despite the pervasive nature of culture, it is almost entirely out of consciousness.

> Most of culture lies hidden and is outside voluntary control, making up the warp and weft of human existence. Even when small fragments of culture are elevated to awareness, they are difficult to change, not only because they are so personally experienced but because people cannot act

> or interact at all in any meaningful way except through the medium of culture" (Hall, 1966, p. 188).

As Thiederman writes (1991), paraphrasing Ruth Benedict, "It is hard to become aware of the eyes through which we see" (pp. 26-27).

If everything we say and do is permeated by our culture, then it follows that effective communication between people from different cultural backgrounds necessitates some common understanding of one another's culture. However, the nature of culture leads us to assume that our culturally based perceptions will be shared by everyone around us.

> One last reason we expect everyone to behave like us is that we couldn't function if we didn't. The minute you're no longer sure how people are going to behave in a particular situation -- when you start doubting what you know from experience to be true of the world -- you will no longer be able to engage successfully in day-to-day life... We expect people -- all people -- to think and act the way we do because we have to in order to survive. (Storti, 1994, p. 6)

If we are not aware of our own cultural filters and assume that others see the world in the same way as we do, the messages we send may not communicate what we intend them to and we will find it difficult to communicate effectively across cultures. One of two fundamental objectives in AFS's orientation for young sojourners is to promote intercultural learning through "reducing the degree of ethnocentricity with which the exchangee view the values, habits of thought, and patterns of behavior of unfamiliar cultures" (Grove, 1989, p. 10).

Opper, Teichler, and Carlson (1990) offer interesting evidence which challenges the cross-cultural trainers' notion that departing study abroad participants should receive training in cultural issues. The European/U.S. American study found that "participants in study abroad were already internationally oriented to a large degree before the actual study abroad period" (Opper, Teichler, and Carlson, 1990, p. 211) and that "they had hardly moved further in this direction after their experience abroad" (p. 144). This finding raises the larger issue of participant selection and qualification. If students already possess the knowledge, skills and attitudes which will help them to be successful while studying abroad, then the issue of preparation for overseas experience becomes almost moot. Instead, emphasis would be on providing participants with orientation to the particulars of the program offering the overseas experience. The question remains, then, which knowledge, skills and attitudes make for successful overseas experience and to what extent study abroad participants already possess them, whether through careful selection or by virtue of the type of student who is likely to study abroad.

According to the NAFSA guide to education abroad, helping students build culture general skills may be the most crucial aim of an orientation program for study abroad (Summerfield, 1993). Entire college textbooks have been written to help students "learn to communicate with people whose cultural heritage makes them vastly different" (Lustig and Koester, 1993, p. xv). Culture learning is a necessary part of predeparture orientation for study abroad. The question then becomes how this vast body of complex concepts can be translated into knowledge, skills and attitudes which are accessible to student preparing to study abroad. For this reason, culture-general training often becomes an issue of awareness and skills training. The following section describes one approach to culture-general training.

Learning How to Learn

According to the NAFSA guide to education abroad, "the 'how to learn' orientation is more effective than trying to impart extensive information on host cultures in the limited time available" (Summerfield, 1993, p. 143). Summerfield (1993) suggests orientation time is best spent helping students understand that they will have to make efforts to gain culture-specific knowledge on their own.

The learning how to learn approach is particularly relevant to this study as it constitutes one of eight articulated strategies for the University of Alberta (Fraser, 1995) and as such supports a specific institutional interest.

Integrating learning how to learn into cross-cultural training has found substantial support among international educators. Writing about experiential learning theory and international education, Janet Bennett (1988) asserts, "it is up to the professional international educator to prepare sojourners to learn how to learn while overseas" (p. 113). To countermand the attitude of dependency some sojourners develop during their training, McCaffery (1986) proposes a new model of cross-cultural orientation and training which aims "to move people towards developing/enhancing the skills they need to become independently effective cross-cultural sojourners" (p. 166). Sikkema and Niyekawa (1987) describe a groundbreaking program for sojourner preparation which is "designed to produce multiculturally-oriented individuals rather than experts in any specific culture" (p. 26). In their classic book on intercultural training, Brislin and Yoshida contend that

> for culture-specific knowledge, the most effective approach is for trainees to "learn how to learn" because the amount as well as the types of knowledge needed will not only be immense, but will change over time. (p. 54)

Experiential techniques are not new to the classroom (Asuncion-Lande, 1979; Hoopes and Ventura, 1979; Kohls, 1979) but are still valued for their effectiveness in training people who are crossing cultures (Bennett, 1988; Hughes-Wiener, 1995; McCaffery, 1986).

Area- and Culture-Specific Information

By far the most often mentioned topics in the literature for inclusion in predeparture orientation relate to information about the host country, host culture, or both. The term "area" is useful in that it may refer to a region of the world, such as Southeast Asia; to a country; or to a region within a country, such as Quebec. In this way, area-specific training may apply to Peace Corps volunteers who will be traveling to the same cluster of villages, as well as to a group of study abroad participants who will be studying at different universities throughout sub-Saharan Africa.

In his practical handbook for people preparing to go abroad, Kohls (1984) exhorts his readers: "Know thy host country" (p. 43). He lists 50 questions sojourners should be able to answer about their host country prior to departure. Brislin and Yoshida (1994) point out that "specific knowledge regarding topics such as history, sociology, geography, politics, and economics helps trainees engage in intelligent conversations with people from the host country... Hosts appreciate trainees who have 'done their homework' and who are informed about their culture" (p. 32-33). Harris and Moran (1991) also provide an extensive checklist of knowledge areas to know when going abroad. Economics, sociology, climate, history, geography, politics, and quality of life are other area-specific topics discussed in the literature (Brislin, Landis and Brandt, 1983; Brislin and Yoshida, 1994).

Information about the host culture is mentioned with more or less specificity in most texts dealing with cross-cultural training. Topics which may be addressed in the general or specific include work, time and space (e.g., punctuality, personal space), language, nonverbal behavior, roles, behavioral styles, individual-collective distinctions (e.g., cohesiveness of family unit, attitudes toward ownership versus sharing), rituals and superstitions, hierarchies (class and status), and values of the host culture (Brislin and Yoshida, 1994; Hall, 1976; Hofstede, 1980; Paige and Martin, 1983). Notable are the cultural patterns described by Hofstede (1980) and Hofstede and Bond (1988): power distance (comfortable level of familiarity with authority figures), uncertainty avoidance, individualism-collectivism, masculinity-femininity, and Confucian dynamism. Gudykunst and Hammer (1983) identify culture-specific information as one of four categories into which they classify orientation topics. They define culture-specific knowledge as an understanding of people, customs and institutions of the host country. Everyday behavior in the host country and "practical culture" are also mentioned as important in culture-specific training (Barnes, 1991; Brislin, Landis, and Brandt, 1983).

The 1995 Ontario video project also advocates students learning about dating, body language, and what is normal or acceptable in the host country (World Within Reach, 1995). Speakers on the video recommend students establish a framework of information about the country which they can fill in once they are abroad, particularly by reading works from and about the country.

