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ABSTRACT

These appendices contain outlines for the TICCIT (Time-shared Interactive, Computer-controlled, Informatic Television) mathematics and writing courses; a corresponding item classification for both achievement tests; and essay topics for the English achievement test. Blanks of all data collection forms are included--they concern course evaluation, student observation in the classroom, student registration, and faculty attitude and activities. Results of the data collection are reported, specifically, reasons for section selection; student demographic profile; course completion rates; enrollment in subsequent terms; test results; and summaries of the student and faculty surveys. Comparisons were made between TICCIT and traditional lecture sections wherever possible. (CP)

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Evaluation of The TICCIT Computer-Assisted Instructional System in the Community College

Donald L. Alderman

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FINAL REPORT

VOLUME II
APPENDICES

September 1978

EDUCATIONAL TESTING SERVICE
PRINCETON, NEW JERSEY

EVALUATION OF THE TICCIT COMPUTER-ASSISTED INSTRUCTIONAL SYSTEM IN THE COMMUNITY COLLEGE

FINAL REPORT

VOLUME II

APPENDICES

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Educational Testing Service
Princeton, New Jersey 08541

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Appendix A

TICCIT MATHEMATICS COURSEWARE

(Unit, Lesson, and Segment Titles)

Unit 23 Arithmetic Review

Lesson 2 Natural Numbers
- Segment 5 Natural Numbers
- Segment 4 Factors, Products and Multiples
- Segment 3 Exponents
- Segment 2 Prime Factorization
- Segment 1 Least Common Multiple

Lesson 1 Integers
- Segment 7 Integers
- Segment 6 Absolute Value
- Segment 5 Addition and Subtraction of Positive Integers
- Segment 4 Addition and Subtraction of Integers
- Segment 3 Multiplication of Integers
- Segment 2 Divisibility of Integers
- Segment 1 Arithmetic Expressions

Unit 22 Rational Expressions

Lesson 2 Rational Numbers
- Segment 10 Rational Numbers
- Segment 9 Fundamental Principle of Fractions
- Segment 8 Greatest Common Divisor
- Segment 7 Simplest Form
- Segment 6 Addition
- Segment 5 Subtraction
- Segment 4 Multiplication
- Segment 3 Division
- Segment 2 Order of Operations
- Segment 1 Quotient Expressions

Lesson 1 Laws of Exponents
- Segment 11 Meaningful Integral Powers
- Segment 10 Zero Exponents
- Segment 9 Positive Integral Exponents
- Segment 8 Negative Integral Exponents
- Segment 7 Integral Exponents
- Segment 6 Products of Integral Powers
- Segment 5 Powers of Powers
- Segment 4 Products of Integral Powers with the Same Exponent
- Segment 3 Quotients of Integral Powers
- Segment 2 Laws of Integral Exponents
- Segment 1 Simplifying Arithmetic Expressions

Unit 21 Sets

Lesson 3 Set Representation
- Segment 6 Sets
- Segment 5 Constants and Variables
- Segment 4 $\in$, $\notin$, $\emptyset$
- Segment 3 Roster Notation
- Segment 2 Set-Builder Notation
- Segment 1 Set Representation

Lesson 2 Set Relations
- Segment 5 Equality of Sets
- Segment 4 Finite Sets
- Segment 3 Subsets
- Segment 2 Proper Subset
- Segment 1 Subsets of a Finite Set

Lesson 1 Set Operations
- Segment 4 Complement of a Set
- Segment 3 Intersection of Sets
- Segment 2 Union of Sets
- Segment 1 Set Operations

Unit 20 Linear Equations

Lesson 4 The Real Number System
- Segment 10 The Real Number Line
- Segment 9 Addition and Multiplication
- Segment 8 Identity Laws
- Segment 7 Inverse Laws
- Segment 6 Subtraction
- Segment 5 Division
- Segment 4 Commutative Laws
- Segment 3 Associative Laws
- Segment 2 Distributive Laws
- Segment 1 The Real Number System

Lesson 3 Linear Equations with One Variable
- Segment 4 Equations
- Segment 3 Solutions
- Segment 2 Elementary Operations
- Segment 1 Linear Equations

Lesson 2 Linear Equations with Two Variables
- Segment 4 Linear Equations with Two Variables
- Segment 3 Solutions to Linear Equations with Two Variables
- Segment 2 The Cartesian Plane
- Segment 1 Graph of Linear Equations with Two Variables

Lesson 1 Applications
- Segment 8 Equality Statements Type I
- Segment 7 Equality Statements Type II
- Segment 6 Age Type Statements
- Segment 5 Uniform Motion Statements
- Segment 4 Writing Equations from Tables
- Segment 3 Writing Equations
- Segment 2 Checking Answers
- Segment 1 Solving Word Problems

Unit 19 Linear Inequalities

Lesson 3 Absolute Value Equations
- Segment 3 Absolute Value
- Segment 2 Solving $(ax+b) = c$
- Segment 1 Solving $(ax+b) = (ax+d)$

Lesson 2 Linear Inequalities
- Segment 5 Order Relations
- Segment 4 Simple Inequalities
- Segment 3 Solving Inequalities
- Segment 2 Solving Inequalities
- Segment 1 Solving General Inequalities

Lesson 1 Absolute Value Inequalities
- Segment 5 Compound Inequalities
- Segment 4 Compound Inequalities
- Segment 3 Solving $(ax+b) < c$ or $(ax+b) \leq c$
- Segment 2 Solving $(ax+b) > c$ or $(ax+b) \geq c$
- Segment 1 Absolute Value Inequalities

Unit 18 Linear Systems

Lesson 2 Systems of Linear Equations
- Segment 4 Systems of Linear Equations
- Segment 3 Solving Systems of Equations
- Segment 2 Solving Systems of Equations
- Segment 1 Word Problems

Lesson 1 Systems of Linear Inequalities
- Segment 5 Graphs of $y<ax+b$ and $y \leq ax+b$
- Segment 4 Graphs of $y>ax+b$ and $y \geq ax+b$
- Segment 3 Graphs of Linear Inequalities
- Segment 2 Graphs of Linear Inequalities
- Segment 1 Systems of Linear Inequalities

Unit 17 Polynomial Expressions

Lesson 4 Laws of Exponents
- Segment 4 Integral Powers
- Segment 3 Laws of Exponents: Same Base
- Segment 2 Laws of Exponents: Same Exponents
- Segment 1 Expressions with Integral Powers

Lesson 3 Polynomials
- Segment 5 Monomials in One Variable
- Segment 4 Polynomials in One Variable
- Segment 3 Addition of Polynomials
- Segment 2 Subtraction of Polynomials
- Segment 1 Multiplication of Polynomials

Lesson 2 Polynomial Expressions
- Segment 5 Monomial Expressions
- Segment 4 Similar Monomials
- Segment 3 Polynomial Expressions
- Segment 2 Addition and Subtraction
- Segment 1 Products of Polynomials

Lesson 1 Factoring
- Segment 8 Common Factors
- Segment 7 Factoring Ax^2+Bx+C
- Segment 6 Factoring $Ax^2+Bxy+Cy^2$
- Segment 5 Factor Square Trinomials
- Segment 4 Factoring p^2-q^2
- Segment 3 Factoring p^3+q^3
- Segment 2 Factoring p^3-q^3
- Segment 1 Factoring

Unit 16 Algebraic Expressions

Lesson 4 Division Algorithms
- Segment 5 Long Division Step One
- Segment 4 Long Division Step Two
- Segment 3 Synthetic Division
- Segment 2 Remainder and Factor Theorems
- Segment 1 Division Algorithms

Lesson 3 Rational Expressions
- Segment 10 Rational Expressions
- Segment 9 Equivalent Rational Expressions
- Segment 8 Fundamental Principle of Fractions
- Segment 7 Reduction to Simplest Form
- Segment 6 Least Common Denominator
- Segment 5 Multiplication

Lesson 3 Rational Expressions (continues)
- Segment 4 Division
- Segment 3 Addition
- Segment 2 Subtraction
- Segment 1 Complex Fractions

Lesson 2 Rational Exponents
- Segment 5 Principal Square Roots
- Segment 4 Principal Roots
- Segment 3 Rational Exponents
- Segment 2 Laws of Exponents
- Segment 1 Using Rational Exponents

Lesson 1 Radical Expressions
- Segment 5 Radicals
- Segment 4 Laws of Radicals
- Segment 3 Conjugate Radicals
- Segment 2 Rationalizing Radicals
- Segment 1 Changing the Form of Radicals

Unit 15 Quadratic Equations and Inequalities

Lesson 5 Complex Number System
- Segment 6 Complex Numbers
- Segment 5 Conjugates and Absolute Value
- Segment 4 Addition and Subtraction
- Segment 3 Multiplication
- Segment 2 Division
- Segment 1 Complex Number System

Lesson 4 Quadratic Equations
- Segment 6 Square Roots
- Segment 5 Solving $(x+p)^2 = q$ or $(x+p)^2 = -q$
- Segment 4 Completing Squares
- Segment 3 The Quadratic Formula
- Segment 2 Solutions by Factoring
- Segment 1 Solving Quadratic Equations

Lesson 3 Quadratic-type Equations
- Segment 5 Equations with Rational Expressions
- Segment 4 Equations with Rational Exponents
- Segment 3 Equations with Radicals
- Segment 2 Composition-type Equations
- Segment 1 Quadratic-type Equations

Lesson 2 Systems of Quadratic Equations
- Segment 4 Solution Sets
- Segment 3 Solutions by Elimination
- Segment 2 Solutions by Substitution
- Segment 1 Solving Systems of Equations

Lesson 1 Quadratic Inequalities
- Segment 4 Graph of $y = ax^2 + bx + c$
- Segment 3 Solving $ax^2+bx+c > 0$ and $ax^2+bx+c \geq 0$
- Segment 2 Solving $ax^2+bx+c < 0$ and $ax^2+bx+c \leq 0$
- Segment 1 Solving Quadratic Inequalities

Unit 14 Common Logarithms

Lesson 2 Common Logarithms
- Segment 5 Common Logarithms
- Segment 4 Logarithms of a Product
- Segment 3 Logarithms of a Power
- Segment 2 Logarithm of a Quotient
- Segment 1 Laws of Logarithms

Lesson 1 Computations with Common Logarithms
- Segment 7 Scientific Notation
- Segment 6 Characteristic and Mantissa
- Segment 5 Non-negative Logarithms
- Segment 4 Negative Logarithms
- Segment 3 Common Logarithm Tables
- Segment 2 Antilogarithms
- Segment 1 Computations with Logarithms

Unit 13 Matrices

Lesson 4 Augmented Matrices
- Segment 3 Augmented Matrices
- Segment 2 Elementary Row Operations
- Segment 1 Augmented Matrix Method

Lesson 3 Cramer's Rule
- Segment 4 Determinants of Order 2
- Segment 3 Determinants of Order 3
- Segment 2 Systems of Linear Equations
- Segment 1 Cramer's Rule

Lesson 2 Matrices
- Segment 8 Matrices
- Segment 7 Matrices
- Segment 6 Sum of Matrices
- Segment 5 Differences of Matrices
- Segment 4 Scalar Multiplication
- Segment 3 Matrix Multiplication
- Segment 2 Matrix Multiplication
- Segment 1 Operations on Matrices

Lesson 1 Matrix Algebra
- Segment 5 Cofactors
- Segment 5 Transpose
- Segment 4 Adjoint
- Segment 3 Non-singular Matrices
- Segment 2 Inverse
- Segment 1 Applications

Unit 12 Symbolic Logic

Lesson 2 Truth Tables
- Segment 7 Propositions
- Segment 6 Connectives
- Segment 5 Symbolic Forms
- Segment 4 Conjunctions and Disjunctions
- Segment 3 Conditionals and Biconditionals
- Segment 2 Negations
- Segment 1 Truth Tables

Lesson 1 Valid Arguments
- Segment 6 Tautology
- Segment 5 Equivalent Propositions
- Segment 4 De Morgan's Laws
- Segment 3 Negation
- Segment 2 Variants of the Conditional
- Segment 1 Valid Arguments

Unit 11 Relations

Lesson 4 Finite Relations and Their Graphs
- Segment 3 Relations and Their Graphs
- Segment 2 Domain and Range of a Relation
- Segment 1 The Rule of Correspondence

Lesson 3 Graphs of Relations and Their Properties
- Segment 7 X- and Y-Intercepts of a Graph
- Segment 6 Domain and Range from the Graph
- Segment 5 Y-axis Symmetry
- Segment 4 X-axis Symmetry
- Segment 3 Symmetry about the Origin
- Segment 2 Correspondence from Graphs
- Segment 1 Graphs and Properties of Relations

Lesson 2 Special Properties of Relations
- Segment 3 Membership of Pairs
- Segment 2 Correspondence
- Segment 1 Points on Graphs

Lesson 1 Graphing Relations Given in Set Notation
- Segment 4 Symmetry
- Segment 3 Intercepts
- Segment 2 Plotting Points
- Segment 1 Graphing

Unit 10 Conic Sections

Lesson 6 Lines and Slopes of Lines
- Segment 7 Linear Equations
- Segment 6 Slope of Lines
- Segment 5 Point-slope
- Segment 4 Slope-intercept
- Segment 3 Equations from Two Points
- Segment 2 From General to Slope-intercept
- Segment 1 All About Lines

Lesson 5 Parallel, Perpendicular and Intersecting Lines
- Segment 6 Parallel Lines: Identification
- Segment 5 Parallel Lines: Equations
- Segment 4 Intersecting Lines: Identification
- Segment 3 Points of Intersection
- Segment 2 Perpendicular Lines: Identification
- Segment 1 Perpendicular Lines: Equations

Lesson 4 Circles
- Segment 5 Distance Between Points
- Segment 4 Radius, Center, Standard Form
- Segment 3 General Form of Circle to Standard Form
- Segment 2 General Form to Standard Form
- Segment 1 X- and Y-Intercepts

Lesson 3 Ellipses
- Segment 5 Equations for X- and Y-Ellipses with Center on (0,0)
- Segment 4 Equations for X- and Y-Ellipses with Center on (h,k)
- Segment 3 General Form of an Ellipse to Standard Form
- Segment 2 General Quadratic in x and in y to Standard Ellipse
- Segment 1 General to Graph

Lesson 2 Parabolas
- Segment 7 Parabolas with Vertex on (0,0)
- Segment 6 Parabolas with Vertex on (h,k)
- Segment 5 General Equation to Standard Equation
- Segment 4 X- and Y-Intercepts
- Segment 3 Focal Distance, Length of the Latus Rectum
- Segment 2 Coordinates of Focal Points and Endpoints of Latus Rectum
- Segment 1 Putting It Together

Lesson 1 Hyperbolas
- Segment 4 Hyperbolas with Center on (0,0)
- Segment 3 Hyperbolas with Center on (h,k)
- Segment 2 X- and Y-Intercepts
- Segment 1 Putting It Together

Unit 9 Functions

Lesson 4 Functions and Functional Notation
- Segment 7 Functions in Roster Form
- Segment 6 Functions in Graph Form
- Segment 5 Functions in Functional Notation
- Segment 4 Functions in Roster Form: Evaluation
- Segment 3 Graphs and Functions
- Segment 2 Functional Notation: Evaluation
- Segment 1 Concepts

Lesson 3 Functions and Their Graphs
- Segment 4 Even and Odd Functions
- Segment 3 Y-Intercepts of Function Graphs
- Segment 2 X-Intercepts and Zeros
- Segment 1 Finding Points on Function Graphs

Lesson 2 One-to-one Functions and Their Inverses
- Segment 7 One-to-one Functions in Roster Form
- Segment 6 Graphs of One-to-one Functions
- Segment 5 One-to-one Functions in Functional Notation
- Segment 4 Identifying Inverses in Roster Form
- Segment 3 Identifying Inverses in Graph Form
- Segment 2 Identifying Inverses in Functional Notation
- Segment 1 Constructing Inverse Functions in Functional Notation

Lesson 1 Sum, Product, and Compositon of Functions
- Segment 6 Function Algebra in Roster Form
- Segment 5 Addition and Subtraction of Functions
- Segment 4 Multiplication and Division of Functions
- Segment 3 Compositions in Roster Form
- Segment 2 Compositions in Functional Notation
- Segment 1 Review

Unit 8 Polynomial Functions

Lesson 5 First Degree Polynomial Functions
- Segment 4 First Degree Polynomial Functions - Concept
- Segment 3 Intercepts and Zeros
- Segment 2 Simple Graphing
- Segment 1 All About First Degree Polynomials

Lesson 4 Second Degree Polynomial Functions
- Segment 5 Concept
- Segment 4 Zeros - y-intercepts
- Segment 3 Leading Coefficient
- Segment 2 Extreme Point
- Segment 1 Graphs

Lesson 3 Third Degree Polynomial Functions
- Segment 8 Third Degree Polynomial Functions
- Segment 7 Effect of the Leading Coefficient
- Segment 6 The Zeros of a Third Degree Polynomial Function (Completely Factored)
- Segment 5 Zeros of Third Degree Polynomial Functions Partly Factored
- Segment 4 Finding the Other Zeros, Given One
- Segment 3 Finding All Zeros of Third Degree Polynomial Functions
- Segment 2 Crossing or Touching the x-Axis
- Segment 1 Third Degree Polynomial Functions

Lesson 2 Nth Degree Polynomial Functions
- Segment 4 Polynomial Functions and Their Degrees
- Segment 3 Zeros and Their Order
- Segment 2 Shape of the Graph
- Segment 1 Graphing Polynomial Functions

Lesson 1 Rational Functions
- Segment 6 Identification of Rational Functions
- Segment 5 Horizontal Asymptotes
- Segment 4 Reduction of Quotients
- Segment 3 Zeros of Rational Functions
- Segment 2 Vertical Asymptotes
- Segment 1 Graphs of Rational Functions

Unit 7 Exponential and Logarithmic Functions

Lesson 3 Exponential and Logarithmic Functions
- Segment 5 Exponential Functions
- Segment 4 Graphs of Exponential Functions
- Segment 3 Conversion of Bases
- Segment 2 Logarithmic Functions
- Segment 1 Exponential and Logarithmic Graphs

Lesson 2 Growth, Decay and Half-Life
- Segment 7 Finding x for $f(x) = N.10^{kx}$
- Segment 6 Elapsed Time for Grown/Decayed Quantities
- Segment 5 Finding k for $f(x) = N.10^{kx}$
- Segment 4 Finding k for Stated Growth/Decay Problems
- Segment 3 Half-Life of Substances
- Segment 2 Computation of Half-Life
- Segment 1 Using Half-Life Finding k

Lesson 1 Rise and Decline (More Growth and Decay)
- Segment 4 Given x, Find F(x)
- Segment 3 Given D/G Equation and Time x, Compute f(x)
- Segment 2 Solve for N, with x, and f(x) Given
- Segment 1 Solve for N, Given f(x)

Unit 2 Sequences and Progressions

Lesson 3 Arithmetic Progressions
- Segment 7 Percent
- Segment 6 Simple Interest
- Segment 5 Sequences
- Segment 4 Arithmetic Progressions
- Segment 3 Arithmetic Progressions (cont'd)
- Segment 2 Sum of the First n Terms
- Segment 1 Arithmetic Progression Formulas

Lesson 2 Geometric Progressions
- Segment 4 Geometric Progressions
- Segment 3 Sum of the First n Terms of a G.P.
- Segment 2 Sum of All Terms of a G.P.
- Segment 1 Geometric Progression Formulas

Lesson 1 Applications
- Segment 5 Arithmetic Means
- Segment 4 A.P. Applications
- Segment 3 Real Geometric Mean
- Segment 2 G.P. Applications
- Segment 1 A.P. and G.P. Applications

Unit 1 Probability

Lesson 4 Permutations
- Segment 6 Factorial Notation
- Segment 5 Permutations of Distinct Elements
- Segment 4 P(n,k)
- Segment 3 Permutations of Repeated Elements
- Segment 2 Circular Permutations
- Segment 1 Applications of Permutations

Lesson 3 Combinations
- Segment 3 Combinations
- Segment 2 Combinations (cont'd)
- Segment 1 Applications of Combinations

Lesson 2 Probability
- Segment 4 Sample Space
- Segment 3 Probability of an Event
- Segment 2 Intersection of Events
- Segment 1 Union of Events

Lesson 1 Binomial Expressions
- Segment 4 Third Powers of Binomials
- Segment 3 Fourth Powers of Binomials
- Segment 2 Binomial Theorem
- Segment 1 Binomial Expansions

Appendix B

TICCIT ENGLISH COURSEWARE

(Unit, Lesson and Segment Titles)

Unit 14 Pretest[1]

Unit 13 Basic Elements of the Sentence

- Lesson 4 Verbs
  - Segment 4 Verbs
  - Segment 3 Forms of BE
  - Segment 2 Linking Verbs and Action Verbs
  - Segment 1 Verb Phrases
- Lesson 3 Basic Sentence Elements
  - Segment 5 Nouns
  - Segment 4 Pronouns
  - Segment 3 Adjectives
  - Segment 2 Adverbs
  - Segment 1 Review of the Basic Elements
- Lesson 2 Phrases
  - Segment 4 Preposition
  - Segment 3 Prepositional Phrases
  - Segment 2 Object of the Preposition
  - Segment 1 Noun Phrases
- Lesson 1 Subjects and Predicates
  - Segment 3 Subjects
  - Segment 2 Predicates
  - Segment 1 Subjects and Predicates

Unit 12 Analyzing Sentences

- Lesson 4 Sentence Patterns
  - Segment 3 Memorizing Sentence Patterns
  - Segment 2 Identifying Sentence Patterns
  - Segment 1 From Pattern to Sentence
- Lesson 3 Action Verb Phrases
  - Segment 4 Direct Objects
  - Segment 3 Indirect Objects
  - Segment 2 Intransitive Verbs
  - Segment 1 Review of Action Verb Predicates

Lesson 2 Linking Verb Predicates
- Segment 5 Linking Verbs
- Segment 4 Predicate Nominative
- Segment 3 Predicate Adjective
- Segment 2 Predicate Adverb
- Segment 1 Review of Linking Verb Predicates

Lesson 1 Glossary of Terms
- Segment 1 Glossary of Terms

Unit 11 Structure of Writing

Lesson 6 Levels of Generality
- Segment 3 General to Specific in Levels of Generality
- Segment 2 Coordinate and Subordinate Relationships
- Segment 1 Levels of Generality Diagram

Lesson 5 Levels of Generality in Paragraphs
- Segment 2 The Topic Sentence
- Segment 1 Levels of Generality in Paragraphs

Lesson 4 Detail
- Segment 3 Detail--Appropriate or Inappropriate
- Segment 2 Unrelated Detail
- Segment 1 Insufficient Detail

Lesson 3 Coherence
- Segment 3 Coherence Through Repetition
- Segment 2 Coherence Through Transistion Markers
- Segment 1 Coherence

Lesson 2 Devices for Making Ideas Clear
- Segment 10 Example
- Segment 9 Analogy
- Segment 8 Process
- Segment 7 Making Valid Generalizations
- Segment 6 Comparison/Contrast
- Segment 5 Classification
- Segment 4 Definition
- Segment 3 Problem/Solution
- Segment 2 Cause/Effect
- Segment 1 Devices for Making Ideas Clear

Lesson 1 Writing Assignment #18

Unit 10 Writing Paragraphs

Lesson 26 Narrowing Your Purpose Statement
Segment 2 Purpose Statements
Segment 1 Ways to Narrow Your Purpose Statement

Lesson 25 Preparing to Write Your Paragraph
Segment 3 Identifying a Good Topic Sentence
Segment 2 Organizing Detail
Segment 1 Writing a Good Topic Sentence

Lesson 20 Using the Paragraph Grade-Aid
Segment 1 Using the Paragraph Grade-Aid

Lesson 16-11 Writing Paragraphs[2]

Unit 9 Organizing Essays

Lesson 3 Devices for Making Ideas Clear[3]
(See Unit 11, Lesson 2)

Lesson 2 Structure of Essays
Segment 8 Finding the Thesis Statement
Segment 7 What Makes a Good Thesis Statement
Segment 6 Attention Getters and Background Information
Segment 5 Structure of the Body
Segment 4 Paragraphing
Segment 3 Connecting Sentences
Segment 2 Conclusions
Segment 1 Structure of Essays

Lesson 1 Preparing to Write Your Essay
Segment 3 Writing a Good Thesis Statement
Segment 2 Basics of Outlining
Segment 1 Writing an Outline

Unit 8 Expanding the Sentence

Lesson 4 Glossary and the Sentence in Review
Segment 2 Sets and Subsets of a Sentence
Segment 1 Glossary of Grammatical Terms

Lesson 3 Verbal Phrases
Segment 4 Gerunds
Segment 3 Participles
Segment 2 Infinitives
Segment 1 Verbal Phrases

Lesson 2 Conjoining
- Segment 2 Conjoining
- Segment 1 Punctuation Marks as Conjoiners

Lesson 1 Subjoining
- Segment 6 Subordinate Clauses
- Segment 5 Noun Clauses
- Segment 4 Adverb Clauses
- Segment 3 Adjective Clauses
- Segment 2 Special Cases of Subordinate Clauses
- Segment 1 Subjoining

Unit 7 Multilevel Sentences

Lesson 3 Multilevel Sentences
- Segment 6 Free and Bound Detail
- Segment 5 Base Clause
- Segment 4 Positions of Free Detail
- Segment 3 Levels of Detail in the Sentence
- Segment 2 Subordinate/Coordinate
- Segment 1 Diagraming Multilevel Sentences

Lesson 2 Addition
- Segment 3 Ways to Add Detail
- Segment 2 Absolutes
- Segment 1 Adding Free Detail to Create a Multilevel Sentence

Lesson 1 Reduction
- Segment 1 Reduction

Unit 6 Spelling

Lesson 10 Plurals
- Segment 9 S Plurals
- Segment 8 ES Plurals
- Segment 7 'S Plurals
- Segment 6 Nouns Ending in Y
- Segment 5 Special Plurals
- Segment 4 Nouns Ending in F, FF, FE
- Segment 3 Nouns Ending in O
- Segment 2 Compound Nouns
- Segment 1 Plurals

Lesson 9 IE-EI Words
- Segment 1 IE-EI Spelling Words

Lesson 8 Prefixes and Suffixes
- Segment 5 Prefixes and Suffixes
- Segment 4 Adding Suffixes to Words Ending in Y
- Segment 3 Adding Suffixes to Words Ending in E
- Segment 2 Doubling Final Consonants
- Segment 1 Spelling Bee--Prefixes and Suffixes

Lesson 7 Word Endings
- Segment 7 TION/CIAN/SION Endings
- Segment 6 ARY/ERY Endings
- Segment 5 IZE/ISE/YZE Endings
- Segment 4 ANCE/ENCE Endings
- Segment 3 ANT/ENT Endings
- Segment 2 ABLE/IBLE Endings
- Segment 1 Spelling Bee--Confusing Endings

Lesson 6 Words Not Spelled as They Sound
- Segment 5 Spelling Words with Silent Letters
- Segment 4 Spelling Words with Commonly Dropped Letters
- Segment 3 Spelling Words with Commonly Added Letters
- Segment 2 Some Difficult Words to Spell
- Segment 1 Spelling Bee--Words Not Spelled as They Sound

Lesson 5 Commonly Confused Words
- Segment 15 Using Confused Words: Accent-Born
- Segment 14 Spelling Confused Words: Accent-Born
- Segment 13 Using Confused Words: Boy-Core
- Segment 12 Spelling Confused Words: Boy-Core
- Segment 11 Using Confused Words: Cot-Genus
- Segment 10 Spelling Confused Words: Cot-Genus
- Segment 9 Using Confused Words: Hair-Luxuriant
- Segment 8 Spelling Confused Words: Hair-Luxuriant
- Segment 7 Using Confused Words: Male-Presence
- Segment 6 Spelling Confused Words: Male-Presence
- Segment 5 Using Confused Words: Principal-Sole
- Segment 4 Spelling Confused Words: Principal-Sole
- Segment 3 Using Confused Words: Stationary-Your
- Segment 2 Spelling Confused Words: Stationary-Your
- Segment 1 Choosing and Spelling the Correct Word

Lesson 4 Spelling Bee--Round A
- Segment 1 Spelling Bee--Round A

Lesson 3 Spelling Bee--Round B
- Segment 1 Spelling Bee--Round B

Lesson 2 Spelling Bee--Round C
- Segment 1 Spelling Bee--Round C

Lesson 1 Spelling Bee--Round D
- Segment 1 Spelling Bee--Round D

Unit 5 Verbs and Pronouns

Lesson 7 Verb Phrases
- Segment 7 Main Verbs
- Segment 6 Memorizing the Modals
- Segment 5 Recognizing the Modals
- Segment 4 Recognizing the Forms of HAVE
- Segment 3 Memorizing the Forms of BE
- Segment 2 Using the Forms of BE
- Segment 1 The Verb Phrase

Lesson 6 Irregular Verbs
- Segment 8 Irregular Verbs--List A
- Segment 7 Irregular Verbs--List B
- Segment 6 Irregular Verbs--List C
- Segment 5 Irregular Verbs--List D
- Segment 4 Irregular Verbs--List E
- Segment 3 Irregular Verbs--List F
- Segment 2 Verbs--Regular or Irregular?
- Segment 1 Verb Forms--Test

Lesson 5 Verb Forms
- Segment 7 Five Basic Verb Forms
- Segment 6 Using Present and Past
- Segment 5 Building Verb Phrases
- Segment 4 Historical Present Tense
- Segment 3 Subjunctives
- Segment 2 Illogical Shifts in Tense
- Segment 1 Using Verbs Correctly

Lesson 4 Pronoun Agreement
- Segment 8 Pronouns
- Segment 7 Referents
- Segment 6 Agreement in Number
- Segment 5 Agreement with Indefinite Referent
- Segment 4 Agreement with Collective Noun
- Segment 3 Agreement with Compound Referent--AND
- Segment 2 Agreement with Compound Referent--OR/NOR
- Segment 1 Pronoun-Referent Agreement

Lesson 3 Pronoun Case
- Segment 4 Case
- Segment 3 Pronouns That Change Form to Show Case
- Segment 2 Formal vs Informal Usage
- Segment 1 Pronoun Case

Lesson 2 Unclear Pronoun Reference
- Segment 3 Identifying Unclear Pronoun Reference
- Segment 2 Correcting Unclear Pronoun Reference
- Segment 1 Unclear Pronoun Reference

Lesson 1 Subject-Verb Agreement
- Segment 12 Number and Person
- Segment 11 Agreement--Main Verbs
- Segment 10 Agreement--Auxilary Verbs
- Segment 9 Compound Subjects--AND
- Segment 8 Compound Subjects--OR/NOR
- Segment 7 Subjects Separated from the Verb
- Segment 6 Agreement--Linking Verbs
- Segment 5 Here-There Sentences
- Segment 4 Indefinite Pronoun as Subject
- Segment 3 Collective Noun as Subject
- Segment 2 Who, Which, That as Subjects
- Segment 1 Subject-Verb Agreement

Unit 4 Punctuation and Capitalization

Lesson 6 Sentence Fragments and Run-on, Fused and Spliced Sentences
- Segment 3 Sentence Fragments
- Segment 2 Spliced, Fused and Run-on Sentences
- Segment 1 Correcting Fragments and Spliced, Fused and Run-on Sentences

Lesson 5 Using Punctuation to Join Sentences
- Segment 4 Marks That Join Sentences
- Segment 3 Punctuating Transition Markers
- Segment 2 Punctuating Conjoiners
- Segment 1 Joining Sentences with Punctuation

Lesson 4 Capitalization
- Segment 3 Three Easy Capitalization Rules
- Segment 2 Capitalizing Proper Names
- Segment 1 Capitalization

Lesson 3 The Apostrophe--Possessives, Contractions and Plurals
- Segment 4 Using Apostrophes to Show Possession
- Segment 3 Using Apostrophes in Contractions
- Segment 2 Using Apostrophes to form Plurals
- Segment 1 Using Apostrophes

Lesson 2 Punctuation That Separates and Sets Off
- Segment 6 Punctuating Free and Bound Adjectives and Appositives
- Segment 5 Punctuating Dates, Addresses, Titles and Time
- Segment 4 Punctuating Publication Titles
- Segment 3 Punctuating Transition Markers
- Segment 2 Punctuating Direct Quotations
- Segment 1 Punctuation That Separates and Sets Off

Lesson 1 Punctuation and Capitalization[4]
- Segment 1 Punctuation and Capitalization

Unit 3 Sentence Faults

Lesson 8 Active and Passive Voice
Segment 2 Active and Passive Voice
Segment 1 Changing Passive to Active Voice

Lesson 7 Concise Sentences
Segment 4 Wordiness
Segment 3 Too Many And's
Segment 2 Reduction
Segment 1 Concise Sentences

Lesson 6 Dangling and Misplaced Modifiers
Segment 4 Dangling Modifiers
Segment 3 Misleading Misplaced Modifiers
Segment 2 Interrupting Misplaced Modifiers
Segment 1 Correcting Dangling and Misplaced Modifiers

Lesson 5 IS WHEN and IS WHERE Problems
Segment 2 IS WHEN or IS WHERE
Segment 1 Correcting IS WHEN/IS WHERE

Lesson 4 Parallel Structure
Segment 1 Parallel Structure

Lesson 3 Shifts in Construction
Segment 5 Shifts in Tense
Segment 4 Shifts in Voice
Segment 3 Shifts in Person
Segment 2 Shifts in Number
Segment 1 Shifts in Construction

Lesson 2 Sentence Punctuation Problems[3]
(See Unit 4, Lesson 6)

Segment 3 Sentence Fragments
Segment 2 Spliced, Fused and Run-on Sentences
Segment 1 Correcting Fragments and Spliced, Fused and Run-on Sentences

Lesson 1 Sentence Faults[4]
Segment 1 Identifying Sentence Faults

Unit 2 Effective Writing

Lesson 3 Appropriate Style of Writing
Segment 2 Styles of Writing
Segment 1 Appropriate Styles of Writing

Lesson 2 Accurate and Precise Words
Segment 5 Appropriate Word Usage
Segment 4 Commonly Confused Words
Segment 3 Adjective/Adverb Confusion
Segment 2 Precise Words
Segment 1 Accurate and Precise Words

Lesson 1 Effective Writing [4]
Segment 1 Effective Writing

Unit 1 Writing Essays

Lesson 10 Using the Essay Grade-Aid
Segment 1 Using the Essay Grade-Aid

Lesson 5-1 Writing Essays

[1] Lesson consists of a review of the unit

[2] This lesson is a duplicate of the lesson indicated

[3] These lessons are nonstandard. They have only one component--an objective that provides instruction for completing an off-line paragraph or essay writing assignment.

[4] TICCIT Pretest is a grammar pretest, covering Units 8, 6, 5, 4, 3, and 2. This is NOT a standard lesson or unit. The one standard component in the unit is a mini lesson--an introduction to TICCIT English.

Appendix C

ITEM CLASSIFICATION
FOR MATHEMATICS POSTTESTS

Categories:

Objectives

1 - objective common to both lecture and TICCIT coverage

2 - objective unique to curriculum in regular classes

3 - objective unique to TICCIT courseware

4 - objective beyond the scope of the instructional programs

Ability Level

0 - factual recall

1 - manipulation

2 - solution of routine problems

3 - demonstration of concept comprehension

Content Category

1 - arithmetic

2 - algebra

(a) simplifying, including properties of and computations with signed numbers and complex numbers

(b) equations, including substitutions, equivalent equations, solution of equations, and word problems

(c) exponents, radicals, and logarithms

(d) factoring, multiplying, and dividing algebraic expressions including quadratics

(e) number line and coordinate plane

(f) inequalities, absolute value, and sets including solution sets

(g) sequences, arithmetic and geometric progressions

(h) permutations and combinations, binomial theorem

Item Classification

Math 007 Post-test

(Form 614, K-XIK3)

Phoenix College

Item Number	Objective	Ability	Content	Item Number	Objective	Ability	Content
1	1	0	1	29	1	1	2d
2	1	1	1	30	2	2	2d
3	1	3	2e	31	1	2	2c
4	1	1	2a	32	1	1	2b
5	3	2	2f	33	1	3	2f
6	1	3	2a	34	1	2	2b
7	1	1	2a	35	1	3	2c
8	1	2	2b	36	1	3	2b
9	1	2	2c	37	3	3	1
10	1	2	1	38	1	0	1
11	1	1	2a	39(a)	1	1	1
12	1	2	2d	39(b)	1	1	1
13	1	3	2b	39(c)	1	1	1
14	1	1	1	40(a)	3	3	1
15	2	2	2d	40(b)	1	3	1
16	1	3	2b	41(a)	1	1	2b
17	1	2	2b	41(b)	1	1	2b
18	3	3	2f	41(c)	1	1	2b
19	1	2	2b	42(a)	1	1	1
20	1	3	2e	42(b)	1	1	2b
21	1	2	2b	42(c)	2	1	2b
22	1	2	2e	43(a)	1	2	2b
23	1	1	2d	43(b)	1	2	2b
24	1	1	2b	44(a)	1	2	2d
25	1	1	2a	44(b)	1	2	2d
26	1	2	2e	44(c)	1	2	2d
27	2	2	2a	44(d)	1	2	2d
28	1	3	2e	45	1	3	2b
				46	2	2	2d

Item Classification

Math 106 Posttest

(Form 615, K-XTK5)

Phoenix College

Item Number	Objective	Ability	Content	Item Number	Objective	Ability	Content
1	1	1	2a	28*	4	3	2c
2	1	2	2c	29	3	3	2f
3	1	2	2c	30	1	2	2b
4	1	3	2f	31	1	3	2f
5	3	2	2c	32	2	3	2b
6	1	3	2f	33*	1	2	2c
7	1	3	2b	34	1	3	2b
8	1	1	2b	35(a)	1	2	2c
9	2	3	2d	35(b)	1	1	2c
10*	1	2	2c	35(c)	1	2	2c
11	1	2	2a	36(a)	1	3	2c
12	1	2	2c	36(b)	1	3	2c
13	1	2	2b	37(a)	1	1	2a
14	1	2	2d	37(b)	1	1	2a
15	1	2	2a	38(a)	1	2	2c
16	1	2	2d	38(b)	1	2	2c
17	1	2	2b	38(c)	1	2	2c
18	3	3	2f	39	1	2	2d
19*	1	2	2c	40	1	1	2a
20	1	1	2b	41	1	3	2f
21	4	2	2b	42(a)	1	2	2b
22	1	2	2c	42(b)	1	2	2b
23	1	3	2c	43(a)*	1	2	2c
24	1	2	2b	43(b)*	1	3	2c
25	1	3	2c	44	1	3	2b
26	1	3	2a	45	1	3	2e
27	1	3	2d	46	1	2	2b
				47	1	3	2d

*Problems on logarithms which were deleted from test form K2-XTK5 618 (fall semester, 1975).

Item Classification

Math 108 Posttest

(Form 616, K-XTK4)

Phoenix College

Item Number	Objective	Ability	Content	Item Number	Objective	Ability	Content
1	1	2	1	31	1	3	2f
2	1	2	2b	32	1	2	2b
3	1	2	2c	33	1	3	2f
4	1	2	2c	34	1	2	2d
5	1	1	2b	35	1	2	2b
6*	1	2	2c	36**	1	2	2c
7	1	1	2a	37	1	2	2f
8	3	2	2f	38	1	2	2b
9	1	2	2c	39**	1	2	2c
10	1	2	2c	40	3	3	2f
11	1	2	2a	41	1	2	2c
12	1	3	2a	42(a)	1	0	2c
13	1	3	2f	42(b)	1	1	2c
14	1	1	2d	42(c)	1	2	2c
15	1	1	2a	43(a)	1	2	2d
16	1	3	2b	43(b)	1	2	2d
17	1	3	2b	44(a)	1	2	2c
18	3	2	2c	44(b)	1	2	2c
19	1	3	2b	44(c)	1	2	2a
20	4	2	2b	45	1	2	2c
21	1	3	2c	46(a)	1	2	2b
22	1	2	2a	46(b)	1	3	2b
23	1	2	2c	46(c)	1	3	2b
24	1	2	2d	47(a)	1	2	2c
25	1	3	2f	47(b)	1	2	2c
26	1	2	2d	47(c)	1	2	2c
27	1	2	2b	48	1	3	2d
28**	1	2	2c	49	1	3	2f
29	4	3	2c	50	1	3	2e
30	2	3	2b	51(a)**	1	2	2c
				51(b)**	1	3	2c

*Logarithm problem modified for test form K2-XTK4, 619 (fall semester, 1975)

**Problems involving logarithms which were deleted from test form K2-XTK4, 619 (fall semester, 1975)

Item Classification

Math 117 Posttest

(Form 626, K-XTK8)

Phoenix College

Item Number	Objective	Ability	Content	Item Number	Objective	Ability	Content
1	1*	1	2c	24	1	3	2b
2	1*	1	2b	25	1*	2	2b
3	1	3	2e	26	3	3	2h
4	1	2	2e	27	1	3	2e
5	1	2	2e	28	2	2	2g
6	1	1	2a	29	2	3	2g
7	1	3	2e	30	1	3	2b
8	1	3	2b	31	1	3	2b
9	3	2	2h	32	1	2	2b
10	4	2	2e	33	4	2	2c
11	1	3	2e	34	1	3	2h
12	1	3	2g	35	1*	2	2b
13	1	3	2e	36	1	2	2b
14	4	3	2c	37	1	3	2d
15	1	2	2d	38(a)	1	2	2e
16	1	3	2e	38(b)	1	2	2b
17	1	0	2b	39	1	3	2b
18	1	3	2e	40	1	3	2e
19	1	2	2b	41	1	3	2f
20	1	3	2g	42	1	3	2b
21	1	3	2b	43(a)	1	1	2a
22	1	2	2b	43(b)	1	1	2a
23	1	3	2d	44	3	2	2d

*Item reflects material taught in a prerequisite course.

Item Classification

Math 31 Posttest

(Form 609, K-XTK1)

Northern Virginia Community College

Item Number	Objective	Ability	Content	Item Number	Objective	Ability	Content
1	1	0	1	28	1*	3	2f
2	1	2	1	29	3	3	2f
3	1	1	1	30	1*	3	2b
4	1*	2	2e	31	3	3	2f
5	3	2	2c	32	1	0	1
6	3	2	2e	33(a)	1	1	1
7	1	2	2b	33(b)	1	1	1
8	1	3	2b	33(c)	1	1	1
9	1	2	2a	33(d)	1	1	1
10	1	3	2e	34(a)	1	1	2a
11	1	1	2b	34(b)	1	1	2a
12	1	1	2a	34(c)	1	1	2a
13	1	1	1	35(a)	1	2	2b
14	1	3	2b	35(b)	1	2	2b
15	3	2	2c	36(a)	1	1	1
16	1	3	2b	36(b)	1	2	2b
17	1	1	2a	36(c)	2	2	2b
18	1	2	2b	37	3	3	2e
19	3	3	1	38	1	2	2e
20	1	2	2c	39(a)	1	2	2c
21	1	1	1	39(b)	1	2	2c
22	1*	2	2b	39(c)	1	2	2c
23	3	3	2c	40(a)	1	2	2d
24	1	2	2b	40(b)	1	2	2d
25	1	3	2a	40(c)	1	2	2d
26	3	3	2f	41	1*	3	2b
27	1	1	2d	42	1*	3	2b

*Objective common to lecture and TICCIT classes but inappropriate for programmed instruction.

Item Classification

Math 32 Posttest

(Form 627, K-XTK9)

Northern Virginia Community College

Item Number	Objective	Ability	Content	Item Number	Objective	Ability	Content
1	4	2	2c	21	1	3	2f
2	1	2	2a	22	1	3	2d
3	1	2	2b	23	4	3	2b
4	1	2	2c	24	1	0	2c
5	1	2	2c	25	1	3	2f
6	1	1	2b	26	3	3	2f
7	1	2	2b	27(a)	1	1	2c
8	1	2	2c	27(b)	1	2	2c
9	1	2	2b	27(c)	1	2	2c
10	1	2	2b	28	1	2	2c
11	1	2	2c	29	4	3	2b
12	1	3	2e	30(a)	1	3	2b
13	3	3	2e	30(b)	1	3	2b
14	1	2	2e	30(c)	1	3	2c
15	1	1	2b	31	1	3	2b
16	1	3	2c	32	1	3	2d
17	3	2	2a	33	1	2	2c
18	1	2	2d	34	3	3	2a
19	1	2	2c	35(a)	1	3	2f
20	1	3	2b	35(b)	1	3	2e
				36	1	3	2e

Appendix D

ESSAY TOPICS FOR ENGLISH ACHIEVEMENT TESTS

ENGLISH PRETEST ESSAY

Name: _____

College: _____ Instructor: _____

English Course and Section: _____ Date: _____

TOPIC:

If we listen to its critics, television is to blame for half the things wrong with our lives--everything from our poor reading habits to the high crime rate. Very few people defend television, and yet it must serve some worthwhile purpose.

What values can you see in television--to an individual, to a family, to society? Discuss one or two of these values, telling what each value is and how it benefits people. Use specific examples to support your ideas.

BEGIN WRITING YOUR ESSAY HERE.

ENGLISH POSTTEST ESSAY

Name _____

College _____ Instructor _____

English Course and Section _____ Date _____

TOPIC

Throughout history, older people and younger people have rarely seen eye-to-eye. Each group tends to blame the other for ruining the world. The truth of the matter probably is that each age group does some things wrong and some things right.

What do you think people your own age are doing that is right? Choose the two or three things you admire most about people your own age. Describe the things you admire and tell why you admire them. Be as specific as possible.

BEGIN WRITING YOUR ESSAY HERE.

Item Classification

English Pretest

(Form 701)

Item Number	Point Tested	Overall Category
1	subject-verb agreement	Grammar & Usage
2	adjective/adverb confusion	Grammar & Usage
3	run-on	Structure & Logic
4	comma splice	Structure & Logic
5	pronoun reference	Grammar & Usage
6	idiom	Idiom & Diction
7	no error	
8	parallelism	Structure & Logic
9	verb form	Grammar & Usage
10	no error	
11	illogical conjunction	Structure & Logic
12	verb form	Grammar & Usage
13	no error	
14	diction	Idiom & Diction
15	verb tense	Grammar & Usage
16	comparative	Grammar & Usage
17	no error	
18	verb tense	Grammar & Usage
19	subject shift	Grammar & Usage
20	parallelism	Structure & Logic
21	modification	Structure & Logic
22	modification	Structure & Logic
23	diction	Idiom & Diction
24	pronoun reference	Grammar & Usage
25	fragment	Structure & Logic
26	subordination	Structure & Logic
27	modification	Structure & Logic
28	subordination	Structure & Logic
29	no error	
30	clarity	Structure & Logic
31	no error	
32	vague pronoun reference	Grammar & Usage
33	structure	Structure & Logic
34	logical connectives	Structure & Logic
35	logical connectives	Structure & Logic
36	logical connectives	Structure & Logic
37	logical connectives	Structure & Logic
38	logical connectives	Structure & Logic
39	logical order	Structure & Logic
40	logical order	Structure & Logic

Item Classification

English Posttest

(Form 7Q2)

Item Number	Point Tested	Overall Category
1	pronoun reference	Grammar & Usage
2	fragment	Structure & Logic
3	subordination	Structure & Logic
4	pronoun case	Grammar & Usage
5	no error	
6	double negative	Grammar & Usage
7	logical agreement	Grammar & Usage
8	no error	
9	fragment	Structure & Logic
10	adjective/adverb confusion	Grammar & Usage
11	verb form	Grammar & Usage
12	logical comparison	Structure & Logic
13	run-on	Structure & Logic
14	no error	
15	idiom	Idiom & Diction
16	comparative	Grammar & Usage
17	comma splice	Structure & Logic
18	pronoun shift	Grammar & Usage
19	no error	
20	verb tense	Grammar & Usage
21	diction	Idiom & Diction
22	verb form	Grammar & Usage
23	pronoun number	Grammar & Usage
24	verb tense	Grammar & Usage
25	run-on	Structure & Logic
26	pronoun reference	Grammar & Usage
27	logical comparison	Structure & Logic
28	diction	Idiom & Diction
29	no error	
30	clarity	Structure & Logic
31	modifcation	Structure & Logic
32	no error	
33	run-on	Structure & Logic
34	modification	Structure & Logic
35	no error	
36	coordination/ subordination	Structure & Logic
37	coordination/ subordination	Structure & Logic
38	coordination/ subordination	Structure & Logic
39	coordination/ subordination	Structure & Logic
40	coordination/ subordination	Structure & Logic

Appendix F

STUDENT SURVEYS

032

Phoenix College

Student Survey

NAME: _____ DATE: _____

COURSE: Math 007☐ Math 106☐ Math 108☐ SECTION: _____

Section I Item 1-16

Directions: For the following statements, circle the number that represents the response closest to your opinion.

SA (5) = Strongly Agree. You strongly agree with the statement or feel that it is true almost all of the time, as it applies to this course or instructor.

A (4) = Agree. You agree more than you disagree with the statement or feel that it is true most of the time, as it applies to this course or instructor.

NS (3) = Not Sure. You simply are not sure despite opinions on the statement.

D (2) = Disagree. You disagree more than you agree with the statement or feel that it is false most of the time as it applies to this course or instructor.

SD (1) = Strongly Disagree. You strongly disagree with the statement or feel that it is false in almost all cases as it applies to this course or instructor.

		SA	A	NS	D	SD
1.	In this course I felt free to ask questions.	5	4	3	2	1
2.	I received a lot of individual attention from the instructor in this course.	5	4	3	2	1
3.	The instructor seemed genuinely concerned with my progress	5	4	3	2	1
4.	Lectures and textbook readings made the course material clear for me	5	4	3	2	1
5.	I found the textbook useful in explaining the material and presenting methods for solving problems.	5	4	3	2	1
6.	The instructor provided clear explanations when the material was difficult to understand.	5	4	3	2	1
7.	Examples from the textbook and lectures helped me to understand how to solve problems.	5	4	3	2	1
8.	Homework assignments gave me practice in applying mathematical rules and concepts	5	4	3	2	1

		SA	A	NS	D	SD
9.	Class discussions and student questions assisted me in learning the material	5	4	3	2	1
10.	The instructor made helpful comments on my course work	5	4	3	2	1
11.	The instructor stressed major points in lessons.	5	4	3	2	1
12.	Instruction in this class met my own particular needs.	5	4	3	2	1
13.	In this course I felt challenged to do my best work.	5	4	3	2	1
14.	I was satisfied with my personal progress in this course	5	4	3	2	1
15.	My interest in math has been increased by this course.	5	4	3	2	1
16.	I would recommend this course to my friends.	5	4	3	2	1

Section II Items 17-21

Directions: For each question circle the response number closest to your opinion of this course or instructor.

17. Time passed quickly while I was in class.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

18. I tried to just finish the assignments rather than learn the material.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

19. For me, the pace at which the instructor covered the material during the term was:

5 Very Slow 4 Somewhat Slow 3 About Right 2 Somewhat Fast 1 Very Fast

20. For my preparation and ability, most of the work in this course was:

5 Very Difficult 4 Somewhat Difficult 3 About Right 2 Somewhat Easy 1 Very Easy

21. The work load for this course, in relation to other courses of equal credit, was:

5 Much Lighter 4 Lighter 3 About the Same 2 Heavier 1 Much Heavier

Section III Items 22-27

Directions: Please check the response which reflects your opinions for questions 22-27. Then circle the number that best represents your activities for this course (question 26 a-e) and complete the blanks for the last question.

22. When you finish the introductory course(s) do you plan to take any more advanced courses in math?

Yes☐ No☐

23. At the beginning of this term did you plan to take more than just the introductory course(s) in math?

Yes☐ No☐

24. Has your experience in this course:

☐ encouraged you to take further courses in math?
☐ discouraged you about taking further courses in math?
☐ had no effect on your plans for further courses in math?

25. Is a job related to math more appealing to you now than it was at the beginning of this course?

Yes☐ No☐

26. During this SEMESTER about how often did you:

	Quite Often	Occasionally	Almost Never
a) meet with the instructor for this course to discuss your classwork or anything else related to the course?	3	2	1
b) meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	3	2	1
c) discuss questions related to the course with fellow students?	3	2	1
d) seek the help of a tutor for this course?	3	2	1
e) use library resources in connection with your work in this course?	3	2	1

27. In this course approximately how many hours per week did you spend in the following activities?

	Number of hours
a) Attending classes.	_____
b) Working on homework assignments.	_____
c) Using audiotutorial instruction.	_____
d) Using TICCIT.	_____

Section IV Items 28-32

Directions: This section is not related to your course or instructor. Instead these items ask for your opinion about computer-assisted instruction (CAI). Please check the response which reflects your answer.

28. Do you think a computer would tailor instruction to your needs?

Yes☐ No☐ Not Sure☐

29. In your opinion, would computer-assisted instruction make you actively involved in your own learning?

Yes☐ No☐ Not Sure☐

30. Do you feel that computer-assisted instruction is too impersonal for your use?

Yes☐ No☐ Not Sure☐

31. Do you believe that the mechanics of using a computer terminal could distract you from learning?

Yes☐ No☐ Not Sure☐

32. In your opinion would computer-assisted instruction allow you to set a pace that is right for your ability level?

Yes☐ No☐ Not Sure☐

COMMENTS:

Phoenix College
Student Survey

033

NAME: _____ DATE: _____

COURSE: Math 007☐ Math 106☐ Math 108☐ SECTION: _____

Section I Items 1-20

Directions: For the following statements, circle the number that represents the response closest to your opinion.

SA (5) = Strongly Agree. You strongly agree with the statement or feel that it is true almost all of the time, as it applies to this course or TICCIT.

A (4) = Agree. You agree more than you disagree with the statement or feel that it is true most of the time, as it applies to this course or TICCIT.

NS (3) = Not Sure. You simply are not sure despite opinions on the statement.

D (2) = Disagree. You disagree more than you agree with the statement or feel that it is false most of the time as it applies to this course or TICCIT.

SD (1) = Strongly Disagree. You strongly disagree with the statement or feel that it is false in almost all cases as it applies to this course or TICCIT.

		SA	A	NS	D	SD
1.	In this course I felt free to ask questions	5	4	3	2	1
2.	Using TICCIT allowed me to set a pace that was right for my ability	5	4	3	2	1
3.	I received a lot of individual attention from instructors in this course.	5	4	3	2	1
4.	Through TICCIT I became actively involved in my own learning. . .	5	4	3	2	1
5.	Instruction on TICCIT met my own particular needs	5	4	3	2	1
6.	I didn't understand how "MAP" might guide my learning in this course	5	4	3	2	1
7.	TICCIT's "ADVICE" helped me to progress through this course . . .	5	4	3	2	1
8.	Doing practice problems ("TRACTICE") gave me a chance to apply rules and get ready for lesson tests.	5	4	3	2	1
9.	TICCIT "HELP" provided clear explanations when the material was difficult to understand	5	4	3	2	1
10.	The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn.	5	4	3	2	1
11.	Taking tests in this course let me know whether or not I really understood the material	5	4	3	2	1
12.	Examples ("EXAMPLE") really did not show me how to solve problems.	5	4	3	2	1
13.	I felt that the machine had more control over my instruction than I had	5	4	3	2	1
14.	The TICCIT tests placed emphasis on the major points in a lesson.	5	4	3	2	1
15.	In this course I felt challenged to do my best work	5	4	3	2	1
16.	I was satisfied with my personal progress in this course.	5	4	3	2	1
17.	The TICCIT system was too impersonal for my instruction	5	4	3	2	1
18.	My interest in math has been increased by this course	5	4	3	2	1
19.	I would recommend this TICCIT course to my friends	5	4	3	2	1
20.	I would take another course that uses TICCIT.	5	4	3	2	1

Section II Items 21-26

Directions: For each question circle the response number closest to your opinion of this course or TICCIT.