Eight of the 16 universities which responded to my Internet request for orientation materials indicated that they include information about the host institution or country in their orientation. Information includes academic practices, teaching methods, registration, granting credit, things to find out about the host country, and sources of information about the host country.

Along with learning about the host country, several sources stress the importance of learning about one's own country and culture prior to departure. Summerfield (1993) points out that students will be de facto representatives of their country and as such will be expected to know about its history and current affairs. Grove (1989) recommends that participants become knowledgeable about their home country and community; this provides them with a frame of reference from which to learn about the host country and community and prepares them to be more informed citizens on their eventual return home. Further, two goals of Grove's predeparture training (1989) are to help exchangees better understand their own system of culturally determined values and behaviors and to enable exchangees to better describe their own country and community while they are abroad.

According to Klineberg (1981), foreign students should know enough about their own culture to serve as mediators or cultural ambassadors. "If students could be convinced in advance of the importance of the mediating function, they might also be persuaded to regard a fuller knowledge of their own society as an essential part of their preparation for the foreign sojourn" (Klineberg, 1981, p. 122). "More [students] would probably...play a more important role as cultural ambassadors, if it were brought to their attention that this was expected of them; those responsible for administering exchange programs might be encouraged to include this in their briefing" (Klineberg, 1981, p. 127). In fact, Klineberg (1981) points out that "students and professors visiting another country can serve as cultural ambassadors, as links between cultures, but they will usually be successful in this role only if they are informed in advance that this is expected of them and given the preparation and training which the role requires" (p. 134).

Adjustment

The literature around sojourner adjustment is extensive. Van den Broucke, De Soete, and Böhrer (1995) suggest that "the prediction of overseas success or failure remains one of the most intriguing issues within the field of intercultural research" (p. 73). They continue,

> When the concept of "overseas effectiveness (Hawes and Kealey, 1980) and related notions such as "culture shock" (Oberg, 1960), "cultural and social adjustment" (David, 1972), "cross- cultural effectiveness" (Ruben and Kealey, 1977), and "intercultural competence" (Dinges, 1983) were introduced to describe the dynamics and problems associated with adapting to an unfamiliar culture, an impetus was given to the endeavor of finding ways to control and to predict the process of cross-cultural adaptation. Thus, intercultural researchers whose task is to prepare people for life and work overseas, have developed selection and training procedures to enhance the chances of successful overseas assignments. (pp. 73-74)

There has been little debate among interculturalists about the necessity of preparing sojourners for the adjustment they will face. Central to this agreement is the belief that "if people are unprepared for the adjustment that is necessary on an overseas assignment, they may mistakenly attribute the normal stresses and strains of everyday life to their own failures" (Brislin, Landis, and Brandt, 1983, p. 22). According to the AFS guidebook, one of two fundamental objectives of orientation is to prevent culture shock "through reducing the unpredictability facing the exchangee " (Grove, 1989, p. 8). In the task of maximizing the effectiveness of sojourner experiences, preparation for adjusting to another culture is sine qua non.

Twelve of the 16 universities which responded to the Internet request for orientation materials address cultural adjustment in their programs. Variations on this theme include being happy with oneself, coping strategies, stages of adjustment, keeping an open mind, re-entry, stereotypes of Americans, and cross-cultural awareness.

Although there is agreement on the necessity of preparing sojourners for cultural adaptation, there is a plethora of approaches to cultural adaptation. The process of adjusting to a new culture has been described using a variety of models and perspectives. Anderson (1994) identifies four broad families of models which describe the process of adapting to another culture: as recuperation, as learning, as psychological journey, and as homeostatic mechanism.

The recuperation models highlight the process of recovering from culture shock as a mechanism for accommodating to life in strange new lands. Culture shock was defined by Kalvero Oberg in the late 1950s as "a medical condition describing feelings of disorientation following entry into a new culture, feelings often so strong as to degenerate into physical symptoms" (Anderson, 1994, p. 294). Also in the mid 50s, Du Bois (1953) and Lysgaard (1955) described the U-shaped curve of cultural adjustment which is still one of the most commonly used models of adaptation today. "To oversimplify considerably, the U-curve begins with a relatively happy first phase, experienced as an exciting adventure; then there is a trough in the curve, as the student becomes involved in difficulties of various kinds and as he has to face his problems in the university and the society in general; and finally, a relatively high point again as he succeeds in this process before he prepares for his departure" (Klineberg, 1981, p. 125). To Anderson's list could be added Sewell and Davidsen's (1961) W-curve model which graces so many orientation programs in North America today. The W-curve extends the U-curve by adding a similar dip and rise to describe the frustration and eventual adjustment often associated with returning home. Other modern variants posit culture shock not as a disease but as a crisis of personality or identity (Adler, 1975; Bennett, 1977; Garza-Guerrero, 1974; Harris and Moran, 1979, 1991; Pearson, 1964; Weinmann, 1983).

The second family of models suggested by Anderson (1994) identify adaptation as a learning process (Byrnes, 1965; Ezekiel, 1968; Guthrie, 1975; Lee, 1979). Anderson (1994) summarizes, "Sojourners adrift in a sea of perceptual and behavioral anomalies and difference are in a state of ignorance. To adapt, they must learn the parameters of the new sociocultural system and acquire the sociocultural skills necessary for participating in it" (p. 294). One school of thought within this family of models argues that intercultural communication is the core of cultural adaptation (Furnham and Bochner, 1986; Gardner, 1952; Hammer, Gudykunst, and Wiseman, 1978; Nishida, 1985; Ruben, 1976; Ruben and Kealey, 1979). A second grouping of authors approach cultural adaptation as a process of learning socially appropriate behaviors, primarily through operant conditioning (David, 1976; Guthrie, 1975; Mischel, 1973; Pedersen, 1983; Triandis, 1980; Wallace and Atkins, 1961).

The remaining two families of models identified by Anderson (1994) conceptualize adaptation as "a step-by-step psychological journey from the fringes to the center of a foreign culture, from a state of denial or ignorance to state of understanding and empathy (e.g., Bennett, 1986; Gochenour and Janeway, 1977; Jacobson, 1936; Stewart, 1977)" (Anderson, 1994, p. 295) or as a homeostatic mechanism which is in the constant process of maintaining equilibrium (Barna, 1976; Gudykunst and Hammer, 1987; Spradley and Phillips, 1972; Torbiörn, 1982; Wong-Rieger, 1984). Anderson describes the latter as "a dynamic and cyclic process of tension reduction" (p. 295).

In addition to the models identified by Anderson, there is a growing body of literature which describes adaptation as a type of stress which can therefore be understood and managed in accordance with the copious research on stress (Barna, 1983; Brislin and Yoshida, 1994; Harris and Moran, 1979, 1991; Walton, 1990; cf. Holmes and Rahe's [1967] Social Readjustment Scale).

Despite the belief some authors and even more practitioners hold in the importance of preparing sojourners for the adjustment to life abroad (Black and Mendenhall, 1990; Brislin and Yoshida, 1994; Gudykunst and Hammer, 1983; Kohls, 1984; Mead, 1994; Torbiörn, 1982), there is still some controversy over the generalizability of the adjustment research. In her trenchant categorization of adjustment models to date, Anderson (1994) notes that

> some investigators find no culture shock or crisis reported at all (cf. Byrnes, 1965; Lundstedt, 1963) or reported only a feeling of 'general irritation' (Torbiörn, 1982, p. 70). The universal validity of the curve approach itself is dubious. It has long been known that some people never adapt; some slide inexorably into chronic alienation (Campbell and Yarrow, 1958); others adapt in a slow and steady linear pattern, without discontinuities (cf. Kim, 1978; Klineberg and Hull, 1979; Selltiz, Christ, Havel, and Cook, 1963). We still do not know why this is so. (p. 297)

Whatever the model or approach, the literature is clear: people who would be successful at crossing cultures should be aware of the adaptation process in theory as well as appropriate coping strategies. At the same time, the goal of adjustment preparation will be determined in part by the model of adjustment to which one subscribes. If culture shock is seen as an illness, then preparation should prevent or inoculate sojourners against it. The goal of training would be to minimize or prevent culture shock from occurring. Yet if cultural adjustment is seen as a learning process, optimal orientation would prepare sojourners to receive maximum benefit from the experience through cognitive and emotional readiness and other competencies related to experiential learning. Here again, curriculum planning necessitates the identification of broader goals before specific instruction can be planned.

Re-entry

> Culture shock is the expected confrontation with the unfamiliar.
> Reentry shock is the unexpected confrontation with the familiar.
> --R. M. Paige in Martin, 1986, p. 149

Related to cultural adjustment is the issue of re-entry. Numerous works address the phenomenon of adjusting to the home culture upon return from the sojourn, with the understanding that the readjustment process may be as difficult or more difficult than the adjustment to the host country (Chinn, 1992; Denney, 1986; Greenwood, 1991; Kauffman, Martin, Weaver, and Weaver, 1992; Kenny and von Klemperer, 1992; Kohls, 1984; Milenko, 1983). In addition, Brislin (1981) stresses the importance of preparing sojourners before they go abroad to think in terms of the impact their experience will have on their lives. He argues that this kind of proactive thinking will enable sojourners to more effectively focus their activities and attitudes abroad in order to maximize the long-term benefits of the experience abroad. According to the NAFSA guide to education abroad, the importance of re-entry programs is now widely recognized (Summerfield, 1993). Dr. Marvin Westwood (1984) of the University of British Columbia has made great strides in putting together a practical yet theoretically grounded handbook for persons assisting international students with the re-entry process.

Re-entry programs prepare participants for understanding and minimizing the effects of reverse culture shock often experienced by sojourners (Grove, 1989; Martin, 1986). They help students readjust to their home country and campus life "after an intense period of living on the educational and social terms of a foreign culture" (Pusch, 1994; Summerfield, 1993) and help students develop realistic expectations (Martin, 1986). Re-entry programs help students to understand and articulate what they have gained during their time abroad (Grove, 1989; Pusch, 1994; Summerfield, 1993). Through re-entry programming, participants consider how they might incorporate the learning, academic and otherwise, from their abroad experience into their lives (Pusch, 1994; Summerfield, 1993). In addition, re-entry programs benefit the sponsoring institution by providing an means to evaluate the program (Grove, 1989).

As with adjustment, it is important to note that one's philosophy of readjustment will impact the goals of re-entry programming. For instance, if readjustment is essentially a process of reincorporating oneself intact, with minimal upset, into one's previous life, than re-entry programming will target skills and attitudes which will allow for a seamless transition from sojourn to home. For many educators, however, readjustment is part of a personal transformation which may involve the dissolution and reconceptualizing of self and of home. Orientation would then incorporate self-awareness and evaluatory exercises which would encourage the sojourner to investigate the process of self-identification and move toward a reconceptualization of self and home.

Self-Awareness

Along with an understanding of culture, adjustment, and re-entry, some practitioners and academics believe that people preparing to go abroad need to have a basic understanding of themselves before they can fully enter into the abroad experience (Gudykunst and Hammer, 1983; Harris and Moran, 1991; Triandis, 1977). They need to understand their own reactions to stress (Barna, 1983); they need to recognize behaviors and attitudes which are culturally determined but personally owned (Kohls, 1984; Ladd, 1990; Storti, 1989); and they need to have realistic expectations of their own abilities and of what they will be able accomplish during their time abroad (Kealey, 1990; Kohls, 1984; Ladd, 1990; Pusch, 1994).

This kind of self-awareness is identified by Sue et al. (1982) as one of four critical awareness competencies, was later expanded by Pedersen (1988), and was reintroduced by Brislin and Yoshida (1994) as a key component in intercultural training. Paige and Martin (1983) note that orientation programs frequently address "personal characteristics: flexibility-rigidity, openness-ethnocentrism, etc." (p. 54). The 1995 Ontario training video includes numerous references to self-awareness preparation in the form of taking chances, having an open mind and respectful attitude, and taking "by the horns" this once in a lifetime opportunity (World Within Reach, 1995). The AFS guidebook indicates that participants are given ample opportunity to discuss fears and apprehensions and modify inappropriate expectations (Grove, 1989). Of course, careful thought must be given to the techniques used to accomplish this particular goal of orientation. It may be more damaging, and is certainly ethically questionable, to lay bare student fears and expectations without proper affirmation and discussion than to avoid the topic entirely.

Grove (1989) further stresses with participants before, during, and after the selection process that the heart of the abroad experience is personal growth and challenge. Given this commitment to the personal development of participants, it is understandable that that particular program would advocate a self-awareness component in predeparture orientation. However, as may be seen above, the support for self-awareness training is widespread and is inextricably anchored in the intercultural literature.

Global Perspective

One component of predeparture orientation which is conspicuously absent from the cross-cultural training and study abroad orientation literature is students' global responsibility. This philosophical discussion is carried on in the literature around global education and development education but seldom is the question of students' part in a global future articulated in the training literature around study abroad. Perhaps it is unfair to suggest that students' roles in shaping the world order is neglected by study abroad professionals, given that so much has been written about the value of study abroad for building bridges between cultures and advancing institutional, regional, and national understanding and cooperation. However, these outcomes of study abroad are not the only ways in which students are a part of a global framework, and predeparture orientation should reflect this.

Key concepts within global education as articulated by Toh and Floresca-Cawagas (1987) include militarization, structural violence, human rights, cultural solidarity, environmental care, and personal peace. Dialogue and an understanding or "conscientization" with regard to the interdependence of lands and people are essential components of education for a global perspective (Toh, 1993; Toh and Floresca-Cawagas, 1987). Numerous materials exist for use in developing global awareness and the will to act in more globally conscientious ways (Greig et al., 1987; Hicks, 1988; Pike and Selby, 1988; Reardon, 1988; Selby, 1987; Toh and Floresca-Cawagas, 1987 and 1990).