21. Time passed quickly while I was in class.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

22. The mechanics of using the terminal distracted me from learning.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

23. I tried to just finish the lessons rather than learn the material.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

24. I wanted a regular textbook for this course to use as a reference at home.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

25. For my preparation and ability, most of the work in this course was:

5 Very Difficult 4 Somewhat Difficult 3 About Right 2 Somewhat Easy 1 Very Easy

26. The work load for this course, in relation to other courses of equal credit, was:

5 Much Lighter 4 Lighter 3 About the Same 2 Heavier 1 Much Heavier

Section III Items 27-32

Directions: Please check the response which reflects your opinions for questions 26-31. Then circle the number that best represents your activities for this course (question 30 a-f) and complete the blanks for the last question.

27. When you finish the introductory course(s) do you plan to take any more advanced courses in math?

Yes ☐ No ☐

28. At the beginning of this term did you plan to take more than just the introductory course(s) in math?

Yes ☐ No ☐

29. Has your experience in this course:

☐ encouraged you to take further courses in math?
☐ discouraged you about taking further courses in math?
☐ had no effect on your plans for further courses in math?

30. Is a job related to math more appealing to you now than it was at the beginning of this course?

Yes ☐ No ☐

31. During this SEMESTER about how often did you:

	Quite Often	Occasionally	Almost Never
a) talk with an instructor or proctor about your classwork or anything else related to this course?	3	2	1
b) meet with an instructor for this course to discuss personal or academic matters NOT specifically related to the course?	3	2	1
c) discuss questions related to the course with fellow students?	3	2	1
d) seek the help of a tutor for this course?	3	2	1
e) use library resources or the learning skills center in connection with your work in this course?	3	2	1
f) want to use the TICCIT system when it wasn't available?	3	2	1

32. In this course approximately how many hours per week did you spend:

	No. of hou
a) using TICCIT?	____
b) in small group discussions about the course?	____
c) doing course work on your own away from TICCIT (e.g., at library, at home)?	____

COMMENTS:

040
[062] Alexandria

Phoenix College
Student Survey

NAME: _____ DATE: _____

COURSE: Math 007☐ Math 106☐ Math 108☐ Math 117☐ SECTION: _____

Section I Item 1-19

Directions: For the following statements, circle the number that represents the response closest to your opinion.

SA (5) = Strongly Agree. You strongly agree with the statement or feel that it is true almost all of the time, as it applies to this course or instructor.

A (4) = Agree. You agree more than you disagree with the statement or feel that it is true most of the time, as it applies to this course or instructor.

NS (3) = Not Sure. You simply are not sure despite opinions on the statement.

D (2) = Disagree. You disagree more than you agree with the statement or feel that it is false most of the time as it applies to this course or instructor.

SD (1) = Strongly Disagree. You strongly disagree with the statement or feel that it is false in almost all cases as it applies to this course or instructor.

		SA	A	NS	D	SD
1.	In this course I felt free to ask questions.	5	4	3	2	1
2.	I received a lot of individual attention from the instructor in this course.	5	4	3	2	1
3.	The instructor seemed genuinely concerned with my progress . . .	5	4	3	2	1
4.	The class lectures made mathematical concepts easy to learn.	5	4	3	2	1
5.	I found the textbook useful in explaining the material and presenting methods for solving problems.	5	4	3	2	1
6.	The instructor provided clear explanations when the material was difficult to understand.	5	4	3	2	1
7.	Taking tests and quizzes let me know whether or not I really understood the material.	5	4	3	2	1
8.	Examples from the textbook and lectures really did not show me how to solve problems.	5	4	3	2	1
9.	In this course I felt responsible for my own learning.	5	4	3	2	1
10.	Homework assignments helped me in learning mathematical rules and concepts	5	4	3	2	1
11.	Class discussions and student questions assisted me in learning the material	5	4	3	2	1
12.	The instructor's comments on my work helped me to progress through this course.	5	4	3	2	1
13.	Other students in t' s section seemed to like the course	5	4	3	2	1
14.	Instruction in this class met my own particular needs.	5	4	3	2	1
15.	In this course I felt challenged to do my best work.	5	4	3	2	1
16.	I was satisfied with my personal progress in this course	5	4	3	2	1
17.	The method of instruction in this course was too impersonal for me	5	4	3	2	1
18.	My interest in math has been increased by this course.	5	4	3	2	1
19.	I would recommend this course to my friends.	5	4	3	2	1

Section II Items 20-25

Directions: For each question circle the respons- number closest to your opinion of this course or instructor.

20. Time passed quickly while I was in class.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

21. I tried to just finish the assignments rather than learn the material.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

22. I wanted information that would tell me where I stood in comparison to other students.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

23. For me, the pace at which the instructor covered the material during the term was:

5 Very Slow 4 Somewhat Slow 3 About Right 2 Somewhat Fast 1 Very Fast

24. For my preparation and ability, most of the work in this course was:

5 Very Difficult 4 Somewhat Difficult 3 About Right 2 Somewhat Easy 1 Very Easy

25. The work load for this course, in relation to other courses of equal credit, was:

5 Much Lighter 4 Lighter 3 About the Same 2 Heavier 1 Much Heavier

Section III Items 26-31

Directions: Please check the response which reflects your opinions for questions 26-31. Then circle the number that best represents your activities for this course (question 30 a-e) and complete the blanks for the last question.

26. When you finish the introductory course(s) do you plan to take any more advanced courses in math?

Yes☐ No☐

27. At the beginning of this term did you plan to take more than just the introductory course(s) in math?

Yes☐ No☐

28. Has your experience in this course:

☐ encouraged you to take further courses in math?
☐ discouraged you about taking further courses in math?
☐ had no effect on your plans for further courses in math?

29. Is a job related to math more appealing to you now than it was at the beginning of this course?

Yes☐ No☐

30. During this SEMESTER about how often did you:

	Quite Often	Occasionally	Almost Never
a) meet with the instructor for this course, outside of class, to discuss your classwork or anything else related to the course?	3	2	1
b) meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	3	2	1
c) discuss questions related to the course with fellow students?	3	2	1
d) seek the help of a tutor for this course?	3	2	1
e) use library resources in connection with your work in this course? . .	3	2	1

31. Approximately how many hours per week did you spend:

	Number of hours
a) attending classes for this course?	_____
b) in small group discussions about this course (outside of class periods)?	_____
c) working on homework assignments for this course?	_____
d) in total for this course? (Include all course-related activities such as the ones listed above as well as any others.)	_____

COMMENTS:

Phoenix College [063] Alexandria

Student Survey
TICCIT Courses

NAME: _____ DATE: _____

COURSE: Math 007☐ Math 106☐ Math 108☐ SECTION: _____

Section I Items 1-21

Directions: For the following statements, circle the number that represents the response closest to your opinion.

SA (5) = Strongly Agree. You strongly agree with the statement or feel that it is true almost all of the time, as it applies to this course or TICCIT.

A (4) = Agree. You agree more than you disagree with the statement or feel that it is true most of the time, as it applies to this course or TICCIT.

NS (3) = Not Sure. You simply are not sure despite opinions on the statement.

D (2) = Disagree. You disagree more than you agree with the statement or feel that it is false most of the time as it applies to this course or TICCIT.

SD (1) = Strongly Disagree. You strongly disagree with the statement or feel that it is false in almost all cases as it applies to this course or TICCIT.

		SA	A	NS	D	SD
1.	In this course I felt free to ask questions.	5	4	3	2	1
2.	Using TICCIT allowed me to set a pace that was right for my ability.	5	4	3	2	1
3.	I received a lot of individual attention from instructors in this course.	5	4	3	2	1
4.	The instructors seemed genuinely concerned with my progress. . .	5	4	3	2	1
5.	Through TICCIT I became actively involved in my own learning . .	5	4	3	2	1
6.	Instruction in this class met my own particular needs.	5	4	3	2	1
7.	I didn't understand how to use "MAP" to guide my learning in this course.	5	4	3	2	1
8.	TICCIT's comments on my work ("ADVICE") helped me to progress through this course.	5	4	3	2	1
9.	Doing practice problems ("PRACTICE") helped me in learning mathematical rules and concepts.	5	4	3	2	1
10.	TICCIT "HELP" provided clear explanations when the material was difficult to understand.	5	4	3	2	1
11.	The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn	5	4	3	2	1

		SA	A	NS	D	SD
12.	Taking tests in this course let me know whether or not I really understood the material	5	4	3	2	1
13.	Examples ("EXAMPLE") really did not show me how to solve problems	5	4	3	2	1
14.	In this course I felt responsible for my own learning.	5	4	3	2	1
15.	Breakdowns of the computer system disrupted my learning.	5	4	3	2	1
16.	In this course I felt challenged to do my best work.	5	4	3	2	1
17.	I was satisfied with my personal progress in this course	5	4	3	2	1
18.	The method of instruction for this course was too impersonal for me	5	4	3	2	1
19.	My interest in math has been increased by this course.	5	4	3	2	1
20.	I would recommend this TICCIT course to my friends	5	4	3	2	1
21.	I would take another course that uses TICCIT	5	4	3	2	1

Section II Items 22-29

Directions: For each question circle the response number closest to your opinion of this course or TICCIT.

22. Time passed quickly while I was in class.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

23. The mechanics of using the terminal distracted me from learning.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

24. I tried to just finish the lessons rather than learn the material.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

25. I wanted a regular textbook for this course to use as a reference at home.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

26. I wanted information that would tell me where I stood in comparison to other students.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

27. For me, the pace at which I had to cover the material in order to finish the course was:

5 Very Slow 4 Somewhat Slow 3 About Right 2 Somewhat Fast 1 Very Fast

28. For my preparation and ability, most of the work in this course was:

5 Very Difficult 4 Somewhat Difficult 3 About Right 2 Somewhat Easy 1 Very Easy

29. The work load for this course, in relation to other courses of equal credit, was:

5 Much Lighter 4 Lighter 3 About the Same 2 Heavier 1 Much Heavier

Section III Items 30-35

Directions: Please check the response which reflects your opinions for questions 30-35. Then circle the number that best represents your activities for this course (question 34 a-f) and complete the blanks for the last question.

30. When you finish the introductory course(s) do you plan to take any more advanced courses in math?

Yes ☐ No ☐

31. At the beginning of this term did you plan to take more than just the introductory course(s) in math?

Yes ☐ No ☐

32. Has your experience in this course:

☐ encouraged you to take further courses in math?
☐ discouraged you about taking further courses in math?
☐ had no effect on your plans for further courses in math?

33. Is a job related to math more appealing to you now than it was at the beginning of this course?

Yes ☐ No ☐

34. During this SEMESTER about how often did you:

	Quite Often	Occasionally	Almost Never
a) meet with an instructor or proctor outside of class, to discuss your classwork or anything else related to this course?.	3	2	1
b) meet with an instructor for this course to discuss personal or academic matters NOT specifically related to the course?. . .	3	2	1
c) discuss questions related to the course with fellow students . .	3	2	1
d) seek the help of a tutor for this course?.	3	2	1
e) use library resources or the learning skills center in connection with your work in this course?.	3	2	1
f) want to use the TICCIT system when it wasn't available?.	3	2	1

35. Approximately how many hours per week did you spend:

	No. of hours
a) working on the TICCIT system for this course?	____
b) in small group discussions about this course?	____
c) doing work for this course on your own away from TICCIT (e.g., at library, at home)?	____
d) in total for this course? (Include all course-related activities such as the ones listed above as well as any others.)	____

COMMENTS (feel free to use reverse side for additional comments):

Northern Virginia Community College

Student Survey

Programmed Instruction Classes

NAME: _____ DATE: _____

COURSE: Math 31☐ Math 32☐ Math 181☐ SECTION: _____

Section I Items 1-21

Directions: For the following statements, circle the number that represents the response closest to your opinion.

SA (5) = Strongly Agree. You strongly agree with the statement or feel that it is true almost all of the time, as it applies to this course or TICCIT.

A (4) = Agree. You agree more than you disagree with the statement or feel that it is true most of the time, as it applies to this course or TICCIT.

NS (3) = Not Sure. You simply are not sure despite opinions on the statement.

D (2) = Disagree. You disagree more than you agree with the statement or feel that it is false most of the time as it applies to this course or TICCIT.

SD (1) = Strongly Disagree. You strongly disagree with the statement or feel that it is false in almost all cases as it applies to this course or TICCIT.

	SA	A	NS	D	SD
1. In this course I felt free to ask questions.	5	4	3	2	1
2. Using programmed instruction allowed me to set a pace that was right for my ability	5	4	3	2	1
3. I received a lot of individual attention from instructor in this course.	5	4	3	2	1
4. The instructor seemed genuinely concerned with my progress	5	4	3	2	1
5. Through programmed instruction I became actively involved in my own learning	5	4	3	2	1
6. Instruction in this class met my own particular needs.	5	4	3	2	1
7. The instructor's comments on my work helped me to progress through this course.	5	4	3	2	1
8. Answering practice problems in the book helped me in learning mathematical rules and concepts.	5	4	3	2	1
9. The instructor provided clear explanations when the material was difficult to understand.	5	4	3	2	1
10. Disregarding actual problems, the book's explanations and questions about general principles made mathematical concepts easy to learn.	5	4	3	2	1

	SA	A	NS	D	SD
11. I found the programmed textbook useful in explaining the material and presenting methods for solving problems.	5	4	3	2	1
12. Taking tests and quizzes in this course let me know whether or not I really understood the material	5	4	3	2	1
13. Examples from the programmed textbook really did not show me how to solve problems	5	4	3	2	1
14. In this course I felt responsible for my own learning	5	4	3	2	1
15. In this course I felt challenged to do my best work	5	4	3	2	1
16. Other students in this section seemed to like the course.	5	4	3	2	1
17. I was satisfied with my personal progress in this course.	5	4	3	2	1
18. The method of instruction for this course was too impersonal for me.	5	4	3	2	1
19. My interest in math has been increased by this course	5	4	3	2	1
20. I would recommend this programmed instruction course to my friends	5	4	3	2	1
21. I would take another course that uses programmed instruction.	5	4	3	2	1

Section II Items 22-29

Directions: For each question circle the response number closest to your opinion of this course or TICCIT.

22. Time passed quickly while I was in class.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

23. The mechanics of using programmed instruction distracted me from learning.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

24. I tried to just finish the lessons rather than learn the material.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

25. I wanted a regular textbook for this course to use as a reference at home.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

26. I wanted information that would tell me where I stood in comparison to other students.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

27. For me, the pace at which I had to cover the material in order to finish the course was:

5 Very Slow 4 Somewhat Slow 3 About Right 2 Somewhat Fast 1 Very Fast

28. For my preparation and ability, most of the work in this course was:

5 Very Difficult 4 Somewhat Difficult 3 About Right 2 Somewhat Easy 1 Very Easy

29. The work load for this course, in relation to other courses of equal credit, was:

5 Much Lighter 4 Lighter 3 About the Same 2 Heavier 1 Much Heavier

Section III Items 30-35

Directions: Please check the response which reflects your opinions for questions 30-35. Then circle the number that best represents your activities for this course (question 34 a-f) and complete the blanks for the last question.

30. When you finish the introductory course(s) do you plan to take any more advanced courses in math?

☐ Yes ☐ No

31. At the beginning of this term did you plan to take more than just the introductory course(s) in math?

☐ Yes ☐ No

32. Has your experience in this course:

☐ encouraged you to take further courses in math?
☐ discouraged you about taking further courses in math?
☐ had no effect on your plans for further courses in math?

33. Is a job related to math more appealing to you now than it was at the beginning of this course?

☐ Yes ☐ No

34. During this SEMESTER about how often did you:

	Quite Often	Occasionally	Almost Never
a) meet with the instructor for this course, outside of class, to discuss your classwork or anything else related to this course?	3	2	1
b) meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	3	2	1
c) discuss questions related to the course with fellow students?	3	2	1
d) seek the help of a tutor for this course?	3	2	1
e) use library resources or the learning laboratory in connection your work in this course?	3	2	1

35. Approximately how many hours per week did you spend:

	No. of hours
a) attending classes for this course?	____
b) in small group discussions about this course?	____
c) working on homework assignments or studying on your own, outside of class, for this course?	____
d) in total for this course? (Include all course-related activities such as the ones listed above as well as any others.)	____

COMMENTS (feel free to use reverse side for additional comments):

Phoenix College

Student Survey
TICCIT Courses

[070] Alexandria

NAME: _____ DATE: _____

COURSE: Math 007 ☐ Math 106 ☐ SECTION: _____

Math 108 ☐ Math 117 ☐

Section 1 Items 1-22

Directions: For the following statements, circle the number that represents the response closest to your opinion.

SA (5) = Strongly Agree. You strongly agree with the statement or feel that it is true almost all of the time, as it applies to this course or TICCIT.

A (4) = Agree. You agree more than you disagree with the statement or feel that it is true most of the time, as it applies to this course or TICCIT.

NS (3) = Not Sure. You simply are not sure despite opinions on the statement.

D (2) = Disagree. You disagree more than you agree with the statement or feel that it is false most of the time as it applies to this course or TICCIT.

SD (1) = Strongly Disagree. You strongly disagree with the statement or feel that it is false in almost all cases as it applies to this course or TICCIT.

		SA	A	NS	D	SD
1.	In this course I felt free to ask questions.	5	4	3	2	1
2.	Using TICCIT allowed me to set a pace that was right for my ability.	5	4	3	2	1
3.	I received a lot of individual attention from instructors in this course.	5	4	3	2	1
4.	The instructors seemed genuinely concerned with my progress. . .	5	4	3	2	1
5.	Through TICCIT I became actively involved in my own learning . .	5	4	3	2	1
6.	Instruction in this class met my own particular needs.	5	4	3	2	1
7.	I didn't understand how to use "MAP" to guide my learning in this course.	5	4	3	2	1
8.	TICCIT's comments on my work ("ADVICE") helped me to progress through this course.	5	4	3	2	1
9.	Doing practice problems ("PRACTICE") helped me in learning mathematical rules and concepts.	5	4	3	2	1
10.	TICCIT "HELP" provided clear explanations when the material was difficult to understand.	5	4	3	2	1
11.	The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn	5	4	3	2	1

		SA	A	NS	D	SD
12.	Taking tests in this course let me know whether or not I really understood the material	5	4	3	2	1
13.	Examples ("EXAMPLE") really did not show me how to solve problems	5	4	3	2	1
14.	In this course I felt responsible for my own learning.	5	4	3	2	1
15.	Other students in this section seemed to like the course	5	4	3	2	1
16.	Breakdowns of the computer system disrupted my learning.	5	4	3	2	1
17.	In this course I felt challenged to do my best work.	5	4	3	2	1
18.	I was satisfied with my personal progress in this course	5	4	3	2	1
19.	The method of instruction for this course was too impersonal for me	5	4	3	2	1
20.	My interest in math has been increased by this course.	5	4	3	2	1
21.	I would recommend this TICCIT course to my friends	5	4	3	2	1
22.	I would take another course that uses TICCIT	5	4	3	2	1

Section II Items 23-30

Directions: For each question circle the response number closest to your opinion of this course or TICCIT.

23. Time passed quickly while I was in class.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

24. The mechanics of using the terminal distracted me from learning.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

25. I tried to just finish the lessons rather than learn the material.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

26. I wanted a regular textbook for this course to use as a reference at home.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

27. I wanted information that would tell me where I stood in comparison to other students.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

28. For me, the pace at which I had to cover the material in order to finish the course was:

5 Very Slow 4 Somewhat Slow 3 About Right 2 Somewhat Fast 1 Very Fast

29. For my preparation and ability, most of the work in this course was:

5 Very Difficult 4 Somewhat Difficult 3 About Right 2 Somewhat Easy 1 Very Easy

30. The work load for this course, in relation to other courses of equal credit, was:

5 Much Lighter | 4 Lighter | 3 About the Same | 2 Heavier | 1 Much Heavier

Section III Items 31-36

Directions: Please check the response which reflects your opinions for questions 31-36. Then circle the number that best represents your activities for this course (question 35 a-f) and complete the blanks for the last question.

31. When you finish the introductory course(s) do you plan to take any more advanced courses in math?

Yes ☐ No ☐

32. At the beginning of this term did you plan to take more than just the introductory course(s) in math?

Yes ☐ No ☐

33. Has your experience in this course:

☐ encouraged you to take further courses in math?
☐ discouraged you about taking further courses in math?
☐ had no effect on your plans for further courses in math?

34. Is a job related to math more appealing to you now than it was at the beginning of this course?

Yes ☐ No ☐

35. During this SEMESTER about how often did you:

	Quite Often	Occasionally	Almost Never
a) meet with an instructor or proctor outside of class, to discuss your classwork or anything else related to this course?	3	2	1
b) meet with an instructor for this course to discuss personal or academic matters NOT specifically related to the course?	3	2	1
c) discuss questions related to the course with fellow students	3	2	1
d) seek the help of a tutor for this course?	3	2	1
e) use library resources or the learning skills center in connection with your work in this course?	3	2	1
f) want to use the TICCIT system when it wasn't available?	3	2	1

36. Approximately how many hours per week did you spend:

	No. of hours
a) working on the TICCIT system for this course?	
b) in small group discussions about this course?	
c) doing work for this course on your own away from TICCIT (e.g., at library, at home)?	
d) in total for this course? (Include all course-related activities such as the ones listed above as well as any others.)	

COMMENTS (feel free to use reverse side for additional comments):

Phoenix College 067

Student Survey
Regular Classes [065] Alexandria

NAME: _____ DATE: _____

COURSE: English 19☐ English 29☐ SECTION: _____

Section I Item 1-21

Directions: For the following statements, circle the number that represents the response closest to your opinion.

SA (5) = Strongly Agree. You strongly agree with the statement or feel that it is true almost all of the time, as it applies to this course or instructor.

A (4) = Agree. You agree more than you disagree with the statement or feel that it is true most of the time, as it applies to this course or instructor.

NS (3) = Not Sure. You simply are not sure despite opinions on the statement.

D (2) = Disagree. You disagree more than you agree with the statement or feel that it is false most of the time as it applies to this course or instructor.

SD (1) = Strongly Disagree. You strongly disagree with the statement or feel that it is false in almost all cases as it applies to this course or instructor.

	SA	A	NS	D	SD
1. In this course I felt free to ask questions.	5	4	3	2	1
2. I received a lot of individual attention from the instructor in this course.	5	4	3	2	1
3. The instructor seemed genuinely concerned with my progress . . .	5	4	3	2	1
4. The class lectures made concepts in writing easy to learn. . . .	5	4	3	2	1
5. I found the textbook(s) useful in explaining the material and presenting methods for writing well.	5	4	3	2	1
6. The instructor provided clear explanations when the material was difficult to understand.	5	4	3	2	1
7. Taking tests and quizzes let me know whether or not I really understood the material.	5	4	3	2	1
8. Examples from the textbook and lectures really did not show me how to write well.	5	4	3	2	1
9. In this course I felt responsible for my own learning.	5	4	3	2	1
10. Homework assignments helped me in learning rules and concepts in writing.	5	4	3	2	1
11. Class discussions and student questions assisted me in learning the material	5	4	3	2	1
12. The instructor's comments on my work helped me to progress through this course.	5	4	3	2	1
13. I learned a lot about grammar in this course	5	4	3	2	1
14. I learned a lot about composition in this course	5	4	3	2	1
15. Other students in this section seemed to like the course	5	4	3	2	1
16. Instruction in this class met my own particular needs.	5	4	3	2	1
17. In this course I felt challenged to do my best work.	5	4	3	2	1
18. I was satisfied with my personal progress in this course	5	4	3	2	1
19. The method of inatruction in this course was too impersonal for me	5	4	3	2	1
20. My interest in writing has been increased by this course	5	4	3	2	1
21. I would recommend this course to my friends.	5	4	3	2	1

Section II Items 22-27

Directions: For each question circle the response number closest to your opinion of this course or instructor.

22. Time passed quickly while I was in class.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

23. I tried to just finish the assignments rather than learn the material.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

24. I wanted information that would tell me where I stood in comparison to other students.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

25. For me, the pace at which the instructor covered the coursework during the term was:

5 Very Slow 4 Somewhat Slow 3 About Right 2 Somewhat Fast 1 Very Fast

26. For my preparation and ability, most of the work in this course was:

5 Very Difficult 4 Somewhat Difficult 3 About Right 2 Somewhat Easy 1 Very Easy

27. The work load for this course, in relation to other courses of equal credit, was:

5 Much Lighter 4 Lighter 3 About the Same 2 Heavier 1 Much Heavier

Section III Items 28-33

Directions: Please check the response which reflects your opinions for questions 28-31. Then circle the number that best represents your activities for this course (question 32 a-e) and complete the blanks for the last question.

28. When you finish the introductory course(s) do you plan to take any more advanced courses in English?

Yes ☐ No ☐

29. At the beginning of this term did you plan to take more than just the introductory course(s) in English?

Yes ☐ No ☐

30. Has your experience in this course:

☐ encouraged you to take further courses in English?
☐ discouraged you about taking further courses in English?
☐ had no effect on your plans for further courses in English?

31. Is a job related to writing more appealing to you now than it was at the beginning of this course?

Yes ☐ No ☐

32. During this SEMESTER about how often did you:

	Quite Often	Occasionally	Almost Never
a) meet with the instructor for this course, outside of class, to discuss your classwork or anything else related to the course?	3	2	1
b) meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?.	3	2	1
c) discuss questions related to the course with fellow students?.	3	2	1
d) seek the help of a tutor for this course?.	3	2	1
e) use library resources in connection with your work in this course? . .	3	2	1

33. Approximately how many hours per week did you spend:

	No. of hours
a) attending classes for this course?	____
b) in small group discussions about this course (outside of class periods)?	____
c) working on homework assignments for this course?	____
d) in total for this course? (Include all course-related activities such as the ones listed above as well as any others.)	____

COMMENTS:

Phoenix College

Student Survey
TICCIT Courses

068
[066] Alexandria

NAME: _____ DATE: _____

COURSE: English 19☐ English 29☐ SECTION: _____

Section I Items 1-24

Directions: For the following statements, circle the number that represents the response closest to your opinion.

SA (5) = Strongly Agree. You strongly agree with the statement or feel that it is true almost all of the time, as it applies to this course or TICCIT.

A (4) = Agree. You agree more than you disagree with the statement or feel that it is true most of the time, as it applies to this course or TICCIT.

NS (3) = Not Sure. You simply are not sure despite opinions on the statement.

D (2) = Disagree. You disagree more than you agree with the statement or feel that it is false most of the time as it applies to this course or TICCIT.

SD (1) = Strongly Disagree. You strongly disagree with the statement or feel that it is false in almost all cases as it applies to this course or TICCIT.

	SA	A	NS	D	SD
1. In this course I felt free to ask questions.	5	4	3	2	1
2. Using TICCIT allowed me to set a pace that was right for my ability.	5	4	3	2	1
3. I received a lot of individual attention from instructors in this course.	5	4	3	2	1
4. The instructors seemed genuinely concerned with my progress. . .	5	4	3	2	1
5. Through TICCIT I became actively involved in my own learning . .	5	4	3	2	1
6. Instruction in this class met my own particular needs.	5	4	3	2	1
7. I didn't understand how to use "MAP" to guide my learning in this course.	5	4	3	2	1
8. TICCIT's comments on my work ("ADVICE") helped me to progress through this course.	5	4	3	2	1
9. Doing practice questions ("PRACTICE") helped me in learning rules and concepts in writing.	5	4	3	2	1
10. TICCIT "HELP" provided clear explanations when the material was difficult to understand.	5	4	3	2	1
11. The rule statements ("RULE") on TICCIT made concepts in writing easy to learn.	5	4	3	2	1
12. Taking tests in this course let me know whether or not I really understood the material	5	4	3	2	1

		SA	A	NS	D	SD
13.	Examples ("EXAMPLE") really did not show me how to write well . .	5	4	3	2	1
14.	In this course I felt responsible for my own learning	5	4	3	2	1
15.	Breakdowns of the computer system disrupted my learning	5	4	3	2	1
16.	I learned a lot about grammar in this course.	5	4	3	2	1
17.	I learned a lot about composition in this course.	5	4	3	2	1
18.	Other students in this section seemed to like the course.	5	4	3	2	1
19.	In this course I felt challenged to do my best work	5	4	3	2	1
20.	I was satisfied with my personal progress in this course.	5	4	3	2	1
21.	The method of instruction for this course was too impersonal for me.	5	4	3	2	1
22.	My interest in writing has been increased by this course.	5	4	3	2	1
23.	I would recommend this course with TICCIT to my friends	5	4	3	2	1
24.	I would take another course that uses TICCIT.	5	4	3	2	1

Section II Items 25-32

Directions: For each question circle the response number closest to your opinion of this course or TICCIT.

25. Time passed quickly while I was in class.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

26. The mechanics of using the terminal distracted me from learning.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

27. I tried to just finish the lessons rather than learn the material.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

28. I wanted a regular textbook for this course to use as a reference at home.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

29. I wanted information that would tell me where I stood in comparison to other students.

5 Almost Always 4 Frequently 3 Not Sure 2 Occasionally 1 Almost Never

30. For me, the pace at which I had to cover the material in order to finish the course was:

5 Very Slow 4 Somewhat Slow 3 About Right 2 Somewhat Fast 1 Very Fast

31. For my preparation and ability, most of the work in this course was:

5 Very Difficult 4 Somewhat Difficult 3 About Right 2 Somewhat Easy 1 Very Easy

32. The work load for this course, in relation to other courses of equal credit, was:

5 Much Lighter 4 Lighter 3 About the Same 2 Heavier 1 Much Heavier

Section III Items 33-38

Directions: Please check the response which reflects your opinions for questions 33-36. Then circle the number that best represents your activities for this course (question 37 a-f) and complete the blanks for the last question.

33. When you finish the introductory course(s) do you plan to take any more advanced courses in English?

Yes ☐ No ☐

34. At the beginning of this term did you plan to take more than just the introductory course(s) in English?

Yes ☐ No ☐

35. Has your experience in this course:

☐ encouraged you to take further courses in English?
☐ discouraged you about taking further courses in English?
☐ had no effect on your plans for further courses in English?

36. Is a job related to writing more appealing to you now than it was at the beginning of this course?

Yes ☐ No ☐

37. During this SEMESTER about how often did you:

	Quite Often	Occasionally	Almost Never
a) meet with an instructor or proctor outside of class, to discuss your classwork or anything else related to this course?	3	2	1
b) meet with an instructor for this course to discuss personal or academic matters NOT specifically related to the course? . . .	3	2	1
c) discuss questions related to the course with fellow students? . .	3	2	1
d) seek the help of a tutor for this course?	3	2	1
e) use library resources or the learning skills center in connection with your work in this course?	3	2	1
f) want to use the TICCIT system when it wasn't available?	3	2	1

38. Approximately how many hours per week did you spend:

	No. of hours
a) working on the TICCIT system for this course?	____
b) attending regular class meetings, without TICCIT, for this course?	____
c) in small group discussions about this course?	____
d) doing work for this course on your own away from TICCIT (e.g., writing assignments at home, reading at library)?	____
e) in total for this course? (Include all course-related activities such as the ones listed above as well as any others.)	____

COMMENTS (please include comments about your feelings and reactions toward this TICCIT course -- feel free to use reverse side):

Appendix G

OBSERVATION OF STUDENT INTERACTIONS WITH THE TICCIT SYSTEM

Student Interaction with Terminal

Instructions for Coding

MATERIALS - on items 1-4, use the following codes:

Code	
0	material not present
1	material present

SYSTEM - record the duration of each failure in minutes

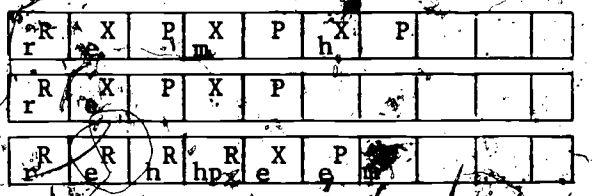
LEARNER CONTROL

Sequence - code the sequence of learner control events in a chain using the following basic codes:

Code	
R	Rule
X	Example
P	Practice

In addition, code the level of difficulty of each event by the use of a subscript on the left side of the code. Use standard level of difficulty codes for rule, example and practice in the subscripts. If the level of difficulty remains the same for a number of events, then it is not necessary to repeat the subscripts.

e.g.



Extent of Use - code both the extent of use and level of difficulty for the following items:

(item 7)

Code	Extent of Use
1	did not use rule
2	used rule once
3	used rule twice
4	used rule three times
5	used rule four times

Code	Level of Difficulty
R	RULE
E	RULE EASY
H	RULE HARD
HP	RULE HELP

(items 8 & 9)

Code	Extent of Use
1	no instances of PRAC, EX
2	1-5 instances
3	6-10 instances
4	11-15 instances
5	16 or more

Code	Level of Difficulty
E	Easy
M	Medium
H	Hard

(item 10)

Code	Extent of Use
1	did not use HELP
2	used HELP 50% of time with wrong responses
3	used HELP 100% of time with wrong responses
4	used HELP other than with wrong responses

Pace - code pace of coverage for the following items:

(item 11)

Code
0 did not use Rule
1 wrote out rule completely
2 read slowly and took some notes on rule
3 read slowly and went back over rule
4 read at a moderate rate
5 read quickly (merely glancing)

(item 12)

Code
0 did not use PRACTICE
1 took more than 5 minutes to complete a problem on the average
2 took between 3 & 5 minutes
3 took between 2 & 3 minutes
4 took between 1 & 2 minutes
5 took less than 1 minute

(item 13)

Code
0 did not use EXAMPLE
1 wrote out examples in full
2 took notes on some examples
3 read through examples slowly and went back over them
4 read through examples at a moderate rate
5 read through examples quickly (merely glancing)

(item 14)

Code
0 did not use HELP
1 took notes on HELP and went over solution slowly
2 repeated HELP and went over solution slowly
3 compared solutions methodically
4 compared solution quickly
5 merely glanced at the answers

Other - on items 15-21, use the following codes:

Code
0 not used during observation
1 used during observation

REQUESTS FOR ASSISTANCE - If student requests assistance, categorize the nature of each request, the person(s) who responded to each request, and type(s) of response(s) made to each request. Use the following codes in filling out the grid on coding sheet.

A. Nature of Requests

Code	
C	student asks about content
M	student asks about TICCIT procedures/operations/mechanics

B. Persons Responding to Requests

Code	
I	instructor
P	proctor
O	observer
S	other student
T	TICCIT staff member

C. Types of Responses

Code	
1	unable to provide assistance despite request
2	response limited to specific information requested
3	explanation, guidance, or elaboration
4	student answered own question

STUDENT'S COMMENTS - Record all comments made by the student that have reference to the terminal, system, or courseware. Also record whether the comment was directed to self, other students, instructor, proctor, observer, visitor, or staff member.

OBSERVER'S COMMENTS - Comment on any dimension of the instrument that needs explanation or elaboration. Also record any unusual circumstances about the student, terminal, system, or courseware

Guidelines for Observation at TICCIT Terminal

1. As soon as observation begins, mark the time on the observation form.
2. Continue to fill out the observation form according to specification already outlined.
3. Use a new observation form whenever student logs on to a new segment. Mark beginning and end time on each segment.
4. Observe student at terminal for 20 minutes.
5. If student logs on to a test or leaves before the observation period should end, make a note of end time and reason for terminating observation.
   a. If observation time was less than 10 minutes, make up the observation at another time.
   b. If observation time was between 10 and 15 minutes, make up the observation only if sequence was not observed.
   c. If observation was between 15 and 20 minutes, do not make up observation, even if sequence was not observed.
6. If system failures occur, mark duration of failures, but do not extend the observation period to make up for them.
   a. If duration of system failures total more than 10 minutes, then make up the observation at another time.
   b. If duration of system failures are between 5 and 10 minutes, make up the observation only if sequence was not observed.
   c. If duration of system failures are between 1 and 5 minutes, do not make up the observation, even if sequence was not observed.

Student Interaction with Terminal

056

College: PC_____ NVCC _____ Course _____ Section _____ Date _____ Mo/Day/Yr

Student Name _____ Observer _____

Start time _____ Stop time _____ Unit _____ Lesson _____ Segment _____

MATERIALS

_____ 1. course manual

_____ 2. note pad, note book

_____ 3. work sheets, loose paper

_____ 4. math textbook

SYSTEM

	1	2	3	4
5. duration of system failures				

LEARNER CONTROL

Sequence

6.

Extent of Use

_____ 7. RULE

_____ 8. PRACTICE

_____ 9. EXAMPLE

_____ 10. HELP

Pace

_____ 11. RULE

_____ 12. PRACTICE

_____ 13. EXAMPLE

_____ 14. HELP

Other

____ 15. OBJECTIVE ____ 16. Intro ____ 17. Review ____ 18. Survey ____ 19. ADVICE

____ 20. Reference to rule notes on example

____ 21. Reference to rule notes on practice

REQUESTS FOR ASSISTANCE

	1	2	3	4
A. Nature of Requests				
B. Persons Responding to Requests				
C. Types of Responses				

STUDENT'S COMMENTS

OBSERVER'S COMMENTS

Reliability of Observations for Student Interaction with Terminal: Frequency of Agreement

Item Number	Consensus Frequency	Consensus Percent	Disagreement Frequency	Disagreement Percent
1	20	100	0	0
2	16	80	4	20
3	17	85	3	15
4	20	100	0	0
15	19	95	1	5
16	20	100	0	0
17	20	100	0	0
18	20	100	0	0
19	19	95	1	5
20	20	100	0	0
21	20	100	0	0

Item Number	Consensus Frequency	Consensus Percent	Code Differences Total Frequency	Total Percent	1 Frequency	1 Percent	2 Frequency	2 Percent	3 Frequency	3 Percent
7	19	95	1	5	1	5				
8	17	85	3	15	3	15				
9	20	100	0	0						
10	14	70	6	30	5	25			1	5
11	17	85	3	15	2	10	1	5		
12	15	75	5	25	4	20	1	5		
13	17	85	3	15	2	10	1	5		
14	14	70	6	30	1	5	2	10	3	15

Appendix H

REGISTRATION DATA
ON SECTION SELECTION AND DEMOGRAPHIC CHARACTERISTICS

Northern Virginia Community College 044

Alexandria Campus

Registration Information

Lecture/Discussion Classes

Name: _____ Date: _____

Course Number: Math 31☐ Math 32☐ Math 181☐ English 111☐ Section Number: _____

Quarter: Fall☐ Winter☐ Spring☐ Summer☐ 1975-76

We believe that students' opinions and backgrounds should be taken into consideration in evaluating computer-assisted instruction. Therefore, as part of the evaluation for TICCIT, we would appreciate your frank response to the following questions. The information will help us to understand how instruction might better suit students' needs.

	Yes	No
1. When you registered for classes did you already know that this course section was a lecture/discussion section?	☐	☐
2. Did anyone recommend this lecture section to you?	☐	☐

If yes, who made that recommendation?

Classmate☐ Instructor☐ Counselor☐

	Yes	No
3. Did you start, but not finish, this course in a previous quarter?	☐	☐

If yes, when and under what method of instruction?

Fall☐ Winter☐ Spring☐ Summer☐ quarter of 1974-75.

Lecture/Discussion☐ Programmed Instruction☐ TICCIT☐

4. Why did you choose this section for your math or English course? (Put a '1' next to the best response and a '2' next to the second most important reason.)

___ (a) Other sections were already full.

___ (b) I wanted to take the course with this instructor.

___ (c) The class met at a convenient time.

___ (d) I tried to get a section that used programmed instruction.

___ (e) I wanted to try taking this course with TICCIT.

___ (f) I prefer lecture/discussion as a manner of instruction.

___ (g) There was really no particular reason.

Please provide for us the following background information. Your responses will be kept strictly confidential. If you strongly object to any question because it is too personal, feel free to omit it.

5. Age (in years): _____ 5b. Sex: male☐ female☐

6a. Total number of college credits earned to date (include both transfer and non-transfer credits): _____

b. Grade point average (college): _____

For the following questions, please circle the appropriate response.

7. High school curriculum completed:

(a) General

(b) Vocational

(c) College preparatory or academic

(d) GED

(e) Other

8. Grade average (high school): _____where the highest possible was _____.

9. College credit hours this semester:

(a) Part-time student

(b) Full-time student

10. Employment this semester:

(a) None

(b) Part-time work

(c) Full-time work

045

Northern Virginia Community College
Alexandria Campus
Registration Information
TICCIT Classes

Name: _____ Date: _____

Course Number: Math 31☐ Math 32☐
Math 181☐ English 111☐ Section Number: 7

Quarter: Fall☐ Winter☐ Spring☐ Summer☐ 1975-76

We believe that your opinions should be important in evaluating computer-assisted instruction. Therefore, as part of the evaluation for TICCIT, we would appreciate your frank response to the following questions. The information will help us to understand your attitudes before you begin instruction with TICCIT.

	Yes	No
1. When you registered for classes were you aware that this course section used TICCIT, a method of teaching which depends on computer-assisted instruction?	☐	☐
2. Did anyone recommend this TICCIT course to you?	☐	☐

If yes, who made that recommendation?

Classmate☐ Instructor☐ Counselor☐

	Yes	No
3. Did you start, but not finish, this course in a previous quarter?	☐	☐

If yes, when and under what method of instruction?

Fall☐ Winter☐ Spring☐ Summer☐ quarter of 1974-75.

Lecture/Discussion☐ Programmed Instruction☐ TICCIT☐

4. Why did you choose this section for your math or English course? (Put a '1' next to the best response and a '2' next to the second most important reason.)

___ (a) Other sections were already full.
___ (b) I wanted to take the course with this instructor.
___ (c) The class met at a convenient time.
___ (d) I tried to get a section that used programmed instruction.
___ (e) I wanted to try taking this course with TICCIT.
___ (f) I prefer lecture/discussion as a manner of instruction.
___ (g) There was really no particular reason.

	Yes	No	Not Sure
5. Would you prefer a course taught primarily by computer to a regular course?	☐	☐	☐
6. Have you had any previous experience working with computers or learning through computer-assisted instruction?	☐	☐	
7. Do you think instruction can be tailored to a student's needs by use of a computer?	☐	☐	☐
8. Would computer-assisted instruction help students become actively involved in their own learning?	☐	☐	☐
9. Would computer-assisted instruction be too impersonal for student instruction?	☐	☐	☐
10. Would the mechanics of using a computer terminal distract students from learning?	☐	☐	☐
11. In your opinion will computer-assisted instruction allow students to assume greater responsibility for their own learning?	☐	☐	☐

Please provide for us the following background information. Your responses will be kept strictly confidential. If you strongly object to any question because it is too personal, feel free to omit it.

12a. Age (in years): _____ 12b. Sex: male☐ female☐

13a. Total number of college credits earned to date (include both transfer and non-transfer credits): _____

b. Grade point average (college): _____

For the following questions, please circle the appropriate response.

14. High school curriculum completed:
    (a) General
    (b) Vocational
    (c) College preparatory or academic
    (d) GED
    (e) Other

15. Grade average (high school): _____ where the highest possible was _____.

16. College credit hours this semester:
    (a) Part-time student
    (b) Full-time student

17. Employment this semester:
    (a) None
    (b) Part-time work
    (c) Full-time work

Northern Virginia Community College

Alexandria Campus

Registration Information

Programmed Instruction Class

Name: _____ Date: _____

Course Number: Math 31☐ Section Number: _____

Quarter: Fall☐ Winter☐ Spring☐ Summer☐ 1975-76

We believe that your opinions should be important in evaluating instruction. Therefore, as part of the evaluation for TICCIT and programmed instruction, we would appreciate your frank response to the following questions. The information will help us to understand your attitudes before you begin instruction using a programmed method of learning.

	Yes	No
1. When you registered for classes were you aware that this course section used programmed instruction, a method of learning through individual study?	☐	☐
2. Did anyone recommend this programmed instruction section to you?	☐	☐

If yes, who made that recommendation?

Classmate☐ Instructor☐ Counselor☐

3. Did you start, but not finish, this math course in a previous quarter?	☐	☐

If yes, when and under what method of instruction?

Fall☐ Winter☐ Spring☐ Summer☐ quarter of 1974-75

Lecture/Discussion☐ Programmed Instruction☐ TICCIT☐

4. Why did you choose this section for your math course? (Put a '1' next to the best response and a '2' next to the second most important reason.)

___ (a) Other sections were already full.

___ (b) I wanted to take the course with this instructor.

___ (c) The class met at a convenient time.

___ (d) I tried to get a section that used programmed instruction.

___ (e) I wanted to try taking this course with TICCIT.

___ (f) I prefer lecture/discussion as a manner of instruction.

___ (g) There was really no particular reason.

	Yes	No	Not Sur
5. Would you prefer a course taught primarily by programmed instruction to a regular course?	☐	☐	☐
6. Have you had any previous experience learning through programmed instruction?	☐	☐	

	Yes	No	Not Sure
7. Do you think instruction can be tailored to a student's needs by use of a programmed textbook?	☐	☐	☐
8. Would programmed instruction help students become actively involved in their own learning?	☐	☐	☐
9. Would programmed instruction be too impersonal for student instruction?	☐	☐	☐
10. In your opinion will programmed instruction allow students to assume greater responsibility for their own learning?	☐	☐	☐

Please provide for us the following background information. Your responses will be kept strictly confidential. If you strongly object to any question because it is too personal, feel free to omit it.

11a. Age (in years): _____ 11b. Sex: male☐ female☐

12a. Total number of college credits earned to date (include both transfer and non-transfer credits): _____.

b. Grade point average (college): _____

For the following questions, please circle the appropriate response.

13. High school curriculum completed:
   (a) General
   (b) Vocational
   (c) College preparatory or academic
   (d) GED
   (e) Other

14. Grade average (high school): _____where/the highest possible was _____.

15. College credit hours this semester:
   (a) Part-time student
   (b) Full-time student

16. Employment this semester:
   (a) None
   (b) Part-time work
   (c) Full-time work

Appendix I

02T

FACULTY ATTITUDE SURVEYS

COLLEGE _____

DIVISION _____

DEPARTMENT _____

POSITION (Check all that apply) ☐Counselor ☐Instructor ☐Administrator

Work load (at this college) ☐Part-time ☐Full-time

Directions: For the following statements circle the number that represents the response closest to your opinion.

SA (5) = Strongly Agree. You strongly agree with the statement or feel that it is true in almost all cases.

A (4) = Agree. You agree more than you disagree with the statement or feel that it is true in most cases.

NS (3) = Not Sure. You simply are not sure despite opinions on the statement.

D (2) = Disagree. You disagree more than you agree with the statement or feel that it is false in most cases.

SD (1) = Strongly Disagree. You strongly disagree with the statement or feel that it is false in almost all cases.

Section I: Educational Practices

		SA	A	NS	D	SD
1.	There are specific concepts or skills which students in all sections of a course must master	5	4	3	2	1
2.	The development of self-confidence and a sense of accomplishment should be an essential part of every course.	5	4	3	2	1
3.	College courses must develop students' interest in and appreciation of the subject	5	4	3	2	1
4.	The primary basis for the organization of a course should be the intrinsic organization of the subject matter	5	4	3	2	1
5.	Student feedback is essential in preparing new course material	5	4	3	2	1
6.	College instruction should allow each student to proceed at his/her own pace	5	4	3	2	1
7.	Discussions among students contribute to their learning	5	4	3	2	1
8.	Without close faculty supervision, many students at this college would not be able to sustain sufficient motivation to complete their studies	5	4	3	2	1
9.	Most students need peer competition as an incentive for working and learning	5	4	3	2	1
10.	Students can benefit from increased flexibility and responsibility for their own instruction	5	4	3	2	1
11.	Informal interactions between students and faculty are an important part of education.	5	4	3	2	1
12.	Students should be evaluated against a well-defined criterion of knowledge or skills	5	4	3	2	1
13.	A student's progress is more important than his final level of achievement.	5	4	3	2	1
14.	Testing is an important and integral part of the educational process.	5	4	3	2	1
15.	The responsibility for a student's grade must rest with the instructor	5	4	3	2	1

		SA	A	NS	D	SD
16.	It has not been possible for new ideas about educational practice to receive a hearing at this institution	5	4	3	2	1
17.	Administrators or department chairmen generally encourage faculty to experiment with new courses and/or teaching methods	5	4	3	2	1

Section II: Computer-Assisted Instruction (CAI)

18.	I have become familiar with computers through my previous experience	5	4	3	2	1
19.	I feel comfortable working with computers	5	4	3	2	1
20.	CAI is one of the most significant developments in education today	5	4	3	2	1
21.	CAI allows students to assume greater responsibility for their own learning	5	4	3	2	1
22.	Computers are too impersonal to replace conventional instruction	5	4	3	2	1
23.	CAI tailors instruction to the individual student	5	4	3	2	1
24.	CAI is a potential threat to the jobs of faculty members	5	4	3	2	1
25.	CAI can relieve instructors of routine duties	5	4	3	2	1
26.	Immediate feedback to students makes CAI a highly desirable instructional method	5	4	3	2	1
27.	CAI will make students more active agents in their own education	5	4	3	2	1
28.	Student interest in or appreciation of a subject can not be developed with CAI	5	4	3	2	1
29.	CAI is a passing fad	5	4	3	2	1
30.	CAI can help to make better and fuller use of instructors' capabilities	5	4	3	2	1

Directions: Please rank-order the following statements, from 1 (highest) to 5 (lowest), according to your priorities for the evaluation of CAI.

31. The success of CAI should be judged in terms of:

_____ a. Faculty acceptance.

_____ b. The technical capabilities and reliability of the computer system.

_____ c. Student attitudes.

_____ d. Its cost.

_____ e. Student achievement.

32. Have you heard enough about TICCIT to feel that you have a grasp of what it is?
☐Yes ☐No

If you answered yes, please list any of TICCIT's particular advantages or disadvantages that you may judge to be significant.

COMMENTS:

COLLEGE _____

DIVISION _____

DEPARTMENT _____

003

POSITION (Check all that apply) ☐ Counselor ☐ Instructor ☐ Administrator

Work load (at this college) ☐ Part-time ☐ Full-time

Number of years of teaching experience _____

1. What have been the sources of your information about TICCIT? (Please check all the activities that apply.)

___ a. Taught TICCIT section
___ b. Worked at a TICCIT terminal
___ c. Observed TICCIT in operation
___ d. Spoke with students taking TICCIT
___ e. Through conversations with other faculty members
___ f. Attended orientation session
___ g. Read articles or memos about the program
___ h. Other (specify)
___ i. Have no impressions

DIRECTIONS: For the following statements circle the number that represents the response closest to your opinion.

SA (5) = Strongly Agree. You strongly agree with the statement or feel that it is true in almost all cases.

A (4) = Agree. You agree more than you disagree with the statement or feel that it is true in most cases.

NS (3) = Not Sure. You simply are not sure despite opinions on the statement.

D (2) = Disagree. You disagree more than you agree with the statement or feel that it is false in most cases.

SD (1) = Strongly Disagree. You strongly disagree with the statement or feel that it is false in almost all cases.

	SA	A	NS	D	SD
2. I feel comfortable working with computers.	5	4	3	2	1
3. I have become familiar with computers from my previous experience.	5	4	3	2	1
4. TICCIT is less convenient for students than a combination of classes and homework	5	4	3	2	1
5. Students become active in their own learning through the use of TICCIT	5	4	3	2	1
6. The TICCIT program tailors instruction to the individual student	5	4	3	2	1
7. With TICCIT, students receive more individual attention from instructors	5	4	3	2	1
8. In TICCIT classes students had to assume too much responsibility for their own progress in order to complete a course	5	4	3	2	1
9. A student in a TICCIT class learns at his/her own pace	5	4	3	2	1
10. Working on the TICCIT system improves students' learning strategies and study habits in other courses.	5	4	3	2	1
11. Students discuss their course work with fellow students more often in TICCIT classes than other classes.	5	4	3	2	1
12. Students on TICCIT miss peer competition as an incentive for working and learning	5	4	3	2	1
13. TICCIT is a potential threat to the jobs of faculty members.	5	4	3	2	1
14. I would prefer to teach a regular section to a TICCIT section in my subject area	5	4	3	2	1
15. TICCIT helps to make better and fuller use of instructor's capabilities.	5	4	3	2	1
16. TICCIT relieves instructors of routine duties.	5	4	3	2	1
17. Instructors in the TICCIT program spend too much time on mechanical problems and errors in the curriculum.	5	4	3	2	1
18. It is difficult for an instructor to manage students' learning in TICCIT classes	5	4	3	2	1
19. An instructor has to meet greater demands on his/her time in a TICCIT class than in regular classes.	5	4	3	2	1
20. My colleagues seem to be favorably impressed by TICCIT	5	4	3	2	1
21. I would recommend a TICCIT course to my students	5	4	3	2	1
22. As a pre-packaged program, the TICCIT curriculum affords instructors little flexibility in teaching a course.	5	4	3	2	1
23. I consider the method of presentation on TICCIT to be innovative and effective.	5	4	3	2	1

		SA	A	NS	D	SD
24.	Students exercise control over their instruction in the TICCIT program. . . .	5	4	3	2	1
25.	The TICCIT curriculum is dull and fails to excite students about the subject matter.	5	4	3	2	1
26.	The TICCIT program develops student interest in or appreciation of a subject	5	4	3	2	1
27.	TICCIT promotes self-confidence and a sense of accomplishment among students.	5	4	3	2	1
28.	The TICCIT program teaches only lower level abilities	5	4	3	2	1
29.	Students who've completed a course on TICCIT have mastered all the specific concepts and skills covered in the TICCIT curriculum	5	4	3	2	1
30.	The TICCIT program does not allow for the integration and constant review of subject matter skills.	5	4	3	2	1
31.	Breakdowns of the computer system disrupted students' learning on TICCIT. .	5	4	3	2	1
32.	Students find it easier to learn with TICCIT.	5	4	3	2	1
33.	The TICCIT program is not worth the dollars and space which this institution has invested in it.	5	4	3	2	1
34.	TICCIT is a valuable resource for this institution.	5	4	3	2	1
35.	TICCIT is a passing fad	5	4	3	2	1
36.	TICCIT is one of the most significant developments in education today . . .	5	4	3	2	1

The faculty's own judgments are seen as an important input into the overall evaluation. On the basis of your knowledge of TICCIT, we would appreciate your evaluative judgments on certain dimensions of the program. For the last question, then, use the response closest to your own judgment about TICCIT's impact.

++	(5) = high positive
+	(4) = positive impact
0	(3) = no impact
-	(2) = negative impact
--	(1) = high negative impact

37. What is TICCIT's impact on the following:	++	+	0	-	--
(a) Student achievement	5	4	3	2	1
(b) Student attitudes toward subject matter	5	4	3	2	1
(c) Course completion rates	5	4	3	2	1
(d) Quality of student-instructor interactions.	5	4	3	2	1
(e) Quality of student-student interactions	5	4	3	2	1

COMMENTS: Please feel free to comment on the TICCIT program or on this questionnaire. We are particularly interested in aspects of the TICCIT program which this survey omits or fails to cover in detail. (If necessary, attach an additional sheet of paper for your comments.)