In NAFSA's guide to education abroad, Summerfield (1993) includes two carefully worded paragraphs under the heading "global citizenship." One sentence in particular stands out: "During orientation, it is important for them [students] to explore questions concerning their responsibilities in an interdependent world" (p. 146). This sentence opens the possibility that students do have responsibilities in a world where interdependence means more than sharing global markets but also includes working in solidarity with brothers and sisters around the world to ensure global justice. Toh's (1993) and Warner's (1993) social transformative paradigm/model is just one example of ways in which students could be challenged to see the world from a broader view. Global perspective is not on the agenda of most predeparture orientation programs. Is this an oversight or a philosophical statement on the part of trainers and the institutions they represent?

Summary

This chapter outlines related topics in the literature, shows how the literature was selected for the purpose of this study, indicates the value of orientation for people preparing to go abroad, and highlights important components of predeparture orientation drawn from across the selected literature. The literature selected for this study included academic writing and practical materials pertaining to sojourner preparation for going abroad. It was clear from a long list of benefits that orientation for sojourners can be invaluable. Components of predeparture orientation were discussed which were discernible across the literature. Components discussed were practical arrangements; academic life abroad; interaction with past participants of study abroad and students from abroad currently studying at the home university; culture-general matters and the difficulty of effectively communicating them in a study such as this; knowledge about the host country and culture, and knowledge about one's own country and culture; learning how to learn; cultural adjustment; re-entry orientation; self-awareness; ambassadorship training; and global perspective.

Chapter 3 Methodology

Introduction

This chapter outlines the methodology used in this study. The general purpose and design of the study are explained, followed by a detailed description of methods of data collection and analysis for the approaches used. Data collection was carried out using a focus group, individual interviews, and a survey questionnaire. Qualitative data were analyzed using open coding techniques; descriptive statistics for quantitative data were generated using SPSSX for Macintosh.

Purpose of the Study

The purpose of this study was to determine the importance of components of predeparture preparation for study abroad as perceived by participants, providers and experts. In particular, the following questions guided this inquiry.

1. How important are components of predeparture orientation for study abroad as perceived by academics and practitioners who are associated with international/intercultural education?
2. How important are components of predeparture orientation for study abroad in light of recent University of Alberta documents?
3. How important are components of predeparture orientation for study abroad as perceived by University of Alberta students who are planning to study abroad?
4. How important are components of predeparture orientation for study abroad as perceived by University of Alberta students who have already studied abroad?

The Research Design

Data for this study were collected in the spring and summer of 1995 using a variety of qualitative and quantitative methods (see Table 1). Data from academics and practitioners were collected using document analysis and individual interviews. Data from the University of Alberta were collected using document analysis. Data from University of Alberta study abroad participants who were planning to study abroad were collected in March using a focus group interview. Those students who had previously studied abroad on a University of Alberta exchange were invited to participate via a mailed questionnaire in June and July. All data were collected by August and analyses were completed during August and September.

Table 1

Research Design for This Study

Data	Source	Method
academics and practitioners	literature practitioners	document analysis interviews
University of Alberta	documents	document analysis
participants preparing to go	students	focus group
returned participants	past participants	questionnaire

The research design was divided into several stages. From the relevant literature, themes were identified. Education abroad providers were interviewed. A focus group was conducted with students preparing to study abroad in order to gather the students' ideas on the importance of topics for study abroad preparation. These data were then factored into the themes from the literature. A questionnaire was developed from this composite list of themes and mailed to all known past participants in the University of Alberta's study abroad program from 1990 to 1995 (see Appendix B for questionnaire).

The remainder of this chapter describes data collection and analysis for the focus group, interviews and questionnaire.

Focus Group

Rationale

Data from students preparing to study abroad were collected using a focus group interview. A focus group was selected as one data collection method for this study because of the desirability of gathering rich qualitative data, the potential to produce a wealth of information in a short period of time (Bers and Smith, 1988), and what has been described as a "synergistic group effect" (Stewart and Shamdasani, 1990; Sussman et al. 1991). When first invited to take part in the focus group, some of the participants expressed concern that they did not believe they had anything to contribute to the discussion. These hesitations suggested to me that the students would respond better within the synergistic milieu of a focus group rather than in the isolation of an individual interview or a mailed questionnaire. In this way, the students could see themselves as a group of experts where they may not have seen themselves as experts individually.

In spite of their many advantages, focus group interviews come with a price. Due to the influence of the group members on each other, data collected through focus groups may be more skewed than data from individual interviews (Sussman et al., 1991). For the same reason, focus groups may yield up to 70% less than individual interviews (Fern, 1982). Confidentiality and anonymity are harder to preserve among focus group members, although having the group members sign confidentiality agreements beforehand may increase the security of the data (Berg, 1995). However, the most serious disadvantages of focus groups are more or less common to all forms of qualitative data: severely restricted generalizability and the opportunity for misinterpretation (Kops and Percival, 1990). In this study, the advantages outweighed the disadvantages and the focus group went forward.

Groundwork

Planning for the focus group began several weeks before the participants actually convened for the group session. The first step in the planning was to state clearly the question to which the data were intended to speak. In this case, the question focused on the needs and interests of students preparing to study abroad with regards to components of predeparture orientation for study abroad. In other words, what were the students' phenomenological experiences with preparation for study abroad and what were the implications for a predeparture orientation program?

From this first step, the second two steps followed naturally: the identification of the target population and the determination of the interview questions. Clearly, the target population was the approximately 50 University of Alberta students who were preparing to go abroad at the time of the study (early 1995). Similarly, the interview questions came out of the central questions: Are you ready to go? What do you still have to do before you will feel ready to go? Thinking about the recent predeparture program in which you participated (discussed below), how beneficial was that program for you? Before students go abroad to study, what do they need to know? What is important in predeparture orientation programs for study abroad participants? (See Appendix C for focus group questions.)

Although the foundation was laid, there were still several considerations before the focus group could convene. The ideal size for a focus group is a matter of debate, but most suggest that 8-10 is ideal, although as few as 6 individuals may be used (Berg, 1995; Lengua et al., 1992; Morgan, 1989; Pramualratana et al., 1985). To ensure a sufficiently large sample, I spoke to 35 members of the target population while they were attending a predeparture orientation meeting offered by the International Centre at the University of Alberta in early March. I provided orientation participants with information about the study, invited volunteers, and informed them that a meal would be provided at the focus group (see Appendix D for copies of handouts). Ten students completed volunteer sheets, seven of whom were able to participate at the agreed upon time in late March. One student completed the form only to indicate her unwillingness to participate; another was participating in an exchange within Canada, while yet another was unexpectedly called away on business at the time of the session.