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Appendix J

FACULTY ACTIVITY QUESTIONNAIRE

INSTRUCTOR ACTIVITIES SURVEY

College:	☐ Phoenix	☐ Alexandria Campus of NVCC
Department:	☐ Mathematics	☐ English
Position:	☐ Part-time	☐ Full-time

Please respond to the following questions in Part I for each section of the target courses for the TICCIT demonstration that you teach. There is one page to be completed for each section. Four pages are provided; if you teach less than four sections, simply skip over the extra pages. Please be sure to continue with Part II, however, which deals with general activities, starting on page 5.

PART I. ACTIVITIES RELATED TO SPECIFIC SECTIONS

Course:

Phoenix
- ☐ Math 007
- ☐ Math 106
- ☐ Math 108
- ☐ Math 117
- ☐ English 19
- ☐ English 101

Alexandria
- ☐ Math 31
- ☐ Math 32
- ☐ Math 181
- ☐ English 01
- ☐ English 111

Section:
- ☐ Lecture/Discussion
- ☐ TICCIT
- ☐ Programmed Instruction
- ☐ Day
- ☐ Evening

1. For this section, indicate the average number of classroom hours per week which you use for:

	Hours Per Week
Lecture	_____
Discussion	_____
Tests, Quizzes	_____
Programmed Instruction	_____
TICCIT	_____
Other (Please specify)	_____
_____	_____
_____	_____

2. For this section, on the basis of your regular work week during the academic t[illegible] assign approximate percentages reflecting the portion of your time [illegible] in the following activities. (Total time should be 100%.)

Planning for class (e.g., reviewing and selecting resources for class, developing syllabus)	_____%
Conducting class	_____%
Preparing lectur[illegible], discussions	_____%
Developing student assignments, tests	_____%
Correcting student assignments, tests	_____%
Advising individual students on their course progress	_____%
Counseling students on content questions	_____%
Counseling students on matters not specifically related to this course	_____%
Administrative duties (e.g., taking attendance, reporting grades)	_____%
Other (Please specify) _____	_____%
	100 %

Column total should be about 100%. Do not hesitate to leave an entry blank if it is inappropriate to your activities.

PART I. (Cont.)

Course:

Phoenix	Alexandria
☐ Math 007	☐ Math 31
☐ Math 106	☐ Math 32
☐ Math 108	☐ Math 181
☐ Math 117	☐ English 01
☐ English 19	☐ English 111
☐ English 101	

Section:

☐ Lecture/Discussion	☐ Day
☐ TICCIT	☐ Evening
☐ Programmed Instruction	

1. For this section, indicate the average number of classroom hours per week which you use for:

	Hours Per Week
Lecture	
Discussion	
Tests, Quizzes	
Programmed Instruction	
TICCIT	
Other (Please specify)	
_____	
_____	

2. For this section, on the basis of your regular work week during the academic term, assign approximate percentages reflecting the portion of your time spent in the following activities. (Total time should be 100%.)

Planning for class (e.g., reviewing and selecting resources for class, developing syllabus)	____%
Conducting class	____%
Preparing lectures, discussions	____%
Developing student assignments, tests	____%
Correcting student assignments, tests	____%
Advising individual students on their course progress	____%
Counseling students on content questions	____%
Counseling students on matters not specifically related to this course	____%
Administrative duties (e.g., taking attendance, reporting grades)	____%
Other (Please specify) _____	____%
	100 %

Column total should be about 100%. Do not hesitate to leave an entry blank if it is inappropriate to your activities.

PART I. (Cont.)

Course: Phoenix ☐ Math 007 ☐ Math 106 ☐ Math 108 ☐ Math 117 ☐ English 19 ☐ English 101

Alexandria ☐ Math 31 ☐ Math 32 ☐ Math 181 ☐ English 01 ☐ English 111

Section: ☐ Lecture/Discussion ☐ TICCIT ☐ Programmed Instruction

☐ Day ☐ Evening

1. For this section, indicate the average number of classroom hours per week which you use for:

	Hours Per Week
Lecture	_____
Discussion	_____
Tests, Quizzes	_____
Programmed Instruction	_____
TICCIT	_____
Other (Please specify)	_____
_____	_____
_____	_____

2. For this section, on the basis of your regular work week during the academic term, assign approximate percentages reflecting the portion of your time spent in the following activities. (Total time should be 100%.)

Planning for class (e.g., reviewing and selecting resources for class, developing syllabus)	_____%
Conducting class	_____%
Preparing lectures, discussions	_____%
Developing student assignments, tests	_____%
Correcting student assignments, tests	_____%
Advising individual students on their course progress	_____%
Counseling students on content questions	_____%
Counseling students on matters not specifically related to this course	_____%
Administrative duties (e.g., taking attendance, reporting grades)	_____%
Other (Please specify) _____	_____%
	100 %

Column total should be about 100%. Do not hesitate to leave an entry blank if it is inappropriate to your activities.

PART I. (Cont.)

Course:

Phoenix
- ☐ Math 007
- ☐ Math 106
- ☐ Math 108
- ☐ Math 117
- ☐ English 19
- ☐ English 101

Alexandria
- ☐ Math 31
- ☐ Math 32
- ☐ Math 181
- ☐ English 01
- ☐ English 111

Section:
- ☐ Lecture/Discussion
- ☐ TICCIT
- ☐ Programmed Instruction
- ☐ Day
- ☐ Evening

1. For this section, indicate the average number of classroom hours per week which you use for:

	Hours Per Week
Lecture	_____
Discussion	_____
Tests, Quizzes	_____
Programmed Instruction	_____
TICCIT	_____
Other (Please specify) _____	_____
_____	_____
_____	_____

2. For this section, on the basis of your regular work week during the academic term, assign approximate percentages reflecting the portion of your time spent in the following activities. (Total time should be 100%.)

Planning for class (e.g., reviewing and selecting resources for class, developing syllabus)	_____ %
Conducting class	_____ %
Preparing lectures, discussions	_____ %
Developing student assignments, tests	_____ %
Correcting student assignments, tests	_____ %
Advising individual students on their course progress	_____ %
Counseling students on content questions	_____ %
Counseling students on matt - not specifically related to this course	_____ %
Administrative duties (e.g., taking attendance, reporting grades)	_____ %
Other (Please specify) _____	_____ %
	100 %

Column total should be about 100%. Do not hesitate to leave an entry blank if it is inappropriate to your activities.

PART II. GENERAL ACTIVITIES

1. Please estimate the average number of hours per week spent in the following general activities which may not be related to a specific section.

	Hours Per Week
Informal discussions with students or colleagues	____
Advising or coaching student organizations	____
Activities to enhance your own knowledge of subject matter or instructional procedures (e.g., reading, attending lectures)	____
*Activities related to the TICCIT project, other than direct instructional responsibility for TICCIT sections (e.g., discussion with developers or evaluators, meetings with staff on TICCIT-related topics)	____
Activities related to revision of present curriculum or changes in course procedures, other than for TICCIT (e.g., proposals for new courses, discussions of new grading practices)	____
Committee meetings for purposes other than those mentioned above	____
Other (Please specify) _____	
_____	____

*What TICCIT-related activities require the most time?

_____

_____

2. What advantages do you feel the TICCIT program offers over regular instruction? Also, what advantages do you feel that regular instruction offers over the TICCIT program?

3. How many hours in total have you spent working through TICCIT materials at a terminal?

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ more than 20

4a. What sort of orientation did you receive to the TICCIT system? (Check all that apply)

____ Workshop run by college staff

____ Training program run by TICCIT developers

____ Worked through lessons on my own

____ Informal instruction from this college's TICCIT staff

____ Informal instruction from other faculty members at this college

____ None

____ Other (Specify) _____

b. Was the orientation satisfactory? ☐ Yes ☐ No

If no, what might be done to improve orientation for instructors?

Appendix K

REASONS FOR SECTION SELECTION

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Phoenix College
Math 007, 106, 108 and 117
Spring Semester, 1976

	TICCIT (N ≅ 309)		Lecture (N ≅ 553)	
	N	Percent	N	Percent
Knew about instructional method at registration	261	84.5	428	80.3
Section was recommended	126	40.8	111	20.8
By classmate	56	18.1	43	8.1
By instructor	46	14.9	30	5.6
By counselor	24	7.8	39	7.3
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	100	32.4	1	0.2
Second most important factor	45	14.6	3	0.6
To get a programmed instruction section				
Primary reason	19	6.1	14	2.6
Second most important factor	26	8.4	8	1.5
Preference for lecture/discussion instruction				
Primary reason	5	1.6	201	37.7
Second most important factor	7	2.3	94	17.6
Class met at a convenient time				
Primary reason	63	20.4	146	27.4
Second most important factor	90	29.1	156	29.3
Other sections already full				
Primary reason	82	26.5	25	4.7
Second most important factor	21	6.8	23	4.3
To take course with a particular instructor				
Primary reason	8	2.6	56	10.5
Second most important factor	4	1.3	48	9.0
No particular reason				
Primary reason	14	4.5	58	10.9
Second most important factor	41	13.3	82	15.4

Student Enrollment in [illegible] Groups:
Reasons for Sect[illegible]ection
Phoenix C[illegible]
Math C[illegible]
Spring Semester, 1976

	TICCIT (N = 115)		Lecture (N = 217)	
	N	Percent	N	Percent
Knew about instructional method at registration	90	78.3	153	70.5
Section was recommended	46	40.0	49	22.6
By classmate	22	19.1	20	9.2
By instructor	12	10.4	9	4.1
By counselor	11	9.6	20	9.2
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	37	32.2	1	.5
Second most important factor	15	13.0	3	1.4
To get a programmed instruction section				
Primary reason	5	4.3	11	5.1
Second most important factor	5	4.3	4	1.8
Preference for lecture/discussion instruction				
Primary reason	0	0.0	72	33.2
Second most important factor	4	3.5	38	17.5
Class met at a convenient time				
Primary reason	15	13.0	63	29.0
Second most important factor	32	27.8	56	25.8
Other sections already full				
Primary reason	43	37.4	8	3.7
Second most important factor	8	7.0	8	3.7
To take course with a particular instructor				
Primary reason	2	1.7	16	7.4
Second most important factor	0	0.0	12	5.5
No particular reason				
Primary reason	3	2.6	26	12.0
Second most important factor	18	15.6	34	15.7

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Phoenix College
Math 106
Spring Semester, 1976

	TICCIT (N = 93)		Lecture (N = 144)	
	N	Percent	N	Percent
Knew about instructional method at registration	79	84.9	123	85.4
Section was recommended	33	35.5	19	13.2
By classmate	16	17.2	8	5.6
By instructor	13	14.0	7	4.9
By counselor	4	4.3	4	2.8
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	36	38.7	0	0.0
Second most important factor	11	11.8	0	0.0
To get a programmed instruction section				
Primary reason	5	5.4	2	1.4
Second most important factor	8	8.6	0	0.0
Preference for lecture/discussion instruction				
Primary reason	5	5.4	61	42.4
Second most important factor	1	1.1	28	19.4
Class met at a convenient time				
Primary reason	21	22.6	39	27.1
Second most important factor	28	30.1	49	34.0
Other sections already full				
Primary reason	15	16.1	9	6.2
Second most important factor	9	9.7	7	4.9
To take course with a particular instructor				
Primary reason	4	4.3	17	11.8
Second most important factor	2	2.1	18	12.5
No particular reason				
Primary reason	4	4.3	13	9.0
Second most important factor	13	14.0	20	13.9

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Phoenix College
Math 108
Spring Semester, 1976

	TICCIT (N = 56)		Lecture (N = 70)	
	N	Percent	N	Percent
Knew about instructional method at registration	50	89.3	58	82.9
Section was recommended	32	57.1	27	38.6
By classmate	13	23.2	9	12.9
By instructor	13	23.2	6	8.6
By counselor	7	12.5	12	17.1
Reasons cited for section choice:				
To take a course with TICCIT	11	19.6	0	0.0
Primary reason	11	19.6	0	0.0
Second most important factor				
To get a programmed instruction section				
Primary reason	4	7.1	1	1.4
Second most important factor	10	17.9	0	0.0
Preference for lecture/discussion instruction				
Primary reason	0	0.0	27	38.6
Second most important factor	1	1.8	12	17.1
Class met at a convenient time				
Primary reason	18	32.1	14	20.0
Second most important factor	16	28.6	15	21.4
Other sections already full				
Primary reason	15	26.8	4	5.7
Second most important factor	2	3.6	5	7.1
To take course with a particular instructor				
Primary reason	1	1.8	10	14.3
Second most important factor	0	0.0	7	10.0
No particular reason				
Primary reason	5	8.9	10	14.3
Second most important factor	3	5.4	11	15.7

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Phoenix College
Math 117
Spring Semester, 1976

	TICCIT (N = 45)		Lecture (N = 102)	
	N	Percent	N	Percent
Knew about instructional method at registration	42	93.3	94	92.2
Section was recommended	15	33.3	16	15.7
By classmate	5	11.1	6	5.9
By instructor	8	17.8	8	7.8
By counselor	2	4.4	3	2.9
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	16	35.6	0	0.0
Second most important factor	8	17.8	0	0.0
To get a programmed instruction section				
Primary reason	5	11.1	0	0.0
Second most important factor	3	6.7	4	3.9
Preference for lecture/discussion instruction				
Primary reason	0	0.0	41	40.2
Second most important factor	1	2.2	16	15.7
Class met at a convenient time				
Primary reason	9	20.0	30	29.4
Second most important factor	14	31.1	26	25.5
Other sections already full				
Primary reason	9	20.0	4	3.9
Second most important factor	2	4.4	3	2.9
To take course with a particular instructor				
Primary reason	1	2.2	13	12.7
Second most important factor	2	4.4	11	10.8
No particular reason				
Primary reason	2	4.4	9	8.8
Second most important factor	7	15.6	17	16.7

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Northern Virginia Community College
Math 31
Fall Quarter, 1975

	TICCIT (N = 110)		Programmed (N = 51)		Lecture (N = 83)	
	N	Percent	N	Percent	N	Percent
Knew about instructional method at registration	27	24.6	31	60.8	73	87.9
Section was recommended	36	32.7	25	49.0	28	33.7
By classmate	4	3.6	2	3.9	6	7.2
By instructor	7	6.4	4	7.8	4	4.8
By counselor	25	22.7	19	37.2	19	22.9
Reasons cited for section choice:						
To take a course with TICCIT						
Primary reason	13	11.8	4	7.8	0	0.0
Second most important factor	9	8.2	5	9.8	4	4.8
To get a programmed instruction section						
Primary reason	28	25.4	9	17.6	1	1.2
Second most important factor	7	6.4	3	5.9	2	2.4
Preference for lecture/discussion instruction						
Primary reason	2	1.8	2	3.9	27	32.5
Second most important factor	4	3.6	3	5.9	20	24.1
Class met at a convenient time						
Primary reason	26	23.6	10	19.6	13	15.7
Second most important factor	18	16.4	12	23.5	14	16.9
Other sections already full						
Primary reason	8	7.3	3	5.9	4	4.8
Second most important factor	3	2.7	3	5.9	3	3.6
To take course with a particular instructor						
Primary reason	8	7.3	7	13.7	24	28.9
Second most important factor	7	6.4	1	2.0	5	6.0
No particular reason						
Primary reason	12	10.9	10	19.6	6	7.2
Second most important factor	18	16.4	6	11.8	9	10.8

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Northern Virginia Community College
Math 31
Winter Quarter, 1976

	TICCIT (N = 81)		Lecture (N = 42)		Programmed (N = 47)	
	N	Percent	N	Percent	N	Percent
Knew about instructional method at registration	43	53.1	38	90.5	38	80.9
Section was recommended	26	32.1	19	45.2	23	48.9
By classmate	1	1.2	4	9.5	1	2.1
By instructor	9	11.1	3	7.1	6	12.8
By counselor	18	22.2	12	28.6	17	36.2
Reasons cited for section choice:						
To take a course with TICCIT						
Primary reason	24	29.6	0	0.0	2	4.3
Second most important factor	8	10.0	0	0.0	2	4.3
To get a programmed instruction section						
Primary reason	12	14.8	1	2.4	13	27.7
Second most important factor	2	2.5	1	2.4	4	8.5
Preference for lecture/discussion instruction						
Primary reason	0	0.0	24	57.1	2	4.3
Second most important factor	7	8.6	8	19.1	1	2.1
Class met at a convenient time						
Primary reason	19	23.5	7	16.7	14	29.8
Second most important factor	14	17.3	8	19.1	11	23.4
Other sections already full						
Primary reason	4	4.9	2	4.8	4	8.5
Second most important factor	1	1.2	3	7.1	4	8.5
To take course with a particular instructor						
Primary reason	3	3.7	2	4.7	1	2.1
Second most important factor	2	2.5	3	7.1	3	6.4
No particular reason						
Primary reason	14	17.3	6	14.3	5	10.6
Second most important factor	5	6.2	2	4.8	5	10.6

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Northern Virginia Community College
Math 32
Winter Quarter, 1976

	TICCIT (N = 31)		Lecture (N = 24)	
	N	Percent	N	Percent
Knew about instructional method at registration	11	35.5	20	83.3
Section was recommended	3	9.7	5	20.8
By classmate	0	0.0	1	4.2
By instructor	2	6.5	1	4.2
By counselor	2	6.5	3	12.5
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	3	9.7	0	0.0
Second most important factor	3	9.7	1	4.2
To get a programmed instruction section				
Primary reason	3	9.7	0	0.0
Second most important factor	1	3.2	1	4.2
Preference for lecture/discussion instruction				
Primary reason	2	6.5	11	45.8
Second most important factor	1	3.2	5	20.8
Class met at a convenient time				
Primary reason	15	48.4	7	29.2
Second most important factor	8	25.8	5	20.8
Other sections already full				
Primary reason	1	3.2	1	4.2
Second most important factor	1	3.2	1	4.2
To take course with a particular instructor				
Primary reason	1	3.2	1	4.2
Second most important factor	2	6.5	0	0.0
No particular reason				
Primary reason	6	19.4	2	8.3
Second most important factor	4	12.9	3	12.5

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Northern Virginia Community College
Math 31
Spring Quarter, 1976

	TICCIT (N = 36)		Lecture (N = 41)		Programmed (N = 57)	
	N	Percent	N	Percent	N	Percent
Knew about instructional method at registration	25	62.5	30	85.7	42	73.7
Section was recommended	9	22.5	14	40.0	31	54.4
By classmate	3	7.5	4	11.4	3	5.3
By instructor	3	7.5	3	8.6	8	14.0
By counselor	3	7.5	7	20.0	19	33.3
Reasons cited for section choice:						
To take a course with TICCIT						
Primary reason	10	25.0	0	0.0	4	7.0
Second most important factor	2	5.0	0	0.0	1	1.8
To get a programmed instruction section						
Primary reason	6	15.0	2	5.7	11	19.3
Second most important factor	6	15.0	0	0.0	7	12.3
Preference for lecture/discussion instruction						
Primary reason	0	0.0	21	60.0	6	10.5
Second most important factor	0	0.0	2	5.7	2	3.5
Class met at a convenient time						
Primary reason	9	22.5	3	8.6	17	29.8
Second most important factor	10	25.0	10	28.6	14	24.6
Other sections already full						
Primary reason	1	2.5	0	0.0	3	5.3
Second most important factor	0	0.0	3	8.6	0	0.0
To take course with a particular instructor						
Primary reason	6	15.0	3	8.6	4	7.0
Second most important factor	1	2.5	3	8.6	4	7.0
No particular reason						
Primary reason	5	12.5	5	14.3	5	8.8
Second most important factor	8	20.0	3	8.6	5	8.8

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Northern Virginia Community College
Math 32
Spring Quarter, 1976

	TICCIT (N = 36)		Lecture (N = 41)	
	N	Percent	N	Percent
Knew about instructional method at registration	32	88.9	39	95.1
Section was recommended	7	19.4	13	31.7
By classmate	1	2.8	2	4.9
By instructor	1	2.8	10	24.4
By counselor	5	13.9	4	9.8
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	9	25.0	0	0.0
Second most important factor	5	13.9	0	0.0
To get a programmed instruction section				
Primary reason	3	8.3	2	4.9
Second most important factor	1	2.8	2	4.9
Preference for lecture/discussion instruction				
Primary reason	0	0.0	22	53.7
Second most important factor	2	5.6	8	19.5
Class met at a convenient time				
Primary reason	15	41.7	7	17.1
Second most important factor	9	25.0	11	26.8
Other sections already full				
Primary reason	1	2.8	1	2.4
Second most important factor	0	0.0	0	0.0
To take course with a particular instructor				
Primary reason	3	8.3	7	17.1
Second most important factor	1	2.8	5	12.2
No particular reason				
Primary reason	2	5.6	2	4.9
Second [illegible]nt factor	6	16.7	4	9.8

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Phoenix College
English 19 and 29
Spring Semester, 1976

	TICCIT (N = 96)		Lecture (N = 167)	
	N	Percent	N	Percent
Knew about instructional method at registration	44	45.8	74	44.3
Section was recommended	22	22.9	50	29.9
By classmate	8	8.3	6	3.6
By instructor	6	6.2	9	5.4
By counselor	5	5.2		19.8
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	25	26.0	3	1.8
Second most important factor	9	9.4	4	2.4
To get a programmed instruction section				
Primary reason	6	6.2	8	4.8
Second most important factor	7	7.3	5	3.0
Preference for lecture/discussion instruction				
Primary reason	3	3.1	31	18.6
Second most important factor	3	3.1	22	13.2
Class met at a convenient time				
Primary reason	30	31.2		27.5
Second most important factor	22	22.9	30	18.0
Other sections already full				
Primary reason	10	10.4	20	12.0
Second most important factor	8	8.3	9	5.4
To take course with a particular instructor				
Primary reason	5	5.2	11	6.6
Second most important factor	5	5.2	7	4.2
No particular reason				
Primary reason	10	10.4	29	17.4
Second most important factor	17	17.7	33	19.8

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Phoenix College
English 19
Spring Semester, 1976

	TICCIT (N ≅ 45)		Lecture (N ≅ 102)	
	N	Percent	N	Percent
w about instructional method at registration	28	62.2	52	51.0
tion was recommended	14	31.1	29	28.4
By classmate	7	15.6	3	2.9
By instructor	4	8.9	5	4.9
By counselor	1	2.2	21	20.6
sons cited for section choice:				
To take a course with TICCIT				
Primary reason	13	28.9	1	1.0
Second most important factor	3	6.7	2	2.0
To get a programmed instruction section				
Primary reason	2	4.4	3	2.9
Second most important factor	3	6.7	0	0.0
Preference for lecture/discussion instruction				
Primary reason	2	4.4	23	22.6
Second most important factor	1	2.2	14	13.7
Class met at a convenient time				
Primary reason	14	31.1	18	17.6
Second most important factor	10	22.2	23	22.6
Other sections already full				
Primary reason	6	13.3	15	14.7
Second most important factor	6	13.3	6	5.9
To take course with a particular instructor				
Primary reason	1	2.2	7	6.9
Second most important factor	3	6.7	6	5.9
No particular reason				
Primary reason	3	6.7	24	23.5
Second most important factor	7	15.6	15	14.7

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Phoenix College
English 29
Spring Semester, 1976

	TICCIT (N = 51)		Lecture (N = 65)	
	N	Percent	N	Percent
Knew about instructional method at registration	16	31.4	22	33.8
Section was recommended	8	15.7	21	32.3
By classmate	1	2.0	3	4.6
By instructor	2	3.9	4	6.1
By counselor	4	7.8	12	18.5
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	12	23.6	2	3.1
Second most important factor	6	11.8	2	3.1
To get a programmed instruction section				
Primary reason	4	7.8	5	7.7
Second most important factor	4	7.8	5	7.7
Preference for lecture/discussion instruction				
Primary reason	1	2.0	8	12.3
Second most important factor	2	3.9	8	12.3
Class met at a convenient time				
Primary reason	16	31.4	28	43.1
Second most important factor	12	23.6	7	10.8
Other sections already full				
Primary reason	4	7.8	5	7.7
Second most important factor	2	3.9	3	4.6
To take course with a particular instructor				
Primary reason	4	7.8	4	6.1
Second most important factor	2	3.9	1	1.5
No particular reason				
Primary reason	7	13.7	5	7.7
Second most important factor	10	19.6	18	27.7

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Phoenix College
English 19 and 29
Fall Semester, 1976

	TICCIT (N = 194)		Lecture (N = 299)	
	N	Percent	N	Percent
Knew about instructional method at registration	87	44.85	160	53.51
Section was recommended				
By classmate	8	4.12	16	5.35
By instructor	11	5.67	25	8.36
By counselor	17	8.76	54	18.06
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	29	14.95	2	.67
Second most important factor	15	7.73	5	1.67
To get a programmed instruction section				
Primary reason	4	2.06	12	4.01
Second most important factor	7	3.61	12	4.01
Preference for lecture/discussion instruction				
Primary reason	8	4.12	83	27.76
Second most important factor	10	5.15	37	12.37
Class met at a convenient time				
Primary reason	40	20.62	83	27.76
Second most important factor	54	27.84	78	26.09
Other sections already full				
Primary reason	59	30.41	32	10.70
Second most important factor	21	10.82	30	10.03
To take course with a particular instructor				
Primary reason	5	2.58	21	7.02
Second most important factor	3	1.55	10	3.34
No particular reason				
Primary reason	33	17.01	47	15.72
Second most important factor	31	15.98	63	21.07

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Phoenix College
English 19
Fall Semester, 1976

	TICCIT (N ≅ 133)		Lecture (N ≅ 211)	
	N	Percent	N	Percent
Knew about instructional method at registration	69	51.88	106	50.24
Section was recommended				
By classmate	6	4.51	11	5.21
By instructor	11	8.27	22	10.43
By counselor	9	6.77	45	21.33
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	20	15.04	2	.95
Second most important factor	8	6.02	4	1.90
To get a programmed instruction section				
Primary reason	3	2.26	7	3.32
Second most important factor	4	3.01	9	4.27
Preference for lecture/discussion instruction				
Primary reason	4	3.01	50	23.70
Second most important factor	7	5.26	25	11.85
Class met at a convenient time				
Primary reason	19	14.29	61	28.91
Second most important factor	40	30.08	44	20.85
Other sections already full				
Primary reason	49	36.84	28	13.27
Second most important factor	17	12.78	26	12.32
To take course with a particular instructor				
Primary reason	2	1.50	13	6.16
Second most important factor	2	1.50	8	3.79
No particular reason				
Primary reason	23	17.29	38	18.01
Second most important factor	22	16.54	53	25.12

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Phoenix College
English 29
Fall Semester, 1976

	TICCIT (N ≅ 61)		Lecture (N ≅ 88)	
	N	Percent	N	Percent
Knew about instructional method at registration	18	29.51	54	61.36
Section was recommended				
By classmate	2	3.28	5	5.68
By instructor	0	0.00	3	3.41
By counselor	8	13.11	9	10.23
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	9	14.75	0	0.00
Second most important factor	7	11.48	1	1.14
To get a programmed instruction section				
Primary reason	1	1.64	5	5.68
Second most important factor	3	4.92	3	3.41
Preference for lecture/discussion instruction				
Primary reason	4	6.56	33	37.50
Second most important factor	3	4.92	12	13.64
Class met at a convenient time				
Primary reason	21	34.43	22	25.00
Second most important factor	14	22.95	34	38.64
Other sections already full				
Primary reason	10	16.39	4	4.55
Second most important factor	4	6.56	4	4.55
To take course with a particular instructor				
Primary reason	3	4.92	8	9.09
Second most important factor	1	1.64	2	2.27
No particular reason				
Primary reason	10	16.39	9	10.23
Second most important factor	9	14.75	10	11.36

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Northern Virginia Community College
English 111
Winter Quarter, 1976

	TICCIT (N = 92)		Lecture (N = 77)	
	N	Percent	N	Percent
Knew about instructional method at registration	5	5.43	52	67.53
Section was recommended				
By classmate	1	1.09	0	0.00
By instructor	5	5.43	6	7.79
By counselor	2	2.17	24	31.17
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	2	2.17	0	0.00
Second most important factor	3	3.26	2	2.60
To get a programmed instruction section				
Primary reason	1	1.09	2	2.60
Second most important factor	0	0.00	0	0.00
Preference for lecture/discussion instruction				
Primary reason	3	3.26	12	15.58
Second most important factor	7	7.61	15	19.48
Class met at a convenient time				
Primary reason	42	45.65	31	40.26
Second most important factor	25	27.17	14	18.18
Other sections already full				
Primary reason	10	10.87	10	12.99
Second most important factor	7	7.61	4	5.19
To take course with a particular instructor				
Primary reason	7	7.61	2	2.60
Second most important factor	3	3.26	0	0.00
No particular reason				
Primary reason	23	25.00	14	18.18
Second most important factor	14	15.22	17	22.08

Student Enrollment in Comparison Groups:
Reasons for Section Selection
Northern Virginia Community College
English 111
Spring Quarter, 1976

	TICCIT* (N ≅ 161)		Lecture (N ≅ 191)	
	N	Percent	N	Percent
Knew about instructional method at registration	47	40.52	109	57.07
Section was recommended				
By classmate	9	7.76	4	2.09
By instructor	29	25.00	17	8.90
By counselor	8	6.90	32	16.75
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	12	10.34	0	0.00
Second most important factor	2	1.72	0	0.00
To get a programmed instruction section				
Primary reason	2	1.72	2	1.05
Second most important factor	3	2.59	1	.52
Preference for lecture/discussion instruction				
Primary reason	10	8.62	35	18.32
Second most important factor	10	8.62	27	14.14
Class met at a convenient time				
Primary reason	42	36.21	87	45.55
Second most important factor	26	22.41	43	22.51
Other sections already full				
Primary reason	6	5.17	26	13.61
Second most important factor	7	6.03	12	6.28
To take course with a particular instructor				
Primary reason	21	18.10	10	5.24
Second most important factor	8	6.90	5	2.62
No particular reason				
Primary reason	16	13.79	23	12.04
Second most important factor	22	18.97	44	23.04

*These totals include nine students who actually took English 111 in the lecture-discussion condition.

Student Enrollment in Comparison Groups: Reasons for Section Selection
Northern Virginia Community College
English 111
Fall Quarter, 1976

	TICCIT (N ≅ 155)		Lecture (N ≅ 98)	
	N	Percent	N	Percent
Knew about instructional method at registration	37	23.87	64	65.31
Section was recommended				
By classmate	3	1.94	1	1.02
By instructor	17	10.97	6	6.12
By counselior	20	12.90	30	30.61
Reasons cited for section choice:				
To take a course with TICCIT				
Primary reason	8	5.16	4	4.08
Second most important factor	8	5.16	4	4.08
To get a programmed instruction section				
Primary reason	3	1.94	4	4.08
Second most important factor	4	2.58	1	1.02
Preference for lecture/discussion instruction				
Primary reason	14	9.03	14	14.29
Second most important factor	13	8.39	9	9.18
Class met at a convenient time				
Primary reason	61	39.35	37	37.76
Second most important factor	28	18.06	23	23.47
Other sections already full				
Primary reason	23	14.84	13	13.27
Second most important factor	14	9.03	5	5.10
To take course with a particular instructor				
Primary reason	8	5.16	5	5.10
Second most important factor	7	4.52	1	1.02
No particular reason				
Primary reason	26	16.77	12	12.24
Second most important factor	39	25.16	24	24.49

Appendix L

STUDENT DEMOGRAPHIC PROFILE

Student Demographic Profile
Characteristics within TICCIT Condition
Contrasted on Course Completion
Phoenix College
Math 007
Fall Semester, 1975

	Students Enrolled in Course (N = 168)		Students Completing Course (N = 22)	
	Mean	sd	Mean	sd
Age (years)	22.62	6.2	22.71	6.6
College grade point average	2.83	.6	2.89	.5
Total college credits	16.70	24.1	22.80	28.2
High school grade point average	2.52	.7	2.83	.7

	N	Percent	N	Percent
High school curriculum:				
General	96	57.1	14	63.6
Vocational	4	2.4	1	4.6
College preparatory/academic	16	9.5	3	13.6
GED	21	12.5	3	13.6
Student load (credit hours for current term):				
Part-time	56	33.3	4	18.2
Full-time	90	53.6	15	68.2
Employment (current term):				
None	38	22.6	5	22.7
Part-time	59	35.1	8	36.4
Full-time	45	26.8	4	18.2

Student Demographic Profile
Characteristics within TICCIT Condition: Contrasted on Course Completion
Phoenix College
Math 106
Fall Semester, 1975

	Students Enrolled in Course (N = 99)		Students Completing Course (N = 29)	
	Mean	sd	Mean	sd
Age (years)	24.88	7.0	22.37	4.4
College grade point average	2.97	.5	3.02	.5
Total college credits	32.18	35.4	31.95	44.6
High school grade point average	2.83	.6	2.96	.5

	N	Percent	N	Percent
High school curriculum:				
General	41	41.4	17	58.6
Vocational	2	2.0	0	0.0
College preparatory/academic	28	28.3	8	27.6
GED	12	12.1	1	3.4
Student load (credit hours for current term):				
Part-time	38	38.4	8	27.6
Full-time	48	48.5	18	62.1
Employment (current term):				
None	23	23.2	9	31.0
Part-time	22	22.2	10	34.5
Full-time	42	42.4	8	27.6

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Phoenix College
Math 007, 106, 108, and 117
Spring Semester, 1976

	TICCIT (N = 309)		Lecture (N = 533)	
	Mean	sd	Mean	sd
Age (years)	23.12	6.5	24.23	6.7
College grade point average	2.94	.5	2.95	.6
Total college credits	27.70	27.8	26.81	23.7
High school grade point average	2.75	.6	2.74	.6

	N	Percent	N	Percent
Sex:				
Male	310	69.0	334	62.7
Female	139	31.0	194	36.4
High school curriculum:				
General	162	52.4	294	55.2
Vocational	7	2.3	17	3.2
College preparatory/academic	68	22.0	124	23.3
GED	34	11.0	57	10.7
Student load (credit hours for current term):				
Part-time	92	29.8	203	38.1
Full-time	201	65.0	324	60.8
Employment (current term):				
None	81	26.2	128	24.0
Part-time	109	35.3	163	30.6
Full-time	99	32.0	226	42.4
Previously enrolled in this course:				
Total	70	22.6	89	16.7
TICCIT	50	16.2	26	4.9
Lecture	9	2.9	49	9.2

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Phoenix College
Math 007
Spring Semester, 1976

	TICCIT (N = 115)		Lecture (N = 217)	
	Mean	sd	Mean	sd
Age (years)	23.28	6.8	24.66	7.3
College grade point average	2.81	.5	2.90	.6
Total college credits	20.74	26.2	19.90	17.4
High school grade point average	2.66	.6	2.61	.6

	N	Percent	N	Percent
Sex:				
Male	126	69.6	120	55.3
Female	55	30.4	93	42.9
High school curriculum:				
General	50	43.5	122	56.2
Vocational	1	.9	6	2.8
College preparatory/academic	21	18.3	36	16.6
GED	19	16.5	30	13.8
Student load (credit hours for current term):				
Part-time	36	31.3	73	33.6
Full-time	68	59.1	140	64.5
Employment (current term):				
None	35	30.4	63	29.0
Part-time	32	27.8	66	30.4
Full-time	34	29.6	78	35.9
Previously enrolled in this course:				
Total	21	18.3	29	13.4
TICCIT	16	13.9	7	3.2
Lecture	1	.9	16	7.4

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Phoenix College
Math 106
Spring Semester, 1976

	TICCIT (N = 93)		Lecture (N = 144)	
	Mean	sd	Mean	sd
Age (years)	24.53	7.3	25.15	7.4
College grade point average	2.96	.5	2.98	.6
Total college credits	36.11	32.1	32.93	27.7
High school grade point average	2.70	.4	2.82	.6

	N	Percent	N	Percent
Sex:				
Male	85	67.5	99	68.7
Female	41	32.5	45	31.2
High school curriculum:				
General	57	61.3	80	55.6
Vocational	4	4.3	5	3.5
College preparatory/academic	20	21.5	35	24.3
GED	8	8.6	17	11.8
Student load (credit hours for current term):				
Part-time	36	38.7	57	39.6
Full-time	57	61.3	86	59.7
Employment (current term):				
None	22	23.7	33	22.9
Part-time	33	35.5	45	31.2
Full-time	38	40.9	64	44.4
Previously enrolled in this course:				
Total	29	31.2	32	22.2
TICCIT	19	20.4	13	9.0
Lecture	5	5.4	16	11.1

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Phoenix College
Math 108
Spring Semester, 1976

	TICCIT (N = 56)		Lecture (N = 70)	
	Mean	sd	Mean	sd
Age (years)	21.67	4.6	22.44	4.5
College grade point average	2.99	.5	2.88	.5
Total college credits	24.45	20.0	25.88	20.5
High school grade point average	2.89	.5	2.75	.6

	N	Percent	N	Percent
Sex:				
Male	51	63.0	39	55.7
Female	30	37.0	31	44.3
High school curriculum:				
General	32	57.1	43	61.4
Vocational	1	1.8	4	5.7
College preparatory/academic	13	23.2	16	22.9
GED	3	5.4	5	7.1
Student load (credit hours for current term):				
Part-time	8	14.3	30	42.9
Full-time	45	80.4	40	57.1
Employment (current term):				
None	12	21.4	14	20.0
Part-time	27	48.2	21	30.0
Full-time	13	23.2	34	48.6
Previously enrolled in this course:				
Total	12	21.4	12	17.1
TICCIT	9	16.1	5	7.1
Lecture	3	5.4	7	10.0

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Phoenix College
Math 117
Spring Semester, 1976

	TICCIT (N = 45)		Lecture (N = 102)	
	Mean	sd	Mean	sd
Age (years)	21.53	4.9	23.22	5.2
College grade point average	3.04	.5	3.04	.6
Total college credits	28.47	23.4	32.95	26.6
High school grade point average	2.93	.5	2.86	.6

	N	Percent	N	Percent
Sex:				
Male	48	78.7	76	74.5
Female	13	21.3	25	24.5
High school curriculum:				
General	23	51.1	49	48.0
Vocational	1	2.2	2	2.0
College preparatory/academic	14	31.1	37	36.3
GED	4	8.9	5	4.9
Student load (credit hours for current term):				
Part-time	12	26.7	43	42.2
Full-time	31	68.9	58	56.9
Employment (current term):				
None	12	26.7	18	17.6
Part-time	17	37.8	31	30.4
Full-time	14	31.1	50	49.0
Previously enrolled in this course:				
Total	8	17.8	16	15.7
TICCIT	6	13.3	1	1.0
Lecture	0	0.0	10	9.8

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Northern Virginia Community College
Math 31
Fall Quarter, 1975

	TICCIT (N ≅ 110)		Programmed (N ≅ 51)		Lecture (N ≅ 83)	
	Mean	sd	Mean	sd	Mean	sd
Age (years)	25.48	8.5	24.14	5.7	25.17	7.2
College grade point average	2.74	.7	2.85	.6	2.85	.6
Total college credits	23.69	30.6	13.53	23.9	24.29	40.6
High school grade point average	2.52	.6	2.46	.7	2.40	.6
	N	Percent	N	Percent	N	Percent
High school curriculum:						
General	53	48.2	26	51.0	45	54.2
Vocational	9	8.2	4	7.8	5	6.0
College preparatory/academic	18	16.4	8	15.7	17	20.5
GED	12	10.9	4	7.8	10	12.0
Student load (credit hours for current term):						
Part-time	40	36.4	23	45.1	30	36.1
Full-time	56	50.9	24	27.1	51	61.4
Employment (current term):						
None	31	28.2	10	19.6	29	34.9
Part-time	22	20.0	11	21.6	27	32.5
Full-time	45	40.9	27	52.9	26	31.3
Previously enrolled in this course:						
Total	33	30.0	22	43.1	13	15.7
TICCIT	7	6.4	0	0.0	1	1.2
Programmed	22	20.0	20	39.2	9	10.8
Lecture	4	3.6	2	3.9	3	3.6

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Northern Virginia Community College
Math 31
Winter Quarter, 1976

	TICCIT (N = 74)		Lecture (N = 41)		Programmed (N = 45)	
	Mean	sd	Mean	sd	Mean	sd
Age (years)	25.66	8.4	25.05	4.3	27.82	9.3
College grade point average	3.02	0.7	2.89	0.5	2.67	1.1
Total college credits	19.88	32.8	20.55	27.6	17.53	31.3
High school grade point average	2.46	0.7	2.35	0.6	2.65	0.6

	N	Percent	N	Percent	N	Percent
Sex:						
Male	86	56.6	44	66.7	27	57.5
Female	60	39.5	22	33.3	19	40.4
High school curriculum:						
General	63	41.5	37	56.01	25	53.2
Vocational	6	4.0	4	6.1	5	10.6
College preparatory/academic	37	24.3	11	16.7	5	10.6
GED	18	11.8	5	7.6	6	12.8
Student load (credit hours for current term):						
Part-time	51	33.6	24	36.4	22	46.8
Full-time	89	58.6	37	56.1	22	46.8
Employment (current term):						
None	47	30.9	21	31.8	10	21.3
Part-time	45	29.6	16	24.2	11	23.4
Full-time	51	33.6	26	39.4	25	53.2
Previously enrolled in this course:						
Total	48	31.6	19	28.8	16	34.0
TICCIT	35	23.0	7	10.6	7	14.9
Lecture	5	3.3	7	10.6	0	0.0
Programmed	6	4.0	6	9.1	9	19.2

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Northern Virginia Community College
Math 32
Winter Quarter, 1976

	TICCIT (N = 29)		Lecture (N = 24)	
	Mean	sd	Mean	sd
Age (years)	24.07	5.9	23.42	5.4
College grade point average	3.03	0.6	2.88	0.8
Total college credits	24.25	29.5	19.77	25.9
High school grade point average	2.62	0.7	2.48	0.6

	N	Percent	N	Percent
Sex:				
Male	86	56.6	44	66.7
Female	60	39.5	22	33.3
High school curriculum:				
General	63	41.5	37	56.1
Vocational	6	4.0	4	6.1
College preparatory/academic	37	24.3	11	16.7
GED	18	11.8	5	7.6
Student load (credit hours for current term):				
Part-time	51	33.6	24	36.4
Full-time	89	58.6	37	56.1
Employment (current term):				
None	47	30.9	21	31.8
Part-time	45	29.6	16	24.2
Full-time	51	33.6	26	39.4
Previously enrolled in this course:				
Total	48	31.6	19	28.8
TICCIT	35	23.0	7	10.6
Lecture	5	3.3	7	10.6

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Northern Virginia Community College
Math 31
Spring Quarter, 1976

	TICCIT (N = 38)		Lecture (N = 35)		Programmed (N = 54)	
	Mean	sd	Mean	sd	Mean	sd
Age (years)	25.13	6.6	25.80	7.8	27.87	7.7
College grade point average	2.76	0.8	3.07	0.9	2.59	0.5
Total college credits	28.40	35.1	16.96	32.3	26.77	48.0
High school grade point average	2.47	0.6	2.30	0.6	2.57	0.5

	N	Percent	N	Percent	N	Percent
Sex:						
Male	43	56.6	44	57.9	35	61.4
Female	27	35.5	25	32.9	21	36.8
High school curriculum:						
General	34	44.7	42	55.3	23	40.4
Vocational	4	5.3	3	4.0	7	12.3
College preparatory/academic	15	19.7	8	17.1	10	17.5
GED	7	9.2	8	10.5	6	10.5
Student load (credit hours for current term):						
Part-time	26	34.2	27	35.5	37	64.9
Full-time	39	51.3	44	57.9	17	29.8
Employment (current term):						
None	20	26.3	21	27.6	13	22.8
Part-time	21	27.6	20	26.3	11	19.3
Full-time	26	34.2	33	43.4	31	54.4
Previously enrolled in this course:						
Total	36	47.4	22	29.0	19	33.3
TICCIT	28	36.8	14	18.4	1	1.8
Lecture	1	1.3	4	5.3	2	3.5
Programmed	6	7.9	4	5.3	16	28.1

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Northern Virginia Community College
Math 32
Spring Quarter, 1976

	TIGCIT (N = 34)		Lecture (N = 40)	
	Mean	sd	Mean	sd
Age (years)	26.12	8.7	25.28	5.7
College grade point average	3.02	0.8	2.97	0.5
Total college credits	37.59	51.9	34.88	31.7
High school grade point average	2.54	0.9	2.64	0.5

	N	Percent	N	Percent
Sex:				
Male	43	56.6	44	57.9
Female	27	35.5	25	32.9
High school curriculum:				
General	34	44.7	42	55.3
Vocational	4	5.3	3	4.0
College preparatory/academic	15	19.7	13	17.1
GED	7	9.2	8	10.5
Student load (credit hours for current term):				
Part-time	26	34.2	27	35.5
Full-time	39	51.3	44	57.9
Employment (current term):				
None	20	26.3	21	27.6
Part-time	21	27.6	20	26.3
Full-time	26	34.2	33	43.4
Previously enrolled in this course:				
Total	36	47.4	22	29.0
TICCIT	28	36.8	14	18.4
Lecture	1	1.3	4	5.3

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Phoenix College
English 19 and 29
Spring Semester, 1976

	TICCIT (N = 96)		Lecture (N = 167)	
	Mean	sd	Mean	sd
Age (years)	25.13	7.5	24.98	8.2
College grade point average	2.84	.5	2.60	.7
Total college credits	11.56	17.8	9.77	19.4
High school grade point average	2.49	.6	2.45	.6

	N	Percent	N	Percent
Sex:				
Male	92	66.7	110	65.9
Female	46	33.3	56	33.4
High school curriculum:				
General	42	43.7	91	54.5
Vocational	3	3.1	8	4.8
College preparatory/academic	7	7.3	13	7.8
GED	22	22.9	32	19.2
Student load (credit hours for current term):				
Part-time	44	45.8	62	37.1
Full-time	40	41.7	94	56.3
Employment (current term):				
None	21	21.9	65	38.9
Part-time	18	18.7	22	[illegible]
Full-time	47	49.0	73	[illegible]
Previously enrolled in this course:				
Total	2	2.1	16	9.6
TICCIT	0	0.0	2	1.2
Lecture	1	1.0	9	12.0

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Phoenix College
English 19
Spring Semester, 1976

	TICCIT (N = 45)		Lecture (N = 102)	
	Mean	sd	Mean	sd
Age (years)	21.97	5.3	22.56	6.6
College grade point average	2.89	.6	2.56	.7
Total college credits	10.51	9.8	5.65	8.5
High school grade point average	2.56	.5	2.46	.6

	N	Percent	N	Percent
Sex:				
Male	53	63.9	59	57.8
Female	30	36.1	42	41.2
High school curriculum:				
General	21	46.7	57	55.9
Vocational	1	2.2	7	6.9
College preparatory/academic	4	8.9	8	7.8
GED	8	17.8	17	16.7
Student load (credit hours for current term):				
Part-time	12	26.7	22	21.6
Full-time	29	64.4	74	72.6
Employment (current term):				
None	16	35.6	57	55.9
Part-time	16	35.6	18	17.6
Full-time	8	17.8	22	21.6
Previously enrolled in this course:				
Total	1	2.2	11	10.8
TICCIT	0	0.0	2	2.0
Lecture	1	2.2	6	5.9

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Phoenix College
English 29
Spring Semester, 1976

	TICCIT (N = 51)		Lecture (N = 65)	
	Mean	sd	Mean	sd
Age (years)	27.81	8.1	28.72	8.9
College grade point average	2.80	.5	2.63	.6
Total college credits	12.60	23.1	15.50	27.3
High school grade point average	2.44	.7	2.43	.5

	N	Percent	N	Percent
Sex:				
Male	39	70.9	51	78.5
Female	16	29.1	14	21.5
High school curriculum:				
General	21	41.2	34	52.3
Vocational	2	3.9	1	1.5
College preparatory/academic	3	5.9	5	7.7
GED	14	27.4	15	23.1
Student load (credit hours for current term):				
Part-time	32	62.7	40	61.5
Full-time	11	21.6	20	30.8
Employment (current term):				
None	5	9.8	8	12.3
Part-time	2	3.9	4	6.1
Full-time	39	76.5	51	78.5
Previously enrolled in this course:				
Total	1	2.0	5	7.7
TICCIT	0	0.0	0	0.0
Lecture	0	0.0	3	4.6

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Phoenix College
English 19 and 29
Fall Semester, 1976

	TICCIT (N ≅ 177)		Lecture (N ≅ 293)	
	Mean	sd	Mean	sd
Age (years)	21.38	4.83	21.98	6.53
College grade point average	2.87	.70	2.70	.62
Total college credits	7.08	17.86	6.27	13.52
High school grade point average	2.58	.58	2.52	.63
	N	Percent	N	Percent
Sex:				
Male	101	52.06	173	57.86
Female	90	46.39	122	40.80
High school curriculum:				
General	107	55.15	181	60.54
Vocational	8	4.12	14	4.68
College preparatory/academic	11	5.67	30	10.03
GED	20	10.31	34	11.37
Student load (credit hours for current term):				
Part-time	68	35.05	91	30.43
Full-time	108	55.67	194	64.88
Employment (current term):				
None	58	29.90	100	33.44
Part-time	59	30.41	95	31.77
Full-time	62	31.96	89	29.77
Previously enrolled in this course:				
Total	1	.52	17	5.69
TICCIT	1	.52	7	2.34
Lecture	0	.00	10	3.34

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Phoenix College
English 19
Fall Semester, 1976

	TICCIT (N = 123)		Lecture (N = 208)	
	Mean	sd	Mean	sd
Age (years)	20.27	4.03	19.90	4.59
College grade point average	2.85	.75	2.60	.58
Total college credits	5.27	13.80	3.95	7.32
High school grade point average	2.60	.55	2.56	.59
	N	Percent	N	Percent
Sex:				
Male	72	54.14	123	58.29
Female	59	44.36	87	41.23
High school curriculum:				
General	76	57.14	140	66.35
Vocational	5	3.76	8	3.79
College preparatory/academic	8	6.02	21	9.95
GED	13	9.77	17	8.06
Student load (credit hours for current term):				
Part-time	28	21.05	28	13.27
Full-time	94	70.68	173	81.99
Employment (current term):				
None	58	29.90	90	42.65
Part-time	59	30.41	87	41.23
Full-time	62	31.96	24	11.37
Previously enrolled in this course:				
Total	1	.75	12	2.84
TICCIT	1	.75	6	2.84
Lecture	0	0.00	6	2.84

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Phoenix College
English 29
Fall Semester, 1976

	TICCIT (N = 54)		Lecture (N = 85)	
	Mean	sd	Mean	sd
Age (years)	23.93	5.50	27.05	7.70
College grade point average	2.89	.61	2.85	.65
Total college credits	11.28	24.36	11.35	20.70
High school grade point average	2.54	.64	2.41	.71
	N	Percent	N	Percent
Sex:				
Male	29	47.54	50	56.82
Female	31	50.82	35	39.77
High school curriculum:				
General	31	50.82	41	46.59
Vocational	3	4.92	6	6.82
College preparatory/academic	3	4.92	9	10.23
GED	7	11.48	17	19.32
Student load (credit hours for current term):				
Part-time	40	65.57	63	71.59
Full-time	14	22.95	21	23.86
Employment (current term):				
None	5	8.20	10	11.36
Part-time	7	11.48	8	9.09
Full-time	44	72.13	65	73.86
Previously enrolled in this course:				
Total	0	0.00	5	5.68
TICCIT	0	0.00	1	1.14
Lecture	0	0.00	4	4.55

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Northern Virginia Community College
English 111
Winter Quarter, 1976

	TICCIT (N ≅ 90)		Lecture (N ≅ 76)	
	Mean	sd	Mean	sd
Age (years)	23.08	7.07	24.17	7.01
College grade point average	2.79	.77	3.04	.60
Total college credits	13.91	22.55	12.43	15.99
High school grade point average	2.64	.59	2.50	.56
	N	Percent	N	Percent
Sex:				
Male	53	59.78	45	58.44
Female	35	38.04	32	41.56
High school curriculum:				
General	43	46.74	41	53.25
Vocational	5	5.43	3	3.90
College preparatory/academic	29	31.52	16	20.78
GED	5	5.43	10	12.99
Student load (credit hours for current term):				
Part-time	21	22.83	33	42.86
Full-time	68	73.91	44	57.14
Employment (current term):				
None	46	50.00	32	41.56
Part-time	24	26.09	13	16.88
Full-time	16	17.39	29	37.66
Previously enrolled in this course:				
Total	7	7.60	7	9.09
TICCIT	0	0.00	1	1.30
Lecture	5	5.43	6	7.79
Programmed	2	2.17	0	0.00

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Northern Virginia Community College
English 111
Spring Quarter, 1976

	TICCIT (N = 106)		Lecture (N = 185)	
	Mean	sd	Mean	sd
Age (years)	24.13	7.89	25.76	6.21
College grade point average	2.88	.74	2.99	.66
Total college credits	15.97	17.74	17.88	24.55
High school grade point average	2.52	.63	2.68	.61
Sex:	N	Percent	N	Percent
Male	51	43.97	86	45.03
Female	58	50.00	103	53.93
High school curriculum:				
General	50	43.10	83	43.46
Vocational	4	3.45	13	6.81
College preparatory/academic	21	18.10	58	30.37
GED	12	10.34	12	6.28
Student load (credit hours for current term):				
Part-time	35	30.17	125	65.45
Full-time	70	60.34	60	31.41
Employment (current term):				
None	41	35.34	33	17.28
Part-time	40	34.48	23	12.04
Full-time	21	18.10	132	69.11
Previously enrolled in this course:				
Total	13	11.21	14	7.33
TICCIT	4	3.45	1	.52
Lecture	9	7.76	11	5.76
Programmed	0	0.00	2*	1.05

*These totals include nine students who actually took English 111 in the lecture-discussion condition.

Student Demographic Profile
Characteristics across Comparison Groups:
All Students Enrolled in Course
Northern Virginia Community College
English 111
Fall Quarter, 1976

	TICCIT (N = 152)		Lecture (N = 94)	
	Mean	sd	Mean	sd
Age (years)	21.99	4.96	22.87	6.99
College grade point average	2.93	.72	2.96	.65
Total college credits	9.52	16.24	8.37	15.53
High school grade point average	2.67	.56	2.64	.61

	N	Percent	N	Percent
Sex:				
Male	85	54.84	50	51.02
Female	66	42.58	44	44.90
High school curriculum:				
General	72	46.45	44	44.90
Vocational	6	3.87	3	3.06
College preparatory/academic	44	28.39	20	20.41
GED	14	9.03	9	9.18
Student load (credit hours for current term):				
Part time	34	21.94	30	30.61
Full time	117	75.48	62	63.27
Employment (current term):				
None	55	35.48	24	24.49
Part-time	60	38.71	31	31.63
Full time	36	23.23	35	35.71
Previously enrolled in this course:				
Total	13	8.39	6	6.12
TICCIT	5	3.23	2	3.64
Lecture	7	4.52	3	5.45
Programmed	1	.65	1	1.82

COURSE COMPLETION RATES

Course Completion Rates
Phoenix College
Math 007
Fall Semester, 1974

Section Number	Comparison Group	Number of Students	Grade Distribution A-D	F	Z	X	W	Completion Rates I	II	III
01	TICCIT (day)	15	5	0	2	0	8	.33	.71	.47
02	TICCIT	16	4	0	4	0	8	.25	.50	.50
04	Autotutorial (day)	33	19	1	2	0	11	.58	.86	.64
05	Autotutorial (eve.)	37	18	0	12	0	7	.49	.60	.81
06	Lecture (day)	29	12	0	9	0	8	.41	.57	.72
07	Lecture	31	15	0	8	0	8	.48	.65	.74
08	Lecture	37	23	0	5	0	9	.62	.82	.76
09	Lecture	35	21	0	9	0	5	.60	.70	.86
10	Lecture	32	9	0	9	4	10	.28	.41	.69
11	Lecture	36	18	1	0	0	17	.50	.95	.50
12	Lecture	33	24	0	3	1	5	.73	.86	.85
13	Lecture (eve.)	15	6	0	3	3	3	.40	.50	.80
14	Lecture	38	16	0	12	0	10	.42	.57	.74
15	Lecture	42	22	0	11	1	8	.52	.65	.81
16	Lecture	37	11	0	11	5	10	.30	.41	.73
17	Lecture	17	15	0	0	0	2	.88	1.00	.88
	Total	483	238	2	100	14	129	.49	.67	.73
	TICCIT	31	9	0	6	0	16	.29	.60	.48
	Autotutorial	70	37	1	14	0	18	.53	.71	.73
	Lecture	382	192	1	80	14	95	.50	.67	.75

Completion Rates:

I (A,B,C,D)/N

II (A,B,C,D)/N-W

III (A,B,C,D,X,W)/N

Course Completion Rates
Phoenix College
Math 007
Spring Semester, 1975

Section Number	Comparison Group	Number of Students	Grade Distribution A-D	F	Z	X	W	Completion Rates I	II	III
01	TICCIT (day)	32	5	0	22	0	5	.16	.19	.84
02	TICCIT	33	6	0	20	1	6	.18	.22	.82
03	Autotutorial (day)	34	9	0	9	6	10	.26	.37	.71
04	Lecture (day)	37	21	3	5	0	8	.57	.72	.70
05	Lecture	35	16	4	7	0	8	.46	.59	.66
06	Lecture	38	21	0	1	0	16	.55	.95	.58
07	Lecture	30	13	3	4	0	10	.43	.65	.57
08	Lecture	17	7	1	2	0	7	.41	.70	.53
09	Lecture (eve.)	35	18	0	12	1	4	.51	.58	.89
10	Lecture	26	15	0	6	0	5	.58	.71	.81
	Total	317	131	11	88	8	79	.41	.55	.72
	TICCIT	65	11	0	42	1	11	.17	.20	.83
	Autotutorial	34	9	0	9	1	10	.26	.37	.71
	Lecture	218	111	11	37	6	58	.51	.69	.71
	Lecture (day)	157	78	11	19	5	49	.50	.72	.65
	Lecture (eve.)	61	33	0	18	1	9	.54	.63	.85

Completion Rates:

I (A,B,C,D)/N

II (A,B,C,D)/N-W

III (A,B,C,D,X,Z)/N-W

Course Completion Rates
Phoenix College
Math 007
Fall Semester, 1975

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT (day)	152	7	7	4	1	0	2	106	25	.13	.15	.84
02	TICCIT (eve.)	63	5	2	1	0	0	0	30	25	.13	.21	.60
03	Lecture(day)	42	6	8	5	5	1	1	10	6	.57	.67	.83
04	Lecture	41	7	5	5	4	3	1	6	10	.51	.68	.68
05	Lecture	36	7	9	1	2	0	0	2	15	.53	.90	.58
06	Lecture	39	3	3	6	1	0	0	9	17	.33	.59	.54
07	Lecture	37	4	4	4	1	2	0	14	8	.35	.45	.73
08	Lecture	30	2	2	4	2	1	2	1	16	.33	.71	.43
09	Lecture (eve.)	31	5	1	4	2	0	0	8	11	.39	.60	.65
10	Lecture	37	7	6	5	2	0	0	10	7	.54	.67	.81
11	Lecture	44	17	6	5	1	0	1	4	10	.66	.85	.77
12	Lecture	20	7	0	1	0	0	1	2	9	.40	.72	.55
	Total	572	77	53	45	21	7	8	202	159	.34	.47	.71
	TICCIT	215	12	9	5	1	0	2	136	50	.13	.16	.77
	TICCIT (day)	152	7	7	4	1	0	2	106	25	.13	.15	.84
	TICCIT (eve.)	63	5	2	1	0	0	0	30	25	.13	.21	.60
	Lecture	357	65	44	40	20	7	6	66	109	.47	.68	.68
	Lecture(day)	225	29	31	25	15	7	4	42	72	.44	.65	.65
	Lecture(eve.)	132	36	13	15	5	0	2	24	37	.52	.73	.72
	Day	377	36	38	29	16	7	6	148	97	.32	.43	.72
	Evening	195	41	15	16	5	0	2	54	62	.39	.58	.68

Completion Rates: I (A,B,C,D)/N II (A,B,C,D)/N-W III (A,B,C,D,X,Z)/N

Course Completion Rates
Phoenix College
Math 106
Fall Semester, 1975

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT (day)	93	8	7	9	1	0	0	54	14	.27	.32	.85
02	TICCIT (eve.)	51	4	3	2	0	0	1	26	15	.17	.25	.71
03	Lecture(day)	32	1	5	6	1	2	0	1	16	.41	.81	.44
04	Lecture	34	4	3	6	2	0	0	8	11	.44	.65	.68
05	Lecture	31	2	2	7	2	0	0	3	15	.42	.81	.52
06	Lecture(eve.)	33	3	4	2	2	0	1	6	15	.33	.61	.55
07	Lecture	33	7	8	6	0	0	0	6	6	.64	.78	.82
	Total	307	29	32	38	8	2	2	104	92	.35	.50	.69
	TICCIT	144	12	10	11	1	0	1	80	29	.24	.30	.80
	TICCIT (day)	93	8	7	9	1	0	0	54	14	.27	.32	.85
	TICCIT (eve.)	51	4	3	2	0	0	1	26	15	.17	.25	.71
	Lecture	163	17	22	27	7	2	1	24	63	.45	.73	.60
	Lecture(day)	97	7	10	19	5	2	0	12	42	.42	.75	.55
	Lecture(eve.)	66	10	12	8	2	0	1	12	21	.48	.71	.68
	Day	190	15	17	28	6	2	0	66	66	.35	.53	.69
	Evening	117	14	15	10	2	0	2	38	36	.35	.51	.65

Completion Rates: I (A,B,C,D)/N II (A,B,C,D)/N-W III (A,B,C,D,X,Z)/N

Course Completion Rates
Phoenix College
Math 108
Fall Semester, 1975

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT (day)	76	4	3	3	0	0	2	52	12	.13	.16	.84
02	Lecture (day)	37	1	2	10	3	0	0	5	16	.43	.76	.57
03	Lecture	33	3	8	7	0	0	0	4	11	.55	.82	.67
04	Lecture	14	3	1	2	2	0	0	1	5	.57	.89	.64
	Total	160	11	14	22	5	0	2	62	44	.32	.45	.72
	TICCIT	76	4	3	3	0	0	2	52	12	.13	.16	.84
	Lecture	84	7	11	19	5	0	0	10	32	.50	.81	.62

Completion Rates: I (A,B,C,D)/N II (A,B,C,D)/N-W III (A,B,C,D,X,Z)/N

Course Completion Rates
Phoenix College
Math 007
Spring Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT (day)	147	6	5	11	4	2	17	63	39	.18	.24	.72
02	TICCIT (eve.)	48	2	1	1	1	0	6	19	18	.10	.17	.79
03	Lecture(day)	39	4	9	12	1	0	0	3	10	.67	.90	.74
04	Lecture	37	6	9	4	0	0	1	10	7	.51	.63	.81
05*	Lecture	40	9	3	8	0	0	1	4	11	.60	.83	.72
06	Lecture	38	2	10	4	2	0	0	3	17	.47	.62	.55
07	Lecture(eve.)	34	5	5	4	2	4	0	4	10	.47	.67	.59
08	Lecture	36	7	5	6	0	0	0	9	9	.50	.67	.75
09	Lecture	34	4	10	3	1	0	0	7	9	.53	.72	.74
10	Lecture	31	7	4	0	0	0	0	12	8	.35	.48	.74
	Total	484	52	61	53	11	6	25	134	138	.37	.52	.70
	TICCIT	195	8	6	12	5	2	23	82	57	.16	.22	.70
	TICCIT (day)	147	6	5	11	4	2	17	63	39	.18	.24	.72
	TICCIT (eve.)	48	2	1	1	1	0	6	19	18	.10	.17	.63
	Lecture	289	44	55	41	6	4	2	52	81	.52	.72	.71
	Lecture(day)	154	21	31	28	3	0	2	20	45	.56	.80	.71
	Lecture(eve.)	135	23	24	13	3	4	0	32	36	.47	.64	.70
	Day	301	27	36	39	7	2	19	83	84	.36	.50	.70
	Evening	183	25	25	14	4	4	6	51	54	.37	.53	.68

Completion Rates: I (A,B,C,D)/N II (A,B,C,D)/N-W III (A,B,C,D,X,Z)/N

*Figures for this class as well as the totals which involve lecture classes include four passing grades (P) as grades with credit (totals for A,B,C,D).

Course Completion Rates
Phoenix College
Math 106
Spring Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT (day)	93	1	4	6	3	0	11	43	25	.15	.21	.73
02	TICCIT (eve.)	42	0	1	0	0	0	8	18	15	.24	.04	.64
03	Lecture(day)	33	4	3	8	1	1	0	4	12	.48	.76	.61
04	Lecture	33	4	6	7	1	1	0	2	12	.58	.90	.64
05	Lecture	28	2	4	8	1	0	0	5	8	.54	.75	.71
06	Lecture(eve.)	36	10	4	3	0	0	0	2	16	.47	.85	.53
07	Lecture	33	10	5	5	0	0	0	10	3	.61	.67	.91
	Total	298	31	27	37	6	2	19	84	91	.34	.54	.68
	TICCIT	135	1	5	6	3	0	19	61	40	.11	.16	.70
	TICCIT (day)	93	1	4	6	3	0	11	43	25	.15	.21	.73
	TICCIT (eve.)	42	0	1	0	0	0	8	18	15	.02	.04	.64
	Lecture	163	30	22	31	3	2	0	23	51	.53	.93	.67
	Lecture(day)	94	10	13	23	3	2	0	11	32	.52	.79	.64
	Lecture(eve.)	69	20	9	8	0	0	0	12	19	.54	.74	.71
	Day	187	11	17	29	6	2	11	54	57	.34	.48	.68
	Evening	111	20	10	8	0	0	8	30	34	.34	.49	.68

Completion Rates: I (A,B,C,D)/N II (A,B,C,D)/N-W III (A,B,C,D,X,Z)/N

Course Completion Rates
Phoenix College
Math 108
Spring Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT (day)	85	2	3	4	2	1	13	45	15	.13	.16	.81
02	Lecture (day)	33	3	2	9	3	0	0	0	16	.52	1.00	.52
03	Lecture	33	2	2	8	2	0	1	12	5	.42	.50	.82
04	Lecture (eve.)	26	3	7	0	0	0	0	3	13	.38	.77	.50
05	Lecture	24	4	2	3	1	0	0	0	14	.42	1.00	.42
	Total	201	14	16	24	8	1	14	60	63	.23	.34	.60
	TICCIT	85	2	3	4	2	1	13	45	15	.13	.16	.81
	Lecture	116	12	13	20	6	0	1	15	48	.44	.75	.58
	Lecture (day)	66	5	4	17	5	0	1	12	21	.47	.69	.67
	Lecture (eve.)	50	7	9	3	1	0	0	3	27	.40	.87	.46

Completion Rates: I (A,B,C,D)/N II (A,B,C,D)/N-W III (A,B,C,D,X,Z)/N

Course Completion Rates
Phoenix College
Math 117
Spring Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT (day)	48	3	3	6	1	0	9	12	14	.27	.38	.71
02	TICCIT (eve.)	13	0	0	1	0	0	2	4	6	.08	.14	.54
03	Lecture(day)	30	6	5	8	1	0	0	1	9	.67	.95	.70
04	Lecture	35	9	5	6	0	0	1	3	11	.57	.83	.69
05	Lecture	29	6	3	7	1	0	0	7	5	.59	.71	.83
06	Lecture(eve.)	36	3	8	17	6	0	0	0	2	.78	.82	.78
07	Lecture	31	4	3	3	0	0	0	6	15	.32	.63	.52
	Total	222	31	27	48	9	0	12	33	62	.52	.72	.72
	TICCIT	61	3	3	7	1	0	11	16	20	.23	.34	.67
	TICCIT (day)	48	3	3	6	1	0	9	12	14	.27	.38	.71
	TICCIT (eve.)	13	0	0	1	0	0	2	4	6	.08	.14	.54
	Lecture	161	28	24	41	8	0	1	17	42	.63	.85	.74
	Lecture(day)	94	21	13	21	2	0	1	11	25	.61	.83	.73
	Lecture(eve.)	67	7	11	20	6	0	0	6	17	.66	.88	.75
	Day	142	24	16	27	3	0	10	23	39	.49	.68	.73
	Evening	80	7	11	21	6	0	2	10	23	.56	.79	.71

Completion Rates: I (A,B,C,D)/N II (A,B,C,D)/N-W III (A,B,C,D,X,Z)/N

Course Completion Rates
Phoenix College
Math 007
Summer Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT (day)	22	4	0	2	0	0	11	0	5	.27	.35	.77
02	TICCIT	15	0	3	1	0	0	9	0	2	.27	.31	.87
03	TICCIT	7	1	0	0	0	0	4	2	0	.14	.14	1.00
04	TICCIT	11	1	0	1	0	0	5	1	3	.18	.18	.73
05	TICCIT (eve.)	16	2	1	0	0	0	3	9	1	.19	.20	.94
06	TICCIT	16	1	1	2	0	0	2	10	0	.25	.25	1.00
	Total	87	9	5	6	0	0	34	22	11	.23	.26	.87
	TICCIT	87	9	5	6	0	0	34	22	11	.23	.26	.87
	TICCIT (day)	55	6	3	4	0	0	29	3	10	.24	.29	.82
	TICCIT (eve.)	32	3	2	2	0	0	5	19	1	.22	.23	.97

Completion Rates: I (A,B,C,D)/N II (A,B,C,D)/N-W III (A,B,C,D,X,Z)/N

Course Completion Rates
Phoenix College
Math 106
Summer Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT (day)	7	1	0	1	0	0	4	0	1	.29	.33	.86
02	TICCIT	9	0	0	2	0	0	3	0	4	.22	.40	.56
03	TICCIT	5	0	0	0	0	0	3	1	1	.00	.00	.80
04	TICCIT	11	0	1	0	0	0	4	4	2	.09	.11	.82
05	TICCIT (eve.)	14	1	0	1	0	0	3	6	3	.14	.18	.79
06	TICCIT	4	0	0	1	0	0	2	1	0	.25	.25	1.00
07	Lecture (day)	30	8	8	2	2	0	0	2	8	.67	.91	.73
08	Lecture	21	4	3	6	1	0	0	7	0	.67	.67	1.00
09	Lecture (eve.)	30	2	2	2	1	0	0	18	5	.23	.28	.83
	Total	131	16	14	15	4	0	19	39	24	.37	.46	.82
	TICCIT	50	2	1	5	0	0	19	12	11	.16	.21	.78
	TICCIT (day)	32	1	1	3	0	0	14	5	8	.16	.21	.75
	TICCIT (eve.)	18	1	0	2	0	0	5	7	3	.17	.20	.83
	Lecture	81	14	13	10	4	0	0	27	13	.51	.60	.84
	Lecture (day)	51	12	11	8	3	0	0	9	8	.67	.79	.85
	Lecture (eve.)	30	2	2	2	1	0	0	18	5	.23	.28	.83
	Day	83	13	12	11	3	0	14	14	16	.47	.58	.87
	Evening	48	3	2	4	1	0	5	25	8	.21	.25	.83

Completion Rates: I (A,B,C,D)/N II (A,B,C,D)/N-W III (A,B,C,D,X,Z)/N

Course Completion Rates
Phoenix College
Math 117
Summer Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT (day)	4	1	0	0	0	0	1	0	2	.25	.50	.50
02	TICCIT	11	1	0	1	1	0	5	0	3	.27	.38	.73
03	TICCIT	3	0	1	0	0	0	0	1	1	.33	.50	.67
04	TICCIT	3	0	0	1	0	0	0	0	2	.33	1.00	.33
05	TICCIT (eve.)	8	0	1	0	0	0	2	4	1	.13	.14	.88
06	TICCIT	7	1	0	0	0	0	2	3	1	.14	.17	.86
07	Lecture (day)	21	2	3	5	3	2	1	3	2	.62	.68	.81
08	Lecture (eve.)	18	1	3	4	2	0	1	2	5	.56	.77	.83
	Total	75	6	8	11	6	2	12	13	17	.41	.53	.77
	TICCIT	36	3	2	2	1	0	10	8	10	.22	.31	.72
	TICCIT (day)	21	2	1	2	1	0	6	1	8	.29	.46	.62
	TICCIT (eve.)	15	1	1	0	0	0	4	7	2	.13	.15	.87
	Lecture	39	3	6	9	5	2	2	5	7	.59	.72	.82
	Lecture (day)	21	2	3	5	3	2	1	3	2	.62	.68	.90
	Lecture (eve.)	18	1	3	4	2	0	1	2	5	.56	.77	.72
	Day	42	4	4	7	4	2	7	4	10	.45	.59	.71
	Evening	33	2	4	4	2	0	5	9	7	.36	.46	.79

Completion Rates: I (A,B,C,D)/N II (A,B,C,D)/N-W III (A,B,C,D,X,Z)/N

Course Completion Rates
Phoenix College
Math 007, 106 and 117
Fall Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution A	B	C	D	F	X	Z	W	Completion Rates I	II	III
	Math 007												
01	TICCIT (day)	157	13	15	7	5	2	32	17	66	.25	.44	.57
02	TICCIT (eve.)	10	0	2	0	0	0	0	2	6	.20	.50	.40
	Total	167	13	17	7	5	2	32	19	72	.25	.44	.56
	Math 106												
01	TICCIT (day)	64	2	2	8	1	1	14	7	28	.20	.36	.53
02	TICCIT (eve.)	38	2	2	3	1	0	7	7	16	.21	.36	.58
	Total	102	4	4	11	2	1	21	14	44	.20	.36	.55
	Math 117												
01	TICCIT (day)	60	4	7	11	2	0	7	7	20	.40	.60	.63
02	TICCIT (eve.)	19	1	2	2	0	0	4	2	7	.26	.42	.58
	Total	79	5	9	13	2	0	11	9	27	.37	.56	.62

Completion Rates:

I (A,B,C,D)/N
II (A,B,C,D)/N-W
III (A,B,C,D,X,Z)/N

Course Completion Rates
Northern Virginia Community College
Math 31
Fall Quarter, 1974

Section Number	Comparison Group	Number of Students	Grade Distribution S	U	R	W	Completion Rates I	II	III
01	TICCIT	12	0	4	8	0	.00	.00	.67
02	TICCIT	14	0	0	14	0	.00	.00	1.00
03	Programmed	27	2	13	10	2	.07	.08	.48
04	Programmed	43	12	11	17	3	.28	.30	.73
05	Programmed	43	4	7	28	4	.09	.10	.82
06	Programmed	58	8	0	44	6	.14	.15	1.00
07	Lecture	25	5	9	9	2	.20	.22	.61
08	Lecture	33	26	3	4	0	.79	.79	.91
09	Lecture	29	15	3	1	10	.52	.79	.84
10	Lecture	25	0	0	3	22	.00	.00	1.00
	Total	309	72	50	138	49	.23	.28	.81
	TICCIT	26	0	4	22	0	.00	.00	.85
	Programmed	171	26	31	99	15	.15	.17	.80
	Lecture	112	46	15	17	34	.41	.59	.81

Completion Rates:

I $S/_{N}$

II $S/_{N-W}$

III $S+R/_{N-W}$

Course Completion Rates
Northern Virginia Community College
Math 31
Winter Quarter, 1975

Section Number	Comparison Group	Number of Students	Grade Distribution S	U	R	W	Completion Rates I	II	III
01	TICCIT	15	1	2	11	1	.07	.07	.86
02	TICCIT	24	0	0	22	2	.00	.00	1.00
03	Programmed	31	4	10	13	4	.13	.15	.63
04	Programmed	40	2	8	20	10	.05	.07	.73
05	Programmed	36	8	0	25	3	.22	.24	1.00
06	Lecture[1]	34	18	2	2	12	.53	.82	.91
07	Lecture	37	9	0	22	6	.24	.29	1.00
	Total	217	42	22	115	38	.19	.23	.88
	TICCIT	39	1	2	33	3	.03	.03	.94
	Programmed	107	14	18	58	17	.13	.16	.80
	Lecture	71	27	2	24	18	.38	.51	.96

[1]Two students also received grades of incomplete.

Completion Rates:

I $S/_{N}$

II $S/_{N-W}$

III $S+R/_{N-W}$

Course Completion Rates
Northern Virginia Community College
Math 31
Spring Quarter, 1975

Section Number	Comparison Group	Number of Students	Grade Distribution S	U	R	W	Completion Rates I	II	III
01	TICCIT	19	0	0	12	7	.00	.00	1.00
02	TICCIT	27	0	0	17	10	.00	.00	1.00
03	Programmed	35	2	5	9	19	.06	.12	.69
04	Programmed	33	9	0	11	13	.27	.45	1.00
05	Programmed	44	5	7	27	5	.11	.13	.82
06	Programmed	56	8	6	26	16	.14	.20	.85
07	Lecture	19	10	0	6	3	.53	.62	1.00
	Total	233	34	18	108	73	.15	.21	.89
	TICCIT	46	0	0	29	17	.00	.00	1.00
	Programmed	168	24	18	73	53	.14	.21	.84
	Lecture	19	10	0	6	3	.53	.62	1.00

Completion Rates:

I $S/_{N}$

II $S/_{N-W}$

III $S+R/_{N-W}$

Course Completion Rates
Northern Virginia Community College
Math 31
Fall Quarter, 1975

Section Number	Comparison Group	Number of Students	Grade Distribution S	U	R	W	Completion Rates I	II	III
01	TICCIT	24	3	9	10	2	.13	.14	.54
02	TICCIT	22	0	6	16	0	.00	.00	.73
03	TICCIT	26	3	0	14	9	.12	.18	.65
04	TICCIT	23	3	3	16	1	.13	.14	.83
05	TICCIT	21	1	0	17	3	.05	.06	.86
06	Programmed	19	0	5	12	2	.00	.00	.63
07	Programmed	25	5	0	12	8	.20	.29	.68
08	Lecture	22	14	4	2	2	.64	.70	.73
09	Lecture	25	14	5	2	4	.56	.67	.64
10	Lecture	14	6	0	2	6	.43	.75	.57
11	Lecture	18	10	8	0	0	.56	.56	.56
	Total	239	59	40	103	37	.25	.29	.68
	TICCIT	116	10	18	73	15	.09	.10	.72
	Programmed	44	5	5	24	10	.11	.15	.66
	Lecture	79	44	17	6	12	.56	.66	.63

Completion Rates:

I S/N

II $S/N-W$

III $S+R/N$

Course Completion Rates
Northern Virginia Community College
Math 31
Winter Quarter, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution S	U	R	W	I	Completion Rates I	II	III
01	TICCIT	23	3	0	8	6	6	.13	.18	.74
02	TICCIT	24	5	0	11	3	5	.21	.24	.88
03	TICCIT	13	3	7	3	0	0	.23	.23	.46
04	TICCIT	19	8	0	9	2	0	.42	.47	.89
05	TICCIT	22	5	4	12	1	0	.23	.24	.77
06	TICCIT	17	5	0	12	0	0	.29	.29	1.00
07	Programmed	21	8	6	4	3	0	.38	.44	.57
08	Programmed	25	5	0	12	5	3	.20	.25	.80
09	Lecture	24	10	4	6	4	0	.42	.50	.67
10	Lecture	27	12	2	1	11	1	.44	.75	.52
	Total	215	64	23	78	35	15	.30	.36	.73
	TICCIT	118	29	11	55	12	11	.25	.27	.81
	Programmed	46	13	6	16	8	3	.28	.34	.70
	Lecture	51	22	6	7	15	1	.43	.61	.59

Completion Rates:

I S/N

II $S/N-W$

III $S+R+I/N$

Course Completion Rates
Northern Virginia Community College
Math 32
Winter Quarter, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution S	U	R	W	Completion Rates I	II	III
01	TICCIT (day)	6	1	0	4	1	.17	.20	.83
02	TICCIT	3	0	0	2	1	.00	.00	.67
03	TICCIT	8	1	2	5	0	.13	.13	.75
04	TICCIT	5	0	0	3	2	.00	.00	.60
05	TICCIT (eve.)	13	0	4	9	0	.00	.00	.69
06	TICCIT	7	0	0	5	2	.00	.00	.71
07	Lecture (day)	15	4	0	8	3	.27	.33	.80
08	Lecture (eve.)	19	11	0	0	8	.58	1.00	.58
	Total	76	17	6	36	17	.22	.29	.70
	TICCIT	42	2	6	28	6	.05	.06	.71
	Lecture	34	15	0	8	11	.44	.65	.68

Completion Rates:

I $S/_{N}$

II $S/_{N-W}$

III $S+R/_{N}$

Course Completion Rates
Northern Virginia Community College
Math 31
Spring Quarter, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution S	U	R	W	I	Completion Rates I	II	III
01	TICCIT	13	2	0	7	4	0	.15	.22	.69
02	TICCIT	17	6	2	4	5	0	.35	.50	.59
03	TICCIT	12	3	0	5	2	2	.25	.30	.83
04	TICCIT	15	2	0	4	0	9	.13	.13	1.00
05	Programmed	24	4	0	6	12	2	.17	.33	.50
06	Programmed	33	9	3	11	10	0	.27	.39	.61
07	Programmed	14	1	4	5	4	0	.07	.10	.43
08	Lecture	22	4	3	8	7	0	.18	.27	.55
09	Lecture	23	8	2	4	7	2	.35	.50	.61
	Total	173	39	14	54	51	15	.23	.32	.62
	TICCIT	57	13	2	20	11	11	.23	.28	.77
	Programmed	71	14	7	22	26	2	.20	.31	.54
	Lecture	45	12	5	12	14	2	.27	.39	.58

Completion Rates:

I S/N

II $S/N-W$

III $S+R+I/N$

Course Completion Rates
Northern Virginia Community College
Math 32
Spring Quarter, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution S	U	R	W	I	Completion Rates I	II	III
01	TICCIT	10	4	0	3	3	0	.40	.57	.70
02	TICCIT	8	1	0	6	1	0	.13	.14	.88
03	TICCIT	7	0	0	1	2	4	.00	.00	.71
04	TICCIT	7	0	3	3	1	0	.00	.00	.43
05	TICCIT	10	1	0	6	0	3	.10	.10	1.00
06	Lecture	24	12	1	8	3	0	.50	.57	.83
07	Lecture	20	14	4	0	2	0	.70	.78	.70
	Total	86	32	8	27	12	7	.37	.43	.77
	TICCIT	42	6	3	19	7	7	.13	.17	.76
	Lecture	44	26	5	8	5	0	.59	.67	.77

Completion Rates:

I S/N

II $S/N-W$

III $S+R+I/N$

Course Completion Rates
Phoenix College
English 019
Spring Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT	27	6	6	2	0	0	2	3	8	.52	.74	.70
02	TICCIT	30	6	1	0	0	0	5	11	7	.23	.30	.77
03	TICCIT	14	0	0	4	0	0	2	4	4	.29	.40	.71
04	TICCIT	17	2	3	0	0	0	0	4	8	.29	.56	.53
05	Lecture	32	0	3	9	0	0	0	7	13	.38	.63	.59
06	Lecture	31	1	5	5	12	0	0	0	8	.74	1.00	.74
07	Lecture	27	6	6	3	0	1	0	1	10	.56	.88	.59
08	Lecture	26	8	5	4	0	0	1	3	5	.65	.81	.81
09	Lecture	25	1	1	8	0	0	0	8	7	.40	.56	.72
10	Lecture	16	1	2	2	1	0	1	1	8	.38	.63	.59
	Total	245	31	32	37	13	1	11	42	78	.46	.68	.68
	TICCIT	88	14	10	6	0	0	9	22	27	.34	.49	.69
	Lecture	157	17	22	31	13	1	2	20	51	.53	.78	.67

Completion Rates: I (A,B,C,D)/N II (A,B,C,D)/N-W) III (A,B,C,D,X,Z)/N

Course Completion Rates
Phoenix College
English 029
Spring Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution A	B	C	F	Z	W	Completion Rates I	II	III
01	TICCIT	31	0	9	9	0	8	5	.58	.69	.84
02	TICCIT	33	2	5	8	0	5	13	.45	.75	.61
03	Lecture	28	6	5	5	0	10	2	.57	.62	.93
04	Lecture	21	3	5	6	7	0	0	.67	.67	.67
05	Lecture	25	10	4	9	0	0	2	.92	1.00	.92
	Total	138	21	28	37	7	23	22	.62	.74	.79
	TICCIT	64	2	14	17	0	13	18	.52	.72	.72
	Lecture	74	19	14	20	7	10	4	.72	.76	.85

Completion Rates: I (A,B,C,D)/N II (A,B,C,D)/N-W III (A,B,C,D,X,Z)/N

Course Completion Rates
Phoenix College
English 19
Fall Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT (day)	22	1	7	1	0	0	3	4	6	.41	.56	.73
02	TICCIT	25	7	7	1	0	0	1	5	4	.60	.71	.84
03	TICCIT	32	13	1	6	0	0	0	9	3	.63	.69	.91
04	TICCIT	33	7	7	2	0	0	3	3	10	.48	.70	.67
05	TICCIT	33	9	7	0	0	0	6	5	6	.48	.59	.82
06	TICCIT	30	12	2	3	0	0	0	8	5	.57	.68	.83
07	Lecture (day)	25	2	3	6	2	0	0	3	9	.52	.81	.64
08	Lecture	22	7	3	9	1	0	1	1	0	.91	.91	1.00
09	Lecture	26	4	11	5	0	0	0	0	6	.77	1.00	.77
10	Lecture	31	0	3	19	0	0	3	1	5	.71	.85	.84
11	Lecture	27	4	8	7	0	2	4	0	2	.70	.76	.85
12	Lecture	26	0	3	13	2	0	3	2	3	.69	.78	.88
13	Lecture	23	2	8	7	1	0	0	1	4	.78	.95	.83
14	Lecture	23	5	8	2	0	0	0	5	3	.65	.75	.87
15	Lecture	29	0	7	12	1	0	0	4	5	.69	.83	.83
	Total	407	73	85	93	7	2	24	51	71	.63	.77	.82
	TICCIT	175	49	31	13	0	0	13	34	34	.53	.66	.80
	Lecture	232	24	54	80	7	2	11	17	37	.71	.85	.83

Completion Rates:

I (A,B,C,D)/N
II (A,B,C,D)/N-W
III (A,B,C,D,X,Z)/N

Course Completion Rates
Phoenix College
English 029
Summer Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT (day)	17	3	5	1	0	0	3	4	1	.53	.56	.94
02	TICCIT	14	5	0	0	0	0	0	7	2	.36	.42	.86
03	TICCIT (eve.)	32	4	5	13	1	1	0	2	6	.72	.88	.78
04	Lecture	37	3	10	9	2	0	0	11	2	.65	.69	.95
	Total	100	15	20	23	3	1	3	24	11	.61	.69	.88
	TICCIT	63	12	10	14	1	1	3	13	9	.59	.69	.84
	TICCIT (day)	31	8	5	1	0	0	3	11	3	.45	.50	.90
	TICCIT (eve.)	32	4	5	13	1	1	0	2	6	.72	.88	.78
	Lecture	37	3	10	9	2	0	0	11	2	.65	.69	.95
	Lecture (eve.)	37	3	10	9	2	0	0	11	2	.65	.69	.95
	Day	31	8	5	1	0	0	3	11	3	.45	.50	.90
	Evening	69	7	15	22	3	1	0	13	8	.68	.77	.87

Completion Rates: I (A,B,C,D)/N II (A,B,C,D)/N-W III (A,B,C,D,X,Z)/N

Course Completion Rates
Phoenix College
English 029
Fall Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	X	Z	W	I	II	III
01	TICCIT (eve.)	28	3	7	8	0	0	0	0	10	.64	1.00	.64
02	TICCIT	29	5	1	1	0	3	14	0	5	.24	.29	.72
03	TICCIT	25	12	3	2	0	0	0	0	8	.68	1.00	.68
04*	TICCIT	29	0	0	0	0	0	10	2	5	.00	.00	.41
05	Lecture(eve.)	21	11	5	0	0	0	0	1	4	.76	.94	.81
06	Lecture	29	2	8	5	0	0	0	10	4	.52	.60	.86
07	Lecture	29	8	10	3	0	0	0	4	4	.72	.84	.86
08	Lecture	26	2	7	5	0	10	0	0	2	.54	.58	.54
	Total	216	43	41	24	0	13	24	17	42	.56	.69	.75
	TICCIT	111	20	11	11	0	3	24	2	28	.49	.65	.72
	Lecture	105	23	30	13	0	10	0	15	14	.63	.73	.77

*There were also 12 passing grades assigned as P.

Completion Rates:

I (A,B,C,D)/N
II (A,B,C,D)/N-W
III (A,B,C,D,X,Z)/N

Course Completion Rates
Northern Virginia Community College
English 111
Winter Quarter, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution								Completion Rates		
			A	B	C	D	F	R	W	I	I	II	III
01*	TICCIT (day)	19	3	3	7	0	0	2	4	0	.68	.87	.79
02	TICCIT	17	0	2	3	0	0	0	11	1	.29	.83	.35
03	TICCIT	18	6	1	1	1	0	4	3	2	.50	.60	.83
04	TICCIT	22	0	6	4	1	0	0	9	2	.50	.85	.59
05	TICCIT	23	2	2	5	2	0	0	7	5	.48	.69	.70
06	TICCIT	18	1	5	3	0	0	0	8	1	.50	.90	.56
07	Lecture (day)	23	2	4	4	4	3	0	6	0	.61	.82	.61
08	Lecture	18	1	8	3	0	0	0	5	1	.67	.92	.72
09	Lecture	14	3	3	2	0	0	0	6	0	.57	1.00	.57
10*	Lecture (eve.)	19	2	5	3	1	0	6	2	0	.58	.65	.89
11	Lecture	20	0	3	7	1	5	0	2	2	.55	.61	.65
	Total	211	20	42	42	10	8	12	63	14	.54	.77	.66
	TICCIT	117	12	19	23	4	0	6	42	11	.50	.77	.64
	Lecture	94	8	23	19	6	8	6	21	3	.60	.77	.69

Completion Rates:

I A,B,C,D/N

II A,B,C,D/N-W

III A,B,C,D,R,I/N

*Laboratory sections of English 111 which meet 5 hours per week rather than the usual 3 hours per week.

Course Completion Rates
Northern Virginia Community College
English 111
Spring Quarter, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution A	B	C	D	F	R	W	I	Completion Rates I	II	III
01	TICCIT	23	6	3	7	0	0	2	4	1	.70	.84	.83
02	TICCIT	22	2	5	5	0	1	0	7	2	.55	.80	.64
03	TICCIT	22	2	3	6	3	0	7	1	0	.64	.67	.95
04	TICCIT	21	2	4	9	1	1	3	1	0	.76	.80	.90
05	TICCIT	19	4	8	0	0	0	0	6	1	.63	.92	.68
06	Lecture	19	2	4	9	2	2	0	0	0	.89	.89	.89
07	Lecture	12	1	3	5	1	1	0	1	0	.83	.91	.83
08	Lecture	18	1	4	1	3	3	0	5	1	.50	.69	.56
09	Lecture	15	2	6	2	0	0	0	4	1	.67	.91	.73
10	Lecture	14	2	5	3	1	0	1	2	0	.79	.92	.86
11	Lecture	22	1	12	5	2	0	0	2	0	.91	1.00	.91
12	Lecture	19	1	5	6	4	0	1	2	0	.84	.94	.89
13	Lecture	21	1	5	1	1	1	0	12	0	.38	.89	.38
14	Lecture	24	3	10	6	0	0	1	3	1	.79	.90	.88
15	Lecture	28	2	16	5	0	0	0	5	0	.82	1.00	.82
16	Lecture	21	1	8	3	0	0	0	3	0	.86	1.00	.86
17	Lecture	17	3	3	6	0	0	0	5	0	.71	1.00	.71
	Total	339	42	104	79	18	9	15	63	7	.72	.88	.78
	TICCIT	108	16	23	27	4	2	12	19	4	.65	.79	.80
	Lecture	231	26	81	52	14	7	3	44	3	.75	.93	.77

Completion Rates:

I A,B,C,D/N

II A,B,C,D/N-W

III A,B,C,D,R,I/N

Course Completion Rates
Northern Virginia Community College
English 111
Fall Semester, 1976

Section Number	Comparison Group	Number of Students	Grade Distribution A	B	C	D	F	R	W	I	Completion Rates I	II	III
01	TICCIT	16	0	1	4	0	5	2	4	0	.31	.42	.44
02	TICCIT	24	5	3	3	0	4	5	4	0	.46	.55	.67
03	TICCIT	22	1	5	4	3	2	1	3	3	.59	.68	.77
04	TICCIT	20	0	2	8	3	3	0	3	1	.65	.76	.70
05	TICCIT	20	0	1	5	6	5	0	3	0	.60	.71	.60
06	TICCIT	19	0	8	6	1	0	4	0	0	.79	.79	1.00
07	TICCIT	17	2	9	3	0	0	0	3	0	.82	1.00	.82
08	TICCIT	23	1	8	8	2	1	0	2	1	.83	.90	.87
09	Lecture	23	1	8	3	2	1	0	8	0	.61	.93	.61
10	Lecture	26	1	0	7	7	3	1	6	1	.58	.75	.65
11	Lecture	21	0	0	10	7	3	0	1	0	.81	.85	.81
12	Lecture	23	0	2	9	4	5	0	2	1	.65	.71	.70
13	Lecture	20	2	8	7	0	0	0	2	1	.85	.94	.70
14	Lecture	26	2	12	6	0	0	0	5	1	.77	.95	.81
	Total	300	15	67	83	35	32	13	46	9	.67	.79	.74
	TICCIT	161	9	37	41	15	20	12	22	5	.63	.73	.73
	TICCIT (day)	138	8	29	33	13	19	12	20	4	.60	.70	.72
	TICCIT (eve.)	23	1	8	8	2	1	0	2	1	.83	.90	.87
	Lecture	139	6	30	42	20	12	1	24	4	.71	.85	.74
	Lecture (day)	70	2	8	20	16	7	1	15	1	.66	.84	.69
	Lecture (eve.)	69	4	22	22	4	5	0	9	3	.75	.87	.80
	Day	208	10	37	53	29	29	13	35	5	.62	.75	.71
	Evening	92	5	30	30	6	6	0	11	4	.77	.88	.82

Completion Rates:

I (A,B,C,D)/N
II (A,B,C,D)/N-W
III (A,B,C,D,I,R)/N

Subsequent Term Enrollment
Phoenix College
Math 007
Fall to Spring Semesters, 1975-76

		Fall Grade Distribution		Enrolled for Spring Semester		Repetition of Course		Election of Next Course in Sequence/ Advanced Course		Change to Basic or Review Course	
		N	%	N	%	N	%	N	%	N	%
TICCIT	Grade with Credit A,B,C, or D	27	13	24	89	0	0	16	59	3	11
	Incomplete X	2	1	1	50	0	0	1	50	0	0
	Re-Enroll Z	136	63	105	77	58	43	8	6	11	8
	Failure F	0	0	0	0	0	0	0	0	0	0
	Withdraw W	50	23	28	56	7	14	1	2	5	10
	TICCIT Totals	215	100	158	73	65	30	26	[illegible]	19	9
Lecture	Grade with Credit A,B,C,D	169	47	142	84	4	2	62	37	14	8
	Incomplete X	6	2	4	67	1	17	2	33	0	0
	Re-Enroll Z	66	18	36	55	9	14	3	5	5	8
	Failure F	7	2	6	86	0	0	0	0	2	29
	Withdraw W	109	31	53	49	8	7	2	2	2	2
	Lecture Totals	357	100	241	68	22	6	69	19	23	6

Subsequent Term Enrollment
Phoenix College
Math 106
Fall to Spring Semesters, 1975-76

		Fall Grade Distribution		Enrolled for Spring Semester		Repetition of Course		Election of Next Course in Sequence/ Advanced Course		Change to Basic or Review Course	
		N	%	N	%	N	%	N	%	N	%
TICCIT	Grade with Credit A,B,C, or D	34	24	27	79	0	0	19	56	0	0
	Incomplete X	1	1	1	100	0	0	1	100	0	0
	Re-Enroll Z	80	56	69	86	48	60	4	5	6	8
	Failure F	0	0	0	0	0	0	0	0	0	0
	Withdraw W	29	20	20	69	7	24	0	0	4	14
	TICCIT Totals	144	100	117	81	55	38	24	17	10	7
Lecture	Grade with Credit A,B,C,D	73	45	68	93	2	3	49	67	0	0
	Incomplete X	1	1	1	100	0	0	0	0	0	0
	Re-Enroll Z	24	15	16	67	4	17	0	0	1	4
	Failure F	2	1	2	100	0	0	0	0	0	0
	Withdraw W	63	39	33	52	11	17	1	2	10	16
	Lecture Totals	163	100	120	74	18	11	50	31	11	7

Subsequent Term Enrollment
Phoenix College
Math 108
Fall to Spring Semesters, 1975-76

		Fall Grade Distribution		Enrolled for Spring Semester		Repetition of Course		Election of Next Course in Sequence/ Advanced Course		Change to Basic or Review Course	
		N	%	N	%	N	%	N	%	N	%
TICCIT	Grade with Credit A,B,C, or D	10	13	10	100	0	0	4	40	0	0
	Incomplete X	2	3	0	0	0	0	0	0	0	0
	Re-Enroll Z	52	68	37	71	28	54	0	0	0	0
	Failure F	0	0	0	0	0	0	0	0	0	0
	Withdraw W	12	16	7	58	0	0	1	8	2	17
	TICCIT Totals	76	100	54	71	27	36	5	7	3	4
Lecture	Grade with Credit A,B,C,D	42	50	39	93	1	2	23	55	0	0
	Incomplete X	0	0	0	0	0	0	0	0	0	0
	Re-Enroll Z	10	12	7	70	5	50	0	0	0	0
	Failure F	0	0	0	0	0	0	0	0	0	0
	Withdraw W	32	38	20	62	6	19	1	3	5	16
	Lecture Totals	84	100	76	90	12	14	24	29	5	6

Subsequent Term Enrollment
Northern Virginia Community College
Math 31
Fall to Winter Quarters, 1975-76

		Fall Grade Distribution		Enrolled for Winter Quarter		Repetition of Course		Election of Next Course in Sequence/ Advanced Course	
		N	%	N	%	N	%	N	%
TICCIT	Grade with Credit S	10	9	7	70	0	0	5	50
	Incomplete I	0	0	0	0	0	0	0	0
	Re-Enroll R	73	63	43	59	14	19	13	18
	Unsatisfactory U	18	16	8	44	2	11	0	0
	Withdraw W	15	13	7	47	3	20	1	7
	TICCIT Totals	116	100	65	56	19	16	19	16
Programmed Instruction	Grade with Credit S	5	11	3	60	0	0	2	40
	Incomplete I	0	0	0	0	0	0	0	0
	Re-Enroll R	24	55	14	58	5	21	5	21
	Unsatisfactory U	5	11	1	20	1	20	0	0
	Withdraw W	10	23	2	20	1	10	0	0
	Programmed Instruction Totals	44	100	20	45	7	16	7	16
Lecture	Grade with Credit S	44	56	30	68	0	0	14	32
	Incomplete I	0	0	0	0	0	0	0	0
	Re-Enroll R	6	8	5	83	1	17	0	0
	Unsatisfactory U	17	22	10	59	4	24	2	12
	Withdraw W	12	15	6	50	3	25	0	0
	Lecture Totals	79	100	51	65	8	10	16	20

Subsequent Term Enrollment
Northern Virginia Community College
Math 31
Winter to Spring Quarters, 1975-76

		Winter Grade Distribution		Enrolled for Spring Quarter		Repetition of Course		Election of Next Course in Sequence/ Advanced Course	
		N	%	N	%	N	%	N	%
TICCIT	Grade with Credit S	29	25	23	79	1	3	15	52
	Incomplete I	11	9	7	64	3	27	1	9
	Re-Enroll R	55	47	39	71	24	44	5	9
	Unsatisfactory U	11	9	6	55	2	18	1	9
	Withdraw W	12	10	9	75	4	33	0	0
	TICCIT Totals	118	100	84	71	34	29	22	19
Programmed Instruction	Grade with Credit S	13	28	11	85	0	0	9	69
	Incomplete I	3	7	1	33	1	33	0	0
	Re-Enroll R	16	35	11	69	9	56	1	6
	Unsatisfactory U	6	13	3	50	3	50	0	0
	Withdraw W	8	17	5	62	2	25	1	12
	Programmed Instruction Totals	46	100	31	67	15	33	11	24
Lecture	Grade with Credit S	22	43	16	73	0	0	10	45
	Incomplete I	1	2	0	0	0	0	0	0
	Re-Enroll R	7	14	6	86	3	43	0	0
	Unsatisfactory U	6	12	3	50	1	17	0	0
	Withdraw W	14	27	6	43	1	7	0	0
	Lecture Totals	51	100	31	61	5	10	10	20

Appendix O

STUDENT ACHIEVEMENT

Mathematics Achievement Data
Implementation Period
Phoenix College
Math 007
Fall Semester, 1974

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01	TICCIT[1]	14	39.0	11.3	5	50.4	2.9	4	49.7	8.8	4	51.0	2.9
02	TICCIT[1]	16	35.6	8.6	4	47.0	2.4	4	37.0	3.6	4	47.0	2.4
03	TICCIT[1,2]	3	42.3	6.5	3	48.7	2.9	3	42.3	6.5	3	48.7	2.9
04	Autotutorial (day)	30	34.4	11.1	21	43.2	7.2	20	34.7	11.1	20	43.0	7.2
05	Autotutorial (eve.)	35	38.6	10.2	18	50.4	5.7	17	42.9	10.3	17	50.1	5.7
06	Lecture (day)	24	31.1	8.8	13	41.2	6.9	11	31.6	9.0	11	40.4	7.0
07	Lecture	35	30.8	9.2	15	44.5	7.7	15	34.5	10.3	15	44.5	7.7
08	Lecture	32	32.3	10.1	23	42.7	7.6	21	31.7	9.8	21	41.9	7.0
09	Lecture	36	34.9	10.8	22	44.1	9.0	21	37.5	11.1	21	44.5	9.1
10	Lecture	31	35.0	8.9									
11	Lecture	31	37.6	12.0	20	44.1	9.5	18	39.3	10.5	18	45.7	8.2
12	Lecture	26	38.6	11.9									
13	Lecture (eve.)	15	35.3	11.5	5	41.6	4.4	5	38.6	12.9	5	41.6	4.4
14	Lecture	38	36.4	12.7	16	49.6	5.1	16	43.0	9.1	16	49.6	5.1
15	Lecture	41	34.0	8.1									
16	Lecture	32	30.3	9.3									
17	Lecture	9	37.0	6.3									
Totals:													
	All	448	34.8	10.5	164	45.2	7.7	155	37.5	10.8	155	45.1	7.5
	TICCIT[1]	33	37.7	9.9	12	48.8	2.9	11	43.1	8.3	11	48.9	3.0
	Autotutorial	65	36.6	10.8	39	46.6	7.5	37	38.8	11.2	37	46.3	7.5
	Lecture	350	34.2	10.4	113	44.3	7.9	107	36.5	10.7	107	44.3	7.7

[1] The TICCIT program was in an experimental stage. The computer support and course materials were incomplete and unpolished. Students volunteered to enroll in these TICCIT classes and did not pay usual course fees. Much of the course work had to be done on mimeographed worksheets.

[2] Actually these students had enrolled for Math 108 but completed the course work and received credit for Math 007.

Mathematics Achievement Data
Implementation Period
Phoenix College
Math 007
Spring Semester, 1975

Classes:		Pretest			Posttest (Form 614)			Paired Observations: Pretest			Paired Observations: Posttest (Form 614)		
Section Number	Comparison Group	N	Mean	sd	N	Mean	sd	N	Mean	sd	N	Mean	sd
01	TICCIT (day)[1]	32	31.0	10.8	5	42.4	5.2	5	40.4	13.1	5	42.4	5.2
02	TICCIT[1]	18	32.9	13.6	8	41.1	7.1	5	35.0	8.3	5	38.0	6.6
03	Lecture (day)	7	27.1	11.3	23	39.7	9.8	2	29.0	14.1	2	31.0	8.5
04	Lecture	30	36.5	11.6	20	36.7	10.2	19	39.3	11.7	19	37.9	9.0
05	Lecture	34	33.8	10.7	21	39.8	11.1	21	35.4	9.5	21	39.8	11.1
06	Lecture	19	35.7	10.0	15	41.3	11.1	13	37.8	8.9	13	43.1	6.9
07	Lecture	10	35.8	11.2	10	44.6	7.0	6	35.8	12.5	6	42.7	6.6
Totals:													
	All	150	33.7	11.2	102	40.1	9.7	71	37.1	10.4	71	39.9	8.9
	TICCIT[1]	50	31.7	11.9	13	41.6	6.3	10	37.7	10.7	10	40.2	6.1
	Lecture	100	34.7	11.1	89	39.9	10.1	61	36.9	10.5	61	39.9	9.3

[1]The TICCIT program had limited capabilities and much of the courseware was used for the first time in the spring semester. Students, again, volunteered to enroll in Math 007 on the TICCIT system and the College waived their fees for the course.

Mathematics Achievement Data
Phoenix College
Math 007
Fall Semester, 1975

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01	TICCIT (day)	122	35.54	10.2	19	43.21	7.5	17	43.88	7.5	17	42.00	7.0
02	TICCIT (eve.)	39	34.62	10.1	8	46.75	3.6	5	48.20	8.9	5	47.80	1.9
03	Lecture(day)	35	38.86	9.9	25	41.84	8.0	24	42.04	8.4	24	41.42	7.9
04	Lecture	34	31.65	10.8	24	37.83	11.8	21	34.86	11.3	21	38.67	10.5
05	Lecture	31	41.81	11.4	19	43.26	7.4	18	48.39	7.8	18	42.78	7.3
06	Lecture	35	34.06	12.3	17	35.94	14.5	16	35.25	12.3	16	37.25	13.9
07	Lecture	28	34.57	9.3	15	39.87	9.8	12	39.42	10.2	12	38.67	10.4
08	Lecture	1	55.00	—	11	37.27	9.8	—	—	—	—	—	—
09	Lecture(eve.)	21	38.48	12.9	10	31.40	10.6	10	39.30	11.8	10	31.40	10.6
10	Lecture	28	42.43	10.4	—	—	—	—	—	—	—	—	—
11	Lecture	31	43.84	10.7	29	37.10	9.1	26	44.69	10.9	26	36.81	9.3
12	Lecture	10	47.40	13.5	5	39.00	11.9	3	54.33	10.2	3	38.67	15.5

Totals:

	All	415	37.26	11.4	182	39.42	10.1	152	41.80	10.8	152	39.32	9.8
	TICCIT	161	35.32	10.2	27	44.26	6.7	22	44.86	7.8	22	43.32	6.6
	TICCIT (day)	122	35.54	10.2	19	43.21	7.5	17	43.88	7.5	17	42.00	7.0
	TICCIT (eve.)	39	34.62	10.1	8	46.75	3.6	5	48.20	8.9	5	47.80	1.9
	Lecture	254	38.49	11.9	155	38.58	10.4	130	41.28	11.2	130	38.64	10.2
	Lecture(day)	164	36.26	11.4	111	39.59	10.5	91	40.10	11.9	91	39.96	9.9
	Lecture(eve.)	90	42.54	11.6	44	36.02	9.7	39	44.05	11.3	39	35.56	10.0
	Day	286	35.95	11.0	130	40.12	10.2	108	48.20	7.9	108	40.28	9.5
	Evening	129	40.15	11.7	52	37.67	9.8	44	44.52	11.1	44	36.96	10.2

Mathematics Achievement Data
Phoenix College
Math 106
Fall Semester, 1975

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations: Pretest N	Paired Observations: Pretest Mean	Paired Observations: Pretest sd	Paired Observations: Posttest N	Paired Observations: Posttest Mean	Paired Observations: Posttest sd
01	TICCIT (day)	61	48.54	10.3	25	35.52	4.5	22	56.36	6.9	22	35.36	4.2
02	TICCIT (eve.)	37	44.84	13.4	9	38.89	4.7	7	59.00	4.0	7	37.86	4.5
03	Lecture (day)	27	50.37	9.1	16	30.50	7.7	16	53.06	9.1	16	30.50	7.7
04	Lecture	28	42.18	11.7	15	33.47	5.5	13	48.54	8.4	13	34.38	5.3
05	Lecture	24	46.58	9.7	14	32.79	5.1	12	52.25	9.2	12	32.58	5.5
06	Lecture	1	66.00	0.0	22	26.50	8.8	1	66.00		1	35.00	

Totals:

	All	178	46.88	11.3	101	32.38	7.3	71	53.89	8.4	71	33.86	5.8
	TICCIT	98	47.14	11.7	34	36.41	4.6	29	57.00	6.4	29	35.97	4.3
	TICCIT (day)	61	48.54	10.3	25	35.52	4.5	22	56.36	6.9	22	35.36	4.2
	TICCIT (eve.)	37	44.84	13.4	9	38.89	4.7	7	59.00	4.0	7	37.86	4.5
	Lecture	80	46.56	10.8	67	30.33	7.6	42	51.74	9.0	42	32.40	6.3
	Lecture (day)	79	46.32	10.6	45	32.30	6.2	41	51.39	8.8	41	32.34	6.4
	Lecture (eve.)	1	66.00	0.0	22	26.50	8.8	1	66.00		1	35.00	
	Day	140	47.29	10.5	70	33.39	5.8	63	53.13	8.5	63	33.40	5.9
	Evening	38	45.39	13.6	31	30.10	9.5	8	59.88	4.4	8	37.50	4.2

Mathematics Achievement Data
Phoenix College
Math 108
Fall Semester, 1975

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01	TICCIT (day)	61	41.72	11.1	10	40.50	8.0	7	51.86	8.5	7	42.29	7.4
02	Lecture(day)	34	40.59	11.4	16	37.13	7.8	16	44.31	9.7	16	37.13	7.8
03	Lecture	29	42.14	12.3	20	35.85	9.6	18	45.33	11.6	18	35.78	10.1
04	Lecture	9	44.00	10.6	8	38.13	9.2	6	50.33	4.4	6	38.83	10.1
Totals:													
	All	133	41.68	11.3	54	37.43	8.6	47	46.60	9.9	47	37.60	8.9
	TICCIT (day)	61	44.72	11.1	10	40.50	7.6	7	51.86	8.5	7	42.29	6.8
	Lecture(day)	72	41.68	11.3	44	36.73	8.7	40	45.68	10.0	40	36.78	9.0

Mathematics Achievement Data
Phoenix College
Math 007
Spring Semester, 1976

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations: Pretest N	Paired Observations: Pretest Mean	Paired Observations: Pretest sd	Paired Observations: Posttest N	Paired Observations: Posttest Mean	Paired Observations: Posttest sd
01	TICCIT (day)	83	36.23	10.8	30	40.03	6.9	28[1,2]	39.21	9.8	28[1,2]	39.64	7.1
02	TICCIT (eve.)	27	35.93	13.4	5	43.80	7.3	4	46.00	16.4	4	43.25	8.3
03	Lecture (day)	36	36.61	9.9	26	39.81	7.5	25[3]	38.92	9.6	25[3]	39.48	7.5
04	Lecture	28	29.18	10.2	20	39.15	8.3	18	33.28	10.4	18	39.22	8.7
05	Lecture	36	38.94	9.6	23	39.74	8.7	22	39.82	10.3	22	39.77	8.9
06	Lecture	34	37.74	11.9	18	38.50	7.7	18	40.11	9.9	18	38.50	7.7
07	Lecture (eve.)	28	39.00	12.8	20	38.75	9.4	19	40.79	13.1	19	38.68	9.6
08	Lecture	31	35.13	9.7	25	38.84	8.8	24	37.21	9.3	24	38.79	8.9
09	Lecture	29	36.34	12.4	14	32.93	9.6	14	42.64	13.0	14	32.93	9.6
Totals:													
	All	332	36.24	11.3	181	38.96	8.3	172	39.05	10.7	172	38.78	8.4
	TICCIT	110	36.15	11.4	35	40.57	6.9	32	40.06	10.5	32	40.09	7.1
	TICCIT (day)	83	36.23	10.8	30	40.03	6.9	28	39.21	9.8	28	39.64	7.1
	TICCIT (eve.)	27	35.93	13.4	5	43.80	7.3	4	46.00	16.4	4	43.25	8.3
	Lecture	222	36.28	11.2	146	38.58	8.5	140	38.82	10.8	140	38.49	8.6
	Lecture (day)	134	35.97	10.9	87	39.37	7.9	83	38.19	10.1	83	39.29	8.0
	Lecture (eve.)	88	36.76	11.6	59	37.41	9.3	57	39.74	11.5	57	37.32	9.4
	Day	217	36.07	10.9	117	39.54	7.6	111	38.45	10.0	111	39.38	7.7
	Evening	115	36.57	12.0	64	37.90	9.2	61	40.15	11.8	61	37.70	9.4

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[1] These paired observations include 8 students with pretests from Math 007, TICCIT class, in the fall semester.