Conducting the Session

Once the participants were assembled, several introductory and ethical measures were taken. I introduced myself, welcomed the students and tried to ensure everyone was fed and comfortable. The research assistant, who aided in directing the discussion and took notes on the proceedings, also introduced herself. To warm up the group and get everyone talking, the students were asked to tell the group briefly their first name, where they would be studying, and what motivated them to study abroad at this time. Last names were avoided to preserve anonymity. The study was then explained and the procedures of the focus group session were made clear, including the voluntary nature of their participation, the right of each person to opt out of the study at any time, the confidentiality and anonymity of participation, and the fact that the session would be tape recorded. To ensure informed consent, confidentiality, and anonymity, participants signed forms indicating their willingness to participate in the study and to maintain the confidentiality and anonymity of the focus group session (see Appendix E for focus group consent and confidentiality form). Participants were allowed an opportunity to ask questions or raise objections before the session began.

The session went according to plan. The assistant, being more experienced with focus groups, began the discussion with some general questions (see Appendix C for list of focus group questions) which were targeted to focus the students' thoughts on their preparations for studying abroad. The group was quick to laugh and seemed to relax within the first few minutes. I then asked questions related to the predeparture orientation program in which the students had all participated two weeks previous. Every effort was made to elevate the discussion from an evaluation of the previous session to a more general dialogue about why certain components were more beneficial than others. Periodic attempts were made to draw out two of the more laconic participants but without much success.

At a pause in the conversation, I interjected with the third and more abstract line of questioning regarding what knowledge, skills and attitudes students should have before they go abroad to study. As anticipated, the participants had much to say about concrete knowledge but had to be prompted before they spoke to the more ephemeral topic of skills and attitudes. As a wrap up, the fourth line of questioning asked the students to identify what they considered to be important components of predeparture orientation for study abroad.

At precisely the agreed upon stopping time, I closed the session by thanking the participants and inviting them to help themselves to left over food. Although they were free to go, the participants stood around and talked with one another for fifteen minutes after the conclusion of the session.

Data Analysis

I transcribed the audio tape shortly after the group interview using Microsoft Word 5.1. Then I checked the transcript against the tape three times for accuracy. Nonfunctional colloquialisms such as "like" and "you know" were eliminated where syntactically irrelevant.

The data were sorted inductively according to broad themes which emerged from the transcript. I read through the transcript several times, circling sections of text which seemed to be self-contained units of thought. Some units consisted of one word, such as "res" (residence), while others went on for several pages, such as the discussion of gypsies in Europe. Units of thought were then "cut" from the transcript using Microsoft Word 5.1 and "pasted" into data files so that related units of thought formed a general theme, with a different file for each theme. Some themes, such as family and friends (home), were easy to identify and define. Others, like information accessing (how students access information in preparing to study abroad), required more definition and more digging. Some sections of the transcript seemed to be related to several themes and were included as evidence in each of the possible theme files. After the initial coding, the transcript was re-examined for unsorted data and inconsistencies. Each theme was also double checked against the master transcript for accuracy of quotation and line numbers.

Analysis of each theme was concerned with the frequency of mention, particularly how often the theme was reintroduced into the discussion, and the emphasis placed on the theme in the form of word choice, number of speakers, and number of verbal agreements ("yeah," "exactly"). Themes were then ranked by category by the strength of support each theme received. For example, a statement such as, "... be prepared to be kind of lonely at first..." which was followed by a "yeah" and a "right" would be ranked higher than a phrase such as, "I think a really good thing is to get more into customs and stuff," which produced only silence.

Several difficulties arose during the transcription and coding of the data. The participants in the study shared the habit of peppering their speech with "you know," "like," and "I mean," when they did not appear to imply a literal interpretation of those colloquialisms. As far as possible, such incidental bywords were omitted from the transcript where they appeared to serve no explicit purpose. A second difficulty concerned confidentiality and anonymity. Students often made reference to the country, university or language with which they were involved or otherwise identified themselves through mention of personal data such as place of work. To omit such identifying data at times threatened to weaken their testimony, as in the case of the woman who mentioned the name of a holiday on which she would be attending classes overseas. Only one of the current exchange partners of the University of Alberta hold classes on this day, so the name of the holiday was omitted but with it was lost the emotive impact of her statement.

Further considerations arose in coding the data. Officially, the session had been audio taped, not video taped, but I retained a mental image of the session. Therefore, I am privy to information which is not available to the person who must rely on the written transcript or audio taped record. For example, the following comment appears to be ambiguous but to those who were present at the time it was made, the meaning is clear: "I thought it was interesting. I don't know if I thought it was really helpful. Okay, you look at the chart, okay...." The speaker was politely saying that he did not think the topic at hand was important; moreover, he was bored by the way in which it was presented. In the same way, one "yeah" may denote enthusiastic agreement, where another "yeah" may signify doubt. All this is evident to the moderators but remains hidden from those who were not present at the session.

A third consideration arose in data analysis on the matter of group versus individual data. Although a primary virtue of focus group interviews is the collaborative meaning-making which goes on within the group, it seems that an analysis of individual data would yield potentially useful findings. For example, some topics are mentioned primarily by one student. Should those data be discounted or weighed less heavily because they have the verbal support of only one student? Perhaps not; the others may disagree with the lone voice, or they may just as well be in agreement but feel no need to add to what the first student has already said. On the other hand, if the only two students to raise the issue of language are the two students who are going to countries where they do not speak the language, surely their suggestion that language training be included should not be discounted for lack of support.

Participants' comments fall into two broad categories: topic areas and sources of information. Themes included under topic areas were: friends and family (home), re-entry, money, living arrangements, appropriate attitudes, health, paperwork and work permits, safety, practical cultural tips (for example, how to operate pay telephones in the exchange country), language, student expectations (for example, whether they intend to confirm a career choice or just have a good time abroad), culture and religion, social life abroad, race/class/gender issues abroad, credit transfer, and cultural adjustment. Sources of information included the following themes: others' experiences, orientation programs, specialized information, other resources, fellow exchangers, previous travel, information accessing, and preparedness. An analysis and discussion of each theme follows in the next chapter.

Interviews

In addition to the focus group interview, information was solicited from providers of predeparture training for organizations not affiliated with the University of Alberta. Interviews were used because they are adaptable, permit in-depth probing of information, and tend to yield more complete data than other forms of survey research (Borg and Gall, 1989). The purpose of these interviews was to gather data about the research question, "How important are components of predeparture orientation for study abroad as perceived by practitioners associated with international/ intercultural education?"

Sample

Predeparture programs for people traveling abroad are often unstandardized, haphazard, and undocumented. For this reason, one of the most accurate and accessible sources of information on predeparture programs often are the people who develop and implement the programs. In fact, in this study, one organization declined my request to share its written materials or to be involved in the study to prevent replication of their programs.

Two highly qualified interviewees were selected to participate, based on the following requirements: (a) they offered predeparture orientation training for sojourners who were preparing to go overseas for a limited time (less than two years), (b) the majority of their trainees tended to be of similar age and stage of life to the majority of the University of Alberta's study abroad participants (generally between 18-30 years old and by and large not yet established in a career field), (c) their training programs reflected a significant commitment to predeparture preparation in terms of planning and implementation, and (d) their overseas programs had been established for at least five years. In this way, the interviewees were speaking from a frame of reference which was sufficiently similar to that of the University of Alberta's programs for comments to be relevant to the study.

The two program providers who were interviewed met the above criteria and were recommended by members of the international education community locally for offering excellent predeparture training. Both interviewees are directly involved in the planning and implementation of predeparture training programs for their respective organizations. Although one made available written materials about the training and one did not, both interviewees were asked exclusively about their professional experience with and perception of predeparture training in general rather than in reference to their specific organizations.

Format

A semistructured interview format was chosen because it involved predetermined questions which would target specific areas of interest but also allowed me to probe particularly useful topics as they arose (Berg, 1995). The semistructured interview schedule ensured that I solicit information about specific areas of interest, namely, what the trainers perceived to be: (a) the most important components of predeparture orientation, (b) important knowledge to have before going abroad, (c) important skills or abilities to have before going abroad, and (d) important attitudes to have before going abroad. These topics were related to those asked of other participants in the study. The unplanned probes allowed for digression and free exploration of unanticipated avenues of thought, such as the link between preparation for departure and preparation for return or re-entry. To this end, an interview schedule was developed which included essential questions as well as a list of probing questions to be used as needed (see Appendix F for interview schedule).

Structured questions were designed according to sojourner competencies, namely, knowledge, skills and attitudes sojourners should have before they go abroad (Brislin and Yoshida, 1994). In this way, the trainers were encouraged to speak not only about specific components of predeparture programs but also about desirable training outcomes in terms of competencies. This approach provided valuable data on broader goals of predeparture training as well as specific components as advocated by the trainers.

Conducting the Interviews

Three participants were identified in consultation with several local members of the international education community. In February, all three received a telephone invitation to participate but one was excluded because the available trainer was only peripherally involved in the planning and implementation of the predeparture program. The subsequent two interviews were conducted in early March. One interview took place in the first trainer's home and the other in the trainer's office. Each interview lasted from 30 to 45 minutes. Before each interview, I explained the nature and purpose of the study as well as the confidential and voluntary nature of the interviewee's participation (see Appendix G for interview consent form). Participants signed forms indicating their informed consent to participate in the study and to be audio tape recorded during the interview. Participants were promised that neither they nor their agency/institutional affiliation would not be identified in conjunction with any information they might provide during the interview. This procedures was used to circumvent obtaining permission from organizations.

The interviews proceeded as planned. Each interview started with general conversation. I had met each of the participants prior to their interviews, and the atmosphere at each interview was congenial. Both indicated at the outset that the presence of the tape recorder and the official nature of the interview made them somewhat uncomfortable. In addition, the interview held in the participant's home seemed especially strained due to the interviewee's and researcher's unfamiliarity with hostess-guest behavior norms. Yet while answering the questions, this first participant seemed to be caught up with the topic at hand and showed no signs of discomfort, with the exception of comments like "I'm a little unclear about what to focus on." Otherwise, she had no difficulty expressing herself.

Analysis

I transcribed the interview tapes shortly after the interviews; analysis proceeded similarly to that for the focus group. The transcripts were checked against the tapes three times. Nonfunctional colloquialisms such as "like" and "you know" were eliminated where syntactically irrelevant. Interview data were then analyzed using an open coding technique (Berg, 1995). I read through the transcripts several times and identified words and phrases from each transcript which seemed to form discrete units of thought. Related words and phrases were then "cut" from the transcript using Microsoft Word 5.1 and "pasted" into data files so that each file contained related ideas, thereby forming a general theme within each file. Some themes, such as re-entry, were easy to identify and define. Others, like institutional support, required more definition and more digging. Some sections of the transcript seemed to be related to several themes and were included as evidence in each of the relevant theme files. After the initial coding, the transcript was re-examined for unsorted data and inconsistencies. Each theme was also double checked against the master transcript for accuracy of quotation and line numbers. Concepts which were mentioned more frequently or with stronger language were so noted on the theme pages. For example, returning to the home culture was noted as a key concept in the first interview because the participant introduced the subject without prompting, spoke about it at length, and reintroduced the topic even after I tried to move on to a new subject.

Questionnaire

Thus far, this research study had considered the perceived importance of components of predeparture orientation by consulting academics and practitioners in international education, recent University of Alberta documents, and University of Alberta students who were planning to study abroad. At this stage in the research (in June and July 1995) data from past participants of the University of Alberta's Education Abroad Program were collected using a mailed survey questionnaire. A questionnaire was selected because of its usefulness for objectively gathering large amounts of quantifiable data. In the case of this study, the desired data involved past participants' perceptions of the importance of select components of predeparture preparation for study abroad.

Objectives

The first step in designing the questionnaire in early spring was to define the objectives specifically as related to the research question, "How important are components of predeparture orientation for study abroad as perceived by University of Alberta students who have already studied abroad?" The function of the questionnaire in this study was to validate data from the literature, interviews and focus group by soliciting respondents' perceptions of predeparture orientation components. For this reason, it was necessary to quantify how important the components were perceived to be. In addition, the survey was intended to capture components the respondents believed were important but which may not have been identified through the literature, the interviews, or the focus group.

Sample

The second step in designing the questionnaire survey was to select a sample. The accessible population identified for the survey consisted of the 145 students identified by the International Centre as having participated in the University of Alberta's student exchange program between 1990 and 1995. This particular time period was selected because it provided a large enough accessible population from which to draw sufficient amounts of data for statistical analysis and because it included the most recent returnees, who could arguably provide the most vivid and accurate information. Students who studied abroad more than five years prior to the study were not seen to be a reliable reporters of their experience as those students whose experience was more recent. The actual sample included 130 students from the above 145; one student was excluded from the study because he could not be located, one was excluded because he withdrew from the program before going abroad, and 13 were discounted because they were still completing their study abroad experience and as such were not considered past participants.

Constructing the Questionnaire

The third step was to construct the questionnaire, which was undertaken in June 1995. No survey instrument could be found in the literature which measured perceived importance of components for study abroad predeparture preparation, and so a new questionnaire had to be created. To facilitate coding and analysis, most questions were closed form and included rating, dichotomous, numeric, contingency, and ranking response choices. A few open ended questions were used at the beginning and end of the instrument to allow respondents a less structured avenue for expressing their views. The open ended questions at the beginning of the questionnaire were designed so that respondents could recall their personal experiences with study abroad preparation and thereby be prepared to respond accurately. I feared that without such stimulation, participants who studied abroad five years prior might have difficulty remembering their experience clearly. In addition, the open ended questions served to avert any frustration the students might have experienced as a result of having to translate their highly subjective experiences into quantifiable terms. Open-ended questions also made it possible to capture any data which were not otherwise taken into account in the questionnaire.