[2] These paired observations include 2 students with pretests from Math 007, TICCIT class, in the fall semester.

[3] The paired observations for this class include 1 pretest from Math 007, lecture, in the fall semester.

Mathematics Achievement Data
Phoenix College
Math 106
Spring Semester, 1976

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations: Pretest N	Paired Observations: Pretest Mean	Paired Observations: Pretest sd	Paired Observations: Posttest N	Paired Observations: Posttest Mean	Paired Observations: Posttest sd
01	TICCIT (day)	53	13.32	3.6	15	35.27	6.6	5	16.40	3.4	5	36.60	5.7
02	TICCIT (eve.)	27	12.96	3.1	2	35.50	7.8	0	——	——	——	——	——
03	Lecture (day)	32	15.09	2.9	18	34.50	8.3	18	16.17	3.1	18	34.50	8.3
04	Lecture	29	12.79	3.3	21	31.14	8.0	20	13.85	3.0	20	31.25	8.2
05	Lecture	23	15.26	2.6	15	36.93	4.6	13	15.62	2.0	13	36.92	4.9
06	Lecture (eve.)	33	13.27	3.6	18	36.11	7.4	16	14.56	3.1	16	35.31	7.5
07	Lecture	32	13.06	3.5	19	23.47	7.8	19	12.74	3.6	19	23.47	7.8
Totals:													
	All	229	13.61	3.4	108	32.64	8.5	91	14.59	3.2	91	32.09	8.7
	TICCIT	80	13.20	3.4	17	35.29	6.5	5	16.40	3.4	5	36.60	5.7
	TICCIT (day)	53	13.32	3.6	15	35.27	6.6	5	16.40	3.4	5	36.60	5.7
	TICCIT (eve.)	27	12.96	3.1	2	35.50	7.8	0	——	——	——	——	——
	Lecture	149	13.83	3.4	91	32.14	8.7	86	14.49	3.2	86	31.83	8.8
	Lecture (day)	84	14.35	3.1	54	33.87	7.5	51	15.12	2.9	51	33.84	7.7
	Lecture (eve.)	65	13.17	3.6	37	29.62	9.7	35	13.57	3.4	35	28.89	9.5
	Day	137	13.95	3.4	69	34.17	7.3	56	15.23	2.9	56	34.09	7.5
	Evening	92	13.11	3.4	39	29.92	9.6	35	13.57	3.4	35	28.89	9.5

Mathematics Achievement Data
Phoenix College
Math 108
Spring Semester, 1976

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations: Pretest N	Paired Observations: Pretest Mean	Paired Observations: Pretest sd	Paired Observations: Posttest N	Paired Observations: Posttest Mean	Paired Observations: Posttest sd
01	TICCIT (day)	52	43.60	9.8	12	39.25	8.3	12[1][2]	46.50	9.9	12[1][2]	38.42	7.3
02	Lecture (day)	29	45.21	12.1	17	38.71	6.7	17[3]	48.12	8.7	17[3]	38.71	6.7
03	Lecture	31	39.26	10.8	16	37.62	9.0	16	40.62	8.5	16	37.62	9.0
04	Lecture (eve.)	23	41.17	10.2	0	———	———	0	———	———	———	———	———
05	Lecture	18	42.44	12.0	10	44.40	8.9	7	46.00	12.0	7	43.57	9.3
Totals:													
	All	153	42.52	10.9	55	39.55	8.2	52	45.15	9.6	52	38.96	7.9
	TICCIT	52	43.60	9.8	12	39.25	8.3	12	46.50	9.9	12	38.42	7.3
	Lecture	101	41.97	11.3	43	39.63	8.3	40	44.75	9.5	40	39.12	8.1
	Lecture (day)	60	42.13	11.6	33	38.18	7.7	33	44.48	9.1	33	38.18	7.7
	Lecture (eve.)	41	41.73	10.8	10	44.40	8.9	7	46.00	12.0	7	43.57	9.3
	Day	112	42.81	10.9	45	38.47	7.8	45	45.02	9.3	45	38.24	7.5
	Evening	41	41.73	10.8	10	44.40	8.9	7	46.00	12.0	7	43.57	9.3

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[1] These paired observations include 6 pretests from the fall semester for students who had started Math 108 on TICCIT. One of these students had taken the posttest for Math 108 in the spring but did not appear on spring class rosters; that student is included under paired observations but not the overall pretest and posttest statistics for this class.

[2] The pretests for this class include 5 pretests from Math 108, lecture, in the fall semester.

[3] The pretests for this class include 2 pretests from the fall semester who had started Math 108, lecture.

Mathematics Achievement Data
Phoenix College
Math 117
Spring Semester, 1976

Classes:								Paired Observations					
		Pretest			Posttest			Pretest			Posttest		
Section Number	Comparison Group	N	Mean	sd	N	Mean	sd	N	Mean	sd	N	Mean	sd
01	TICCIT (day)	35	13.40	3.5	13	24.69	8.0	11	14.18	1.9	11	25.64	7.5
02	TICCIT (eve.)	8	11.37	3.5	1	25.00		1	16.00		1	25.00	
03	Lecture (day)	25	14.28	3.3	20	30.10	7.0	18	15.67	2.5	18	30.83	6.9
04	Lecture	25	12.32	2.6	17	29.24	6.2	17	12.82	2.8	17	29.24	6.2
06	Lecture (eve.)	30	10.43	4.3	20	15.00	4.3	17	10.35	4.3	17	15.47	4.3
07	Lecture	26	11.88	3.7	0	——	——	0	——	——		——	——
Totals:													
	All	150	12.39	3.7	71	24.58	8.8	64	13.25	3.6	64	25.34	8.6
	TICCIT	43	13.02	3.5	14	24.71	7.7	12	14.33	1.9	12	25.58	7.1
	TICCIT (day)	35	13.40	3.5	13	24.69	8.0	11	14.18	1.9	11	25.64	7.5
	TICCIT (eve.)	8	11.37	3.5	1	25.00		1	16.00		1	25.00	
	Lecture	107	12.13	3.8	57	24.54	9.2	52	13.00	3.9	52	25.29	9.0
	Lecture (day)	51	13.25	3.1	37	29.70	6.5	35	14.29	2.9	35	30.06	6.4
	Lecture (eve.)	56	11.11	4.1	20	15.00	4.3	17	10.35	4.3	17	15.47	4.3
	Day	86	13.31	3.3	50	28.40	7.1	46	14.26	2.7	46	29.00	6.8
	Evening	64	11.14	4.0	21	15.48	4.7	18	10.67	4.4	18	16.00	4.8

Mathematics Achievement Data
Northern Virginia Community College
Math 31
Fall Quarter, 1975
Students with Grade 'S'

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01	TICCIT	20	30.60	9.6	3	44.33	3.5	3	44.00	14.7	3	44.33	3.5
02	TICCIT	18	31.33	11.1	0	———	———	0	———	———	0	———	———
03	TICCIT	21	27.67	10.9	3	43.33	10.3	3	44.00	11.3	3	43.33	10.3
04	TICCIT	15	33.40	12.8	2	50.00	4.2	2	57.00	1.4	2	50.00	4.2
05	TICCIT	19	34.79	12.0	1	45.00	———	1	47.00	———	1	45.00	———
06	Programmed	17	32.76	6.7	0	———	———	0	———	———	0	———	———
07	Programmed	20	29.90	9.8	5	36.20	5.8	3	38.33	17.6	3	37.67	6.5
08	Lecture	20	34.15	12.0	14	39.07	6.0	13	39.08	11.3	13	39.23	6.2
09	Lecture	20	29.10	9.1	14	36.79	5.5	12	33.00	8.2	12	36.92	5.9
10	Lecture	7	32.71	9.7	6	34.83	6.2	5	33.40	11.0	5	34.40	6.9
11	Lecture	18	34.33	10.2	10	39.60	7.1	10	37.50	6.0	10	39.60	7.1

Totals:

	All	195	31.72	10.5	58	38.90	6.1	52	38.19	10.6	52	39.27	6.8
	TICCIT	90*	31.56	11.3	9*	45.33	6.2	9*	47.22	10.9	9*	45.33	6.2
	Programmed	47*	29.74	8.5	7*	34.86	6.1	4*	36.50	14.8	4*	34.75	7.9
	Lecture	58*	33.59	10.3	42*	38.19	5.9	39*	36.28	9.2	39*	38.33	6.1

*The number of students listed under the totals for a comparison group includes individual students who followed that instructional condition regardless of their section assignment. Class and comparison group totals will disagree due to this adjustment in forming totals.

Mathematics Achievement Data
Northern Virginia Community College
Math 31
Winter Quarter, 1976
Students with Grade 'S'

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations (includes pretests from prior terms) Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd
01	TICCIT (day)	5	23.20	12.3	3	38.00	10.1	3(1)[1]	35.00	4.6	3	38.00	10.1
02	TICCIT	6	24.17	8.5	5	40.60	6.4	2(1)	21.50	3.5	2	35.00	1.4
03	TICCIT	5	31.00	14.6	3	34.67	12.9	3(2)	22.33	5.5	3	34.67	12.9
04	TICCIT	11	31.09	9.0	8	42.12	5.9	6	37.50	4.4	6	44.00	5.2
05	TICCIT (eve.)	10	29.90	14.4	5	37.40	8.3	4(3)	36.75	9.6	4	40.50	5.3
06	TICCIT	4	24.25	7.2	4	39.50	9.0	4(4)	40.50	13.7	4	39.50	9.0
07	Programmed (day)	15	31.93	12.2	8	40.12	3.4	6	31.17	9.2	6	41.00	3.5
08	Programmed (eve.)	16	32.12	13.6	5	38.60	6.9	3	41.67	14.0	3	40.33	7.0
09	Lecture (day)	12	25.25	12.5	10	33.80	6.1	7(2)	31.14	10.8	7	34.00	7.0
10	Lecture (eve.)	21	33.33	11.1	11	39.45	4.0	8	36.12	8.8	8	38.75	4.3
Totals:													
	All	105	30.00	12.0	62	38.53	6.6	46	34.09	9.8	46	39.07	6.6
	TICCIT[2]	41	27.29	10.8	25	40.00	7.8	21	34.33	10.0	21	40.86	6.8
	Programmed[2]	33	32.21	12.6	16	38.56	5.8	10	34.00	11.0	10	39.10	6.8
	Lecture[2]	31	31.23	11.8	21	36.76	5.8	15	33.80	9.7	15	36.53	6.0

[1] The figures within parentheses indicate the number of students whose pretests come from a prior term (fall quarter) and who had re-enrolled under the same instructional conditions for Math 31.

[2] The number of students listed under the totals for a comparison group includes individual students who followed that instructional condition regardless of their section assignment. Class and comparison group totals will disagree due to this adjustment in forming totals.

Mathematics Achievement Data
Northern Virginia Community College
Math 32
Winter Quarter, 1976
Students with Grade 'S'

Classes:		Pretest			Posttest			Paired Observations: Pretest			Paired Observations: Posttest		
Section Number	Comparison Group	N	Mean	sd	N	Mean	sd	N	Mean	sd	N	Mean	sd
01	TICCIT (day)	6	14.50	3.9	1	25.00		1	11.00		1	25.00	
03	TICCIT	4	13.25	3.8	1	17.00		0			0		
04	TICCIT	1	16.00		0			0			0		
05	TICCIT (eve.)	7	13.00	3.9	0			0			0		
06	TICCIT	2	15.00	1.4	0			0			0		
07	Lecture (day)	11	12.91	2.9	4	22.25	3.4	4	13.75	3.6	4	22.25	3.4
08	Lecture (eve.)	13	14.62	3.8	9	19.89	6.0	9	14.89	3.2	9	19.89	6.0
Totals:													
	All	44	13.84	3.4	15	20.67	5.1	14	14.29	3.2	14	20.93	5.2
	TICCIT	20	13.85	3.5	2	21.00	5.7	1	11.00		1	25.00	
	Lecture	24	13.83	3.4	13	20.62	5.3	13	14.54	3.2	13	20.62	5.3

Mathematics Achievement Data
Northern Virginia Community College
Math 31
Spring Quarter, 1976
Students with Grade 'S'

Classes: Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations (includes pretests from prior terms) Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd
01	TICCIT (day)	11	27.00	8.6	2	29.00	15.6	2(1)[1]	22.50	.7	2	29.00	15.6
02	TICCIT	11	29.00	10.6	6	31.00	9.7	5(2)	32.20	8.8	5	30.00	10.5
03	TICCIT	8	32.87	12.4	2	46.50	7.8	2	49.50	12.0	2	46.50	7.8
04	TICCIT (eve.)	12	32.08	15.2	2	48.50	3.5	2	56.50	9.2	2	48.50	3.5
05	Programmed (day)	19	23.89	9.1	4	42.50	6.0	3(1)	26.00	7.5	3	43.00	7.2
06	Programmed	23	28.57	12.9	9	38.00	8.9	8(1)	39.12	13.9	8	37.62	9.4
07	Programmed (eve.)	9	35.67	7.6	1	43.00		0					
08	Lecture (day)	18	28.78	12.0	4	37.00	8.2	3	36.67	9.5	3	35.67	9.5
09	Lecture (eve.)	19	34.05	14.5	8	42.25	4.9	7	44.14	13.6	7	42.71	5.1
Totals													
	All	130	29.01	12.0	38	38.83	8.9	32	38.37	13.2	32	38.56	9.5
	TICCIT[2]	41	30.12	11.9	11	40.36	8.0	9	41.33	14.1	9	40.56	8.7
	Programmed[2]	58	26.14	10.4	16	36.44	10.7	14	33.21	12.8	14	35.79	11.3
	Lecture[2]	21	32.90	13.5	11	40.73	6.6	9	43.33	12.2	9	40.89	7.4

[1] The figures within parentheses indicate the number of students whose pretests come from a prior term (fall or winter quarter) and who had re-enrolled under the same instructional conditions for Math 31.

[2] The number of students listed under the totals for a comparison group includes individual students who followed that instructional condition regardless of their section assignment. Class and comparison group totals will disagree due to this adjustment in forming totals.

Mathematics Achievement Data
Northern Virginia Community College
Math 32
Spring Quarter, 1976
Students with Grade 'S'

Classes: Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations: Pretest N	Paired Observations: Pretest Mean	Paired Observations: Pretest sd	Paired Observations: Posttest N	Paired Observations: Posttest Mean	Paired Observations: Posttest sd
01	TICCIT (day)	8	16.50	2.6	4	24.25	3.2	4	17.25	1.5	4	24.25	3.2
02	TICCIT	7	15.57	2.6	1	17.00		1	16.00		1	17.00	
03	TICCIT	7	13.86	3.7	0			0			0		
04[1]	TICCIT (eve.)	5	15.80	1.9	0			0			0		
05[2]	TICCIT	8	15.25	4.1	1	40.00		1	20.00		1	40.00	
06	Lecture (day)	23	13.48	3.0	12	17.17	5.3	11	13.18	3.4	11	16.27	4.5
07	Lecture (eve.)	17	15.12	1.7	14	19.86	5.2	13	14.92	1.9	13	20.15	5.3
Totals:													
	All	74	14.70	2.9	32	19.94	6.4	30	14.80	2.9	30	19.83	6.4
	TICCIT	34	15.32	3.1	6	25.67	8.0	6	17.50	1.8	6	25.67	8.0
	Lecture	40	14.17	2.6	26	18.62	5.3	24	14.12	2.8	24	18.37	5.3

[1] There is one student in this class whose pretest score came from the winter quarter when he began Math 32 with the TICCIT program.

[2] This section includes one student under programmed instruction whose scores appear within this section but not under course totals. It also includes pretest scores from the winter quarter for two students who re-enrolled for a TICCIT class.

English Achievement Data
Essay Tests
Phoenix College
English 19
Spring Semester, 1976

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01	TICCIT (day)	27	1.56	.64	11	2.32	.56	11	1.41	.58	11	2.32	.56
02	TICCIT	28	2.07	.76	7	2.71	.81	7	2.00	.50	7	2.71	.81
03	TICCIT	8	2.13	1.03	—	—	—	—	—	—	—	—	—
04	TICCIT	14	1.93	.62	3	1.67	.76	3	2.33	.29	3	1.67	.76
05	Lecture	26	1.77	.77	12	1.75	.50	12	1.67	.54	12	1.75	.50
07	Lecture	23	1.93	.79	16	2.31	.75	14	1.75	.67	14	2.36	.77
08	Lecture	24	2.38	.95	14	2.46	.75	14	2.46	1.06	14	2.46	.75
09	Lecture	24	2.08	.80	14	1.93	.85	13	2.08	.86	13	1.96	.88
10	Lecture	17	1.97	.62	10	2.20	1.06	9	1.89	.60	9	2.17	1.12

Totals:

	All	186	1.96	.77	87	2.20	.79	83	1.92	.77	83	2.20	.80
	TICCIT	72	1.85	.74	21	2.36	.71	21	1.74	.62	21	2.36	.73
	Lecture	114	2.03	.77	66	2.14	.80	62	1.98	.81	62	2.15	.82

English Totals:

	All	299	2.02	.76	145	2.14	.76	137	2.08	.80	137	2.14	.77
	TICCIT	124	1.96	.77	49	2.26	.72	47	2.10	.79	47	2.26	.74
	Lecture	175	2.07	.75	96	2.08	.77	90	2.08	.80	90	2.08	.79

English Achievement Data
Objective Test of Writing Skills
Phoenix College
English 19
Spring Semester, 1976

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations: Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd
01	TICCIT (day)	25	23.24	6.5	11	26.18	4.2	11	26.18	2.2	11	26.18	4.2
02	TICCIT	24	22.54	7.9	7	27.43	5.6	7	19.71	8.9	7	27.43	5.6
03	TICCIT	8	18.25	7.3	0	———	—	0	———	—		———	—
04	TICCIT	15	21.53	6.9	3	26.67	1.2	3	21.67	6.7	3	26.67	1.2
05	Lecture (day)	25	22.64	5.6	12	24.50	4.8	12	20.50	6.5	12	24.50	4.8
06	Lecture	18	23.11	6.4	16	19.00	6.8	12	21.75	6.2	12	19.50	6.5
07	Lecture	17	28.65	7.7	14	29.00	5.4	9	28.44	8.5	9	31.00	4.8
08	Lecture	15	24.93	6.8	16	26.44	4.8	12	25.67	5.9	12	27.00	5.1
09	Lecture	17	22.65	7.3	10	23.90	4.7	9	21.78	6.0	9	24.33	4.7
Totals:													
	All	165	23.13	7.0	89	25.01	6.0	75	23.44	6.7	75	25.47	5.9
	TICCIT	72	21.75	7.1	21	26.67	4.3	21	23.38	6.3	21	26.67	4.3
	Lecture	93	24.19	6.8	68	24.50	6.3	54	23.46	6.9	54	25.00	6.3

English Achievement Data
Essay Tests
Phoenix College
English 29
Spring Semester, 1976

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01	TICCIT (eve.)	24	1.92	.76	13	2.31	.72	12	2.17	.83	12	2.33	.75
02	TICCIT	28	2.27	.81	15	2.07	.75	14	2.57	.78	14	2.04	.77
03	Lecture	25	2.42	.66	16	1.94	.70	15	2.43	.68	15	1.90	.71
04	Lecture	18	2.08	.71	14	1.96	.69	13	2.12	.79	13	1.96	.72
05	Lecture	18	1.81	.69	8	2.44	.32	8	2.25	.60	8	2.44	.32
Totals:													
	All	113	2.12	.75	58	2.06	.71	54	2.33	.76	54	2.05	.73
	TICCIT	52	2.11	.79	28	2.18	.72	26	2.38	.82	26	2.17	.70
	Lecture	61	2.14	.71	30	1.95	.68	28	2.29	.74	28	1.93	.70
English Totals:													
	All	300	2.02	.76	145	2.14	.76	137	2.08	.80	137	2.14	.77
	TICCIT	124	1.96	.77	49	2.26	.72	47	2.10	.79	47	2.26	.74
	Lecture	176	2.07	.75	96	2.08	.77	90	2.08	.80	90	2.08	.79

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English Achievement Data
Objective Test of Writing Skills
Phoenix College
English 29
Spring Semester, 1976

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations: Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd
01	TICCIT (eve.)	26	20.85	8.7	13	29.46	6.1	12	25.33	6.4	12	29.83	6.3
02	TICCIT	28	23.11	7.5	15	28.40	6.2	14	24.79	6.5	14	27.79	6.0
03	Lecture (eve.)	26	26.31	6.7	16	30.19	5.8	16	28.69	5.5	16	30.19	5.8
04	Lecture	20	25.35	5.8	14	25.79	5.2	14	24.29	5.8	14	25.79	5.2
05	Lecture	18	20.11	9.4	0	—	—	0	—	—	0	—	—

Totals:

All	118	23.24	7.9	58	28.50	5.9	56	25.89	6.1	56	28.41	5.9
TICCIT	54	22.02	8.0	28	28.89	6.1	26	25.04	6.4	26	28.73	6.1
Lecture	64	24.27	7.6	30	28.13	5.8	30	26.63	5.9	30	28.13	5.8

English Totals:

All	283	23.17	7.4	147	28.39	6.2	131	24.49	6.6	131	26.73	6.0
TICCIT	126	21.87	7.5	49	27.94	5.4	47	24.30	6.3	47	27.81	5.4
Lecture	157	24.22	7.2	98	25.61	6.4	84	24.60	6.7	84	26.12	6.3

English Achievement Data
Essay Tests
Phoenix College
English 29
Summer Semester, 1976

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01	TICCIT (day)	16	1.78	.68	8	2.44	.32	8	2.25	.60	8	2.44	.32
02	TICCIT	10	1.70	.54	5	2.80	.57	5	2.10	.42	5	2.80	.57
03	TICCIT (eve.)	22	1.64	.73	18	2.17	.71	13	1.77	.75	13	2.19	.63
04	Lecture	25	1.88	.62	5	1.30	.45	5	1.70	.57	5	1.30	.45
Totals:													
	All	73	1.76	.65	36	2.19	.70	31	1.94	.64	31	2.21	.67
	TICCIT	48	1.70	.66	31	2.34	.63	26	1.98	.67	26	2.38	.57
	Lecture	25	1.88	.60	5	1.30	.40	5	1.70	.57	5	1.30	.45

English Achievement Data
Objective Test of Writing Skills
Phoenix College
English 29
Summer Semester, 1976

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01	TICCIT (day)	15	21.80	7.79	9	29.78	4.66	8	25.75	6.43	8	30.00	4.93
02	TICCIT	10	25.50	9.96	5	35.00	1.22	5	31.80	4.66	5	35.00	1.22
03	TICCIT (eve.)	22	22.64	10.10	18	28.11	8.29	13	26.23	9.47	13	29.08	8.43
04	Lecture	27	21.67	9.75	9	21.22	7.40	9	23.11	8.22	9	21.22	7.40
Totals:													
	All	74	22.50	9.85	41	27.80	7.76	35	26.11	8.00	35	28.11	7.88
	TICCIT	47	22.98	9.19	32	29.66	6.92	26	27.15	7.97	26	30.50	6.81
	Lecture	27	21.67	9.57	9	21.22	6.97	9	23.11	8.22	9	21.22	7.40

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English Achievement Data
Essay Tests
Phoenix College
English 19
Fall Semester, 1976

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01	TICCIT (day)	18	1.78	.79	9	2.00	.50	8	1.69	.53	8	1.94	.50
02	TICCIT	18	1.67	.64	13	2.08	.79	12	1.92	.63	12	2.04	.81
03	TICCIT	31	1.68	.48	16	2.34	.85	16	1.78	.41	16	2.34	.85
04	TICCIT	28	1.91	.64	9	2.28	.62	9	1.94	.63	9	2.28	.62
05	TICCIT	27	1.76	.73	18	1.83	.71	17	1.94	.73	17	1.85	.72
06	TICCIT	25	1.94	.86	12	2.38	.68	12	2.21	.92	12	2.38	.68
07	Lecture	19	1.76	.71	10	1.95	.69	10	1.90	.84	10	1.95	.69
08	Lecture	21	1.60	.52	16	1.78	.66	16	1.69	.51	16	1.78	.66
09	Lecture	25	2.02	.77	20	2.43	.59	20	2.18	.75	20	2.43	.59
10	Lecture	30	1.65	.53	23	2.15	.38	22	1.75	.43	22	2.16	.39
11	Lecture	24	2.31	.69	17	2.18	.75	16	2.28	.73	16	2.13	.74
12	Lecture	25	1.92	.55	20	2.05	.65	20	1.95	.58	20	2.05	.65
13	Lecture	22	1.98	.59	17	1.94	.68	17	1.94	.63	17	1.94	.68
14	Lecture	18	1.39	.47	14	1.54	.57	14	1.50	.48	14	1.54	.57
15	Lecture	26	2.06	.70	20	1.98	.60	19	2.16	.71	19	1.97	.61
Total:													
	All	357	1.84	.67	234	2.06	.67	228	1.93	.65	228	2.06	.67
	TICCIT	147	1.79	.68	77	2.14	.72	74	1.92	.65	74	2.14	.73
	Lecture	210	1.87	.66	157	2.03	.64	154	1.94	.66	154	2.02	.64
English Totals:													
	All	506	1.91	.72	320	2.09	.71	297	1.99	.70	297	2.08	.72
	TICCIT	208	1.88	.72	117	2.08	.73	99	1.95	.68	99	2.07	.74
	Lecture	298	1.94	.71	203	2.10	.70	198	2.01	.71	198	2.09	.70

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English Achievement Data
Objective Test of Writing Skills
Phoenix College
English 19
Fall Semester, 1976

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01	TICCIT (day)	18	18.56	9.59	9	28.78	4.84	7	20.86	10.47	7	28.14	5.00
02	TICCIT	1	15.00	——	14	28.43	3.20	—	——	——	—	——	——
03	TICCIT	25	21.68	7.33	17	27.47	5.30	15	25.73	5.19	15	27.53	5.46
04	TICCIT	24	23.50	7.49	9	29.33	4.33	9	27.11	7.17	9	29.33	4.33
05	TICCIT	26	22.27	7.26	19	25.21	5.41	17	22.59	7.82	17	25.35	5.68
06	TICCIT	23	22.57	8.80	14	28.50	6.14	11	25.18	8.57	11	29.64	5.28
07	Lecture	18	14.61	6.36	12	23.33	6.77	12	16.67	6.50	12	23.33	6.77
08	Lecture	25	23.60	7.51	20	30.70	4.54	20	24.65	6.98	20	30.70	4.54
09	Lecture	30	21.83	6.22	23	23.30	4.84	22	22.82	5.41	22	23.36	4.94
10	Lecture	24	20.88	6.74	22	23.64	5.83	21	20.10	6.11	21	23.38	5.84
11	Lecture	25	24.44	7.70	20	25.70	6.45	20	24.45	7.97	20	25.70	6.45
12	Lecture	22	20.36	5.81	17	25.65	4.29	17	21.12	5.45	17	25.65	4.29
13	Lecture	19	16.74	7.89	15	21.67	6.56	14	18.71	6.04	14	22.57	5.76
14	Lecture	26	24.27	7.38	20	25.60	6.19	19	25.47	6.47	19	26.11	5.92
Totals:													
	All	327	21.29	7.67	231	25.99	5.87	204	22.78	7.16	204	25.94	5.90
	TICCIT	117	21.82	8.00	82	27.63	5.07	59	24.36	7.71	59	27.64	5.36
	Lecture	210	21.00	7.47	149	25.08	6.09	145	22.14	6.82	145	25.25	5.96
English Totals:													
	All	479	22.89	7.94	318	26.31	6.22	276	23.62	7.41	276	26.26	6.13
	TICCIT	182	23.99	7.89	123	27.45	6.03	87	25.37	7.34	87	27.53	5.93
	Lecture	297	22.22	7.89	195	25.60	6.23	189	22.82	7.30	189	25.67	6.13

English Achievement Data
Essay Tests
Phoenix College
English 29
Fall Semester, 1976

Classes:								Paired Observations					
		Pretest			Posttest			Pretest			Posttest		
Section Number	Comparison Group	N	Mean	sd	N	Mean	sd	N	Mean	sd	N	Mean	sd
01	TICCIT (eve.)	15	2.33	.84	17	1.94	.83	11	2.32	.72	11	2.00	.81
02	TICCIT	20	1.83	.75	4	2.13	.85	3	2.00	1.32	3	2.00	1.00
03	TICCIT	14	2.04	.66	14	1.86	.72	7	1.64	.56	7	1.29	.39
04	TICCIT	12	2.21	.84	5	2.20	.57	4	2.00	.82	4	2.38	.48
05	Lecture	26	2.06	.75	10	2.50	.62	10	2.40	.52	10	2.50	.62
06	Lecture	20	2.28	.88	15	2.73	.86	14	2.36	.99	14	2.75	.89
07	Lecture	23	1.87	.84	8	1.38	.69	8	1.75	.96	8	1.38	.69
08	Lecture	19	2.29	.65	13	2.35	.52	12	2.38	.71	12	2.38	.53
Totals:													
	All	149	2.09	.78	86	2.16	.80	69	2.18	.81	69	2.17	.83
	TICCIT	61	2.07	.77	40	1.96	.74	25	2.04	.78	25	1.86	.76
	Lecture	88	2.11	.79	46	2.34	.81	44	2.26	.82	44	2.34	.83
English Totals:													
	All	506	1.91	.72	320	2.09	.71	297	1.99	.70	297	2.08	.72
	TICCIT	208	1.88	.72	117	2.08	.73	99	1.95	.68	99	2.07	.74
	Lecture	298	1.94	.71	203	2.10	.70	198	2.01	.71	198	2.09	.70

English Achievement Data
Objective Test of Writing Skills
Phoenix College
English 29
Fall Semester, 1976

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01	TICCIT (eve.)	19	28.42	5.39	17	28.53	6.62	13	28.92	6.02	13	29.23	6.18
02	TICCIT	20	26.40	6.09	5	31.20	4.32	4	31.50	3.32	4	31.00	4.97
03	TICCIT	14	27.07	7.10	14	22.93	9.20	7	23.57	7.00	7	20.71	7.50
04	TICCIT	12	30.58	4.83	5	29.60	4.72	4	25.75	2.75	4	28.75	4.99
05	Lecture	25	28.84	5.23	9	27.89	5.28	9	30.33	4.44	9	27.89	5.28
06	Lecture	20	27.30	5.89	15	30.73	5.78	14	27.86	6.20	14	30.71	5.99
07	Lecture	23	18.96	10.74	9	22.11	6.45	9	14.89	9.05	9	22.11	6.45
08	Lecture	19	25.63	5.39	13	26.46	5.98	12	25.42	6.37	12	25.92	5.90

Totals:

	All	152	26.34	7.37	87	27.18	6.98	72	26.00	7.59	72	27.15	6.66
	TICCIT	65	27.91	5.93	41	27.07	7.58	28	27.50	6.07	28	27.29	6.97
	Lecture	87	25.17	8.09	46	27.28	6.40	44	25.05	8.33	44	27.07	6.46

English Totals:

	All	479	22.89	7.94	318	26.31	6.22	276	23.62	7.41	276	26.26	6.13
	TICCIT	182	23.99	7.89	123	27.45	6.03	87	25.37	7.34	87	27.53	5.93
	Lecture	297	22.22	7.89	195	25.60	6.23	189	22.82	7.30	189	25.67	6.13

English Achievement Data
Essay Tests
Northern Virginia Community College
English 111
Winter Quarter, 1976

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01	TICCIT (day)	17	2.41	.69	10	2.45	.72	10	2.60	.81	10	2.45	.72
02	TICCIT	13	2.54	.88	7	3.00	.82	7	2.43	.79	7	3.00	.82
03	TICCIT	14	2.96	.69	9	2.33	.83	8	2.88	.79	8	2.19	.75
04	TICCIT	19	2.61	.77	10	2.55	.80	9	2.56	.88	9	2.50	.83
05	TICCIT	18	2.69	.73	16	2.88	.74	14	2.79	.64	14	2.96	.69
06	TICCIT	14	3.14	.66	6	3.25	.52	6	3.42	.58	6	3.25	.52
07	Lecture	20	2.53	.88	13	1.42	.67	12	2.50	.88	12	1.46	.69
08	Lecture	16	2.59	.88	8	2.44	.73	8	2.50	.93	8	2.44	.73
09	Lecture	9	3.00	.87	3	3.00	.00	3	2.33	.76	3	3.00	.00
10	Lecture (eve.)	18	2.42	.49	13	2.19	.43	12	2.46	.54	12	2.17	.44
11	Lecture	18	2.81	.55	1	3.00	.00	1	2.00	.00	1	3.00	.00

Totals:

	All	176	2.67	.75	96	2.46	.83	90	2.63	.76	90	2.46	.82
	TICCIT	95	2.71	.76	58	2.72	.77	54	2.75	.76	54	2.71	.77
	Lecture	81	2.63	.74	38	2.07	.75	36	2.46	.73	36	2.08	.75

English Achievement Data
Objective Test of Writing Skills
Northern Virginia Community College
English 111
Winter Quarter, 1976

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01*	TICCIT (day)	18	26.61	6.6	10	30.30	5.5	10	28.70	3.8	10	30.30	5.5
02	TICCIT	15	29.27	4.7	7	34.14	3.2	7	30.71	3.0	7	34.14	3.2
03	TICCIT	16	31.37	4.8	8	34.12	6.5	8	32.37	4.5	8	34.12	6.5
04	TICCIT	22	30.18	5.1	10	31.70	4.7	10	31.00	3.9	10	31.70	4.7
05	TICCIT	18	30.89	6.3	16	30.94	7.1	14	32.21	5.4	14	32.64	5.6
06	TICCIT	13	32.69	3.7	6	34.50	4.0	6	34.50	3.3	6	34.50	4.0
07	Lecture (day)	21	27.57	7.5	13	29.77	6.1	13	26.85	7.5	13	29.77	6.1
08	Lecture	16	26.06	9.6	9	30.00	7.5	9	26.89	8.7	9	30.00	7.5
09	Lecture	9	22.67	8 2	3	33.67	3.5	3	19.67	4.5	3	33.67	3.5
10*	Lecture (eve.)	18	24.22	7.0	13	26.92	5.3	12	24.67	5.7	12	27.67	4.8
11	Lecture	18	30.72	3.7	1	32.00	—	1	30.00	—	1	32.00	—

Totals:

All	184	28.55	6.7	96	30.98	6.0	93	29.09	6.3	93	31.38	5.6
All (regular)	148	29.32	6.5	73	31.79	5.9	71	29.89	6.4	71	32.15	5.6
All (lab.)	36	25.42	6.7	23	28.39	5.4	22	26.50	5.1	22	28.86	5.1
TICCIT	102	30.05	5.5	57	32.18	5.6	55	31.44	4.4	55	32.65	5.1
TICCIT (regular)	84	30.79	5.0	47	32.57	5.6	45	32.04	4.3	45	33.18	4.9
TICCIT (lab.)	18	26.61	6.6	10	30.30	5.5	10	28.70	3.8	10	30.30	5.5
Lecture	82	26.70	7.6	39	29.23	6.0	38	25.68	7.0	38	29.53	5.8
Lecture (regular)	64	27.39	7.6	26	30.38	6.1	26	26.15	7.5	26	30.38	6.1
Lecture (lab.)	18	24.22	7.0	13	26.92	5.3	12	24.67	5.7	12	27.67	4.8

* Laboratory sections of English 111 which meet 5 hours per week rather than the usual 3 hours per week.

English Achievement Data
Essay Tests
Northern Virginia Community College
English 111
Spring Quarter, 1976

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01*	TICCIT (day)	20	1.75	.66	16	1.41	.55	15	1.77	.70	15	1.30	.37
02*	TICCIT	21	2.00	.69	12	1.96	.84	12	1.71	.50	12	1.96	.84
03*	TICCIT	21	1.98	.56	16	1.84	.68	16	1.97	.50	16	1.84	.68
04*	TICCIT	21	2.02	.78	13	2.08	.64	13	2.04	.85	13	2.08	.64
05	TICCIT	18	2.61	.85	13	2.77	.44	13	2.69	.72	13	2.77	.44
06	TICCIT	18	2.64	.72	13	2.77	.61	13	2.77	.75	13	2.77	.63
07*	Lecture	19	2.03	.63	14	2.29	.87	14	2.11	.56	14	2.29	.87
08	Lecture	10	2.70	.67	10	2.95	.69	9	2.83	.56	9	2.89	.70
09	Lecture	7	2.64	.63	7	2.79	.57	4	2.88	.63	4	2.63	.25
10	Lecture	14	2.61	.63	11	2.91	.97	11	2.73	.65	11	2.91	.97
11*	Lecture (eve.)	14	2.61	.68	12	2.50	.48	12	2.63	.74	12	2.50	.48
12*	Lecture	18	2.61	.70	19	2.24	.71	15	2.60	.76	15	2.30	.77
13*	Lecture	17	2.41	.73	18	2.42	.67	16	2.47	.72	16	2.44	.70
14	Lecture	13	3.04	.69	8	3.00	.53	8	3.13	.79	8	3.00	.53
15	Lecture	23	3.11	.64	19	3.18	.69	19	3.16	.60	19	3.18	.69
16	Lecture	23	3.00	.60	18	2.78	.83	17	3.15	.52	17	2.74	.83
17	Lecture	19	2.92	.69	17	2.68	.47	17	2.94	.73	17	2.68	.47
18	Lecture	15	2.93	.82	12	2.75	.81	12	2.83	.75	12	2.75	.81
Totals:													
	All	311	2.51	.80	248	2.49	.81	236	2.56	.80	236	2.48	.81
	TICCIT	119	2.15	.77	83	2.10	.79	82	2.15	.77	82	2.09	.79
	Lecture	192	2.73	.73	165	2.68	.75	154	2.79	.72	154	2.69	.75

* Laboratory sections of English 111 which meet 5 hours per week rather than the usual three hours per week.

English Achievement Data
Objective Test of Writing Skills
Northern Virginia Community College
English 111
Spring Quarter, 1976

Classes: Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations: Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd
01*	TICCIT (day)	20	16.25	6.2	16	17.06	6.9	15	15.67	6.7	15	16.40	6.6
02*	TICCIT	21	19.48	9.7	13	12.92	6.4	13	16.77	7.8	13	12.92	6.4
03*	TICCIT	20	17.65	6.5	16	22.00	7.1	15	17.07	6.6	15	21.67	7.2
04*	TICCIT	20	23.95	9.5	13	24.92	8.2	13	22.92	7.9	13	24.92	8.2
05	TICCIT	17	27.47	5.6	12	28.25	4.9	11	27.73	5.9	11	28.09	5.1
06	TICCIT	18	26.61	8.5	14	33.00	5.0	14	25.93	9.1	14	33.00	5.0
07*	Lecture (day)	19	21.37	7.3	14	24.79	6.9	14	21.86	7.4	14	24.79	6.9
08	Lecture	10	31.90	4.9	9	34.67	2.1	8	33.12	4.8	8	34.50	2.1
09	Lecture	10	28.50	5.0	7	33.57	4.2	6	30.67	3.4	6	34.50	3.8
10	Lecture	14	31.07	7.1	11	30.09	8.6	11	30.27	7.7	11	30.09	8.6
11*	Lecture (eve.)	14	28.79	6.4	13	29.92	7.3	13	28.46	6.6	13	29.92	7.3
12*	Lecture	18	23.55	8.6	19	25.63	7.8	15	24.07	9.0	15	26.00	7.5
13*	Lecture	17	27.47	7.0	16	30.06	4.4	14	28.79	6.5	14	30.36	4.6
14	Lecture	13	32.62	3.7	8	36.37	2.6	8	34.50	3.0	8	36.37	2.6
15	Lecture	23	31.96	6.2	19	35.68	3.0	19	32.79	4.8	19	35.68	3.0
16	Lecture	24	33.75	5.8	19	34.53	5.1	18	33.22	6.5	18	34.83	5.1
17	Lecture	19	32.42	5.0	17	32.76	5.7	17	32.47	5.0	17	32.76	5.7
18	Lecture	15	30.07	7.6	12	28.25	9.3	12	29.25	8.1	12	28.25	9.3
Totals:													
	All	312	26.56	8.8	248	28.31	8.7	236	26.68	8.9	236	28.35	8.8
	All (regular)	163	30.80	6.5	128	32.81	6.0	124	31.05	6.6	124	32.88	6.0
	All (lab.)	149	21.92	8.6	120	23.51	8.6	112	21.85	8.6	112	23.34	8.7
	TICCIT	116	21.66	8.8	84	22.83	9.2	81	20.68	8.5	81	22.64	9.3
	TICCIT (regular)	35	27.03	7.0	26	30.81	5.4	25	26.72	7.6	25	30.84	5.4
	TICCIT (lab.)	81	19.33	8.5	58	19.26	8.2	56	17.98	7.5	56	18.98	8.2
	Lecture	196	29.46	7.4	164	31.12	7.0	155	29.82	7.3	155	31.34	6.9
	Lecture (regular)	128	31.84	5.9	102	33.32	6.0	99	32.14	5.8	99	33.39	6.0
	Lecture (lab.)	68	25.00	7.8	62	27.48	6.9	56	25.71	7.8	56	27.70	6.9

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* Laboratory sections of English 111 which meet 5 hours per week rather than the usual 3 hours per week.

English Achievement Data
Essay Tests
Northern Virginia Community College
English 111
Fall Quarter, 1976

Classes:

Section Number	Comparison Group	Pretest N	Pretest Mean	Pretest sd	Posttest N	Posttest Mean	Posttest sd	Paired Observations Pretest N	Paired Observations Pretest Mean	Paired Observations Pretest sd	Paired Observations Posttest N	Paired Observations Posttest Mean	Paired Observations Posttest sd
01	TICCIT (day)	17	2.32	.66	—	——	——	—	——	——	—	——	——
02	TICCIT	22	1.77	.65	19	1.76	.75	18	1.86	.66	18	1.75	.77
03	TICCIT	18	2.03	.74	15	2.50	.87	13	1.96	.75	13	2.31	.75
04	TICCIT	20	2.23	.70	15	2.83	.75	15	2.30	.73	15	2.83	.75
05	TICCIT	12	2.00	.71	8	2.50	.65	7	1.79	.57	7	2.43	.67
06	TICCIT	18	2.25	.83	15	2.40	.63	14	2.32	.85	14	2.32	.58
07	TICCIT	15	2.10	.78	12	2.54	.69	12	2.17	.81	12	2.54	.69
08	TICCIT (eve.)	21	2.07	.73	14	2.79	.94	13	2.08	.67	13	2.77	.56
09	TICCIT	19	2.29	.63	15	2.33	.62	15	2.30	.56	15	2.33	.62
10	Lecture (day)	19	2.08	.82	13	2.27	.86	13	2.19	.80	13	2.27	.86
11	Lecture	17	2.26	.75	18	2.36	.80	13	2.27	.75	13	2.58	.81
12	Lecture	21	2.24	.92	18	2.39	.85	18	2.28	.79	18	2.39	.85
13	Lecture (eve.)	15	2.40	.63	14	2.57	.39	12	2.29	.66	12	2.54	.40
14	Lecture	24	2.04	.78	20	1.88	.79	20	1.98	.77	20	1.88	.79
Totals:													
	All	258	2.14	74	196	2.36	.77	183	2.14	.73	183	2.34	.77
	TICCIT	162	2.11	.71	113	2.42	.76	107	2.11	.71	107	2.38	.74
	Lecture	96	2.19	.78	83	2.27	.78	76	2.18	.75	76	2.29	.80

English Achievement Data
Objective Test of Writing Skills
Northern Virginia Community College
English 111
Fall Quarter, 1976

Classes:								Paired Observations					
		Pretest			Posttest			Pretest			Posttest		
Section Number	Comparison Group	N	Mean	sd	N	Mean	sd	N	Mean	sd	N	Mean	sd
01	TICCIT (day)	17	26.06	7.25	8	28.25	8.53	8	27.13	6.90	8	28.25	8.53
02	TICCIT	23	21.70	8.74	19	24.58	7.97	19	22.42	9.08	19	24.58	7.97
03	TICCIT	18	22.44	6.55	15	31.27	5.86	13	23.46	6.58	13	30.38	5.81
04	TICCIT	20	27.95	6.39	16	31.19	4.56	16	29.19	6.41	16	31.19	4.56
05	TICCIT	11	30.73	4.08	8	31.88	1.13	7	29.29	1.38	7	31.86	1.22
06	TICCIT	18	25.72	7.09	15	30.47	5.69	14	26.64	7.06	14	30.14	5.76
07	TICCIT	16	27.00	6.49	12	30.17	5.46	12	27.25	7.33	12	30.17	5.46
08	TICCIT (eve.)	21	27.38	6.61	14	29.36	6.93	13	26.54	6.57	13	30.38	6.01
09	TICCIT	19	24.21	7.84	15	24.07	6.86	15	24.80	8.06	15	24.07	6.86
10	Lecture (day)	19	22.89	8.29	13	26.62	5.98	13	22.92	7.59	13	26.62	5.98
11	Lecture	16	25.31	7.10	19	28.26	4.92	12	24.08	6.64	12	28.17	5.25
12	Lecture	21	27.00	7.36	18	31.89	4.00	18	27.39	7.56	18	31.89	4.00
13	Lecture (eve.)	16	30.75	3.59	14	32.57	3.50	12	30.42	3.90	12	32.58	3.65
14	Lecture	24	23.21	7.45	20	25.40	7.04	20	22.60	7.73	20	25.40	7.04
Totals:													
	All	259	25.59	7.36	206	28.78	6.40	192	25.70	7.34	192	28.68	6.42
	TICCIT	163	25.60	7.32	122	28.75	6.73	117	25.96	7.31	117	28.63	6.65
	Lecture	96	25.58	7.42	84	28.82	5.88	75	25.29	7.38	75	28.76	6.04

Appendix P

MATH POSTTEST SUMMARIES

Posttest Summary
Phoenix College
Math 007
Fall Semester, 1975
All Students

		TICCIT						Lecture						All					
		Day		Eve.		Total		Day		Eve.		Total		Day		Eve.		Total	
	No. of Items	(N = 19)		(N = 8)		(N = 27)		(N = 111)		(N = 44)		(N = 155)		(N = 130)		(N = 52)		(N = 182)	
		Mean	sd	Mean	sd	Mean	sd	Mean	sd	Mean	sd	Mean	sd	Mean	sd	Mean	sd	Mean	sd
Posttest Total	57	43.21	7.5	46.75	3.6	44.26	6.7	39.59	10.5	36.02	9.7	38.58	10.4	40.12	10.2	37.67	9.8	39.42	10.2
Objectives																			
1	48	38.74	6.5	41.50	2.8	39.56	5.8	34.43	8.9	31.93	8.2	33.72	8.8	35.06	8.7	33.40	8.4	34.59	8.7
2	5	1.84	1.6	2.00	1.5	1.89	1.5	3.26	1.5	2.61	1.5	3.08	1.5	3.05	1.6	2.52	1.5	2.90	1.6
3	4	2.63	0.9	3.25	0.9	2.81	0.9	1.90	1.0	1.48	0.9	1.78	1.0	2.01	1.0	1.75	1.1	1.93	1.0
4	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ability																			
0	2	2.00	0.0	1.88	0.4	1.87	0.3	1.83	0.4	1.64	0.5	1.77	0.4	1.85	0.4	1.67	0.5	1.80	0.4
1	19	15.95	2.5	16.75	1.9	16.19	2.4	14.41	3.9	13.45	3.6	14.14	3.9	14.64	3.8	13.96	3.6	14.45	3.7
2	22	15.53	3.8	16.88	2.4	15.93	3.5	14.55	4.7	13.55	4.2	14.26	4.6	14.69	4.6	14.06	4.1	14.51	4.5
3	14	9.74	2.0	11.25	1.3	10.19	1.9	8.80	2.7	7.39	2.8	8.40	2.8	8.94	2.6	7.98	3.0	8.66	2.8
Content																			
1	12	9.74	1.4	10.50	1.2	9.96	1.3	8.96	2.1	8.14	2.1	8.73	2.1	9.08	2.1	8.50	2.1	8.91	2.1
2(a)	6	4.26	1.5	4.88	1.0	4.44	1.4	4.74	1.5	4.55	1.2	4.68	1.4	4.67	1.5	4.60	1.1	4.65	1.4
(b)	18	15.21	2.1	16.38	1.3	15.56	1.9	11.86	4.2	10.75	4.2	11.55	4.2	12.35	4.1	11.62	4.4	12.14	4.2
(c)	5	3.37	1.6	3.75	0.9	3.48	1.4	3.06	1.3	3.05	1.2	3.06	1.3	3.11	1.3	3.15	1.2	3.12	1.3
(d)	10	5.95	2.7	6.13	2.0	6.00	2.4	6.79	2.5	6.11	2.5	6.60	2.5	6.67	2.5	6.12	2.4	6.51	2.5
(e)	3	2.58	0.6	2.88	0.4	2.67	0.6	2.37	0.8	2.23	0.8	2.33	0.8	2.40	0.8	2.33	0.8	2.38	0.8
(f)	3	2.11	0.8	2.25	0.7	2.15	0.8	1.80	0.9	1.20	0.9	1.63	1.0	1.85	0.9	1.37	1.0	1.71	1.0

Posttest Summary
Phoenix College
Math 106
Fall Semester, 1975
All Students

	No. of Items	TICCIT Day (N = 25) Mean	sd	TICCIT Eve. (N = 9) Mean	sd	TICCIT Total (N = 34) Mean	sd	Lecture Day (N = 45) Mean	sd	Lecture Eve. (N = 22) Mean	sd	Lecture Total (N = 67) Mean	sd	All Day (N = 70) Mean	sd	All Eve. (N = 31) Mean	sd	All Total (N = 101) Mean	sd
Posttest Total	49	35.52	4.5	38.89	4.7	36.41	4.6	32.20	6.2	26.50	8.8	30.33	7.6	33.39	5.8	30.10	9.5	32.38	7.3
Objectives																			
1	43	30.48	4.2	33.78	4.1	31.35	4.3	27.31	5.8	21.82	7.6	25.51	6.9	28.44	5.5	25.29	8.5	27.48	6.7
2	2	1.52	0.5	1.67	0.7	1.56	0.6	1.33	0.6	1.45	0.7	1.37	0.6	1.40	0.5	1.52	0.7	1.44	0.6
3	3	2.52	0.7	2.56	0.9	2.53	0.7	2.58	0.7	2.27	0.8	2.48	0.7	2.56	0.7	2.35	0.8	2.50	0.7
4	1	1.00	0.0	0.89	0.3	0.97	0.2	0.98	0.1	0.95	0.2	0.97	0.2	0.99	0.1	0.94	0.2	0.97	0.2
Ability																			
0	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1	7	5.68	1.1	6.33	0.7	5.85	1.1	5.18	1.3	4.36	1.9	4.91	1.6	5.36	1.3	4.94	1.8	5.23	1.5
2	23	17.64	3.1	18.22	1.9	17.79	2.8	14.82	3.5	11.95	3.7	13.88	3.8	15.83	3.6	13.77	4.3	15.20	3.9
3	19	12.20	2.5	14.33	3.3	12.76	2.8	12.20	2.9	10.18	4.1	11.54	3.4	12.20	2.7	11.39	4.2	11.95	3.3
Content																			
1	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2(a)	7	5.40	1.1	5.89	0.6	5.53	1.0	5.16	1.4	4.36	1.6	4.90	1.5	5.24	1.3	4.81	1.5	5.11	1.4
(b)	14	11.32	1.6	11.89	1.6	11.47	1.6	9.60	2.0	7.95	2.6	9.06	2.3	10.21	2.1	9.10	2.9	9.87	2.4
(c)	15	10.40	2.2	11.44	2.0	10.68	2.1	10.27	2.5	8.05	2.9	9.54	2.8	10.31	2.4	9.03	3.0	9.92	2.7
(d)	6	3.72	1.1	4.78	1.0	4.00	1.2	2.51	1.4	2.27	1.2	2.43	1.3	2.94	1.4	3.00	1.6	2.96	1.5
(e)	1	0.20	0.4	0.22	0.4	0.21	0.4	0.22	0.4	0.14	0.4	0.19	0.4	0.21	0.4	0.16	0.4	0.20	0.4
(f)	6	4.80	1.1	4.67	1.5	4.53	1.2	4.44	1.2	3.73	1.6	4.21	1.4	4.46	1.2	4.00	1.6	4.32	1.3