Every effort was made to construct items according to good rules of practice (Borg and Gall, 1989). Specifically, items were checked for clarity and technical words by two graduate students in similar programs, the supervising faculty member, and the coordinator of the University of Alberta's Education Abroad Program. Double barreled items were simplified and negative items were avoided. Items were shortened when lengthy and sharpened when vague.

The greatest difficulty was to express accurately and simply the complex concepts from the literature without leading the respondent. For example, some authors suggest that people preparing for a sojourn abroad should be aware of the predominant values of the host culture, including power distance, individualism, and task orientation (Hofstede, 1980; Weaver, 1994). It was assumed that many respondents would not be familiar with these concepts but would be familiar with their practical manifestation. For example, a student may wish she had known the Mexican hosts would be offended if she did not show a personal interest in them before discussing academic matters. Some authors (Hall, 1976b; Weaver, 1994) would say this culture-based behavior is an expression of low task orientation typical of Mexican culture. However, without knowing what task orientation involves, the respondent cannot reasonably be expected to express her sentiment by checking a box labeled "understanding task orientation in host country is very important before you go abroad." At the same time, if concepts like task orientation had been explained in the questionnaire, the extra attention paid to the concept could have led the respondents to think it was more important than items which received less extensive treatment. Items had to accurately capture the constructs in terms the respondents could understand.

Specificity was also a serious concern in wording the items. For example, one strong theme from the focus group data was the need to discuss the realities of leaving behind friends and family, issues around returning home to friends and family, and ways of coping with this set of challenges. It was difficult to select a short phrase which could be readily understood by everyone and yet fully capture the gist of the topic. The phrase "friends and family" is too vague to illicit a clear picture in students' minds. "Coping strategies for dealing with saying good-bye, being homesick, and returning home" is more accurate but too cumbersome to be useful. In the end, the more pointed phrase "communicating with friends and family while abroad" was used.

Outline

The introductory notes to the questionnaire again made clear the nature and purpose of the study and the confidentiality of responses. A prize was awarded to one of the respondents who returned the questionnaire within 18 days of being mailed to respondents. The prize draw information for early respondents was indicated in large, bold font, as was the desired date of return. Respondents were directed to answer the questions based on their experiences on their first University of Alberta study abroad program. It was suggested that respondents might review photographs or journals from their study abroad experience before completing the questionnaire.

The opening section of the instrument included questions about gender, country of study abroad, age at time of study, number of months of study abroad, registered Faculty at home university during study abroad, and undergraduate/graduate status during study abroad. This information was useful in determining patterns by demographic category. Open-ended questions provided students an opportunity to start thinking about their own study abroad preparation. Specifically, questions asked about things they did and did not do in preparing to study abroad, if they attended an orientation session before they studied abroad, and if they did, what was good and what was lacking in this session.

In the second section of the questionnaire respondents were asked to indicate, based on their experience, how important they perceived each of a list of components of predeparture orientation to be. The rating scale options were don't know (1), not important (2), somewhat important (3), and very important (4). Potential components were identified through data gathered from the literature, interviews and focus group. Components which recurred in the data were included, as were components which were strongly advocated by some data sources but not by others. The components were grouped according to four themes: practical arrangements, academic life abroad, self-awareness, and adjustment and readjustment with 10, 6, 6, and 6 items respectively. The rating system provided for clear results indicating the perceived importance of any given component. At the end of each thematic section, respondents were asked to fill in boxes labeled most important, 2nd most important, and 3rd most important to indicate the three components in that section they perceived as being most important. The ranking system served as a check for the rating sections and gathered data about which components under each theme were perceived to be the most important.

The third section of the instrument was a continuation of the second in that respondents rated the importance of potential components of predeparture preparation taken from the literature, interviews and focus group. The novelty of this section was that the components were presented as they applied to the host country and to the home country independently. For example, one item asks how important it is to know something about arts and literature in Canada while another asks how important it is to know about arts and literature in the host country. Items are grouped into national, institutional or regional concerns and cultural issues, which contained 20 and 15 items respectively. Each section was followed by boxes in which respondents could identify and rank the most important, second most important and third most important items in the section.

The fourth section of the instrument directed respondents to rate how important they perceived specific resources to be in preparing to study abroad. The same four point rating scale was used as in previous sections [don't know (1), not important (2), somewhat important (3), and very important (4)]. The list of 14 resources was developed from the literature, interviews and focus group, as well as from predeparture materials used by other program providers. The final items ask respondents to fill in boxes to rank the resources into the three they believed to be most helpful, second most helpful, and third most helpful as in other sections.

A section dealing with philosophical questions was placed near the end so that respondents would be sufficiently immersed in thoughts of study abroad to be able to respond to abstract questions. The section asked that respondents rank order a series of statements in order of importance (1 being the most important, 2 the second most important, and so on) for each of the 11 statements. Statements represent major philosophies of internationalization from the literature, from recent University of Alberta documents, and from the International Centre staff. Key philosophies or models of internationalization include Warner's (1993) market and liberal models, which may be compared with Toh's (1993) liberal-technocratic paradigm, and the social transformation paradigm (Toh, 1993) or model (Warner, 1993). For validation purposes, two statements were given representing each of Warner's three models and two were given representing the University of Alberta's documents. In addition, three statements were included which read, (study abroad should) "allow students to pursue their (1) professional (2) academic (3) personal goals." Students were asked to rank the most important item, second most important item, and so on, by writing the rank number in a box opposite each statement.

The questionnaire concluded with three open-ended questions designed to capture data which were not addressed in other questions and to allow respondents to wind down after the approximately 30 minutes they spent with the survey. The first question asked respondents to list orientation components which may not have been mentioned in the survey. The second question asked what the respondent believed to be the most important part of preparing to study abroad. Data from this question were useful in determining what students believe should definitively be included in preparing to study abroad. The final question encouraged respondents to write comments about the survey itself. In this way, subjects could conclude the questionnaire experience with a sense of having had an opportunity to speak their minds.

Pilot

After the questionnaire had been designed but not yet formatted, it was piloted with four participants from the accessible population in mid June. The pilot study was undertaken in order to improve data-collecting procedures, provide ideas and approaches not previously considered, and greatly reduce the number of treatment errors in the larger study (Borg and Gall, 1989). This kind of "dress rehearsal" for the study is particularly valuable in situations where the researcher is unfamiliar with the data collection technique (Berg, 1995, p.56), which was the case. Subjects for the pilot were selected from those past participants who could be readily contacted and lived in the local area. Pilot subjects were apprised of the nature and purpose of the study and of the confidential and voluntary nature of their participation. Each completed and wrote comments about the draft instrument independently either in the International Centre or in their home.

The pilot study brought to light a number of concerns about the design of the instrument. All four subjects indicated that the questionnaire looked too crowded. I had expected this response as the questionnaire had not yet been formatted. Each of the subjects had a different and incorrect interpretation of the instructions for section IV, the section dealing with national and regional issues. The items listed in section IV were called into question by one subject, who wrote, "some of these things are also a bit irrelevant in my opinion." One participant commented that the section dealing with philosophical matters, section V, was unrealistic and "weird." Based on the comments of the pilot subjects, I completely reworked the phrasing of those questionnaire items and instructions which had been called into question.