Posttest Summary
Phoenix College
Math 108
Fall Semester, 1975
All Students

	No. of Items	TICCIT Day (N = 10) Mean	sd	Lecture Day (N = 44) Mean	sd	All Day (N = 54) Mean	sd
Posttest Total	56	40.50	8.0	36.73	8.7	37.43	8.6
Objectives							
1	50	35.70	7.2	32.05	8.2	32.72	8.1
2	1	0.70	0.5	0.61	0.5	0.63	0.5
3	3	2.50	0.8	2.50	0.7	2.50	0.7
4	2	1.60	0.5	1.57	0.6	1.57	0.6
Ability							
0	1	0.80	0.4	0.93	0.3	0.91	0.3
1	5	4.40	0.7	4.02	1.1	4.09	1.0
2	33	24.70	5.4	22.02	5.8	22.52	5.7
3	17	10.60	3.2	9.75	3.1	9.91	3.1
Content							
1	1	1.00	0.0	0.98	0.1	0.98	0.1
2(a)	6	5.00	0.8	4.25	1.3	4.39	1.3
(b)	14	10.30	1.9	9.18	2.1	9.39	2.1
(c)	19	13.80	3.5	12.16	3.7	12.46	3.7
(d)	7	4.90	1.9	4.59	1.7	4.65	1.7
(e)	1	0.30	0.5	0.50	0.5	0.46	0.5
(f)	8	5.20	1.7	5.07	1.5	5.09	1.5

Posttest Summary
Phoenix College
Math 007
Spring Semester, 1976
All Students

	No. of Items	TICCIT Day (N = 30) Mean	sd	TICCIT Eve. (N = 5) Mean	sd	TICCIT Total (N = 35) Mean	sd	Lecture Day (N = 87) Mean	sd	Lecture Eve. (N = 59) Mean	sd	Lecture Total (N = 146) Mean	sd	All Day (N = 117) Mean	sd	All Eve. (N = 64) Mean	sd	All Total (N = 181) Mean	sd
Posttest Total	57	40.03	7.0	43.80	7.3	40.57	7.0	39.37	7.9	37.41	9.3	38.58	8.5	39.54	8.6	37.91	9.2	38.96	8.3
Objectives																			
1	48	35.77	6.3	38.60	6.4	36.17	6.2	35.08	6.8	33.07	7.8	34.27	7.3	35.26	6.7	33.50	7.8	34.64	7.2
2	5	1.50	1.1	2.40	1.7	1.63	1.2	2.47	1.5	2.63	1.6	2.53	1.6	2.22	1.5	2.61	1.6	2.36	1.5
3	4	2.77	1.0	2.80	0.4	2.77	0.9	1.82	1.0	1.71	1.1	1.77	1.1	2.06	1.1	1.80	1.1	1.97	1.1
4	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ability																			
0	2	1.87	0.3	2.00	0.0	1.89	0.3	1.82	0.4	1.76	0.5	1.79	0.4	1.83	0.4	1.78	0.4	1.81	0.4
1	19	15.03	3.0	16.00	3.7	15.17	3.0	14.36	2.8	14.00	3.3	14.21	3.0	14.53	2.9	14.16	3.4	14.40	3.1
2	22	13.63	3.0	15.80	3.0	13.94	3.1	14.54	3.9	13.49	4.3	14.12	4.1	14.31	3.7	13.67	4.2	14.08	3.9
3	14	9.50	2.1	10.00	1.6	9.57	2.0	8.66	2.4	8.15	2.6	8.45	2.5	8.87	2.3	8.30	2.6	5.93	2.4
Content																			
1	12	9.40	1.7	10.20	0.8	9.51	1.6	8.90	1.6	8.86	1.9	8.88	1.8	9.03	1.7	8.97	1.9	9.01	1.8
2(a)	6	4.40	1.1	4.60	1.7	4.43	1.1	4.59	1.3	4.53	1.4	4.56	1.3	4.54	1.3	4.53	1.4	4.54	1.3
(b)	18	14.00	2.4	14.40	3.7	14.06	6.2	12.09	3.5	11.14	4.1	11.71	3.8	12.58	3.8	11.39	4.1	12.16	3.7
(c)	5	2.97	1.5	3.60	0.9	3.06	1.5	3.56	1.1	3.20	1.1	3.42	1.2	3.41	1.3	3.23	1.1	3.35	1.2
(d)	10	4.87	2.0	6.60	2.3	5.11	2.0	6.36	2.2	6.00	2.4	6.21	2.3	5.97	2.2	6.05	2.4	6.00	2.3
(e)	3	2.30	0.8	2.60	0.5	2.34	0.8	2.14	0.9	2.12	0.9	2.13	0.9	2.18	0.9	2.16	0.9	2.17	0.9
(f)	3	2.10	1.0	1.80	0.4	2.06	0.9	1.74	0.9	1.56	0.9	1.66	0.9	1.83	0.9	1.58	0.9	1.74	0.9

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Posttest Summary
Phoenix College
Math 106
Spring Semester, 1976
All Students

	No. of Items	TICCIT Day (N = 15) Mean	sd	TICCIT Eve. (N = 2) Mean	sd	TICCIT Total (N = 17) Mean	sd	Lecture Day (N = 54) Mean	sd	Lecture Eve. (N = 37) Mean	sd	Lecture Total (N = 91) Mean	sd	All Day (N = 69) Mean	sd	All Eve. (N = 39) Mean	sd	All Total (N = 108) Mean	sd
Posttest Total	55	35.27	6.6	35.50	7.8	35.29	6.5	33.87	7.5	29.62	9.7	32.14	8.7	34.17	7.3	29.92	9.6	32.64	8.5
Objectives																			
1	48	30.13	5.7	31.00	8.5	30.24	5.7	28.56	6.7	24.95	8.7	27.09	7.8	28.90	6.5	25.26	8.7	27.58	7.6
2	2	1.27	0.8	1.00	0.0	1.24	0.8	1.56	0.6	1.46	0.7	1.52	0.7	1.49	0.7	1.44	0.7	1.47	0.7
3	3	2.33	0.8	2.50	0.7	2.35	0.8	2.30	0.8	1.89	0.9	2.13	0.9	2.30	0.8	1.92	0.9	2.17	0.9
4	2	1.53	0.5	1.00	0.7	1.47	0.5	1.46	0.5	1.32	0.7	1.41	0.6	1.48	0.5	1.31	0.6	1.42	0.6
Ability																			
0	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1	7	5.40	1.2	5.50	2.1	5.41	1.2	5.13	1.3	4.81	1.4	5.00	1.4	5.19	1.3	4.85	1.5	5.06	1.4
2	27	18.00	3.5	18.50	4.9	18.06	3.5	17.26	3.8	15.03	5.5	16.35	4.7	17.42	3.8	15.21	5.4	16.62	4.6
3	21	11.87	3.2	11.50	0.7	11.82	3.0	11.48	3.7	9.78	3.7	10.79	3.8	11.57	3.6	9.87	3.6	10.95	3.7
Content																			
1	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2(a)	7	4.87	0.9	4.50	2.1	4.82	1.0	4.72	1.5	4.49	1.6	4.63	1.6	4.75	1.4	4.49	1.6	4.66	1.5
(b)	14	10.00	2.8	9.00	0.0	9.88	2.6	9.28	2.1	7.92	2.9	8.73	2.6	9.43	2.3	7.97	2.8	8.91	2.6
(c)	21	13.47	2.9	14.00	5.7	13.53	3.0	13.17	3.5	11.59	4.0	12.53	3.8	13.23	3.3	11.72	4.1	12.69	3.7
(d)	6	2.73	1.6	3.50	0.7	2.82	1.5	2.76	1.4	2.38	1.4	2.60	1.4	2.75	1.4	2.44	1.4	2.64	1.4
(e)	1	0.20	0.4	0.00	0.0	0.18	0.4	0.19	0.4	0.08	0.3	0.14	0.3	0.19	0.4	0.08	0.3	0.15	0.4
(f)	6	4.00	1.6	4.50	0.7	4.06	1.6	3.76	1.3	3.16	1.5	3.52	1.4	3.81	1.4	3.23	1.5	3.60	1.4

Posttest Summary
Phoenix College
Math 108
Spring Semester, 1976
All Students

	No. of Items	TICCIT Day (N = 12) Mean	sd	TICCIT Eve. (N = 0) Mean	sd	TICCIT Total (N = 12) Mean	sd	Lecture Day (N = 33) Mean	sd	Lecture Eve. (N = 10) Mean	sd	Lecture Total (N = 43) Mean	sd	All Day (N = 45) Mean	sd	All Eve. (N = 10) Mean	sd	All Total (N = 55) Mean	sd
Posttest Total	61	39.25	8.3	0.00	0.0	39.25	8.3	38.18	7.7	44.40	8.9	39.63	8.3	38.47	7.8	44.40	8.9	39.55	8.2
Objectives																			
1	55	34.92	7.5	0.00	0.0	34.92	7.5	33.85	7.2	39.30	8.5	35.12	7.8	34.13	7.2	39.30	8.5	35.07	7.7
2	1	0.33	0.5	0.00	0.0	0.33	0.5	0.64	0.5	0.80	0.4	0.67	0.5	0.56	0.5	0.80	0.4	0.60	0.5
3	3	2.50	0.7	0.00	0.0	2.50	0.7	2.27	0.7	2.90	0.3	2.42	0.7	2.33	0.7	2.90	0.3	2.44	0.7
4	2	1.50	0.7	0.00	0.0	1.50	0.7	1.42	0.6	1.40	0.7	1.42	0.6	1.44	0.6	1.40	0.7	1.44	0.6
Ability																			
0	1	0.92	0.3	0.00	0.0	0.92	0.3	0.97	0.2	1.00	0.0	0.98	0.2	0.96	0.2	1.00	0.0	0.96	0.2
1	5	4.42	0.7	0.00	0.0	4.42	0.7	4.21	0.8	4.30	0.9	4.23	0.9	4.27	0.8	4.30	0.9	4.27	0.8
2	37	24.58	4.9	0.00	0.0	24.58	4.9	23.33	5.4	27.30	5.8	24.26	5.7	23.67	5.2	27.30	5.8	24.33	5.5
3	18	9.33	3.8	0.00	0.0	9.33	3.8	9.67	2.4	11.80	3.1	10.16	2.7	9.58	2.8	11.80	3.1	9.98	3.0
Content																			
1	1	1.00	0.0	0.00	0.0	1.00	0.0	1.00	0.0	1.00	0.0	1.00	0.0	1.00	0.0	1.00	0.0	1.00	0.0
2(a)	6	4.50	1.0	0.00	0.0	4.50	1.0	4.27	1.3	4.40	1.0	4.30	1.2	4.33	1.2	4.40	1.0	4.35	1.2
(b)	14	8.75	1.7	0.00	0.0	8.75	1.7	9.58	1.9	10.40	2.1	9.77	2.0	9.36	1.9	10.40	2.1	9.55	2.0
(c)	24	15.08	4.1	0.00	0.0	15.08	4.1	13.64	3.9	17.40	4.7	14.51	4.3	14.02	4.0	17.40	4.7	14.64	4.3
(d)	7	4.83	1.3	0.00	0.0	4.83	1.3	4.42	1.5	4.60	1.8	4.83	1.3	4.53	1.4	4.60	1.8	4.55	1.5
(e)	1	0.25	0.5	0.00	0.0	0.25	0.5	0.30	0.5	0.50	0.5	0.35	0.5	0.29	0.5	0.50	0.5	0.33	0.5
(f)	8	4.83	1.9	0.00	0.0	4.83	1.9	4.97	1.5	6.10	1.3	5.23	1.6	4.93	1.6	6.10	1.3	5.15	1.6

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Posttest Summary
Northern Virginia Community College
Math 31
Fall Quarter, 1975
All Students

	No. of Items	TICCIT Day (N = 37) Mean	sd	TICCIT Eve. (N = 20) Mean	sd	TICCIT Total (N = 57) Mean	sd	Lecture Day (N = 34) Mean	sd	Lecture Eve. (N = 14) Mean	sd	Lecture Total (N = 48) Mean	sd	Programmed Day (N = 12) Mean	sd	Programmed Eve. (N = 5) Mean	sd	Programmed Total (N = 17) Mean	sd	All Day (N = 83) Mean	sd	All Eve. (N = 39) Mean	sd	All Total (N = 122) Mean	sd
Posttest Total	54	29.81	9.1	31.15	12.2	30.28	10.2	37.03	6.1	36.36	8.7	36.83	6.9	29.17	7.7	36.20	5.8	31.24	7.8	32.67	8.6	33.67	10.4	32.99	9.2
Objectives																									
1*	38	23.24	6.6	23.20	8.3	23.23	7.1	29.24	4.1	28.29	5.8	28.96	4.6	23.58	6.3	29.20	5.4	25.24	6.5	25.75	6.3	23.23	7.1	25.76	6.7
1**	44	25.84	7.5	26.30	9.6	26.00	8.2	32.12	5.0	31.36	6.7	31.90	5.5	26.25	7.0	32.80	6.5	28.18	7.3	28.47	7.1	28.95	8.5	28.63	7.6
2	1	0.41	0.5	0.45	0.5	0.42	0.5	0.56	0.5	0.64	0.5	0.58	0.5	0.50	0.5	0.60	0.5	0.53	0.5	0.48	0.5	0.54	0.5	0.50	0.5
3	9	3.57	2.0	4.40	2.6	3.86	2.2	4.35	1.3	4.36	2.1	4.35	1.6	2.42	1.2	2.80	1.1	2.53	1.2	3.72	1.7	4.18	2.3	3.87	2.0
4	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ability																									
0	2	1.65	0.2	1.65	0.6	1.65	0.5	1.76	0.4	1.50	0.8	1.69	0.5	1.58	0.7	1.80	0.4	1.65	0.6	1.69	0.5	1.62	0.6	1.66	0.5
1	15	10.78	2.8	10.15	3.7	10.56	3.1	12.15	2.3	12.21	2.1	12.17	2.2	10.50	2.8	12.20	2.2	11.00	2.7	11.30	2.7	11.15	3.1	11.25	2.8
2	22	11.27	4.3	11.95	5.2	11.51	4.6	14.44	2.8	14.50	3.8	14.46	3.0	11.08	3.1	13.80	2.3	11.88	3.1	12.54	3.9	13.10	4.4	12.72	4.1
3	15	6.11	3.2	7.40	4.1	6.56	3.6	8.68	2.6	8.14	2.9	8.52	2.7	6.00	2.2	8.40	1.7	6.71	2.3	7.14	3.1	7.79	3.4	7.35	3.2
Content																									
1	12	9.08	1.9	8.70	2.2	8.95	2.0	9.21	1.7	8.79	1.7	9.08	1.7	8.00	2.3	9.40	1.5	8.41	2.2	8.98	1.9	8.82	1.9	8.93	1.9
2(a)	7	4.73	1.5	4.50	2.0	4.65	1.7	5.91	1.3	5.93	1.1	5.92	1.3	5.17	1.2	6.00	1.0	5.41	1.2	5.28	1.5	5.21	1.8	5.25	1.6
(b)	15	8.11	3.2	8.60	4.3	8.28	3.6	10.53	2.4	10.36	2.8	10.48	2.5	9.08	3.2	11.00	2.3	9.65	3.1	9.24	3.1	9.54	3.6	9.34	3.3
(c)	7	3.19	1.6	3.60	1.8	3.33	1.7	3.12	1.4	3.21	1.7	3.15	1.5	2.42	1.8	3.20	1.1	2.65	1.6	3.05	1.6	3.41	1.6	3.16	1.6
(d)	4	1.00	1.4	1.45	1.5	1.16	1.4	3.06	1.0	3.29	1.0	3.13	1.0	1.33	1.3	2.00	1.4	1.53	1.3	1.89	1.6	2.18	1.5	1.98	1.5
(e)	5	2.51	1.3	2.85	1.4	2.63	1.4	3.47	1.2	3.29	1.2	3.42	1.2	2.17	1.0	3.80	0.8	2.65	1.2	2.86	1.3	3.13	1.3	2.94	1.3
(f)	4	1.19	1.1	1.45	1.3	1.28	1.2	1.74	1.0	1.50	1.1	1.67	1.0	1.00	0.9	0.80	0.4	0.94	0.7	1.39	1.1	1.38	1.1	1.39	1.1

*Objectives common across lecture, TICCIT, and programmed conditions.

**Objectives common to lecture and TICCIT classes.

Posttest Summary
Northern Virginia Community College
Math 31
Fall Quarter, 1975
Students with Grade 'S'

	No. of Items	TICCIT Day (N = 6) Mean	sd	TICCIT Eve. (N = 3) Mean	sd	TICCIT Total (N = 9) Mean	sd	Lecture Day (N = 32) Mean	sd	Lecture Eve. (N = 10) Mean	sd	Lecture Total (N = 42) Mean	sd	Programmed Day (N = 2) Mean	sd	Programmed Eve. (N = 5) Mean	sd	Programmed Total (N = 7) Mean	sd	All Day (N = 40) Mean	sd	All Eve. (N = 18) Mean	sd	All Total (N = 58) Mean	sd
Posttest Total	54	43.83	6.9	48.33	4.2	45.33	6.2	37.75	5.6	39.60	7.1	38.19	5.9	31.50	5.5	36.20	5.8	34.86	6.1	38.35	6.3	40.11	7.3	38.90	6.6
Objectives																									
1*	38	32.83	4.4	35.33	3.1	33.67	4.0	29.69	3.8	30.60	4.7	29.90	4.0	24.50	6.4	29.20	5.4	27.86	5.6	29.90	4.2	31.00	4.9	30.24	4.4
1**	44	36.33	5.6	40.00	3.0	37.56	5.0	32.72	4.5	33.80	5.8	32.98	4.8	28.50	6.4	32.80	6.5	31.58	6.2	33.05	4.9	34.56	5.9	33.52	5.2
2	1	0.83	0.4	0.68	0.6	0.78	0.4	0.56	0.5	0.70	0.5	0.60	0.5	1.00	0.0	0.60	0.5	0.71	0.5	0.63	0.5	0.67	0.5	0.64	0.5
3	9	6.67	1.4	7.67	2.3	7.00	1.7	4.47	1.3	5.10	1.6	4.62	1.4	2.00	1.4	2.80	1.1	2.57	1.1	4.68	1.6	4.89	2.2	4.74	1.8
4	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ability																									
0	2	1.83	0.4	2.00	0.0	1.89	0.3	1.78	0.4	1.50	0.8	1.71	0.5	1.51	0.7	1.80	0.4	1.71	0.5	1.78	0.4	1.67	0.7	1.74	0.5
1	15	13.17	1.3	14.00	1.0	13.44	1.2	12.31	2.1	13.10	1.5	12.50	2.0	12.50	0.7	12.20	2.2	12.29	1.8	12.45	1.9	13.00	1.7	12.62	1.9
2	22	17.67	3.7	19.33	2.3	18.22	3.3	14.69	2.6	15.70	3.3	14.93	2.8	11.03	2.8	13.80	2.3	13.00	2.6	14.95	3.1	15.78	3.3	15.21	3.1
3	15	11.17	2.3	13.00	1.7	11.78	2.2	8.97	2.4	9.30	2.2	9.05	2.4	6.50	3.5	8.40	1.7	7.86	2.2	9.18	2.6	9.67	2.4	9.33	2.5
Content																									
1	12	10.83	1.5	11.00	1.0	10.89	1.3	9.25	1.7	9.10	1.8	9.21	1.7	10.00	1.4	9.40	1.5	9.57	1.4	9.25	1.7	9.50	1.7	9.52	1.7
2(a)	7	6.17	1.3	6.67	0.6	6.33	1.1	6.09	1.0	6.40	0.8	6.17	1.0	5.00	0.0	6.00	1.0	5.71	1.0	6.05	1.0	6.33	0.8	6.14	1.0
(b)	15	12.67	1.9	13.33	2.1	12.89	1.8	10.75	2.3	11.10	2.6	10.83	2.3	11.50	4.9	11.00	2.3	11.14	2.8	11.08	2.4	11.44	2.5	11.19	2.4
(c)	7	4.67	1.5	5.33	1.5	4.89	1.5	3.19	1.4	3.50	1.7	3.26	1.5	0.00	0.0	3.20	1.1	2.29	1.8	3.25	1.7	3.72	1.6	3.40	1.6
(d)	4	3.17	1.5	4.00	0.0	3.44	1.3	3.13	0.9	3.80	0.4	3.29	0.9	2.50	0.7	2.00	1.4	2.14	1.2	3.10	1.0	3.33	1.1	3.17	1.1
(e)	5	3.83	1.3	4.67	0.6	4.11	1.2	3.56	1.2	3.70	0.9	3.60	1.1	1.50	0.7	3.80	0.8	3.14	1.3	3.50	1.2	3.89	0.9	3.62	1.1
(f)	4	2.50	1.0	3.33	0.6	2.78	1.0	1.78	1.0	2.00	0.8	1.83	1.0	1.00	0.0	0.80	0.4	0.86	0.4	1.85	1.0	1.89	1.1	1.86	1.0

*Objectives common across lecture, TICCIT, and programmed conditions.

**Objectives common to lecture and TICCIT classes.

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Posttest Summary
Northern Virginia Community College
Math 31
Winter, 1976
All Students

	No. of Items	TICCIT Day (N = 38) Mean	TICCIT Day (N = 38) sd	TICCIT Eve. (N = 15) Mean	TICCIT Eve. (N = 15) sd	TICCIT Total (N = 53) Mean	TICCIT Total (N = 53) sd	Lecture Day (N = 13) Mean	Lecture Day (N = 13) sd	Lecture Eve. (N = 14) Mean	Lecture Eve. (N = 14) sd	Lecture Total (N = 27) Mean	Lecture Total (N = 27) sd	Programmed Day (N = 18) Mean	Programmed Day (N = 18) sd	Programmed Eve. (N = 15) Mean	Programmed Eve. (N = 15) sd	Programmed Total (N = 33) Mean	Programmed Total (N = 33) sd	All Day (N = 69) Mean	All Day (N = 69) sd	All Eve. (N = 44) Mean	All Eve. (N = 44) sd	All Total (N = 113) Mean	All Total (N = 113) sd
ttest Total	54	32.00	11.7	32.80	9.8	32.23	11.1	30.23	8.9	37.14	6.5	33.81	8.4	34.17	8.3	30.27	8.7	32.39	8.4	32.23	10.4	33.32	8.7	32.65	9.8
bjectives																									
1*	38	24.92	8.7	25.47	6.8	25.08	8.2	23.31	7.3	29.21	5.0	26.37	6.8	26.94	6.3	24.07	7.5	25.64	6.9	25.14	7.9	26.18	6.7	25.55	7.4
1**	44	27.82	9.8	28.40	7.9	27.98	9.2	26.62	8.5	32.50	5.7	29.67	7.6	30.06	7.4	26.53	8.0	28.45	7.6	28.17	9.0	29.07	7.5	28.52	8.4
2	1	0.53	0.5	0.60	0.5	0.55	0.5	0.46	0.5	0.57	0.5	0.52	0.5	0.61	0.5	0.40	0.5	0.52	0.5	0.54	0.5	0.52	0.5	0.53	0.5
3	9	3.66	2.1	3.80	1.9	3.70	2.0	3.15	1.5	4.07	1.5	3.63	1.5	3.50	1.3	3.33	1.6	3.42	1.4	3.52	1.8	3.73	1.7	3.60	1.8
4	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
bility																									
0	2	1.63	0.5	1.60	0.6	1.62	0.6	1.62	0.7	1.64	0.5	1.63	0.6	1.72	0.5	1.80	0.4	1.76	0.4	1.65	0.5	1.68	0.5	1.66	0.5
1	15	11.50	3.6	12.00	2.5	11.64	3.3	10.69	3.3	12.64	1.9	11.70	2.8	11.44	2.5	10.00	3.0	10.79	2.7	11.33	3.3	11.52	2.7	11.41	3.0
2	22	11.97	5.4	11.87	4.7	11.94	5.2	11.54	3.4	14.57	3.2	13.11	3.6	13.56	4.2	12.00	4.1	12.85	4.1	12.30	4.8	12.77	4.1	12.49	4.6
3	15	6.89	3.4	7.33	3.1	7.02	3.3	6.38	2.9	8.29	2.4	7.37	2.8	7.44	2.4	6.47	2.6	7.00	2.5	6.94	3.1	7.34	2.8	7.10	3.0
ntent																									
1	12	9.37	2.3	9.73	1.4	9.47	2.1	8.08	2.2	9.50	1.7	8.81	2.0	8.83	2.1	8.47	1.7	8.67	1.9	8.99	2.2	9.23	1.6	9.08	2.0
2(a)	7	5.18	2.0	5.33	1.7	5.23	1.9	5.23	1.9	5.93	0.9	5.59	1.5	5.72	1.2	4.67	1.7	5.24	1.5	5.33	1.8	5.30	1.5	5.32	1.7
(b)	15	8.92	4.1	8.87	3.5	8.91	3.9	8.85	3.0	10.50	2.4	9.70	2.8	10.17	3.1	8.20	3.0	9.27	3.1	9.23	3.6	9.16	3.1	9.20	3.4
(c)	7	3.39	2.0	3.33	1.8	3.38	1.9	2.31	1.3	3.36	1.2	2.85	1.4	3.28	1.6	3.40	1.6	3.33	1.6	3.16	1.8	3.36	1.5	3.24	1.7
(d)	4	1.42	1.6	1.40	1.5	1.42	1.6	1.77	1.6	3.07	1.4	2.44	1.6	2.11	1.3	1.53	1.7	1.85	1.4	1.67	1.5	1.98	1.7	1.79	1.6
(e)	5	2.42	1.4	2.87	1.2	2.55	1.4	2.77	1.2	3.50	1.1	3.15	1.2	3.11	0.8	3.07	1.3	3.09	1.1	2.67	1.3	3.14	1.2	2.85	1.3
(f)	4	1.29	1.1	1.27	1.3	1.28	1.1	1.23	0.9	1.29	1.0	1.26	0.9	0.94	0.8	0.93	0.8	0.94	0.8	1.19	1.0	1.16	1.0	1.18	1.0

* Objectives common across lecture, TICCIT and programmed conditions.

** Objectives common to lecture and TICCIT classes.

Posttest Summary
Northern Virginia Community College
Math 31
Winter, 1976
Students with Grade 'S'

	No. of Items	TICCIT Day (N = 16) Mean	sd	TICCIT Eve. (N = 9) Mean	sd	TICCIT Total (N = 25) Mean	sd	Lecture Day (N = 10) Mean	sd	Lecture Eve. (N = 11) Mean	sd	Lecture Total (N = 21) Mean	sd	Programmed Day (N = 37) Mean	sd	Programmed Eve. (N = 25) Mean	sd	Programmed Total (N = 62) Mean	sd	All Day (N = 37) Mean	sd	All Eve. (N = 25) Mean	sd	All Total (N = 62) Mean	sd
Posttest Total	54	40.94	7.4	38.33	8.1	40.00	7.6	33.80	6.1	39.45	4.0	36.76	5.8	38.55	5.6	38.60	6.9	38.56	5.8	38.30	6.9	38.88	6.1	38.53	6.6
Objectives																									
1*	38	31.50	5.0	29.67	4.8	30.84	4.9	26.10	4.9	30.91	2.8	28.62	4.6	30.36	4.1	30.80	6.3	30.50	4.7	29.70	5.1	30.44	4.2	30.00	4.7
1**	44	35.19	6.0	33.11	6.2	34.44	6.0	29.90	5.7	34.45	3.3	32.29	5.1	34.09	4.8	33.80	5.9	34.00	5.0	33.43	5.8	33.84	4.8	33.60	5.4
2	1	0.69	0.5	0.78	0.4	0.72	0.5	0.50	0.5	0.64	0.5	0.57	0.5	0.82	0.4	0.60	0.5	0.75	0.4	0.68	0.5	0.68	0.5	0.68	0.5
3	9	5.06	1.9	4.44	1.9	4.84	1.9	3.40	1.5	4.36	1.6	3.90	1.6	3.64	1.4	4.20	1.8	3.81	1.5	4.19	1.8	4.36	1.7	4.26	1.7
4	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ability																									
0	2	1.69	0.5	1.44	0.7	1.60	0.6	1.70	0.5	1.73	0.5	1.71	0.5	1.73	0.5	1.80	0.4	1.75	0.4	1.70	0.5	1.64	0.6	1.68	0.5
1	15	13.94	1.4	13.67	1.7	13.84	1.5	11.80	1.8	13.27	1.1	12.57	1.8	12.55	1.8	12.80	1.8	12.63	1.7	12.95	1.9	13.32	1.4	13.10	1.7
2	22	16.00	4.4	14.33	4.1	15.40	4.3	13.00	2.2	15.45	2.8	14.29	2.7	16.09	3.0	16.00	3.5	16.06	3.1	15.22	3.7	15.16	3.4	15.19	3.5
3	15	9.31	2.7	8.89	2.8	9.16	2.7	7.30	2.7	9.00	2.0	8.19	2.5	8.18	1.9	8.00	2.4	8.13	2.0	8.43	2.5	8.76	2.3	8.56	2.4
Content																									
1	12	10.38	1.4	10.00	1.7	10.24	1.5	8.60	1.6	10.09	0.8	9.38	1.4	9.64	1.3	9.60	2.1	9.63	1.5	9.68	1.5	9.96	1.4	9.79	1.5
2(a)	7	6.63	0.5	6.22	1.0	6.48	0.7	6.10	0.9	6.18	0.8	6.14	0.8	6.18	1.0	5.60	0.9	6.00	1.0	6.35	0.8	6.08	0.9	6.24	0.8
(b)	15	11.56	3.0	11.00	2.3	11.36	2.7	9.90	2.3	11.27	1.7	10.62	2.1	11.82	2.0	11.00	1.2	11.56	1.8	11.19	2.6	11.12	1.8	11.16	2.2
(c)	7	4.63	1.9	3.78	1.6	4.32	1.8	2.60	1.3	3.36	1.4	3.00	1.4	4.00	1.3	4.60	1.7	4.19	1.4	3.89	1.8	3.76	1.5	3.84	1.6
(d)	4	3.81	1.4	2.22	1.3	2.60	1.4	2.30	1.5	3.55	1.0	2.95	1.4	2.73	0.6	3.20	1.3	2.88	0.9	2.65	1.2	3.00	1.3	2.79	1.3
(e)	5	3.25	1.2	3.44	1.2	3.32	1.2	2.90	1.4	3.64	1.2	3.29	1.3	3.18	0.8	3.60	1.3	3.31	0.9	3.14	1.1	3.56	1.2	3.31	1.2
(f)	4	1.69	1.1	1.67	1.5	1.68	1.2	1.40	1.0	1.36	1.0	1.38	1.0	1.00	0.8	1.00	1.0	1.00	0.8	1.41	1.0	1.40	1.2	1.40	1.1

* Objectives common across lecture, TICCIT and programmed conditions.

** Objectives common to lecture and TICCIT classes.

Posttest Summary
Northern Virginia Community College
Math 32
Winter, 1976
All Students

	No. of Items	TICCIT Day (N = 13) Mean	sd	TICCIT Eve. (N = 7) Mean	sd	TICCIT Total (N = 20) Mean	sd	Lecture Day (N = 8) Mean	sd	Lecture Eve. (N = 9) Mean	sd	Lecture Total (N = 17) Mean	sd	All Day (N = 21) Mean	sd	All Eve. (N = 16) Mean	sd	All Total (N = 37) Mean	sd
Posttest Total	41	11.92	6.4	16.14	9.5	13.40	7.6	17.75	5.4	19.89	6.0	18.88	5.6	14.14	6.6	18.25	7.7	15.92	7.2
Objectives																			
1	34	10.23	5.8	13.71	8.4	11.45	6.8	14.75	4.3	16.89	5.1	15.88	4.7	11.95	5.7	15.50	6.8	13.49	6.2
2	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3	4	0.92	0.9	1.14	0.9	1.00	0.9	1.63	1.1	1.78	0.8	1.71	0.9	1.19	1.0	1.50	0.9	1.32	0.9
4	3	0.77	0.6	1.29	1.0	0.95	0.8	1.38	0.9	1.22	0.8	1.29	0.8	1.00	0.8	1.25	0.9	1.11	0.8
Ability																			
0	1	0.31	0.5	0.57	0.5	0.40	0.5	0.75	0.5	0.67	0.5	0.71	0.5	0.48	0.5	0.63	0.5	0.54	0.5
1	3	1.23	1.0	1.43	1.0	1.30	1.0	1.75	0.9	1.78	1.1	1.76	1.0	1.43	1.0	1.63	1.0	1.51	1.0
2	18	6.23	3.3	8.29	4.5	6.95	3.8	9.75	3.7	10.11	2.7	9.94	3.1	7.57	3.8	9.31	3.6	8.32	3.7
3	19	4.15	2.9	5.86	4.5	4.75	3.5	5.50	2.5	7.33	2.6	6.47	2.6	4.67	2.7	6.69	3.5	5.54	3.2
Content																			
1	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2(a)	3	1.00	0.9	0.86	1.2	0.95	1.0	1.00	0.9	0.78	0.8	0.88	0.9	1.00	0.9	0.81	1.0	0.92	0.9
(b)	12	4.08	2.1	5.00	3.5	4.40	2.6	4.38	2.1	5.22	2.5	4.82	2.3	4.19	2.0	5.13	2.9	4.59	2.4
(c)	14	3.23	2.0	5.57	3.5	4.05	2.8	8.00	2.8	8.11	1.8	8.06	2.2	5.05	3.3	7.00	2.9	5.89	3.2
(d)	3	1.46	0.9	1.57	0.8	1.50	0.8	1.25	0.7	1.33	0.7	1.29	0.7	1.38	0.8	1.44	0.7	1.41	0.8
(e)	5	1.23	0.9	2.14	1.2	1.55	1.1	2.00	1.2	3.11	1.2	2.59	1.3	1.52	1.1	2.69	1.3	2.03	1.3
(f)	4	0.92	1.2	1.00	0.8	0.95	1.1	1.13	0.8	1.33	0.7	1.24	0.8	1.00	1.0	1.19	0.8	1.08	0.9

Posttest Summary
Northern Virginia Community College
Math 31
Spring, 1976
All Students

	No. of Items	TICCIT Day (N = 19) Mean	sd	TICCIT Eve. (N = 8) Mean	sd	TICCIT Total (N = 27) Mean	sd	Lecture Day (N = 7) Mean	sd	Lecture Eve. (N = 7) Mean	sd	Lecture Total (N = 14) Mean	sd	Programmed Day (N = 14) Mean	sd	Programmed Eve. (N = 24) Mean	sd	Programmed Total (N = 38) Mean	sd	All Day (N = 40) Mean	sd	All Eve. (N = 39) Mean	sd	All Total (N = 79) Mean	sd
Posttest Total	54	30.11	11.9	32.50	13.2	30.81	12.1	34.14	7.3	42.86	4.9	38.50	7.5	28.07	11.5	30.33	11.0	29.50	10.9	30.10	10.9	33.03	11.3	31.54	11.2
Objectives																									
1*	38	22.47	8.2	25.00	8.5	23.22	8.2	27.86	6.7	32.29	3.1	30.07	5.5	22.36	8.8	24.75	8.8	23.87	8.8	23.38	8.3	26.15	8.4	24.75	8.3
1**	44	25.53	9.9	28.13	10.1	26.30	9.8	31.14	6.8	37.00	3.6	34.07	6.1	25.00	10.1	27.33	10.0	26.47	9.8	26.33	9.5	29.23	9.6	27.76	9.6
2	1	0.42	0.5	0.25	0.5	0.37	0.5	0.57	0.5	0.43	0.5	0.50	0.5	0.43	0.5	0.33	0.5	0.37	0.5	0.45	0.5	0.33	0.5	0.39	0.5
3	9	4.16	2.2	4.13	2.9	4.15	2.4	2.43	1.0	5.43	1.9	3.93	2.1	2.64	1.8	2.67	1.7	2.66	1.7	3.33	2.0	3.46	2.2	3.39	2.1
4	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—						
Ability																									
0	2	1.53	0.6	1.75	0.5	1.59	0.6	1.71	0.5	2.00	0.0	1.86	0.4	1.43	0.6	1.75	0.5	1.63	0.6	1.53	0.6	1.79	0.5	1.66	0.5
1	15	10.74	3.8	11.50	3.4	10.96	3.7	11.57	2.6	13.57	1.5	12.57	2.3	9.50	3.7	11.08	3.8	10.50	3.8	10.45	3.6	11.62	3.4	11.03	3.6
2	22	10.32	4.7	12.00	6.3	10.81	5.2	13.71	3.9	16.43	1.6	15.07	3.2	10.86	5.5	11.25	5.2	11.11	5.1	11.10	4.9	12.33	5.2	11.71	5.1
3	15	7.53	3.6	7.25	4.0	7.44	3.7	7.14	1.3	10.86	3.1	9.00	3.0	6.29	3.1	6.25	2.6	6.26	2.7	7.03	3.1	7.28	3.4	7.15	3.2
Content																									
1	12	9.32	2.7	10.00	1.8	9.52	2.5	8.57	2.4	10.57	1.4	9.57	2.1	7.43	2.3	9.21	2.4	8.55	2.4	8.53	2.6	9.62	2.1	9.06	2.4
2(a)	7	4.74	2.0	5.60	2.3	4.81	2.0	5.86	0.9	6.29	0.8	6.07	0.8	4.71	1.6	4.96	1.7	4.87	1.6	4.93	1.7	5.21	1.7	5.05	1.7
(b)	15	8.32	4.1	9.38	4.3	8.63	4.1	10.29	1.8	12.57	1.5	11.43	2.0	17.54	4.3	8.53	4.0	8.53	4.0	8.73	3.9	9.44	3.9	9.08	3.9
(c)	7	2.68	2.0	3.63	2.4	2.96	2.1	2.86	1.3	3.43	1.6	3.14	1.5	2.50	2.1	2.75	1.7	2.66	1.8	2.65	1.9	3.05	1.8	2.85	1.9
(d)	4	0.74	1.2	0.75	1.4	0.74	1.3	2.29	1.4	3.71	0.8	3.00	1.3	1.50	1.4	1.83	1.6	1.71	1.5	1.28	1.4	1.95	1.6	1.62	1.6
(e)	5	2.63	1.3	2.75	1.8	2.67	1.4	3.14	0.7	4.14	0.9	3.64	0.9	2.29	1.2	2.13	1.3	2.18	1.2	2.60	1.2	2.62	1.5	2.61	1.3
(f)	4	1.68	1.2	1.00	1.2	1.48	1.2	1.14	0.7	2.14	1.3	1.64	1.2	1.14	1.1	0.92	0.9	1.00	0.9	1.40	1.1	1.15	1.1	1.29	1.1

*Objectives common across lecture, TICCIT and programmed conditions.

**Objectives common to lecture and TICCIT classes.

Posttest Summary
Northern Virginia Community College
Math 31
Spring, 1976
Students with Grade 'S'

	No. of Items	TICCIT Day (N = 8) Mean	sd	TICCIT Eve. (N = 3) Mean	sd	TICCIT Total (N = 11) Mean	sd	Lecture Day (N = 4) Mean	sd	Lecture Eve. (N = 7) Mean	sd	Lecture Total (N = 11) Mean	sd	Programmed Day (N = 6) Mean	sd	Programmed Eve. (N = 10) Mean	sd	Programmed Total (N = 16) Mean	sd	All Day (N = 18) Mean	sd	All Eve. (N = 20) Mean	sd	All Total (N = 38) Mean	sd
Posttest Total	54	38.00	7.9	46.67	4.0	40.36	6.0	37.00	8.2	42.86	4.9	40.73	6.6	33.83	14.2	38.00	8.4	36.44	10.7	36.39	10.1	41.00	7.3	38.82	9.8
Objectives																									
1*	38	28.38	5.0	34.00	2.6	29.91	5.0	30.50	7.3	32.29	3.1	31.64	4.8	26.33	10.4	30.70	6.1	29.06	7.9	28.17	7.3	31.75	4.8	30.05	6.2
1**	44	32.38	5.9	38.67	3.8	34.09	6.0	33.75	7.8	37.00	3.6	35.82	5.3	29.83	11.9	34.00	7.4	32.44	9.2	31.83	8.3	35.75	5.9	33.89	7.2
2	1	0.38	0.5	0.67	0.6	0.45	0.5	0.75	0.5	0.43	0.5	0.55	0.5	0.67	0.5	0.50	0.5	0.56	0.5	0.56	0.5	0.50	0.5	0.53	0.5
3	9	5.25	2.0	7.33	0.6	5.82	1.9	2.50	1.0	5.43	1.9	4.36	2.2	3.33	2.4	3.50	1.6	3.44	1.9	4.00	2.2	4.75	2.1	4.39	2.1
4	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ability																									
0	2	1.88	0.4	2.00	0.0	1.91	0.3	1.75	0.5	2.00	0.0	1.91	0.3	1.67	0.5	1.90	0.3	1.81	0.4	1.78	0.4	1.95	0.2	1.87	0.3
1	15	13.00	1.5	14.00	0.0	13.27	1.3	12.00	3.6	13.57	1.5	13.00	2.4	10.00	4.5	13.10	2.4	11.94	3.5	11.78	3.3	13.40	1.9	12.63	2.7
2	22	13.25	4.2	19.00	2.6	14.82	4.6	15.50	3.7	16.43	1.6	16.09	2.4	13.83	6.2	14.90	4.2	14.50	4.9	13.94	4.7	16.05	3.5	15.05	4.1
3	15	9.88	2.9	11.67	1.5	10.35	2.7	7.75	1.0	10.86	3.1	9.73	2.9	8.33	3.6	8.10	2.4	8.19	2.9	8.89	2.9	9.60	2.9	9.26	2.9
Content																									
1	12	11.00	0.9	11.33	0.6	11.09	0.8	9.25	2.5	10.57	1.4	10.09	1.9	8.00	3.0	10.20	1.5	9.38	2.3	9.61	2.4	10.50	1.4	10.03	1.9
2(a)	7	5.38	1.4	6.67	0.6	5.73	1.3	6.25	1.0	6.29	0.8	6.27	0.8	5.50	1.6	5.80	1.1	5.69	1.3	5.61	1.4	6.10	1.0	5.87	1.2
(b)	15	11.13	2.9	13.67	1.5	11.82	2.8	11.00	2.2	12.57	1.5	12.00	1.8	10.50	4.8	10.90	3.4	10.75	3.9	10.89	3.2	11.90	2.8	11.42	3.0
(c)	7	3.50	2.1	6.00	1.0	4.18	2.1	3.00	1.8	3.43	1.6	3.27	1.6	3.17	2.3	3.80	1.5	3.56	1.8	3.28	2.0	4.00	1.7	3.65	1.8
(d)	4	1.50	1.6	2.00	1.7	1.64	1.6	2.75	1.5	3.71	0.8	3.36	1.1	2.33	1.6	3.10	1.1	2.81	1.3	2.06	1.6	3.15	1.2	2.63	1.5
(e)	5	3.25	0.7	4.67	0.6	3.64	0.9	3.50	0.6	4.14	0.9	3.91	0.8	3.00	1.1	2.90	1.1	2.94	1.1	3.22	0.8	3.60	1.2	3.42	1.0
(f)	4	2.25	1.3	2.33	0.6	2.27	1.1	1.25	0.5	2.14	1.3	1.82	1.2	1.33	1.2	1.30	1.1	1.31	1.1	1.72	1.2	1.75	1.2	1.74	1.1

*Objectives common across lecture, TICCIT, and programmed conditions.

**Objectives common to lecture and TICCIT classes.

Posttest Summary
Northern Virginia Community College
Math 32
Spring, 1976
All Students

	No. of Items	TICCIT Day (N = 13) Mean	sd	TICCIT Eve. (N = 9) Mean	sd	TICCIT Total (N = 22) Mean	sd	Lecture Day (N = 16) Mean	sd	Lecture Eve. (N = 17) Mean	sd	Lecture Total (N = 33) Mean	sd	All Day (N = 29) Mean	sd	All Eve. (N = 26) Mean	sd	All Total (N = 55) Mean	sd
Posttest Total	41	18.54	8.6	18.00	10.1	18.32	9.0	16.31	5.0	18.06	6.3	17.21	5.6	17.31	6.8	18.04	7.6	17.65	7.1
Objectives																			
1	34	15.92	7.4	15.33	8.4	15.68	7.6	13.50	4.4	15.29	5.6	14.42	5.0	14.59	5.9	15.31	6.5	14.93	6.1
2	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3	4	1.46	1.2	1.11	1.2	1.32	1.1	1.50	0.8	1.82	0.9	1.67	0.8	1.48	0.9	1.58	1.0	1.53	1.0
4	3	1.15	0.9	1.56	0.7	1.32	0.8	1.31	0.8	0.94	0.8	1.12	0.8	1.24	0.8	1.15	0.8	1.20	0.8
Ability																			
0	1	0.54	0.5	0.67	0.5	0.59	0.5	0.38	0.5	0.47	0.5	0.42	0.5	0.45	0.5	0.54	0.5	0.49	0.5
1	3	1.77	1.0	1.56	1.1	1.68	1.0	2.19	0.8	1.53	1.1	1.85	1.0	2.00	0.9	1.54	1.1	1.78	1.0
2	18	10.31	4.4	9.44	4.7	9.95	4.4	8.81	2.5	9.47	2.9	9.15	2.6	9.48	3.5	9.46	3.5	9.47	3.4
3	19	5.92	3.7	6.33	4.7	6.09	4.0	4.94	2.7	6.59	3.1	5.79	2.9	5.38	3.2	6.50	3.6	5.91	3.4
Content																			
1	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2(a)	3	1.15	0.8	1.11	1.1	1.14	0.9	1.19	0.7	1.24	0.8	1.21	0.7	1.17	0.7	1.19	0.8	1.18	0.8
(b)	12	5.77	3.0	5.78	2.9	5.77	2.9	4.69	2.6	4.76	2.7	4.73	2.6	5.17	2.8	5.12	2.7	5.15	2.7
(c)	14	6.85	3.5	6.33	3.8	6.64	3.5	6.56	1.6	6.35	2.1	6.45	1.8	6.69	2.6	6.35	2.7	6.53	2.6
(d)	3	1.92	0.9	1.67	0.7	1.82	0.8	1.44	0.9	1.65	1.1	1.55	1.0	1.66	0.9	1.65	0.9	1.65	0.9
(e)	5	1.92	1.2	1.78	1.7	1.86	1.4	1.75	0.9	2.59	0.9	2.18	0.9	1.83	1.0	2.31	1.3	2.05	1.1
(f)	4	0.92	1.0	1.33	1.2	1.09	1.1	0.69	0.6	1.47	1.0	1.09	0.9	0.79	0.8	1.42	1.1	1.09	1.0

Attitude Summary
Phoenix
Math 007, 106, and 108
Academic Year 1975-76

			Total Survey				Common Subscore		
Course	Term	Comparison Group	N	Number of Items	Mean	sd	Number of Items	Mean	sd
Math 007	Fall	TICCIT	27	24	85.52	18.7	18	64.07	14.5
		Lecture	134	21	80.49	11.3	18	69.78	9.8
	Spring	TICCIT	20	25	90.15	19.8	19	67.60	16.2
		Lecture	121	21	81.90	12.0	19	74.31	11.3
Math 106	Fall	TICCIT	20	24	84.80	16.2	18	63.10	12.1
		Lecture	73	21	81.77	10.2	18	71.05	9.1
	Spring	TICCIT	11	25	91.00	14.5	19	68.36	12.1
		Lecture	81	21	81.90	10.5	19	74.56	9.6
Math 108	Fall	TICCIT	11	24	87.18	18.8	18	63.82	14.9
		Lecture	38	21	85.39	10.1	18	74.00	9.0
	Spring	TICCIT	15	25	92.00	15.4	19	69.40	12.5
		Lecture	37	21	84.27	8.8	19	76.84	8.1

APPENDIX Q

STUDENT ATTITUDES

Student Attitude Data
Implementation Period
Phoenix College
Math 007, 106 and 108
Spring and Summer Semesters, 1975

Semester	Course	Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
Spring 1975	Math 007	01	TICCIT	7	82.71	20.9	48.29	12.6
		02	TICCIT	10	86.80	18.0	49.40	12.2
		03	Lecture	21	70.86	12.2	56.10	9.5
		04	Lecture	16	67.94	9.9	53.25	8.0
		05	Lecture	18	73.00	9.1	57.61	7.6
		Total	TICCIT	17	85.12	18.7	48.94	12.0
			Lecture	55	70.71	10.5	55.76	8.5
	Math 106	01	Lecture	12	61.00	9.0	48.42	6.4
		02	Lecture	15	71.20	8.6	56.60	7.1
		03	Lecture	10	69.00	8.2	54.70	6.4
		Total	Lecture	37	67.30	9.4	53.43	7.9
	Math 108	01	TICCIT	1	99.00		57.00	
		02	Lecture	17	74.06	9.5	58.12	7.4
		03	Lecture	13	74.38	6.1	59.38	4.7
		04	Lecture	22	67.68	10.2	53.32	8.2
		05	Lecture	12	66.42	12.0	53.17	8.8
		Total	TICCIT	1	99.00		57.00	
			Lecture	64	70.50	10.0	55.80	7.8
Summer 1975	Math 007	01	TICCIT	10	88.10	14.5	51.20	9.1
		02	Lecture	12	68.58	9.0	54.17	7.6
		03	Lecture	17	67.12	9.9	53.59	7.9
	Math 106	01	TICCIT	8	89.75	15.2	52.25	9.3
	Math 108	01	Lecture	20	76.25	9.0	59.95	7.4

*The total survey score is not comparable across TICCIT and lecture sections since different forms (Form 032 for lecture and Form 033 for TICCIT) according to the comparison group. Total score is given here to illustrate within treatment class variation.

**The common subscore is based on fourteen parallel items on the student surveys for TICCIT and lecture sections.

Student Attitude Data
Phoenix College
Math 007
Fall Semester, 1975

Classes:

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
01	TICCIT (day)	21	84.52	17.7	63.62	13.9
02	TICCIT (eve.)	6	89.00	23.3	65.67	17.9
03	Lecture(day)	23	76.91	13.3	66.35	11.8
04	Lecture	22	73.82	9.1	63.50	7.8
05	Lecture	14	89.57	7.1	77.79	6.2
06	Lecture	12	79.33	6.5	68.50	6.6
07	Lecture	16	82.37	9.9	71.37	9.1
09	Lecture(eve.)	10	83.20	12.9	72.30	11.2
10	Lecture	16	81.62	9.0	71.00	7.7
11	Lecture	19	82.05	13.3	72.05	10.9
12	Lecture	2	86.00	15.6	73.50	13.4
Totals:						
	TICCIT	27	85.52	18.7	64.07	14.5
	Lecture	134	80.49	11.3	69.78	9.8

*The total survey score is not comparable across TICCIT and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here to illustrate within treatment class variation.

**The common subscore is based on eighteen parallel items in the student surveys for TICCIT and lecture sections.

Student Attitude Data
Phoenix College
Math 106 & Math 108
Fall Semester, 1975

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
Math 106:						
01	TICCIT (day)	15	85.87	15.2	64.07	11.2
02	TICCIT (eve.)	5	81.60	20.4	60.20	15.4
03	Lecture(day)	13	84.23	9.2	72.38	7.3
04	Lecture	16	80.31	12.6	69.44	11.0
05	Lecture	14	78.14	11.1	68.07	10.3
06	Lecture(eve.)	8	87.62	8.2	76.37	8.5
07	Lecture	22	81.55	8.7	71.41	7.7
Totals						
	TICCIT	20	84.80	16.2	63.10	12.1
	Lecture	73	81.77	10.2	71.05	9.1
Math 108:						
01	TICCIT (day)	11	87.18	18.8	63.82	14.9
02	Lecture(day)	15	82.33	10.3	71.07	9.6
03	Lecture	16	84.57	9.8	73.56	8.6
04	Lecture	7	93.86	5.3	81.29	4.8
Totals						
	TICCIT	11	87.18	18.8	63.82	14.9
	Lecture	38	85.39	10.1	74.00	9.0

*The total survey score is not comparable across TICCIT and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here to illustrate within treatment class variation.

**The common subscore is based on eighteen parallel items in the student surveys for TICCIT and lecture sections.

Student Attitude Data
Phoenix College
Math 007
Spring Semester, 1976

Classes:

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
01	TICCIT (day)	18	88.78	20.5	66.67	16.8
02	TICCIT (eve.)	2	102.50	3.5	76.00	5.7
03	Lecture (day)	21	79.33	11.6	71.81	11.1
04	Lecture	17	83.24	10.0	75.53	9.4
05	Lecture	19	86.95	11.3	78.95	10.0
06	Lecture	11	80.73	10.0	73.09	8.8
07	Lecture (eve.)	16	72.31	12.9	65.12	12.4
08	Lecture	19	82.16	13.6	74.53	12.6
09	Lecture	18	87.28	9.3	79.89	8.8
Totals:						
	TICCIT	20	90.15	19.8	67.60	16.2
	Lecture	121	81.90	12.0	74.31	11.3

*The total survey score is not comparable across TICCIT and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here to illustrate within treatment class variation.

**The common subscore is based on nineteen parallel items in the student surveys for TICCIT and lecture sections.

Student Attitude Data
Phoenix College
Math 106 & Math 108
Spring Semester, 1976

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
Math 106						
01	TICCIT (day)	10	91.40	15.2	68.50	12.8
02	TICCIT (eve.)	1	87.00		67.00	
03	Lecture (day)	15	75.40	9.8	68.13	9.1
04	Lecture	21	87.00	6.2	79.10	5.8
05	Lecture	14	80.43	9.7	73.07	8.6
06	Lecture (eve.)	16	82.62	13.3	75.75	11.8
07	Lecture	15	81.87	11.2	74.73	10.5
Totals:						
	TICCIT	31	91.00	14.5	68.36	12.1
	Lecture	101	81.90	10.5	74.56	9.6
Math 108						
01	TICCIT (day)	15	92.00	15.4	69.40	12.5
02	Lecture (day)	14	85.36	8.6	77.36	8.1
03	Lecture	15	80.87	8.9	74.07	8.1
05	Lecture (eve.)	8	88.75	8.2	81.12	7.3
Totals:						
	TICCIT	15	92.00	15.4	69.40	12.5
	Lecture	37	84.27	8.8	76.84	8.1

* The total survey score is not comparable across TICCIT and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here to illustrate within treatment class variation.

** The common subscore is based on nineteen parallel items in the student surveys for TICCIT and lecture sections.

Student Attitude Data
Northern Virginia Community College
Math 31
Fall Quarter, 1975

Classes:

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
01	TICCIT	11	88.27	12.5	67.82	10.2
02	TICCIT	10	96.20	12.4	72.80	10.6
03	TICCIT	8	95.75	16.2	71.25	14.5
04	TICCIT	9	97.00	16.0	74.00	11.9
05	TICCIT	8	97.37	14.5	72.87	11.2
06	Programmed	9	99.33	16.1	75.00	11.9
07	Programmed	7	101.14	8.0	75.29	6.2
08	Lecture	14	80.43	12.0	70.07	11.0
09	Lecture	13	81.62	11.3	71.00	10.3
10	Lecture	1	82.00		73.00	
11	Lecture	15	85.93	12.6	74.27	11.0
Totals:***						
	TICCIT	46	94.59	13.9	71.59	11.2
	Programmed	21	100.57	13.3	75.05	10.4
	Lecture	44	82.43	11.7	71.64	10.4

*The total survey score is not comparable across TICCIT, programmed, and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here to illustrate within treatment class variation.

**The common subscore is based on eighteen parallel items in the student surveys for TICCIT, programmed, and lecture sections.

***Totals include individual students whose instruction differed from their section's condition.

Student Attitude Data
Northern Virginia Community College
Math 31
Winter Quarter, 1976

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
01	TICCIT	11	102.18	11.6	77.45	9.0
02	TICCIT	14	102.00	11.8	78.50	9.7
03	TICCIT	4	87.25	7.4	67.50	6.6
04	TICCIT	9	99.89	10.8	76.33	10.0
05	TICCIT	12	100.33	14.7	76.33	11.6
06	TICCIT	13	100.62	13.5	76.54	11.8
07	Programmed	7	99.00	8.7	77.57	6.9
08	Programmed	18	108.89	7.6	85.72	6.4
09	Lecture	11	77.82	13.8	70.45	12.1
10	Lecture	11	86.00	7.3	78.73	6.0
11	Lecture	1	75.00	0.0	67.00	0.0
Totals:***						
	TICCIT	64	100.22	12.3	76.56	10.2
	Programmed	36	102.69	11.6	80.89	9.0
	Lecture	23	81.61	11.4	74.26	10.1

* The total survey score is not comparable across TICCIT, programmed, and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here to illustrate within treatment class variation.

** The common subscore is based on nineteen parallel items in the student surveys for TICCIT, programmed, and lecture sections.

*** Totals include individual students whose instruction differed from their section's condition.

Student Attitude Data
Northern Virginia Community College
Math 32
Winter Quarter, 1976

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
01	TICCIT	5	89.60	8.5	66.80	6.9
02	TICCIT	2	81.00	35.4	61.00	25.5
03	TICCIT	6	85.67	18.8	64.67	15.8
04	TICCIT	2	95.50	17.7	73.50	13.4
05	TICCIT	6	87.67	18.3	67.33	12.9
06	TICCIT	1	91.00	0.0	67.00	0.0
07	Lecture	9	73.56	14.8	66.67	13.3
08	Lecture	11	93.00	6.1	85.27	6.0
Totals:***						
	TICCIT	22	87.82	16.3	66.45	12.5
	Lecture	20	84.25	14.5	76.90	13.6

* The total survey score is not comparable across TICCIT and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here to illustrate within treatment class variation.

** The common subscore is based on nineteen parallel items in the student surveys for TICCIT and lecture sections.

*** Totals include individual students whose instruction differed from their section's condition.

Student Attitude Data
Northern Virginia Community College
Math 31
Spring Quarter, 1976

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
01	TICCIT	5	85.80	17.9	64.40	15.8
02	TICCIT	5	97.40	8.9	72.20	7.5
03	TICCIT	6	105.50	12.1	80.50	8.7
04	TICCIT	5	90.20	22.0	67.40	15.2
05	Programmed	8	98.25	18.8	78.25	15.0
06	Programmed	18	105.56	7.9	83.33	6.2
07	Programmed	3	98.67	6.4	78.00	4.4
08	Lecture	5	82.00	9.5	74.20	8.6
09	Lecture	7	80.14	11.5	73.43	11.0
Totals:***						
	TICCIT	24	94.83	16.2	71.17	12.5
	Programmed	38	101.71	12.2	80.21	9.8
	Lecture	12	80.92	10.3	73.75	9.6

* The total survey score is not comparable across TICCIT, programmed, and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here to illustrate within treatment class variation.

** The common subscore is based on nineteen parallel items in the student surveys for TICCIT, programmed, and lecture sections.

*** Totals include individual students whose instruction differed from their section's condition.

Student Attitude Data
Northern Virginia Community College
Math 32
Spring Quarter, 1976

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
01	TICCIT	5	98.20	7.0	76.00	3.9
02	TICCIT	6	84.67	11.2	65.17	10.5
03	TICCIT	2	97.00	15.6	72.00	9.9
04	TICCIT	2	103.50	3.5	75.50	2.1
05	TICCIT	3	97.67	11.4	73.33	9.1
06	Lecture	15	81.40	8.7	74.00	8.3
07	Lecture	15	85.93	10.8	78.47	10.2
Totals:***						
	TICCIT	18	94.06	11.3	71.44	8.6
	Lecture	30	83.67	9.9	76.23	9.4

*The total survey score is not comparable across TICCIT and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here to illustrate within treatment class variation.

**The common subscore is based on nineteen parallel items in the student surveys for TICCIT and lecture sections.

***Totals include individual students whose instruction differed from their section's condition.

Student Attitude Data
Phoenix College
English 19 & English 29
Spring Semester, 1976

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
English 19						
01	TICCIT	10	111.40	12.2	87.60	10.1
02	TICCIT	1	102.00		78.00	
04	TICCIT	4	116.50	4.0	90.75	5.1
05	Lecture	11	82.55	14.7	74.55	12.9
06	Lecture	14	90.43	13.8	81.93	12.9
07	Lecture	13	98.54	11.7	89.92	10.8
09	Lecture	11	91.00	11.0	85.18	10.8
Totals:						
	TICCIT	15	112.13	10.6	87.80	9.0
	Lecture	49	90.94	13.6	83.12	12.7
English 29						
01	TICCIT	12	106.08	13.9	82.75	10.7
02	TICCIT	15	111.27	8.8	88.13	7.5
03	Lecture	7	100.29	4.3	91.71	3.6
04	Lecture	12	90.75	13.9	83.50	12.9
05	Lecture	12	91.83	14.4	84.00	13.5
Totals:						
	TICCIT	27	108.96	11.4	85.74	9.3
	Lecture	31	93.32	12.6	85.55	11.9
Totals for English 19 & 29:						
	TICCIT	42	110.10	11.0	86.48	9.1
	Lecture	80	91.86	13.4	84.06	12.4

*The total survey score is not comparable across TICCIT and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here to illustrate within treatment class variation.

**The common subscore is based on twenty-one parallel items in the student surveys for TICCIT and lecture sections.

Student Attitude Data
Phoenix College
English 19 and English 29
Fall Semester, 1976

Classes:

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
English 19						
01	TICCIT (day)	8	106.63	12.7	84.13	12.1
02	TICCIT	13	110.00	8.1	86.00	6.6
03	TICCIT	15	112.33	10.2	88.47	8.5
04	TICCIT	8	111.38	24.8	86.88	19.2
05	TICCIT	17	108.82	10.1	85.18	7.7
06	TICCIT	12	110.17	13.1	86.75	9.8
07	Lecture	9	92.78	10.3	84.33	9.4
09	Lecture	18	95.22	7.9	86.89	7.2
10	Lecture	22	79.91	11.5	72.18	10.5
11	Lecture	18	92.28	8.6	85.11	8.0
12	Lecture	15	76.73	13.8	69.73	12.8
13	Lecture	16	91.19	10.7	82.94	9.5
14	Lecture	13	97.15	12.6	89.23	11.6
15	Lecture	19	86.05	14.1	77.84	13.2
Totals:						
	TICCIT	73	110.01	12.6	86.33	10.1
	Lecture	130	88.28	13.0	80.42	12.2
English 29						
01	TICCIT	16	109.75	12.4	86.75	9.4
02	TICCIT	4	110.00	5.0	85.50	5.4
03	TICCIT	12	106.00	11.6	82.33	9.8
04	TICCIT	5	106.00	8.5	82.40	6.4
05	Lecture	10	86.40	15.4	78.90	14.1
06	Lecture	15	86.00	10.3	77.67	10.2
07	Lecture	11	92.82	10.6	84.45	10.1
08	Lecture	12	93.33	14.1	85.25	12.9
Totals:						
	TICCIT	37	108.05	10.9	84.59	8.8
	Lecture	48	89.48	12.7	81.38	11.9

*The total survey score is not comparable across TICCIT and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here simply to illustrate within treatment class variation. The total score for sections on the TICCIT system includes responses to 27 items; that for lecture-discussion sections includes 25 items.

**The common subscore is based on twenty-one items in the student surveys phrased in an identical or comparable manner across TICCIT and lecture sections.

Student Attitude Data
Northern Virginia Community College
English 111
Winter Quarter, 1976

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
01	TICCIT (day)	9	107.56	11.3	83.78	9.1
02	TICCIT	7	105.00	13.2	81.86	12.6
03	TICCIT	5	97.00	14.9	74.40	11.8
04	TICCIT	14	98.29	10.0	77.14	7.7
05	TICCIT	13	90.92	18.6	70.23	14.0
06	TICCIT	8	78.88	20.5	61.13	16.7
07	Lecture	11	84.27	20.1	76.55	18.6
08	Lecture	11	91.82	8.4	83.91	7.5
09	Lecture	6	6.53	7.2	83.67	6.4
10	Lecture (eve.)	13	84.54	14.2	78.00	12.9
11	Lecture	13	89.08	9.7	80.62	9.3
Totals:						
	TICCIT	56	96.02	17.0	74.66	13.6
	Lecture	54	87.89	13.1	80.17	12.1

* The total survey score is not comparable across TICCIT and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here simply to illustrate within treatment class variation. The total score for sections on the TICCIT system includes responses to 27 items; that for lecture-discussion sections includes 25 items.

** The common subscore is based on twenty-one items in the student surveys phrased in an identical or comparable manner across TICCIT and lecture sections.

Student Attitude Data
Northern Virginia Community College
English 111
Spring Quarter, 1976

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
01	TICCIT (day)	18	100.17	16.5	78.33	14.3
02	TICCIT	13	104.54	14.0	81.77	11.2
03	TICCIT	16	100.69	14.4	79.94	10.1
04	TICCIT	14	100.64	17.2	79.71	13.2
05	TICCIT	11	104.91	9.6	83.00	7.4
07	Lecture	15	95.73	8.3	87.53	7.4
08	Lecture	10	95.10	6.7	85.70	6.7
09	Lecture	10	85.80	16.4	78.00	14.9
10	Lecture	11	92.64	9.9	84.55	8.9
11	Lecture (eve.)	14	88.57	19.6	81.36	17.5
12	Lecture	18	90.39	16.4	82.17	15.2
13	Lecture	18	88.94	11.5	81.72	10.8
14	Lecture	6	83.17	10.6	74.67	10.1
15	Lecture	20	94.70	7.6	86.70	7.0
16	Lecture	14	86.29	12.5	78.29	11.6
17	Lecture	13	94.92	6.2	86.54	5.8
18	Lecture	11	90.18	14.6	81.73	13.9
Totals:						
	TICCIT	[illegible]	100.38	14.6	78.84	11.7
	Lecture	161	91.07	12.5	83.01	11.6

* The total survey score is not comparable across TICCIT and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here simply to illustrate within treatment class variation. The total score for sections on the TICCIT system includes responses to 27 items; that for lecture-discussion sections includes 25 items.

** The common subscore is based on twenty-one items in the student surveys phrased in an identical or comparable manner across TICCIT and lecture sections.

Student Attitude Data
Northern Virginia Community College
English 111
Fall Quarter, 1976

Section Number	Comparison Group	N	Total Survey* Mean	Total Survey* sd	Common Subscore** Mean	Common Subscore** sd
01	TICCIT (day)	7	92.00	10.4	84.00	9.6
02	TICCIT	8	89.00	19.1	69.50	14.1
03	TICCIT	16	99.38	12.4	78.06	8.9
04	TICCIT	19	81.84	13.7	74.89	12.6
05	TICCIT	14	94.79	15.8	72.93	12.9
06	TICCIT	14	97.36	13.5	74.07	10.7
07	TICCIT	15	94.33	15.8	86.47	14.4
08	TICCIT (eve.)	7	94.14	14.2	72.71	10.4
09	TICCIT	14	94.50	11.6	74.07	10.3
10	Lecture	14	81.07	16.4	62.71	13.8
11	Lecture	16	90.88	11.5	83.38	11.0
12	Lecture	18	98.67	12.4	77.00	10.7
13	Lecture	18	93.50	11.7	85.06	11.0
14	Lecture	12	104.08	14.1	80.75	10.7
Totals:						
	TICCIT	117	95.16	15.1	73.86	12.1
	Lecture	75	90.01	13.6	82.31	12.6

*The total survey score is not comparable across TICCIT and lecture sections since different forms of the student survey were administered according to the comparison group. Total score is given here simply to illustrate within treatment class variation. The total score for sections on the TICCIT system includes responses to 27 items; that for lecture-discussion sections includes 25 items.

**The common subscore is based on twenty-one items in the student surveys phrased in an identical or comparable manner across TICCIT and lecture sections.

Student Attitude Survey:
Item Responses across Instructional Conditions
Phoenix College
Math 007, 106, and 108
Fall Semester, 1975

Item Stems	TICCIT (N ≅ 64) Item Number (Form 035)	Mean	sd	Lecture (N ≅ 260) Item Number (Form 040)	Mean	sd
Satisfaction subscore (6 items):						
I would recommend this course to my friends.	20	3.27	1.50	19	3.91	0.96
I was satisfied with my personal progress in this course.	17	3.27	1.25	16	3.50	1.21
Instruction in this class met my own particular needs.	6	3.43	1.37	14	3.99	0.91
My interest in math has been increased by this course.	19	3.08	1.35	18	3.55	1.06
The method of instruction for this course was too impersonal for me.	18	2.58	1.24	17	2.03	1.00
In this course I felt challenged to do my best work.	16	3.70	1.22	15	3.88	1.04
Attention subscore (4 items):						
I received a lot of individual attention from the instructor in this course.	3	2.89	1.30	2	3.53	1.17
The instructor seemed genuinely concerned with my progress.	4	3.40	1.21	3	3.85	1.03
In this course I felt free to ask questions.	1	4.09	1.07	1	4.71	0.54
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./The instructor's comments on my work helped me to progress through this course.	8	2.52	1.22	12	3.33	1.05
Feature subscore (3 items):						
Doing practice problems ("PRACTICE") helped me in learning mathematical rules and concepts./Homework assignments helped me in learning mathematical rules and concepts.	9	4.29	0.82	10	4.25	0.85

Item Stems	Item Number (Form 035)	Mean	sd	Item Number (Form 040)	Mean	sd
TICCIT "HELP" provided clear explanations when the material was difficult to understand./The instructor provided clear explanations when the material was difficult to understand.	10	3.12	1.32	6	4.33	0.80
The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn./The class lectures made mathematical concepts easy to learn.	11	3.59	1.06	4	4.16	0.86
Other common attitude stems (5 items):						
Taking tests in this course let me know whether or not I really understood the material.	12	3.59	1.26	7	4.02	1.03
Examples ("EXAMPLE") really did not show me how to solve problems./Examples from the textbook and lectures really did not show me how to solve problems.	13	3.00	1.27	8	2.07	1.06
In this course I felt responsible for my own learning.	14	4.28	0.85	9	3.79	1.05
Time passed quickly while I was in class.		4.43	0.79	20	3.85	1.13
I tried to just finish the lessons rather than learn the material.	24	2.14	1.33	21	1.91	1.07
Information statements:						
I wanted information that would tell me where I stood in comparison to other students.	26	2.00	1.29	22	2.51	1.38
For me, the pace at which I had to cover the material in order to finish the course was:/ For me, the pace at which the instructor covered the material during the term was:	27	3.15	0.92	23	2.76	0.75
For my preparation and ability most of the work in this course was:	28	2.95	0.86	24	3.05	0.90
The work load for this course, in relation to other courses of equal credit, was:	29	3.48	0.88	25	2.89	0.81

Item Coding (Form 035):

(items 1-21	(items 22-26)	(item 27)	(item 28)	(item 29)
5 = Strongly Agree	5 = Almost Always	5 = Very Slow	5 = Very Difficult	5 = Much Lighter
4 = Agree	4 = Frequently	4 = Somewhat Slow	4 = Somewhat Difficult	4 = Lighter
3 = Not Sure	3 = Not Sure	3 = About Right	3 = About Right	3 = About the Same
2 = Disagree	2 = Occasionally	2 = Somewhat Fast	2 = Somewhat Easy	2 = Heavier
1 = Strongly Disagree	1 = Almost Never	1 = Very Fast	1 = Very Easy	1 = Much Heavier

Student Attitude Survey:
Item Responses Specific to Instructional Conditions
Phoenix College
Mathematics Courses, Fall Semester 1975 and English Courses, Fall Semester 1976

Item Stems for TICCIT Classes	Item Number (Form 035)	Mathematics Courses (N ≅ 64) Mean	sd	Item Number (Form 068)	English Courses (N ≅ 110) Mean	sd
Using TICCIT allowed me to set a pace that was right for my ability.	2	4.06	1.26	2	4.48	.82
Through TICCIT I became actively involved in my own learning.	5	3.95	1.17	5	4.33	.72
I didn't understand how to use "MAP" to guide my learning in this course.	7	1.91	1.06	7	1.73	1.04
Breakdowns of the computer system disrupted my learning.	15	4.03	1.15	15	3.51	1.44
I would take another course that uses TICCIT.	21	3.42	1.58	24	3.89	1.18
The mechanics of using the terminal distracted me from learning.	23	1.78	.91	26	1.80	1.02
I wanted a regular textbook for this course to use as a reference at home.	25	2.78	1.60	26	2.28	1.34

Item Stems for Lecture Classes	Item Number (Form 040)	Lecture (N ≅ 260) Mean	sd	Item Number (Form 067)	Lecture (N ≅ 177) Mean	sd
I found the textbook useful in explaining the material and presenting methods for (solving problems/writing well).	5	3.22	1.23	5	4.01	1.05
Class discussions and student questions assisted me in learning the material.	11	4.07	.95	11	3.97	.87

Student Attitude Survey:
Item Responses across Instructional Conditions
Phoenix College
Math 007,
Fall Semester, 1975

Item Stems	TICCIT (N ≅ 27) Item Number (Form 035)	Mean	sd	Lecture (N ≅ 134) Item Number (Form 040)	Mean	sd
Satisfaction subscore (6 items):						
I would recommend this course to my friends.	20	3.19	1.54	19	3.81	0.93
I was satisfied with my personal progress in this course.	17	3.30	1.27	16	3.66	1.17
Instruction in this class met my own particular needs.	6	3.33	1.39	14	3.92	0.94
My interest in math has been increased by this course.	19	3.41	1.52	18	3.49	1.06
The method of instruction for this course was too impersonal for me.	18	2.59	1.10	17	2.12	1.02
In this course I felt challenged to do my best work.	16	3.92	1.24	15	3.84	1.00
Attention subscore (4 items):						
I received a lot of individual attention from the instructor in this course.	3	2.93	1.33	2	3.41	1.26
The instructor seemed genuinely concerned with my progress.	4	3.46	1.25	3	3.76	1.03
In this course I felt free to ask questions.	1	3.93	1.30	1	4.69	0.54
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./The instructor's comments on my work helped me to progress through this course.	8	2.67	1.28	12	3.30	1.05
Feature subscore (3 items):						
Doing practice problems ("PRACTICE") helped me in learning mathematical rules and concepts./ Homework assignments helped me in learning mathematical rules and concepts.	9	4.41	0.87	10	4.11	0.89

Item Stems	Item Number (Form 035)	Mean	sd	Item Number (Form 040	Mean	sd
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	3.07	1.30	6	4.25	0.81
The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn./The class lectures made mathematical concepts easy to learn.	11	3.69	0.99	4	4.07	0.86
Other stems:						
Taking tests in this course let me know whether or not I really understood the material.	12	3.67	1.19	7	4.19	0.95
Examples ("EXAMPLE") really did not show me how to solve problems./Examples from the textbook and lectures really did not show me how to solve problems.	13	3.07	1.39	8	2.10	1.05
In this course I felt responsible for my own learning.	14	4.35	0.78	9	3.76	1.04
Time passed quickly while I was in class.	22	4.42	0.74	20	3.83	1.18
I tried to just finish the lessons rather than learn the material.	24	1.77	1.15	21	1.99	1.14
Information statements:						
I wanted information that would tell me where I stood in comparison to other students.	26	2.31	1.54	22	2.44	1.34
For me, the pace at which I had to cover the material in order to finish the course was:/ For me, the pace at which the instructor covered the material during the term was:	27	3.20	1.06	23	2.91	0.75
For my preparation and ability most of the work in this course was:	28	3.15	0.93	24	3.02	1.00
The work load for this course, in relation to other courses of equal credit, was:	29	3.62	0.90	25	3.05	0.71

Item Coding (Form 035):

(items 1-21)
5 = Strongly Agree
4 = Agree
3 = Not Sure
2 = Disagree
1 = Strongly Disagree

(items 22-26)
5 = Almost Always
4 = Frequently
3 = Not Sure
2 = Occasionally
1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Phoenix College
Math 106
Fall Semester, 1975

Item Stems	TICCIT (N ≥ 20) Item Number (Form 035)	Mean	sd	Lecture (N ≥ 73) Item Number (Form 049)	Mean	sd
Satisfaction subscore:						
I would recommend this course to my friends.	20	3.35	1.46	19	4.00	0.94
I was satisfied with my personal progress in this course.	17	3.30	1.19	16	3.40	1.17
Instruction in this class met my own particular needs.	6	3.60	1.39	14	4.11	0.75
My interest in math has been increased by this course.	19	2.65	1.24	18	3.60	0.99
The method of instruction for this course was too impersonal for me.	18	2.50	1.43	17	2.04	0.97
In this course I felt challenged to do my best work.	16	3.55	1.07	15	3.96	0.99
Attention subscore:						
I received a lot of individual attention from the instructor in this course.	3	3.10	1.22	2	3.64	1.02
The instructor seemed genuinely concerned with my progress.	4	3.72	1.10	3	3.90	0.95
In this course I felt free to ask questions.	1	4.45	0.74	1	4.73	0.53
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./The instructor's comments on my work helped me to progress through this course.	8	2.45	1.20	12	3.44	0.97
Feature subscore:						
Doing practice problems ("PRACTICE") helped me in learning mathematical rules and concepts./ Homework assignments helped me in learning mathematical rules and concepts.	9	4.11	0.91	10	4.37	0.73

Item Stems	Item Number (Form 035)	Mean	sd	Item Number (Form 040)	Mean	sd
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	3.35	1.35	6	4.37	0.75
The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn./The class lectures made mathematical concepts easy to learn.	11	3.15	1.19	4	4.19	0.87
Other attitude stems:						
Taking tests in this course let me know whether or not I really understood the material.	12	3.70	1.14	7	3.81	1.09
Examples ("EXAMPLE") really did not show me how to solve problems./Examples from the textbook and lectures really did not show me how to solve problems.	13	2.95	1.07	8	2.15	1.08
In this course I felt responsible for my own learning.	14	4.22	0.79	9	3.78	1.14
Time passed quickly while I was in class.	22	4.45	0.80	20	3.36	1.15
I tried to just finish the lessons rather than learn the material.	24	2.35	1.28	21	1.82	1.00
Information statements:						
I wanted information that would tell me where I stood in comparison to other students.	26	1.71	1.02	22	2.60	1.42
For me, the pace at which I had to cover the material in order to finish the course was:/ For me, the pace at which the instructor covered the material during the term was:	27	3.11	0.87	23	2.62	0.71
For my preparation and ability most of the work in this course was:	28	2.80	0.81	24	3.08	0.74
The work load for this course, in relation to other courses of equal credit, was:	29	3.25	0.83	25	2.67	0.76

Item Coding (Form 035):

(items 1-21)
5 = Strongly Agree
4 = Agree
3 = Not Sure
2 = Disagree
1 = Strongly Disagree

(items 22-26)
5 = Almost Always
4 = Frequently
3 = Not Sure
2 = Occasionally
1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Phoenix College
Math 007
Spring Semester, 1976

Item Stems	TICCIT (N = 20) Item Number (Form 069)	Mean	sd	Lecture (N = 121) Item Number (Form 040)	Mean	sd
Satisfaction subscore:						
I would recommend this course to my friends.	21	3.30	1.34	19	3.84	1.02
I was satisfied with my personal progress in this course.	18	3.40	1.50	16	3.61	1.20
Instruction in this class met my own particular needs.	6	3.70	1.42	14	3.83	1.10
My interest in math has been increased by this course.	20	3.30	1.34	18	3.68	1.07
The method of instruction for this course was too impersonal for me.	19	2.45	1.43	17	2.11	1.01
In this course I felt challenged to do my best work.	17	3.70	1.22	15	3.77	1.10
Attention subscore:						
I received a lot of individual attention from the instructor in this course.	3	2.65	1.32	2	3.64	1.12
The instructor seemed genuinely concerned with my progress.	4	3.15	1.35	3	3.93	1.00
In this course I felt free to ask questions.	1	4.25	.97	1	4.71	.54
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./ The instructor's comments on my work helped me to progress through this course.	8	3.15	1.46	12	3.31	1.11
Feature subscore:						
Doing practice problems ("PRACTICE") helped me in learning mathematical rules and concepts./ Homework assignments helped me in learning mathematical rules and concepts.	9	4.40	.75	10	4.20	.90
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	3.55	1.43	4	4.08	1.12
The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn./ The class lectures made mathematical concepts easy to learn.	11	3.85	1.09	6	4.34	.79
Examples ("EXAMPLE") really did not show me how to solve problems./ Examples from the textbook and lectures really did not show me how to solve problems.	13	3.25	1.16	8	2.53	1.40
Other stems:						
Taking tests in this course let me know whether or not I really understood the material.	12	3.75	1.25	7	4.29	.91
Other students in this section seemed to like the course.	15	2.90	.85	13	3.60	.87

Item Stems	TECCIT (N≅ 20) Item Number (Form 069)	Mean	sd	Lecture (N≅ 121) Item Number (Form 040)	Mean	sd
In this course I felt responsible for my own learning.	14	4.40	.82	9	3.88	1.12
Time passed quickly while I was in class.	23	4.00	1.12	20	4.13	1.04
I tried to just finish the lessons rather than learn the material.	25	2.05	1.36	21	1.88	1.02
Information statements:						
I wanted information that would tell me where I stood in comparison to other students.	27	1.85	1.18	22	2.31	1.27
For me, the pace at which I had to cover the material in order to finish the course was:/ For me, the pace at which the instructor covered the material during the term was:	28	3.00	.92	23	2.82	.63
For my preparation and ability most of the work in this course was:	29	3.15	.75	24	3.06	.91
The work load for this course, in relation to other courses of equal credit, was:	30	3.05	1.15	25	3.07	.79

Item Coding (Form 069):

(Items 1-22)	(Items 23-27)	(Item 28)	(Item 29)	(Item 30)
5 = Strongly Agree	5 = Almost Always	5 = Very Slow	5 = Very Difficult	5 = Much Lighter
4 = Agree	4 = Frequently	4 = Somewhat Slow	4 = Somewhat Difficult	4 = Lighter
3 = Not Sure	3 = Not Sure	3 = About Right	3 = About Right	3 = About the Same
2 = Disagree	2 = Occasionally	2 = Somewhat Fast	2 = Somewhat Easy	2 = Heavier
1 = Strongly Disagree	1 = Almost Never	1 = Very Fast	1 = Very Easy	1 = Much Heavier

Student Attitude Survey
Item Responses specific to Instructional Conditions
Phoenix College
Math 007
Spring Semester, 1976

Item Stems	TICCIT (N ≅ 20) Item Number (Form 069)	Mean	sd	Lecture (N ≅ 120) Item Number (Form 040)	Mean	sd
Using TICCIT allowed me to set a pace that was right for my ability.	2	4.30	1.08			
Through TICCIT I became actively involved in my own learning.	5	4.35	.93			
I would take another course that uses TICCIT.	22	3.50	1.47			
The mechanics of using the terminal distracted me from learning.	24	1.90	.91			
I needed a regular textbook for this course to use as a reference at home.	26	2.95	1.51			
I didn't understand how to use "MAP" to guide my learning in this course.	7	1.75	1.02			
Breakdowns of the computer system disrupted my learning.	16	4.00	1.33			
I found the textbook useful in explaining the material and presenting methods for solving problems.				5	3.29	1.18
Class discussions and student questions assisted me in learning the material.				11	4.30	.82

Item Coding (Form 069):

(items 1-21)	(items 22-26)
5 = Strongly Agree	5 = Almost Always
4 = Agree	4 = Frequently
3 = Not Sure	3 = Not Sure
2 = Disagree	2 = Occasionally
1 = Strongly Disagree	1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Phoenix College
Math 108
Spring Semester, 1976

Item Stem	TICCIT (N = 15) Item Number (Form 069)	Mean	sd	Lecture (N = 37) Item Number (Form 040)	Mean	sd
Satisfaction subscore:						
I would recommend this course to my friends.	21	3.47	1.55	19	4.22	1.44
I was satisfied with my personal progress in this course.	18	3.13	1.55	16	3.32	1.16
Instruction in this class met my own particular needs.	6	3.73	1.10	14	4.14	.84
My interest in math has been increased by this course.	20	3.60	1.35	18	3.65	1.12
The method of instruction for this course was too impersonal for me.	19	2.67	1.18	17	1.70	.69
In this course I felt challenged to do my best work.	17	4.07	.83	15	3.95	1.00
Attention subscore:						
I received a lot of individual attention from the instructor in this course.	3	3.07	1.33	2	3.89	.86
The instructor seemed genuinely concerned with my progress.	4	3.33	1.45	3	4.19	1.06
In this course I felt free to ask questions.	1	4.67	.49	1	4.70	.46
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./ The instructor's comments on my work helped me to progress through this course.	8	2.67	1.29	12	3.73	.79
Feature subscore:						
Doing practice problems ("PRACTICE") helped me in learning mathematical rules and concepts./ Homework assignments helped me in learning mathematical rules and concepts.	9	4.43	.85	10	4.41	.54
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	3.20	1.08	4	4.41	.68
The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn./ The class lectures made mathematical concepts easy to learn.	11	4.13	1.13	6	4.59	.54
Examples ("EXAMPLE") really did not show me how to solve problems./ Examples from the textbook and lectures really did not show me how to solve problems.	13	2.93	1.54	8	2.17	1.21
Other items:						
Taking tests in this course let me know whether or not I really understood the material.	12	4.07	1.03	7	4.24	.82
Other students in this section [illegible] like the course.	15	2.87	.83	13	3.59	.94

Item Stems

In this course I felt responsible for my own learning.
Time passed quickly while I was in class.
I tried to just finish the lessons rather than learn the material.

Information statements:

I wanted information that would tell me where I stood in comparison to other students.
For me, the pace at which I had to cover the material in order to finish the course was:/ For me, the pace at which the instructor covered the material during the term was:
For my preparation and ability most of the work in this course was:
The work load for this course, in relation to other courses of equal credit, was:

Item Coding (Form 069):

(items 1-22)	(items 23-27)	(item 28)	(item 29)	(item 30)
5 = Strongly Agree	5 = Almost Always	5 = Very Slow	5 = Very Difficult	5 = Much Lighter
4 = Agree	4 = Frequently	4 = Somewhat Slow	4 = Somewhat Difficult	4 = Lighter
3 = Not Sure	3 = Not Sure	3 = About Right	3 = About Right	3 = About the Same
2 = Disagree	2 = Occasionally	2 = Somewhat Fast	2 = Somewhat Easy	2 = Heavier
1 = Strongly Disagree	1 = Almost Never	1 = Very Fast	1 = Very Easy	1 = Much Heavier

	TICCIT (N≅ 15)			Lecture (N≅ 37)	
Item Number (Form 069)	Mean	sd	Item Number (Form 040)	Mean	sd
14	4.33	.82	9	3.73	1.11
23	4.20	1.01	20	4.00	.99
25	1.80	1.08	21	2.03	1.03
27	2.73	1.44	22	2.51	1.43
28	2.80	1.15	23	2.72	.61
29	2.93	.80	24	3.41	.75
30	3.07	1.10	25	2.97	.82

Student Attitude Survey
Item Responses specific to Instructional Conditions
Phoenix College
Math 108
Spring Semester, 1976

	TICCIT (N = 15)		
	Item Number (Form 069)	Mean	sd
Item Stems			
Using TICCIT allowed me to set a pace that was right for my ability.	2	4.33	.82
Through TICCIT I became actively involved in my own learning.	5	4.13	.92
I would take another course that uses TICCIT.	22	3.27	1.67
The mechanics of using the terminal distracted me from learning.	24	1.40	.63
I wanted a regular textbook for this course to use as a reference at home.	26	2.80	1.66
I didn't understand how to use "MAP" to guide my learning in this course.	7	1.60	1.12
Breakdowns of the computer system disrupted my learning.	16	4.13	1.06

	Lecture (N = 37)		
	Item Number (Form 040)	Mean	sd
I found the textbook useful in explaining the material and presenting methods for solving problems.	5	3.11	1.11
Class discussions and student questions assisted me in learning the material.	11	4.32	.66

Item Coding (Form 069):

(items 1-21)	(items 22-26)
5 = Strongly Agree	5 = Almost Always
4 = Agree	4 = Frequently
3 = Not Sure	3 = Not Sure
2 = Disagree	2 = Occasionally
1 = Strongly Disagree	1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Phoenix College
Math 117
Spring Semester, 1976

Item Stems	TICCIT (N = 8) Item Number (Form 069)	Mean	sd	Lecture (N = 50) Item Number (Form 040)	Mean	sd
Satisfaction subscore:						
I would recommend this course to my friends.	21	3.63	.74	19	3.84	.89
I was satisfied with my personal progress in this course.	18	3.75	.46	16	3.54	1.19
Instruction in this class met my own particular needs.	6	3.88	.35	14	3.84	1.03
My interest in math has been increased by this course.	20	2.50	.53	18	3.61	.90
The method of instruction for this course was too impersonal for me.	19	2.13	.35	17	2.06	1.06
In this course I felt challenged to do my best work.	17	3.63	.74	15	3.86	1.00
Attention subscore:						
I received a lot of individual attention from the instructor in this course.	3	2.38	.74	2	3.54	1.00
The instructor seemed genuinely concerned with my progress.	4	3.13	.99	3	3.78	1.05
In this course I felt free to ask questions.	1	4.00	.93	12	4.40	.94
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./ The instructor's comments on my work helped me to progress through this course.	8	2.75	1.04	12	3.24	1.07
Feature subscore:						
Doing practice problems ("PRACTICE") helped me in learning mathematical rules and concepts./ Homework assignments helped me in learning mathematical rules and concepts.	9	4.50	.53	10	4.22	.89
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	4.00	.93	4	4.18	.96
The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn./ The class lectures made mathematical concepts easy to learn.	11	3.38	1.06	6	4.29	.86
Examples ("EXAMPLE") really did not show me how to solve problems./ Examples from the textbook and lectures really did not show me how to solve problems.	13	3.25	1.04	8	2.00	1.11
Other items:						
Taking tests in this course let me know whether or not I really understood the material.	12	3.63	.92	7	3.76	1.15
Other students in this section seemed to like the course.	15	2.75	.89	13	3.46	.83

Item Stems	TICCIT (N≅ 8) Item Number (Form 069)	Mean	sd	Lecture (N≅ 50) Item Number (Form 040)	Mean	sd
In this course I felt responsible for my own learning.	14	4.38	.52	9	3.76	1.12
Time passed quickly while I was in class.	23	3.63	1.06	20	3.90	1.20
I tried to just finish the lessons rather than learn the material.	25	1.75	.89	21	1.90	.83
Information statements:						
I wanted information that would tell me where I stood in comparison to other students.	27	2.25	1.75	22	2.76	1.36
For me, the pace at which I had to cover the material in order to finish the course was:/ For me, the pace at which the instructor covered the material during the term was:	28	3.00	.93	23	2.66	.79
For my preparation and ability most of the work in this course was:	29	2.75	.46	24	3.08	.89
The work load for this course, in relation to other courses of equal credit, was:	30	2.88	.64	25	2.56	.83

Item Coding (Form 069):

(Items 1-22)	(Items 23-27)	(Item 28)	(Item 29)	(Item 30)
5 = Strongly Agree	5 = Almost Always	5 = Very Slow	5 = Very Difficult	5 = Much Lighter
4 = Agree	4 = Frequently	4 = Somewhat Slow	4 = Somewhat Difficult	4 = Lighter
3 = Not Sure	3 = Not Sure	3 = About Right	3 = About Right	3 = About the Same
2 = Disagree	2 = Occasionally	2 = Somewhat Fast	2 = Somewhat Easy	2 = Heavier
1 = Strongly Disagree	1 = Almost Never	1 = Very Fast	1 = Very Easy	1 = Much Heavier

Student Attitude Survey
Item Responses specific to Instructional Conditions
Phoenix College
Math 117
Spring Semester, 1976

Item Stems	TICCIT (N = 8) Item Number (Form 069)	Mean	sd
Using TICCIT allowed me to set a pace that was right for my ability.	2	4.75	.46
Through TICCIT I became actively involved in my own learning.	5	3.88	.35
I would take another course that uses TICCIT.	22	3.50	.87
The mechanics of using the terminal distracted me from learning.	24	1.50	.53
I wanted a regular textbook for this course to use as a reference at home.	26	1.38	.52
I didn't understand how to use "MAP" to guide my learning in this course.	7	1.38	.52
Breakdowns of the computer system disrupted my learning.	16	4.00	1.07
	Lecture (N = 50) Item Number (Form 040)	Mean	sd
I found the textbook useful in explaining the material and presenting methods for solving problems.	5	3.20	1.18
Class discussions and student questions assisted me in learning the material.	11	4.22	.86

Item Coding (Form 069):

(items 1-21)	(items 22-26)
5 = Strongly Agree	5 = Almost Always
4 = Agree	4 = Frequently
3 = Not Sure	3 = Not Sure
2 = Disagree	2 = Occasionally
1 = Strongly Disagree	1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Northern Virginia Community College
Math 31
Fall Quarter, 1975

Item Stems	TICCIT (N ≅ 46) Item Number (Form 063)	Mean	sd	Lecture (N ≅ 44) Item Number (Form 062)	Mean	sd	Programmed (N ≅ 21) Item Number (Form 064)	Mean	sd
Satisfaction subscore:									
I would recommend this course to my friends.	20	3.96	1.10	19	3.70	1.01	20	4.33	.86
I was satisfied with my personal progress in this course.	17	3.38	1.16	16	3.36	1.15	17	3.70	1.34
Instruction in this class met my own particular needs.	6	3.87	1.13	14	3.93	1.00	6	4.38	.86
My interest in math has been increased by this course.	19	3.78	1.06	18	3.45	1.23	19	3.52	1.25
The method of instruction for this course was too impersonal for me.	18	2.40	1.12	17	2.09	.98	18	1.80	1.01
In this course I felt challenged to do my best work.	16	3.93	1.07	15	3.86	1.01	15	4.10	1.14
Attention subscore:									
I received a lot of individual attention from the instructor in this course.	3	4.00	1.10	2	4.25	.80	3	4.05	1.15
The instructor seemed genuinely concerned with my progress.	4	4.29	.78	3	4.36	.71	4	4.62	.59
In this course I felt free to ask questions.	1	4.67	.69	1	4.57	.69	1	4.86	.36
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./ The instructor's comments on my work helped me to progress through this course.	8	3.78	1.07	12	3.86	.87	7	4.00	.92
Feature subscore:									
Doing practice problems ("PRACTICE") helped me in learning mathematical rules and concepts./ Homework assignments helped me in learning mathematical rules and concepts.	9	4.33	.93	10	4.05	.98	8	4.19	1.12
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	3.80	1.21	4	3.98	.94	9	4.48	.68
The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn./ The class lectures made mathematical concepts easy to learn.	11	3.76	.98	6	4.39	.65	10	3.95	.92
Other stems:									
Taking tests in this course let me know whether or not I really understood the material.	12	4.35	.81	7	4.41	.91	12	4.10	1.09
Examples ("EXAMPLE") really did not show me how to solve problems./ Examples from the textbook and lectures really did not show me how to solve problems.	13	2.67	1.38	8	2.48	1.23	13	2.50	1.28

Item Stems

In this course I felt responsible for my own learning.
Time passed quickly while I was in class.
I tried to just finish the lessons rather than learn the material.

Information statements:

I wanted information that would tell me where I stood in comparison to other students.
For me, the pace at which I had to cover the material in order to finish the course was:/ For me, the pace at which the instructor covered the material during the term was:
For my preparation and ability most of the work in this course was:
The work load for this course, in relation to other courses of equal credit, was:

Item Coding (Form 063):

(items 1-21)
5 = Strongly Agree
4 = Agree
3 = Not Sure
2 = Disagree
1 = Strongly Disagree

(items 22-26)
5 = Almot Always
4 = Frequently
3 = Not Sure
2 = Occasionally
1 = Almost Never

(item 27)
5 = Very Slow
4 = Somewhat Slow
3 = About Right
2 = Somewhat Fast
1 = Very Fast

(item 28)
5 = Very Difficult
4 = Somewhat Difficult
3 = About Right
2 = Somewhat Easy
1 = Very Easy

(item 29)
5 = Much Lighter
4 = Lighter
3 = About the Same
2 = Heavier
1 = Much Heavier

	TICCIT (N = 46)			Lecture (N = 44)			Programmed (N = 21)		
	Item Number (Form 063)	Mean	sd	Item Number (Form 062)	Mean	sd	Item Number (Form 064)	Mean	sd
	14	4.53	.75	19	4.00	1.00	14	4.57	.51
	22	4.26	1.05	20	3.80	1.16	22	4.29	.90
	24	1.87	1.06	21	1.73	.96	24	1.57	1.08
	26	2.37	1.29	22	2.14	1.31	26	1.62	.74
	27	3.09	.85	23	2.70	.73	27	3.10	.72
	28	3.16	.67	24	3.21	.79	28	3.00	.71
	29	3.45	1.00	25	3.00	.85	29	3.50	.61

Student Attitude Survey
Item Responses specific to Instructional Conditions
Northern Virginia Community College
Math 31
Fall Quarter, 1975

Item Stems	TICCIT (N = 46) Item Number (Form 063)	Mean	sd	Programmed (N = 21) Item Number (Form 064)	Mean	sd
Using TICCIT [programmed instruction] allowed me to set a pace that was right for my ability.	2	4.31	.91	2	4.67	.58
Through TICCIT [programmed instruction] I became actively involved in my own learning.	5	4.18	1.04	5	4.38	.80
I would take another course that uses TICCIT [programmed instruction].	21	3.93	1.20	21	4.38	.92
The mechanics of using the terminal [programmed instruction] distracted me from learning.	23	1.76	.92	23	1.57	.87
I wanted a regular textbook for this course to use as a reference at home.	25	3.13	1.53	25	2.40	1.47
I didn't understand how to use "MAP" to guide my learning in this course.	7	1.93	1.18			
Breakdowns of the computer system disrupted my learning.	15	3.63	1.13			

	Lecture (N = 44) Item Number	Mean	sd			
I found the [programmed] textbook useful in explaining the material and presenting methods for solving problems.	5	3.35	1.20	11	4.14	.91
Other students in this section seemed to like the course.	13	3.39	.84	16	3.55	.76
Class discussions and student questions assisted me in learning the material.	11	4.09	.89			

Item Coding (Form 063):

(items 1-21)	(items 22-26)
5 = Strongly Agree	5 = Almost Always
4 = Agree	4 = Frequently
3 = Not Sure	3 = Not Sure
2 = Disagree	2 = Occasionally
1 = Strongly Disagree	1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Northern Virginia Community College
Math 31
Winter Quarter, 1976

Item Stems	TICCIT (N = 64) Item Number (Form 070)	Mean	sd	Lecture (N = 23) Item Number (Form 062)	Mean	sd	Programmed (N = 36) Item Number (Form 064)	Mean	sd
Satisfaction subscore:									
I would recommend this course to my friends.	21	4.14	.90	19	4.13	.87	20	4.25	.98
I was satisfied with my personal progress in this course.	18	3.33	1.23	16	3.43	1.12	17	3.72	1.07
Instruction in this class met my own particular needs.	6	4.00	.95	14	3.78	1.09	6	4.19	.88
My interest in math has been increased by this course.	20	3.92	1.12	18	3.74	1.05	19	3.97	1.09
The method of instruction for this course was too impersonal for me.	19	2.28	1.08	17	2.17	1.11	18	1.89	1.02
In this course I felt challenged to do my best work.	17	4.00	.98	15	3.86	.94	15	4.14	.85
Attention subscore:									
I received a lot of individual attention from the instructor in this course.	3	4.16	.96	2	3.61	1.16	3	4.28	.84
The instructor seemed genuinely concerned with my progress.	4	4.41	.80	3	3.86	.99	4	4.58	.64
In this course I felt free to ask questions.	1	4.70	.60	1	4.74	.62	1	4.89	.31
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./ The instructor's comments on my work helped me to progress through this course.	8	3.73	1.09	12	3.43	1.20	7	4.33	.67
Feature subscore:									
Doing practice problems ("PRACTICE") helped me in learning mathematical rules and concepts./ Homework assignments helped me in learning mathematical rules and concepts.	9	4.56	.53	10	4.35	.93	8	4.39	.79
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	3.97	.98	4	4.04	1.07	9	4.69	.46
The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn./ The class lectures made mathematical concepts easy to learn.	11	4.03	.94	6	4.17	.94	10	3.83	1.04
Examples ("EXAMPLE") really did not show me how to solve problems./ Examples from the textbook and lectures really did not show me how to solve problems.	13	2.86	1.24	8	2.59	1.22	13	2.21	1.16
Other stems:									
Taking tests in this course let me know whether or not I really understood the material.	12	4.39	.82	7	4.26	.86	12	4.66	.71
Other students in this section seemed to like the course.	15	3.43	.77	13	3.59	.96	16	3.58	.92

Item Stems	TICCIT (N = 64) Item Number (Form 070)	Mean	sd	Lecture (N = 23) Item Number (Form 062)	Mean	sd	Programmed (N = 36) Item Number (Form 064)	Mean	sd
In this course I felt responsible for my own learning.	14	4.53	.56	9	3.91	1.16	14	4.67	.47
Time passed quickly while I was in class,	23	4.28	1.05	20	4.00	1.04	22	4.31	.88
I tried to just finish the lessons rather than learn the material.	25	1.75	.99	21	1.78	1.04	24	1.42	.79
Information statements:									
I wanted information that would tell me where I stood in comparison to other students.	27	2.14	1.16	22	2.13	1.18	26	1.97	1.36
For me, the pace at which I had to cover the material in order to finish the course was:/ For me, the pace at which the instructor covered the material during the term was:	28	2.94	1.05	23	2.35	.78	27	3.03	.83
For my preparation and ability most of the work in this course was:	29	3.33	.59	24	3.57	.59	28	3.19	.78
The work load for this course, in relation to other courses of equal credit, was:	30	3.08	.95	25	3.13	1.06	29	3.36	.48

Item Coding (Form 070):

(items 1-22)	(items 23-27)	(item 28)	(item 29)	(item 30)
5 = Strongly Agree	5 = Almost Always	5 = Very Slow	5 = Very Difficult	5 = Much Lighter
4 = Agree	4 = Frequently	4 = Somewhat Slow	4 = Somewhat Difficult	4 = Lighter
3 = Not Sure	3 = Not Sure	3 = About Right	3 = About Right	3 = About the Same
2 = Disagree	2 = Occasionally	2 = Somewhat Fast	2 = Somewhat Easy	2 = Heavier
1 = Strongly Disagree	1 = Almost Never	1 = Very Fast	1 = Very Easy	1 = Much Heavier

Student Attitude Survey
Item Responses specific to Instructional Conditions
Northern Virginia Community College
Math 31
Winter Quarter, 1976

Item Stems	TICCIT (N ≅ 64) Item Number (Form 070)	Mean	sd	Programmed (N ≅ 36) Item Number (Form 064)	Mean	sd
Using TICCIT [programmed instruction] allowed me to set a pace that was right for my ability.	2	4.42	.83	2	4.53	.60
Through TICCIT [programmed instruction] I became actively involved in my own learning.	5	4.30	.80	5	4.58	.68
I would take another course that uses TICCIT [programmed instruction].	22	3.97	1.05	21	4.11	1.10
The mechanics of using the terminal [programmed instruction] distracted me from learning.	24	1.80	.90	23	1.67	.94
I wanted a regular textbook for this course to use as a reference at home.	26	2.86	1.38	25	3.00	1.43
I didn't understand how to use "MAP" to guide my learning in this course.	7	2.00	1.20			
Breakdowns of the computer system disrupted my learning.	16	3.24	1.25			

	Lecture (N ≅ 23) Item Number (Form 062)	Mean	sd
I found the [programmed] textbook useful in explaining the material and presenting methods for solving problems.	5	3.17	1.30
Class discussions and student questions assisted me in learning the material.	11	4.17	.89

Item Coding (Form 070):

(items 1-21)	(items 22-26)
5 = Strongly Agree	5 = Almost Always
4 = Agree	4 = Frequently
3 = Not Sure	3 = Not Sure
2 = Disagree	2 = Occasionally
1 = Strongly Disagree	1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Northern Virginia Community College
Math 32
Winter Quarter, 1976

Item Stems	TICCIT (N = 22) Item Number (Form 070)	Mean	sd	Lecture (N = 20) Item Number (Form 062)	Mean	sd
Satisfaction subscore:						
I would recommend this course to my friends.	21	3.24	1.37	19	4.21	1.18
I was satisfied with my personal progress in this course.	18	2.59	1.14	16	3.47	.90
Instruction in this class met my own particular needs.	6	3.38	1.20	14	4.26	.87
My interest in math has been increased by this course.	20	3.45	1.14	18	3.85	1.18
The method of instruction for this course was too impersonal for me.	19	2.57	1.43	17	1.94	1.06
In this course I felt challenged to do my best work.	17	3.50	.74	15	4.00	.94
Attention subscore:						
I received a lot of individual attention from the instructor in this course.	3	3.90	1.22	2	4.15	1.04
The instructor seemed genuinely concerned with my progress.	4	4.24	.89	3	4.21	1.08
In this course I felt free to ask questions.	1	4.36	.79	1	4.80	.70
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./ The instructor's comments on my work helped me to progress through this course.	8	2.86	1.32	12	3.72	1.27
Feature subscore:						
Doing practice problems ("PRACTICE") helped me in learning mathematical rules and concepts./ Homework assignments helped me in learning mathematical rules and concepts.	9	3.73	1.35	10	4.55	.60
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	3.14	1.46	4	4.05	.97
The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn./ The class lectures made mathematical concepts easy to learn.	11	2.91	1.07	6	4.35	1.09
Examples ("EXAMPLE") really did not show me how to solve problems./ Examples from the textbook and lectures really did not show me how to solve problems.	13	3.41	1.05	8	2.11	1.20
Other stems:						
Taking tests in this course let me know whether or not I really understood the material.	12	3.55	1.10	7	4.35	.99
Other students in this section seemed to like the course.	15	3.35	.67	13	3.74	1.10

Item Stems	TICCIT (N = 22) Item Number (Form 070)	Mean	sd	Lecture (N = 20) Item Number (Form 062)	Mean	sd
In this course I felt responsible for my own learning.	14	4.36	.73	9	3.95	.91
Time passed quickly while I was in class.	23	4.05	1.09	20	3.65	1.42
I tried to just finish the lessons rather than learn the material.	25	2.00	1.15	21	1.75	.97
Information statements:						
I wanted information that would tell me where I stood in comparison to other students.	27	2.36	1.50	22	2.42	1.35
For me, the pace at which I had to cover the material in order to finish the course was:/ For me, the pace at which the instructor covered the material during the term was:	28	2.71	1.23	23	2.70	.80
For my preparation and ability most of the work in this course was:	29	3.45	.60	24	3.06	.80
The work load for this course, in relation to other courses of equal credit, was:	30	2.71	.64	25	3.17	.86

Item Coding (Form 070):

(items 1-22)	(items 23-27)	(item 28)	(item 29)	(item 30)
5 = Strongly Agree	5 = Almost Always	5 = Very Slow	5 = Very Difficult	5 = Much Lighter
4 = Agree	4 = Frequently	4 = Somewhat Slow	4 = Somewhat Difficult	4 = Lighter
3 = Not Sure	3 = Not Sure	3 = About Right	3 = About Right	3 = About the Same
2 = Disagree	2 = Occasionally	2 = Somewhat Fast	2 = Somewhat Easy	2 = Heavier
1 = Strongly Disagree	1 = Almost Never	1 = Very Fast	1 = Very Easy	1 = Much Heavier

Student Attitude Survey
Item Responses specific to Instructional Conditions
Northern Virginia Community College
Math 32
Winter Quarter, 1976

Item Stems	TICCIT (N ≅ 22) Item Number (Form 070)	Mean	sd
Using TICCIT [programmed instruction] allowed me to set a pace that was right for my ability.	2	3.95	1.25
Through TICCIT [programmed instruction] I became actively involved in my own learning.	5	3.50	1.37
I would take another course that uses TICCIT [programmed instruction].	22	3.14	1.21
The mechanics of using the terminal [programmed instruction] distracted me from learning.	24	1.91	1.11
I wanted a regular textbook for this course to use as a reference at home.	26	2.95	1.62
I didn't understand how to use "MAP" to guide my learning in this course.	7	2.00	1.20
Breakdowns of the computer system disrupted my learning.	16	3.33	1.56

	Lecture (N ≅ 20) Item Number (Form 062)	Mean	sd
I found the [programmed] textbook useful in explaining the material and presenting methods for solving problems.	5	3.30	.98
Class discussions and student questions assisted me in learning the material.	11	4.05	1.10

Item Coding (Form 070):

(items 1-21)	(items 22-26)
5 = Strongly Agree	5 = Almost Always
4 = Agree	4 = Frequently
3 = Not Sure	3 = Not Sure
2 = Disagree	2 = Occasionally
1 = Strongly Disagree	1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Northern Virginia Community College
Math 31
Spring Quarter, 1976

Item Stems	TICCIT (N = 24) Item Number (Form 070)	Mean	sd	Lecture (N = 12) Item Number (Form 062)	Mean	sd	Programmed (N = 38) Item Number (Form 064)	Mean	sd
Satisfaction subscore:									
I would recommend this course to my friends.	21	3.88	1.08	19	3.67	.89	20	4.43	.82
I was satisfied with my personal progress in this course.	18	3.08	1.14	16	3.58	1.38	17	3.54	1.20
Instruction in this class met my own particular needs.	6	3.88	1.12	14	3.83	.94	6	4.37	.81
My interest in math has been increased by this course.	20	3.71	.95	18	3.64	1.03	19	3.95	1.04
The method of instruction for this course was too impersonal for me.	19	2.58	1.38	17	2.64	1.50	18	1.89	.77
In this course I felt challenged to do my best work.	17	3.63	1.06	15	3.83	1.03	15	4.17	.83
Attention subscore:									
I received a lot of individual attention from the instructor in this course.	3	3.96	1.00	2	4.25	.97	3	4.24	1.09
The instructor seemed genuinely concerned with my progress.	4	4.46	.78	3	4.33	.78	4	4.63	.84
In this course I felt free to ask questions.	1	4.57	.66	1	4.83	.39	1	4.87	.34
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./ The instructor's comments on my work helped me to progress through this course.	8	3.26	1.14	12	4.25	.87	7	4.47	.88
Feature subscore:									
Doing practice problems ("PRACTICE") helped me in learning mathematical rules and concepts./ Homework assignments helped me in learning mathematical rules and concepts.	9	4.29	.62	10	4.17	.94	8	4.26	.78
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	3.21	1.35	4	3.83	1.03	9	4.76	.59
The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn./ The class lectures made mathematical concepts easy to learn.	11	3.58	.88	6	4.25	.75	10	4.05	.89
Examples ("EXAMPLE") really did not show me how to solve problems./ Examples from the textbook and lectures really did not show me how to solve problems.	13	3.25	1.45	8	3.08	1.31	13	2.57	1.35
Other stems:									
Taking tests in this course let me know whether or not I really understood the material.	12	3.91	1.00	7	4.00	1.21	12	4.53	.72
Other students in this section seemed to like the course.	15	3.33	.82	13	3.42	.79	16	3.70	.87