Layout

After the questionnaire had been piloted, the fifth step was to design the layout (Borg and Gall, 1989). The main concern was to affect the response rate positively by presenting the respondents, most of whom were in their early 20s, with an attractive, professional document which more closely resembled interesting junk mail than a stilted piece of research. Using a desktop publishing package, a publications professional transformed the draft, which consisted of four densely packed pages of microscopic font, into nine spacious and aesthetically pleasing pages of easily readable text. The slogan "speak your mind" was printed in a contrasting style in the upper left hand corner of each page in order to lighten the tone and create a unified look. Additional efforts at increasing response rate included holding a draw for early respondents to win a gift certificate, printing the instrument on colored paper, and including a self-addressed, stamped return envelope.

The questionnaire was designed to be easy to complete. Clear instructions in bold type were placed in wide margins so there could be no question about what was expected. Questions with rating scales were placed together for respondents' convenience. The initial section "eased respondents in" by asking simple and straightforward questions such as gender.

A cover letter was sent with the questionnaire for a number of reasons (see Appendix H). First, the letter introduced the study and the survey. As such, it was printed on official International Centre letterhead and signed by the coordinator of the education abroad program, who would be a familiar and credible figure to most respondents. Second, the letter explained the purpose and nature of the study and the confidential and voluntary nature of the respondents' participation. Third, the letter served as a tangible record for the respondents of their participation and provided them with contact information should they chose to contact me in the future. Fourth, the letter met ethical concerns of the study by providing the basis for informed consent. For those recipients of the questionnaire who chose to complete and return the questionnaire, the act of responding was taken as implied consent. The option not to respond constituted the respondents' ethical right to opt out.

Conducting the Survey

Questionnaires, cover letters and self addressed stamped return envelopes were mailed to the 130 viable participants in late June. Respondents were asked to return the survey within 18 calendar days of the date the questionnaires were mailed. Questionnaires were marked with a code number corresponding to a confidential list of subjects, making it possible to identify respondents for the gift certificate giveaway and nonrespondents for follow up phone calls. The codes and returned questionnaires were accessible to me alone and were secured in separate locations in order to protect confidentiality. Names and other personal data which could be used to identify individual participants did not appear on the returned questionnaires and will not appear in any reports associated with the study.

Response

Thirty-one responses arrived by July 14, the cut off date noted on the questionnaire. The winner of the prize was picked at random and received the gift certificate by mail the following week. On July 17 and 18, follow up phone calls were placed to the nonrespondents, 22 of whom promised to return the questionnaire; 14 eventually did. Repeated attempts were made to reach the remaining nonrespondents by phone. By August 29th, a total of 57 completed questionnaires were received.

A number of participants were excluded from the study as they never received the questionnaire. Twenty-two participants were confirmed to be out of the country or otherwise unreachable. Twenty-one questionnaires were returned unopened due to incorrect addresses. Only one of those participants was eventually reached at a new address, meaning 20 were unreachable. The 20 returned incorrect addresses plus 22 unreachable made a total of 42 participants who never received the questionnaire and so could not respond. Excluding these 42 from the 130 questionnaires sent to legitimate past participants, the response rate was 65% (57/88), which is the rate used in this study.

Analyses

The initial task in analysis was to design the coding procedure. I created a code book in which each closed question was assigned a variable number from V1 to V150 (see Appendix I for coding information). In the code book, I identified every possible response to the closed questions and assigned each response a numeric code. In dichotomous questions (Q. 1, 3, 6 and 9), the first response received a code of 1, the second a code of 2 (e.g., Female [1], Male [2]). Responses to fill-in questions (Q. 2, 4, and 5) were assigned a numeric value during the coding process (e.g., Sweden [8]). The scale questions (Q. 11-17) were coded on a four point system (don't know [1], not important/helpful [2], somewhat important/helpful [3], and very important/helpful [4]). Respondents who indicated more than one answer in the dichotomous or scale questions received a -9, which was counted as a missing value. For ranking questions at the end of each scale section, a numeric value was assigned to each possible letter response (e.g., a [1]). Each statement of philosophy (Q. 18) was considered to be a separate variable and was coded with the rank number which the respondent assigned to it.

Once the code book had been created, I designed a database spreadsheet in consultation with research advisors in the Department of Education at the University. The spreadsheet consisted of 156 columns, labeled "ID," "V1," "V2," and so forth, up to "V155." The identification number from each questionnaire was entered into the first column in order to identify the data in that row. Data were entered onto the spreadsheet by two assistants using the code book; I then verified the data item by item. The data were checked visually by column (i.e., by variable) to ensure that no incorrect values were recorded. Several mistakes were found and corrected. Data coding, recording and checking required approximately 30 hours.

Responses to open questions (Q. 7, 8, 9a, 9b, and 20) were recorded on paper by question and then grouped by topic. For example, topics for Q. 7 included learning the language, obtaining information about the host university, and [illegible] responses. Each response topic was assigned a number. Q. 8 had 13 response topics, Q. 9a had 14, Q. 9b had 16, and Q. 20 had 7. Each open question was assigned a variable number from V151 to V155 and data from those questions were recorded in the appropriately labeled columns. Responses to the question inviting comments on the survey itself, Q. 21, were grouped by theme and are presented in Appendix J; these result are not discussed in this report as they do not bear directly on the research topic.

Quantitative questionnaire data were analyzed by a research consultant in the Faculty of Education using SPSSX for Macintosh. In keeping with the research question, which asked how important selected components of predeparture orientation for study abroad were considered to be, descriptive statistics were used to analyze the quantitative data. The relatively small sample size precluded the use of more sophisticated statistical measures. In addition, there is little support in the literature for differentiation between responses for one demographic group and another. As a third consideration, the program which the study was designed to inform was not concerned with differentiating between groups of study abroad participants. Qualitative data from open-ended questions were analyzed using open coding. Findings are described in the following chapter.

Coding of Broad Themes

Once the data from each source had been analyzed, broad themes were drawn from across the data. A summary of findings was prepared by source and was used to identify general themes; findings were divided into these themes until all the findings were accounted for. The themes were then analyzed and are described in the following chapter.

Summary

In this chapter, the research methodology and data analyses techniques were explained. The research methodology involved gathering data from academics and practitioners through data collection and interviews; from the University of Alberta through document analysis; from students preparing to study abroad through a focus group; and from past participants of study abroad through a survey questionnaire. In all, one focus group and two individual interviews were conducted, and 130 questionnaires were mailed for an adjusted response rate of 65%. Focus group and interview data were analyzed using open coding techniques and a word processing computer application. Questionnaire data from open-ended questions were also analyzed using open coding, while quantifiable questionnaire data were analyzed using descriptive statistics in SPSSX for Macintosh. Findings are discussed in the following chapter.