Item Stems	TICCIT (N = 24) Item Number (Form 070)	Mean	sd	Lecture (N = 12) Item Number (Form 062)	Mean	sd	Programmed (N = 38) Item Number (Form 064)	Mean	sd
In this course I felt responsible for my own learning.	14	4.46	.78	9	3.58	1.31	14	4.55	.64
Time passed quickly while I was in class.	23	4.00	1.14	20	4.42	.67	22	4.17	.87
I tried to just finish the lessons rather than learn the material.	25	1.96	1.12	21	2.33	.89	24	1.61	.95
Information statements:									
I wanted information that would tell me where I stood in comparison to other students.	27	2.46	1.44	22	2.58	1.24	26	1.78	1.16
For me, the pace at which I had to cover the material in order to finish the course was:/ For me, the pace at which the instructor covered the material during the term was:	28	3.13	1.03	23	2.75	.97	27	2.81	.91
For my preparation and ability most of the work in this course was:	29	3.43	.59	24	3.25	.97	28	3.33	.62
The work load for this course, in relation to other courses of equal credit, was:	30	3.22	.95	25	3.25	.62	29	3.09	.79

Item Coding (Form 070):

(items 1-22)	(items 23-27)	(item 28)	(item 29)	(item 30)
5 = Strongly Agree	5 = Almost Always	5 = Very Slow	5 = Very Difficult	5 = Much Lighter
4 = Agree	4 = Frequently	4 = Somewhat Slow	4 = Somewhat Difficult	4 = Lighter
3 = Not Sure	3 = Not Sure	3 = About Right	3 = About Right	3 = About the Same
2 = Disagree	2 = Occasionally	2 = Somewhat Fast	2 = Somewhat Easy	2 = Heavier
1 = Strongly Disagree	1 = Almost Never	1 = Very Fast	1 = Very Easy	1 = Much Heavier

Student Attitude Survey
Item Responses Specific to Instructional Conditions
Northern Virginia Community College
Math 31
Spring Quarter, 1976

Item Stems	TICCIT (N = 24) Item Number (Form 070)	Mean	sd	Programmed (N = 38) Item Number (Form 064)	Mean	sd
Using TICCIT [programmed instruction] allowed me to set a pace that was right for my ability.	2	4.17	1.14	2	4.50	.64
Through TICCIT [programmed instruction] I became actively involved in my own learning.	5	3.83	1.30	5	4.58	.63
I would take another course that uses TICCIT [programmed instruction].	22	3.75	1.29	21	4.24	1.02
The mechanics of using the terminal [programmed instruction] distracted me from learning.	24	1.63	1.06	23	1.69	1.01
I wanted a regular textbook for this course to use as a reference at home.	26	2.71	1.49	25	2.71	1.56
I didn't understand how to use "MAP" to guide my learning in this course.	7	1.50	.93			
Breakdowns of the computer system disrupted my learning.	16	2.92	1.28			

	Lecture (N = 12) Item Number (Form 062)	Mean	sd
I found the [programmed] textbook useful in explaining material and presenting methods for solving problems.	5	3.25	1.14
Class discussions and student questions assisted me in learning the material.	11	3.92	.79

Item Coding (Form 070):

(items 1-21)	(items 22-26)
5 = Strongly Agree	5 = Almost Always
4 = Agree	4 = Frequently
3 = Not Sure	3 = Not Sure
2 = Disagree	2 = Occasionally
1 = Strongly Disagree	1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Northern Virginia Community College
Math 32
Spring Quarter, 1976

Item Stems	TICCIT (N = 18) Item Number (Form 070)	Mean	sd	Lecture (N = 30) Item Number (Form 062)	Mean	sd
Satisfaction subscore:						
I would recommend this course to my friends.	21	3.44	1.10	19	4.07	.77
I was satisfied with my personal progress in this course.	18	3.33	1.14	16	3.62	1.15
Instruction in this class met my own particular needs.	6	4.00	1.24	14	4.07	1.00
My interest in math has been increased by this course.	20	3.28	.96	18	3.63	1.25
The method of instruction for this course was too impersonal for me.	19	2.78	1.35	17	1.93	.75
In this course I felt challenged to do my best work.	17	4.06	.73	15	3.97	.98
Attention subscore:						
I received a lot of individual attention from the instructor in this course.	3	4.22	.94	2	4.10	.86
The instructor seemed genuinely concerned with my progress.	4	4.39	.92	3	4.34	.81
In this course I felt free to ask questions.	1	4.72	.46	1	4.90	.31
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./ The instructor's comments on my work helped me to progress through this course.	8	3.67	.91	12	3.67	.91
Feature subscore:						
Doing practice problems ("PRACTICE") helped me in learning mathematical rules and concepts./ Homework assignments helped me in learning mathematical rules and concepts.	9	4.11	.76	10	4.38	.56
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	3.17	.86	4	4.17	.93
The rule statements ("RULE") on TICCIT made mathematical concepts easy to learn./ The class lectures made mathematical concepts easy to learn.	11	3.39	.70	6	4.28	.88
Examples ("EXAMPLE") really did not show me how to solve problems./ Examples from the textbook and lectures really did not show me how to solve problems.	13	3.44	1.20	8	2.50	1.31
Other stems:						
Taking tests in this course let me know whether or not I really understood the material.	12	4.06	.94	7	4.40	.76
Other students in this section seemed to like the course.	15	3.33	.71	13	3.57	.92

Item Stems	TICCIT (N = 18) Item Number (Form 070)	Mean	sd	Lecture (N = 30) Item Number (Form 062)	Mean	sd
In this course I felt responsible for my own learning.	14	4.18	.81	9	4.17	.69
Time passed quickly while I was in class.	23	4.33	.77	20	4.14	1.13
I tried to just finish the lessons rather than learn the material.	25	1.78	.94	21	2.41	1.12
Information statements:						
I wanted information that would tell me where I stood in comparison to other students.	27	2.11	1.28	22	2.21	1.29
For me, the pace at which I had to cover the material in order to finish the course was:/ For me, the pace at which the instructor covered the material during the term was:	28	2.67	1.33	23	2.52	.75
For my preparation and ability most of the work in this course was:	29	3.50	.62	24	3.38	.85
The work load for this course, in relation to other courses of equal credit, was:	30	2.44	.92	25	3.04	.81

Item Coding (Form 070):

(items 1-22)	(items 23-27)	(item 28)	(item 29)	(item 30)
5 = Strongly Agree	5 = Almost Always	5 = Very Slow	5 = Very Difficult	5 = Much Lighter
4 = Agree	4 = Frequently	4 = Somewhat Slow	4 = Somewhat Difficult	4 = Lighter
3 = Not Sure	3 = Not Sure	3 = About Right	3 = About Right	3 = About the Same
2 = Disagree	2 = Occasionally	2 = Somewhat Fast	2 = Somewhat Easy	2 = Heavier
1 = Strongly Disagree	1 = Almost Never	1 = Very Fast	1 = Very Easy	1 = Much Heavier

Student Attitude Survey
Item Responses specific to Instructional Conditions
Northern Virginia Community College
Math 32
Spring Quarter, 1976

Item Stems	Item Number (Form 070)	TICCIT (N ≈ 18) Mean	sd
Using TICCIT [programmed instruction] allowed me to set a pace that was right for my ability.	2	4.28	.89
Through TICCIT [programmed instruction] I became actively involved in my own learning.	5	4.44	.70
I would take another course that uses TICCIT [programmed instruction].	22	2.94	1.35
The mechanics of using the terminal [programmed instruction] distracted me from learning.	24	1.78	.81
I wanted a regular textbook for this course to use as a reference at home.	26	3.00	1.50
I didn't understand how to use "MAP" to guide my learning in this course.	7	1.78	1.06
Breakdowns of the computer system disrupted my learning.	16	3.50	1.42

	Item Number (Form 062)	Lecture (N ≈ 30) Mean	sd
I found the [programmed] textbook useful in explaining the material and presenting methods for solving problems.	5	3.21	1.11
Class discussions and student questions assisted me in learning the material.	11	4.23	.88

Item Coding (Form 070):

(items 1-21)	(items 22-26)
5 = Strongly Agree	5 = Almost Always
4 = Agree	4 = Frequently
3 = Not Sure	3 = Not Sure
2 = Disagree	2 = Occasionally
1 = Strongly Disagree	1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Phoenix College
English 19 and 29
Spring Semester, 1976

Item Stem	TICCIT (N = 42) Item Number (Form 068)	Mean	sd	Lecture (N = 79) Item Number (Form 067)	Mean	sd
Satisfaction subscore:						
I tended to just finish the assignments rather than learn the material.	27	1.69	.99	23	2.06	1.06
The [illegible] of instruction in this course was too impersonal for me.	21	2.33	1.25	19	1.99	.86
I learned a lot about grammar in this course.	16	4.02	.86	13	4.00	.86
I learned a lot about composition in this course.	17	3.95	.83	14	4.03	.89
I would recommend this course [with TICCIT] to my friends.	23	3.93	1.06	21	3.94	1.16
Instruction in this class met my own particular needs.	6	4.32	.75	16	4.08	.97
In this course I felt challenged to do my best work.	19	4.38	.58	17	4.06	.98
My interest in writing has been increased by this course.	22	3.64	.95	20	3.69	1.04
Attention subscore:						
I received a lot of individual attention from the instructor in this course.	3	4.29	.85	2	3.95	.91
The instructor seemed genuinely concerned with my progress.	4	4.57	.58	3	4.28	.90
In this course I felt free to ask questions.	1	4.76	.43	1	4.68	.69
Feature subscore:						
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	4.05	1.02	6	4.42	.82
The rule statements ("RULE") on TICCIT made concepts in writing easy to learn./ The class lecture made concepts in writing easy to learn.	11	4.14	.89	4	4.10	.91
Doing practice questions ("PRACTICE") helped me in learning rules and concepts in writing./ Homework assignments helped me in learning rules and concepts in writing.	9	4.45	.70	10	4.08	.91
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./ The instructor's comments on my work helped me to progress through this course.	8	3.90	.96	12	4.23	.89
Other stems:						
Taking tests in this course let me know whether or not I really understood the material.	12	4.29	.87	7	4.05	.95
Examples ("EXAMPLE") really did not show me how to write well.	13	2.55	1.24	8	2.17	1.07

Item Stems	TICCIT (N ≅ 42) Item Number (Form 068)	Mean	sd	Lecture (N ≅ 79) Item Number (Form 067)	Mean	sd
In this course I felt responsible for my own learning.	14	4.38	.69	9	3.85	1.08
Other students in this section seemed to like the course.	18	3.71	.70	15	3.84	.83
I was satisfied with my personal progress in this course.	20	3.98	.94	18	3.49	1.17
Time passed quickly while I was in class.	25	4.36	.97	22	3.94	1.18
Information statements:						
I wanted information that would tell me where I stood in comparison to other students.	29	2.12	1.18	24	2.48	1.31
For me, the pace at which I had to cover the material in order to finish the course was:	30	2.74	.95	25	3.01	.46
For my preparation and ability, most of the work in this course was:	31	3.12	.70	26	3.09	.77
The work load for this course, in relation to other courses of equal credit, was:	32	3.31	.96	27	3.11	.70

Item Coding (Form 068):

(Items 1-24)	(Items 25-29)	(Item 30)	(Item 31)	(Item 32)
5 = Strongly Agree	5 = Almost Always	5 = Very Slow	5 = Very Difficult	5 = Much Lighter
4 = Agree	4 = Frequently	4 = Somewhat Slow	4 = Somewhat Difficult	4 = Lighter
3 = Not Sure	3 = Not Sure	3 = About Right	3 = About Right	3 = About the Same
2 = Disagree	2 = Occasionally	2 = Somewhat Fast	2 = Somewhat Easy	2 = Heavier
1 = Strongly Disagree	1 = Almost Never	1 = Very Fast	1 = Very Easy	1 = Much Heavier

Student Attitude Survey
Item Responses specific to Instructional Conditions
Phoenix College
English 19 and 29
Spring Semester, 1976

Item Stems	TICCIT (N = 42) Item Number (Form 068)	Mean	sd
Using TICCIT allowed me to set a pace that was right for my ability.	2	4.40	.66
Through TICCIT I became actively involved in my own learning.	5	4.40	.62
I didn't understand how to use "MAP" to guide my learning in this course.	7	1.78	1.05
Breakdowns of the computer system disrupted my learning.	15	3.62	1.17
I would take another course that uses TICCIT.	24	3.86	1.15
The mechanics of using the terminal distracted me from learning.	26	1.62	.82
I wanted a regular textbook for this course to use as a reference at home.	28	2.83	1.56

	Lecture (N = 79) Item Number (Form 067)	Mean	sd
I found the textbook useful in explaining the material and presenting methods for solving problems.	5	3.46	1.37
Class discussions and student questions assisted me in learning the material.	11	4.37	.77

Item Coding (Form 068):

(Items 1-24)	(Items 25-29)
5 = Strongly Agree	5 = Almost Always
4 = Agree	4 = Frequently
3 = Not Sure	3 = Not Sure
2 = Disagree	2 = Occasionally
1 = Strongly Disagree	1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Phoenix College
English 19 and 29
Fall Semester, 1976

Item Stems	TICCIT (N = 110) Item Number (Form 068)	Mean	sd	Lecture (N = 177) Item Number (Form 065)	Mean	sd
Satisfaction subscore:						
I tried to just finish the assignments rather than learn the material.	27	1.64	.90	23	2.06	1.14
The method of instruction in this course was too impersonal for me.	21	2.36	1.05	19	2.34	.99
I learned a lot about grammar in this course.	16	4.13	.72	13	4.06	.98
I learned a lot about composition in this course.	17	3.97	.81	14	3.74	1.08
I would recommend this course [with TICCIT] to my friends.	23	4.15	.97	21	3.97	1.09
Instruction in this class met my own particular needs.	6	4.31	.76	16	3.85	1.01
In this course I felt challenged to do my best work.	19	4.24	.78	17	3.76	1.06
My interest in writing has been increased by this course.	22	3.54	1.01	20	3.45	1.12
Attention subscore:						
I received a lot of individual attention from the instructor in this course.	3	3.95	.87	2	3.54	1.20
The instructor seemed genuinely concerned with my progress.	4	4.35	.78	3	3.99	1.05
In this course I felt free to ask questions.	1	4.63	.63	1	4.42	.80
Feature subscore:						
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	4.02	1.00	6	4.32	.84
The rule statements ("RULE") on TICCIT made concepts in writing easy to learn./ The class lectures made concepts in writing easy to learn.	11	4.19	.81	4	3.88	1.00
Doing practice questions ("PRACTICE") helped me in learning rules and concepts in writing./ Homework assignments helped me in learning rules and concepts in writing.	9	4.46	.71	10	3.83	.91
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./ The instructor's comments on my work helped me to progress through this course.	8	3.72	1.13	12	3.97	1.07
Other stems:						
Taking tests in this course let me know whether or not I really understood the material.	12	4.38	.82	7	4.17	.91
Examples ("EXAMPLE") really did not show me how to write well.	13	2.71	1.17	8	2.65	1.20

Item Stems	TICCIT (N = 110) Item Number (Form 068)	Mean	sd	Lecture (N = 177) Item Number (Form 067)	Mean	sd
In this course I felt responsible for my own learning.	14	4.44	.61	9	3.98	1.04
Other students in this section seemed to like the course.	18	3.61	.81	15	3.59	.95
I was satisfied with my personal progress in this course.	20	4.22	.90	18	3.68	1.12
Time passed quickly while I was in class.	25	4.40	.83	22	3.70	1.26
Information statements:						
I wanted information that would tell me where I stood in comparison to other students.	29	2.55	1.38	24	2.64	1.38
For me, the pace at which I had to cover the material in order to finish the course was:	30	2.90	.65	25	2.94	.79
For my preparation and ability, most of the work in this course was:	31	2.79	.76	26	3.00	.74
The work load for this course, in relation to other courses of equal credit, was:	32	3.65	.90	27	3.19	.88

Item Coding (Form 068):

(Items 1-24)	(Items 25-29)	(Item 30)	(Item 31)	(Item 32)
5 = Strongly Agree	5 = Almost Always	5 = Very Slow	5 = Very Difficult	5 = Much Lighter
4 = Agree	4 = Frequently	4 = Somewhat Slow	4 = Somewhat Difficult	4 = Lighter
3 = Not Sure	3 = Not Sure	3 = About Right	3 = About Right	3 = About the Same
2 = Disagree	2 = Occasionally	2 = Somewhat Fast	2 = Somewhat Easy	2 = Heavier
1 = Strongly Disagree	1 = Almost Never	1 = Very Fast	1 = Very Easy	1 = Much Heavier

Student Attitude Survey
Item Responses Specific to Instructional Conditions
Phoenix College
English 19 and 29
Fall Semester, 1976

Item Stems	TICCIT (N ≅ 110) Item Number (Form 068)	Mean	sd
Using TICCIT allowed me to set a pace that was right for my ability.	2	4.48	.82
Through TICCIT I became actively involved in my own learning.	5	4.33	.74
I didn't understand how to use "MAP" to guide my learning in this course.	7	1.73	1.04
Breakdowns of the computer system disrupted my learning.	15	3.51	1.44
I would take another course that uses TICCIT.	24	3.89	1.18
The mechanics of using the terminal distracted me from learning.	26	1.80	1.02
I wanted a regular textbook for this course to use as a reference at home.	28	2.28	1.34

	Lecture (N ≅ 177) Item Number (Form 067)	Mean	sd
I found the textbook useful in explaining the material and presenting methods for solving problems.	5	4.01	1.05
Class discussions and student questions assisted me in learning the material.	11	3.97	.87

Item Coding (Form 068):

(Items 1-24)	(Items 25-29)
5 = Strongly Agree	5 = Almost Always
4 = Agree	4 = Frequently
3 = Not Sure	3 = Not Sure
2 = Disagree	2 = Occasionally
1 = Strongly Disagree	1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Northern Virginia Community College
English 111
Winter Quarter, 1976

Item Stems	TICCIT (N = 56) Item Number (Form 066)	Mean	sd	Lecture (N = 54) Item Number (Form 065)	Mean	sd
Satisfaction subscore:						
I tried to just finish the assignments rather than learn the material.	27	2.25	1.30	23	2.21	1.19
The method of instruction in this course was too impersonal for me.	21	2.74	1.02	19	2.31	.95
I learned a lot about grammar in this course.	16	3.59	1.10	13	3.46	1.13
I learned a lot about composition in this course.	17	3.41	1.24	14	4.11	.79
I would recommend this course [with TICCIT] to my friends.	23	3.25	1.24	21	3.71	1.16
Instruction in this class met my own particular needs.	6	3.50	1.18	16	3.78	.94
In this course I felt challenged to do my best work.	19	3.54	.98	17	3.91	.93
My interest in writing has been increased by this course.	22	2.91	1.21	20	3.76	1.12
Attention subscore:						
I received a lot of individual attention from the instructor in this course.	3	3.22	1.06	2	3.73	.98
The instructor seemed genuinely concerned with my progress.	4	3.59	1.11	3	3.98	.92
In this course I felt free to ask questions.	1	4.02	1.11	1	4.61	.52
Feature subscore:						
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	3.73	1.04	6	4.13	.83
The rule statements ("RULE") on TICCIT made concepts in writing easy to learn./ The class lectures made concepts in writing easy to learn.	11	3.78	1.00	4	4.02	.84
Doing practice questions ("PRACTICE") helped me in learning rules and concepts in writing./ Homework assignments helped me in learning rules and concepts in writing.	9	4.27	.83	10	4.13	.86
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./ The instructor's comments on my work helped me to progress through this course.	8	3.54	1.13	12	4.13	.93
Other stems:						
Taking tests in this course let me know whether or not I really understood the material.	12	3.69	1.22	7	3.63	1.04
Examples ("EXAMPLE") really did not show me how to write well.	13	2.68	1.28	8	2.68	1.24

Item Stems	TICCIT (N = 56) Item Number (Form 066)	Mean	sd	Lecture (N = 54) Item Number (Form 065)	Mean	sd
In this course I felt responsible for my own learning.	14	3.93	1.00	9	3.91	.87
Other students in this section seemed to like the course.	18	3.02	1.17	15	3.51	.96
I was satisfied with my personal progress in this course.	20	3.18	1.09	18	3.51	1.21
Time passed quickly while I was in class.	25	4.21	.98	22	3.74	1.17
Information statements:						
I wanted information that would tell me where I stood in comparison to other students.	29	2.48	1.32	24	2.18	1.28
For me, the pace at which I had to cover the material in order to finish the course was:	30	2.87	1.02	25	2.81	.52
For my preparation and ability, most of the work in this course was:	31	2.98	.80	26	3.38	.62
The work load for this course, in relation to other courses of equal credit, was:	32	2.62	.87	27	2.76	.84

Item Coding (Form 068):

(Items 1-24)	(Items 25-29)	(Item 30)	(Item 31)	(Item 32)
5 = Strongly Agree	5 = Almost Always	5 = Very Slow	5 = Very Difficult	5 = Much Lighter
4 = Agree	4 = Frequently	4 = Somewhat Slow	4 = Somewhat Difficult	4 = Lighter
3 = Not Sure	3 = Not Sure	3 = About Right	3 = About Right	3 = About the Same
2 = Disagree	2 = Occasionally	2 = Somewhat Fast	2 = Somewhat Easy	2 = Heavier
1 = Strongly Disagree	1 = Almost Never	1 = Very Fast	1 = Very Easy	1 = Much Heavier

Student Attitude Survey
Item Responses specific to Instructional Conditions
Northern Virginia Community College
English 111
Winter Quarter, 1976

Item Stems	TICCIT (N = 56) Item Number (Form 066)	Mean	sd
Using TICCIT allowed me to set a pace that was right for my ability.	2	3.88	1.24
Through TICCIT I became actively involved in my own learning.	5	3.73	1.14
I didn't understand how to use "MAP" to guide my learning in this course.	7	1.71	.94
Breakdowns of the computer system disrupted my learning.	15	3.77	1.34
I would take another course that uses TICCIT.	24	3.23	1.27
The mechanics of using the terminal distracted me from learning.	26	1.96	1.10
I wanted a regular textbook for this course to use as a reference at home.	28	2.63	1.47

	Lecture (N = 54) Item Number (Form 065)	Mean	sd
I found the textbook useful in explaining the material and presenting methods for solving problems.	5	3.68	1.18
Class discussions and student questions assisted me in learning the material.	11	4.06	.87

Item Coding (Form 066):

(Items 1-24)	(Items 25-29)
5 = Strongly Agree	5 = Almost Always
4 = Agree	4 = Frequently
3 = Not Sure	3 = Not Sure
2 = Disagree	2 = Occasionally
1 = Strongly Disagree	1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Northern Virginia Community College
English 111
Spring Quarter, 1976

Item Stems	TICCIT (N = 71) Item Number (Form 066)	Mean	sd	Lecture (N = 160) Item Number (Form 065)	Mean	sd
Satisfaction subscore:						
I tried to just finish the assignments rather than learn the material.	27	2.32	1.41	23	2.05	1.17
The method of instruction in this course was too impersonal for me.	21	2.69	1.07	19	1.96	.94
I learned a lot about grammar in this course.	16	3.96	.94	13	3.56	1.13
I learned a lot about composition in this course.	17	4.03	.88	14	4.20	.78
I would recommend this course [with TICCIT] to my friends.	23	3.68	1.18	21	3.95	1.10
Instruction in this class met my own particular needs.	6	3.80	1.03	16	3.90	.98
In this course I felt challenged to do my best work.	19	4.01	.97	17	4.04	.94
My interest in writing has been increased by this course.	22	3.56	1.12	20	3.74	1.08
Attention subscore:						
I received a lot of individual attention from the instructor in this course.	3	3.36	1.13	2	3.77	1.05
The instructor seemed genuinely concerned with my progress.	4	3.83	.87	3	4.08	.94
In this course I felt free to ask questions.	1	3.99	1.11	1	4.76	.56
Feature subscore:						
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	3.97	.91	6	4.34	.81
The rule statements ("RULE") on TICCIT made concepts in writing easy to learn./ The class lectures made concepts in writing easy to learn.	11	4.03	.85	4	4.04	.97
Doing practice questions ("PRACTICE") helped me in learning rules and concepts in writing./ Homework assignments helped me in learning rules and concepts in writing.	9	4.32	.83	10	4.18	.83
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./ The instructor's comments on my work helped me to progress through this course.	8	3.76	1.05	12	4.14	.97
Other stems:						
Taking tests in this course let me know whether or not I really understood the material.	12	4.01	1.09	7	3.86	1.04
Examples ("EXAMPLE") really did not show me how to write well.	13	2.36	.99	8	2.36	1.20

Item Stems	TICCIT (N = 71) Item Number (Form 066)	Mean	sd	Lecture (N = 160) Item Number (Form 065)	Mean	sd
In this course I felt responsible for my own learning.	14	4.16	.86	9	3.78	1.06
Other students in this section seemed to like the course.	18	3.59	1.03	15	3.76	.86
I was satisfied with my personal progress in this course.	20	3.65	1.10	18	3.67	1.17
Time passed quickly while I was in class.	25	4.03	1.14	22	3.76	1.24
Information statements:						
I wanted information that would tell me where I stood in comparison to other students.	29	2.51	1.35	24	2.20	1.27
For me, the pace at which I had to cover the material in order to finish the course was:	30	2.69	1.04	25	2.89	.64
For my preparation and ability, most of the work in this course was:	31	3.20	.67	26	3.25	.74
The work load for this course, in relation to other courses of equal credit, was:	32	2.38	.84	27	2.71	.83

Item Coding (Form 068):

(Items 1-24)	(Items 25-29)	(Item 30)	(Item 31)	(Item 32)
5 = Strongly Agree	5 = Almost Always	5 = Very Slow	5 = Very Difficult	5 = Much Lighter
4 = Agree	4 = Frequently	4 = Somewhat Slow	4 = Somewhat Difficult	4 = Lighter
3 = Not Sure	3 = Not Sure	3 = About Right	3 = About Right	3 = About the Same
2 = Disagree	2 = Occasionally	2 = Somewhat Fast	2 = Somewhat Easy	2 = Heavier
1 = Strongly Disagree	1 = Almost Never	1 = Very Fast	1 = Very Easy	1 = Much Heavier

Student Attitude Survey
Item Responses specific to Instructional Conditions
Northern Virginia Community College
English 111
Spring Quarter, 1976

Item Stems	Item Number (Form 066)	TICCIT (N = 71) Mean	sd
Using TICCIT allowed me to set a pace that was right for my ability.	2	3.94	1.09
Through TICCIT I became actively involved in my own learning.	5	3.91	1.15
I didn't understand how to use "MAP" to guide my learning in this course.	7	2.26	1.23
Breakdowns of the computer system disrupted my learning.	15	3.45	1.29
I would take another course that uses TICCIT.	24	3.59	1.31
The mechanics of using the terminal distracted me from learning.	26	2.14	1.26
I wanted a regular textbook for this course to use as a reference at home.	28	2.92	1.38

	Item Number (Form 065)	Lecture (N = 160) Mean	sd
I found the textbook useful in explaining the material and presenting methods for solving problems.	5	3.94	.97
Class discussions and student questions assisted me in learning the material.	11	4.12	.87

Item Coding (Form 066):

(Items 1-24)	(Items 25-29)
5 = Strongly Agree	5 = Almost Always
4 = Agree	4 = Frequently
3 = Not Sure	3 = Not Sure
2 = Disagree	2 = Occasionally
1 = Strongly Disagree	1 = Almost Never

Student Attitude Survey:
Item Responses across Instructional Conditions
Northern Virginia Community College
English 111
Fall Quarter, 1976

Item Stems	TICCIT (N = 117) Item Number (Form 066)	Mean	sd	Lecture (N = 75) Item Number (Form 065)	Mean	sd
Satisfaction subscore:						
I tried to just finish the assignments rather than learn the material.	27	2.34	1.10	23	2.23	1.16
The method of instruction in this course was too impersonal for me.	21	2.80	1.11	19	2.22	.95
I learned a lot about grammar in this course.	16	3.89	.99	13	3.91	1.00
I learned a lot about composition in this course.	17	3.17	1.04	14	4.17	.79
I would recommend this course [with TICCIT] to my friends.	23	3.24	1.22	21	4.01	1.04
Instruction in this class met my own particular needs.	6	3.54	1.08	16	3.80	1.13
In this course I felt challenged to do my best work.	19	3.45	1.05	17	3.96	1.12
My interest in writing has been increased by this course.	22	3.01	1.08	20	3.67	1.24
Attention subscore:						
I received a lot of individual attention from the instructor in this course.	3	3.28	1.16	2	3.97	.99
The instructor seemed genuinely concerned with my progress.	4	3.59	.96	3	4.17	.93
In this course I felt free to ask questions.	1	3.87	1.08	6	4.15	.64
Feature subscore:						
TICCIT "HELP" provided clear explanations when the material was difficult to understand./ The instructor provided clear explanations when the material was difficult to understand.	10	3.76	1.13	6	4.15	.84
The rule statements ("RULE") on TICCIT made concepts in writing easy to learn./ The class lectures made concepts in writing easy to learn.	11	3.84	.99	4	3.99	.94
Doing practice questions ("PRACTICE") helped me in learning rules and concepts in writing./ Homework assignments helped me in learning rules and concepts in writing.	9	4.11	.92	10	4.11	.93
TICCIT's comments on my work ("ADVICE") helped me to progress through this course./ The instructor's comments on my work helped me to progress through this course.	8	3.13	1.25	12	4.37	.88
Other stems:						
Taking tests in this course let me know whether or not I really understood the material.	12	3.61	1.15	7	3.93	1.04
Examples ("EXAMPLE") really did not show me how to write well.	13	2.89	1.09	8	2.64	1.32

Item Stems	TICCIT (N = 117) Item Number (Form 066)	Mean	sd	Lecture (N = 75) Item Number (Form 065)	Mean	sd
In this course I felt responsible for my own learning.	14	4.18	.80	9	3.79	1.06
Other students in this section seemed to like the course.	18	3.11	.83	15	3.72	.92
I was satisfied with my personal progress in this course.	20	3.44	1.09	18	3.58	1.13
Time passed quickly while I was in class.	25	3.78	1.21	22	3.58	1.32
Information statements:						
I wanted information that would tell me where I stood in comparison to other students.	29	2.75	1.38	24	2.43	1.38
For me, the pace at which I had to cover the material in order to finish the course was:	30	2.64	1.01	25	2.82	.53
For my preparation and ability, most of the work in this course was:	31	3.07	.84	26	3.33	.62
The work load for this course, in relation to other courses of equal credit, was:	32	2.75	.98	27	2.81	.69

Item Coding (Form 068):

(Items 1-24)	(Items 25-29)	(Item 30)	(Item 31)	(Item 32)
5 = Strongly Agree	5 = Almost Always	5 = Very Slow	5 = Very Difficult	5 = Much Lighter
4 = Agree	4 = Frequently	4 = Somewhat Slow	4 = Somewhat Difficult	4 = Lighter
3 = Not Sure	3 = Not Sure	3 = About Right	3 = About Right	3 = About the Same
2 = Disagree	2 = Occasionally	2 = Somewhat Fast	2 = Somewhat Easy	2 = Heavier
1 = Strongly Disagree	1 = Almost Never	1 = Very Fast	1 = Very Easy	1 = Much Heavier

Student Attitude Survey
Item Responses specific to Instructional Conditions
Northern Virginia Community College
English 111
Fall Quarter, 1976

Item Stems	Item Number (Form 066)	TICCIT (N = 117) Mean	sd
Using TICCIT allowed me to set a pace that was right for my ability.	2	3.79	1.18
Through TICCIT I became actively involved in my own learning.	5	3.70	1.08
I didn't understand how to use "MAP" to guide my learning in this course.	7	1.82	1.01
Breakdowns of the computer system disrupted my learning.	15	3.20	1.31
I would take another course that uses TICCIT.	24	3.05	1.36
The mechanics of using the terminal distracted me from learning.	26	2.18	1.11
I wanted a regular textbook for this course to use as a reference at home.	28	3.02	1.60

	Item Number (Form 065)	Lecture (N = 75) Mean	sd
I found the textbook useful in explaining the material and presenting methods for solving problems.	5	3.66	1.00
Class discussions and student questions assisted me in learning the material.	11	4.05	.91

Item Coding (Form 066):

(Items 1-24)	(Items 25-29)
5 = Strongly Agree	5 = Almost Always
4 = Agree	4 = Frequently
3 = Not Sure	3 = Not Sure
2 = Disagree	2 = Occasionally
1 = Strongly Disagree	1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Implementation Period
Phoenix College
Math 007
Spring Semester, 1975

Item Stems	TICCIT (N = 17) Item Number (Form 035)	N	Percent	Lecture (N = 55) Item Number (Form 032)	N	Percent
Plans for further courses or work in math:						
At the beginning of this term did you plan to take more than just the introductory course(s) in math?	28	Yes- 9	52.9	23	43	79.6
		No- 8	47.1		11	20.4
When you finish the introductory course(s) do you plan to take any more advanced courses in math?	27	Yes-14	12.5	22	47	90.4
		No- 2	87.5		5	9.6
Has your experience in this course:	29					
· encouraged you to take further courses in math?		5	31.3		28	52.8
· discouraged you about taking further courses in math?		2	12.5		6	11.3
· had no effect on your plans for further courses in math?		9	56.3		19	35.8
Is a job related to math more appealing to you now than it was at the beginning of this course?	30	Yes- 5	31.3	25	27	52.9
		No-11	68.8		24	47.1
Frequency of interpersonal contact:		Mean	sd		Mean	sd
During this semester about how often did you:	31			26		
· meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.88	.60	a	1.50	.64
· meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.18	.39	b	1.04	.19
· discuss questions related to the course with fellow students?	c	2.12	.62	c	1.90	.81
· seek the help of a tutor for this course?	d	1.24	.44	d	1.35	.65
· use library resources in connection with your work in this course?	e	1.00	.00	e	1.10	.29
· want to use the TICCIT system when it wasn't available?	f	2.19	.75			
Time spent on course:						
Approximately how many hours per week did you spend:	32			27		
· working on the TICCIT system/attending classes for this course?	a	9.32	5.12	a	4.38	5.42
· in small group discussions about this course (outside of class)?	b	.31	.75	b	.14	.60
· doing work for this course on your own away from TICCIT/working on homework assignments?	c	1.41	1.84	c	5.73	4.94

Item Coding (Form 035): Item 35(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Phoenix College
Math 007
Fall Semester, 1975

Item Stems	TICCIT (N = 27) Item Number (Form 035)	N	Percent	Lecture (N = 134) Item Number (Form 040)	N	Percent
Plans for further courses or work in math:						
At the beginning of this term did you plan to take more than just the introductory course(s) in math?	31	Yes-17	63.0	27	102	76.7
		No-10	37.0		31	23.3
When you finish the introductory course(s) do you plan to take any more advanced courses in math?	30	Yes-21	77.8	26	111	85.4
		No- 6	22.2		19	14.6
Has your experience in this course:	32			28		
· encouraged you to take further courses in math?		13	48.1		56	42.7
· discouraged you about taking further courses in math?		4	14.8		14	10.7
· had no effect on your plans for further courses in math?		10	37.0		61	46.6
Is a job related to math more appealing to you now than it was at the beginning of this course?	33	Yes- 9	33.3	29	46	35.4
		No-18	66.7		84	64.6
Frequency of interpersonal contact:		Mean	sd		Mean	sd
During this semester about how often did you:	34			30		
· meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.22	.51	a	1.26	.52
· meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.04	.19	b	1.05	.26
· discuss questions related to the course with fellow students?	c	1.74	.81	c	1.83	.71
· seek the help of a tutor for this course?	d	1.37	.69	d	1.15	.45
· use library resources in connection with your work in this course?	e	1.15	.37	e	1.06	.30
· want to use the TICCIT system when it wasn't available?	f	1.93	.83			
Time spent on course:						
Approximately how many hours per week did you spend:	35			31		
· working on the TICCIT system/attending classes for this course?	a	6.41	3.02	a	2.93	.50
· in small group discussions about this course (outside of class)?	b	.45	1.10	b	.35	.81
· doing work for this course on your own away from TICCIT/working on homework assignments?	c	1.10	2.08	c	3.51	2.47
· in total for this course?	d	9.01	5.20	d	6.66	2.65

Item Coding (Form 035): Item 34(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Phoenix College
Math 106
Fall Semester, 1975

Item Stems	TICCIT (N = 20) Item Number (Form 035)	N	Percent	Lecture (N = 73) Item Number (Form 040)	N	Percent
Plans for further courses or work in math:						
At the beginning of this term did you plan to take more than just the introductory course(s) in math?	31	Yes-17	85.0	27	51	70.8
		No- 3	15.0		21	29.2
When you finish the introductory course(s) do you plan to take any more advanced courses in math?	30	Yes-17	94.4	26	61	83.6
		No- 1	5.6		12	16.4
Has your experience in this course:	32			28		
• encouraged you to take further courses in math?		6	31.6		29	39.7
• discouraged you about taking further courses in math?		1	5.3		4	5.5
• had no effect on your plans for further courses in math?		12	63.2		40	54.8
Is a job related to math more appealing to you now than it was at the beginning of this course?	33	Yes- 7	38.9	29	26	35.6
		No-11	61.1		47	64.4
Frequency of interpersonal contact:		Mean	sd		Mean	sd
During this semester about how often did you:	34			30		
• meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.25	.55	a	1.16	.37
• meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.15	.37	b	1.08	.32
• discuss questions related to the course with fellow students?	c	1.55	.69	c	1.85	.68
• seek the help of a tutor for this course?	d	1.10	.31	d	1.18	.45
• use library resources in connection with your work in this course?	e	1.05	.22	e	1.12	.44
• want to use the TICCIT system when it wasn't available?	f	1.85	.75			
Time spent on course:						
Approximately how many hours per week did you spend:	35			31		
• working on the TICCIT system/attending classes for this course?	a	5.62	2.82	a	3.05	.55
• in small group discussions about this course (outside of class)?	b	.24	.52	b	.40	.71
• doing work for this course on your own away from TICCIT/working on homework assignments?	c	.45	1.10	c	3.96	2.34
• in total for this course?	d	6.33	4.31	d	7.42	3.15

Item Coding (Form 035): Item 34(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Phoenix College
Math 007
Spring Semester, 1976

Item Stems	TICCIT (N ≅ 20) Item Number (Form 069)	N	Percent	Lecture (N ≅ 120) Item Number (Form 040)	N	Percent
Plans for further courses or work in math:						
At the beginning of this term did you plan to take more than just the introductory course(s) in math?		Yes-15	83.3		83	69.2
	32	No- 3	16.7	27	37	30.8
When you finish the introductory course(s) do you plan to take any more advanced courses in math?	31	Yes-17	85.0	26	97	80.8
		No- 3	15.0		23	19.2
Has your experience in this course:						
· encouraged you to take further courses in math?	33	8	40.0	28	61	50.8
· discouraged you about taking further courses in math?		3	15.0		6	5.0
· had no effect on your plans for further courses in math?		9	45.0		53	44.2
Is a job related to math more appealing to you now than it was at the beginning of this course?	34	Yes- 5	26.3	29	60	50.4
		No-14	73.7		59	49.6
		Mean	sd		Mean	sd
Frequency of interpersonal contact:						
During this semester about how often did you:	35			30		
· meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.10	.31	a	1.29	.47
· meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.05	.22	b	1.05	.22
· discuss questions related to the course with fellow students?	c	1.55	.60	c	1.87	.72
· seek the help of a tutor for this course?	d	1.00	.00	d	1.19	.52
· use library resources in connection with your work in this course?	e	1.10	.45	e	1.09	.32
· want to use the TICCIT system when it wasn't available?	f	1.80	.89			
Time spent on course:						
Approximately how many hours per week did you spend:	36			31		
· working on the TICCIT system/attending classes for this course?	a	5.93	3.31	a	3.06	.87
· in small group discussions about this course (outside of class)?	b	.23	.53	b	.45	1.58
· doing work for this course on your own away from TICCIT/working on homework assignments?	c	.38	.87	c	4.20	3.61
· in total for this course?	d	6.49	3.43	d	7.74	4.73

Item Coding (Form 069): Item 35(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Phoenix College
Math 106
Spring Semester, 1976

Item Stems	TICCIT (N = 11) Item Number (Form 069)	N	Percent	Lecture (N = 81) Item Number (Form 040)	N	Percent
Plans for further courses or work in math:						
At the beginning of this term did you plan to take more than just the introductory course(s) in math?	32	Yes- 7	63.6	27	61	75.3
		No- 4	36.4		20	24.7
When you finish the introductory course(s) do you plan to take any more advanced courses in math?	31	Yes- 8	72.7	26	64	81.0
		No- 3	27.3		15	19.0
Has your experience in this course:						
· encouraged you to take further courses in math?	33	1	9.1	28	31	38.3
· discouraged you about taking further courses in math?		1	9.1		10	12.3
· had no effect on your plans for further courses in math?		9	81.8		40	49.4
Is a job related to math more appealing to you now than it was at the beginning of this course?	34	Yes- 2	18.2	29	27	35.1
		No- 9	81.8		50	64.9
		Mean	sd		Mean	sd
Frequency of interpersonal contact:						
During this semester about how often did you:	35			30		
· meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.09	.30	a	1.21	.44
· meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.09	.30	b	1.08	.26
· discuss questions related to the course with fellow students?	c	1.82	.87	c	1.77	.69
· seek the help of a tutor for this course?	d	1.18	.60	d	1.26	.56
· use library resources in connection with your work in this course?	e	1.18	.60	e	1.04	.19
· want to use the TICCIT system when it wasn't available?	f	2.00	.63			
Time spent on course:						
Approximately how many hours per week did you spend:	36			31		
· working on the TICCIT system/attending classes for this course?	a	5.23	1.51	a	2.90	.57
· in small group discussions about this course (outside of class)?	b	.36	.92	b	.37	.77
· doing work for this course on your own away from TICCIT/working on homework assignments?	c	.14	.23	c	4.91	3.46
· in total for this course?	d	5.56	1.76	d	8.97	5.90

Item Coding (Form 069): Item 35(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Phoenix College
Math 108
Spring Semester, 1976

Item Stems	TICCIT (N = 15) Item Number (Form 069)	N	Percent	Lecture (N = 37) Item Number (Form 040)	N	Percent
Plans for further courses or work in math:						
At the beginning of this term did you plan to take more than just the introductory course(s) in math?		Yes- 9	60.0		27	77.1
	32	No- 6	40.0	27	8	22.9
When you finish the introductory course(s) do you plan to take any more advanced courses in math?	31	Yes-12	85.7	26	32	91.4
		No- 2	14.3		3	8.6
Has your experience in this course:						
• encouraged you to take further courses in math?						
• discouraged you about taking further courses in math?	33	5	35.7	28	15	42.9
• had no effect on your plans for further courses in math?		0	0.0		1	2.9
		9	64.3		19	54.3
Is a job related to math more appealing to you now than it was at the beginning of this course?	34	Yes- 4	28.6	29	13	37.1
		No-10	71.4		22	62.9
Frequency of interpersonal contact:		Mean	sd		Mean	sd
During this semester about how often did you:	35			30		
• meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.13	.35	a	1.35	.53
• meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.07	.26	b	1.14	.35
• discuss questions related to the course with fellow students?	c	1.93	.70	c	2.03	.79
• seek the help of a tutor for this course?	d	1.07	.26	d	1.28	.61
• use library resources in connection with your work in this course?	e	1.00	.00	e	1.00	.00
• want to use the TICCIT system when it wasn't available?	f	2.00	.76			
Time spent on course:						
Approximately how many hours per week did you spend:	36			31		
• working on the TICCIT system/attending classes for this course?	a	8.50	2.93	a	4.81	.39
• in small group discussions about this course (outside of class)?	b	1.07	.26	b	.89	1.22
• doing work for this course on your own away from TICCIT/working on homework assignments?	c	.37	.86	c	5.00	3.33
• in total for this course?	d	9.21	3.74	d	10.30	4.00

Item Coding (Form 069): Item 35(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Phoenix College
Math 117
Spring Semester, 1976

Item Stems	TICCIT (N = 8) Item Number (Form 069)	N	Percent	Lecture (N = 50) Item Number (Form 040)	N	Percent
Plans for further courses or work in math:						
At the beginning of this term did you plan to take more than just the introductory course(s) in math?	32	Yes- 5	71.4	27	39	78.0
		No- 2	28.6		11	22.0
When you finish the introductory course(s) do you plan to take any more advanced courses in math?	31	Yes- 5		26	45	90.0
		No- 1	16.7		5	10.0
Has your experience in this course:						
• encouraged you to take further courses in math?	33	1	12.5	28	21	42.0
• discouraged you about taking further courses in math?		0	0.0		7	14.0
• had no effect on your plans for further courses in math?		7	87.5		22	44.0
Is a job related to math more appealing to you now than it was at the beginning of this course?	34	Yes- 2	25.0	29	21	44.7
		No- 6	75.0		26	55.3
		Mean	sd		Mean	sd
Frequency of interpersonal contact: During this semester about how often did you:	35			30		
• meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.25	.46	a	1.50	.57
• meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.13	.35	b	1.10	.30
• discuss questions related to the course with fellow students?	c	2.00	.76	c	1.96	.73
• seek the help of a tutor for this course?	d	1.00	.00	d	1.18	.41
• use library resources in connection with your work in this course?	e	1.00	.00	e	1.08	.34
• want to use the TICCIT system when it wasn't available?	f	1.75	.89			
Time spent on course: Approximately how many hours per week did you spend:	36			31		
• working on the TICCIT system/attending classes for this course?	a	7.38	2.45	a	3.84	.77
• in small group discussions about this course (outside of class)?	b	1.25	2.05	b	1.00	1.72
• doing work for this course on your own away from TICCIT/working on homework assignments?	c	.13	.35	c	5.23	2.72
• in total for this course?	d	7.85	2.61	d	10.25	3.89

Item Coding (Form 069): Item 35(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Northern Virginia Community College
Math 31
Fall Quarter, 1975

Item Stems	TICCIT (N ≅ 46) Item Number (Form 063)	N	Percent	Programmed (N ≅ 21) Item Number (Form 064)	N	Percent	Lecture (N ≅ 44) Item Number (Form 062)	N	Percent
Plans for further courses or work in math:									
At the beginning of this term did you plan to take more than just the introductory course(s) in math?	31	Yes-27	60.0	31	Yes-14	66.7	27	23	52.3
		No-18	40.0		No- 7	33.3		21	47.7
When you finish the introductory course(s) do you plan to take any more advanced courses in math?	30	Yes-37	80.4	30	Yes-16	76.2	26	13	31.0
		No- 9	19.6		No- 5	23.8		29	69.0
Has your experience in this course:	32				11				
• encouraged you to take further courses in math?		21	45.7	32		52.4	28	19	43.2
• discouraged you about taking further courses in math?		3	6.5		0	0.0		3	6.8
• had no effect on your plans for further courses in math?		22	47.8		10	47.6		22	50.0
Is a job related to math more appealing to you now than it was at the beginning of this course?	33	Yes-18	40.0	33	Yes- 6	30.0	29	14	32.6
		No-27	60.0		No-14	70.0		29	67.4

	Item Number (Form 063)	Mean	sd	Item Number (Form 064)	Mean	sd	Item Number (Form 062)	Mean	sd
Frequency of interpersonal contact:	34			34			30		
During this quarter about how often did you:									
• meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.45	.66	a	1.19	.40	a	1.60	.66
• meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.09	.29	b	1.19	.40	b	1.16	.37
• discuss questions related to the course with fellow students?	c	1.73	.81	c	1.48	.60	c	1.93	.84
• seek the help of a tutor for this course?	d	1.20	.50	d	1.05	.22	d	1.10	.30
• use library resources in connection with your work in this course?	e	1.13	.40	e	1.19	.40	e	1.07	.26
• want to use the TICCIT system when it wasn't available?	f	1.86	.69						
Time spent on course:	35			35			31		
Approximately how many hours per week did you spend:									
• working on the TICCIT system/attending classes for this course?	a	6.89	2.18	a	4.64	.52	a	4.63	.80
• in small group discussions about this course (outside of class)?	b	.25	.73	b	.14	.36	b	.60	1.04
• doing work for this course on your own away from TICCIT/ working on homework assignments?	c	1.40	1.68	c	4.36	4.07	c	5.01	3.36
• in total for this course?	d	8.25	3.20	d	10.07	5.53	d	10.15	4.91

Item Coding (Form 063): Item 34(a)-(f)

3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Northern Virginia Community College
Math 31
Winter Quarter, 1976

Item Stem	TICCIT (N = 64) Item Number (Form 070)	N	Percent	Lecture (N = 23) Item Number (Form 062)	N	Percent	Programmed (N = 36) Item Number (Form 064)	N	Percent
Plans for further courses or work in math:									
At the beginning of this term did you plan to take more than just the introductory course(s) in math?	32	Yes-35	57.4	27	18	81.8	31	19	52.8
		No- 6	42.6		4	18.2		17	47.2
When you finish the introductory course(s) do you plan to take any more advanced courses in math?	31	Yes-48	80.0	26	21	91.3	30	31	86.1
		No-12	20.0		2	8.7		5	13.9
Has your experience in this course:									
• encouraged you to take further courses in math?	33	34	53.1	28	14	60.9	32	21	61.8
• discouraged you about taking further courses in math?		3	4.7		1	4.3		0	0.0
• had no effect on your plans for further courses in math?		27	42.2		8	34.8		13	38.2
Is a job related to math more appealing to you now than it was at the beginning of this course?	34	Yes-33	52.4	29	9	40.9	33	15	41.7
		No-30	47.6		13	59.1		21	58.3
Frequency of interpersonal contact:									
During this semester about how often did you:		Mean	sd		Mean	sd		Mean	sd
• meet with the instructor (or proctor) for this course, outside of class, to discuss your classwork or anything else related to the course?	35 a	1.48	.64	30 a	1.52	.59	34 a	1.43	.60
• meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.19	.43	b	1.09	.29	b	1.17	.45
• discuss questions related to the course with fellow students?	c	1.67	.69	c	2.09	.81	c	1.40	.55
• seek the help of a tutor for this course?	d	1.28	.57	d	1.33	.73	d	1.06	.24
• use library resources in connection with your work in this course?	e	1.20	.51	e	1.14	.36	e	1.26	.56
• want to use the TICCIT system when it wasn't available?	f	1.81	.76						
Time spent on course:									
Approximately how many hours per week did you spend:	36			31			35		
• working on the TICCIT system/attending classes for this course?	a	6.49	2.67	a	4.67	.92	a	4.65	1.56
• in small group discussions about this course (outside of class)?	b	.36	.70	b	.98	1.31	b	.04	.18
• doing work for this course on your own away from TICCIT/working on homework assignments?	c	1.33	1.52	c	6.27	4.34	c	4.42	3.22
• in total for this course?	d	8.67	3.63	d	12.25	4.74	d	9.44	4.90

Item Coding (Form 070): Item 35(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Northern Virginia Community College
Math 32
Winter Quarter, 1976

Item Stems	TICCIT (N = 22) Item Number (Form 070)	N	Percent	Lecture (N = 20) Item Number (Form 062)	N	Percent
Plans for further courses or work in math:						
At the beginning of this term did you plan to take more than just the introductory course(s) in math?	32	Yes-19	86.4	27	17	85.0
		No- 3	13.6		3	15.0
When you finish the introductory course(s) do you plan to take any more advanced courses in math?	31	Yes-19	86.4	26	20	100.0
		No- 3	13.6		0	0.0
Has your experience in this course:						
· encouraged you to take further courses in math?	33	7	31.8	28	13	65.0
· discouraged you about taking further courses in math?		1	4.5		0	0.0
· had no effect on your plans for further courses in math?		14	63.6		7	35.0
Is a job related to math more appealing to you now than it was at the beginning of this course?	34	Yes- 4	19.0	29	12	63.2
		No-17	81.0		7	36.8
Frequency of interpersonal contact:						
During this semester about how often did you:		Mean	sd		Mean	sd
· meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	35 a	1.27	.55	30 a	1.75	.85
· meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.05	.21	b	1.11	.32
· discuss questions related to the course with fellow students?	c	1.64	.73	c	1.95	.69
· seek the help of a tutor for this course?	d	1.00	.00	d	1.30	.66
· use library resources in connection with your work in this course?	e	1.24	.54	e	1.11	.32
· want to use the TICCIT system when it wasn't available?	f	1.64	.73			
Time spent on course:						
Approximately how many hours per week did you spend:	36			31		
· working on the TICCIT system/attending classes for this course?	a	7.23	3.46	a	4.95	.22
· in small group discussions about this course (outside of class)?	b	.27	.63	b	.90	1.08
· doing work for this course on your own away from TICCIT/working on homework assignments?	c	.76	1.10	c	5.58	3.94
· in total for this course?	d	8.43	4.09	d	11.25	4.18

Item Coding (Form 070): Item 35(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Northern Virginia Community College
Math 31
Spring Quarter, 1976

Item Stems	TICCIT (N = 23) Item Number (Form 070)	N	Percent	Lecture (N = 12) Item Number (Form 062)	N	Percent	Programmed (N = 37) Item Number (Form 064)	N	Percent
Plans for further courses or work in math:									
At the beginning of this term did you plan to take more than just the introductory course(s) in math?	32	Yes-17	70.8	27	10	83.3	31	21	56.8
		No- 7	29.2		2	16.7		16	43.2
When you finish the introductory course(s) do you plan to take any more advanced courses in math?		Yes-21	87.5	26	9	75.0	30	29	80.6
		No- 3	12.5		3	25.0		7	19.4
Has your experience in this course:									
• encouraged you to take further courses in math?	31	15	65.2	28	4	33.3	32	21	56.8
• discouraged you about taking further courses in math?		1	4.3		2	16.7		1	2.7
• had no effect on your plans for further courses in math?		7	30.4		6	50.0		15	40.5
Is a job related to math more appealing to you now than it was at the beginning of this course?	34	Yes-13	54.2	29	4	33.3	33	19	51.4
		No-11	45.8		8	66.7		18	48.6
Frequency of interpersonal contact:		Mean	sd		Mean	sd		Mean	sd
During this semester about how often did you:	35			30			34		
• meet with the instructor (or proctor) for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.38	.49	a	1.50	.67	a	1.69	.74
• meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.17	.39	b	1.08	.29	b	1.19	.46
• discuss questions related to the course with fellow students?	c	1.43	.66	c	2.08	.79	c	1.71	.70
• seek the help of a tutor for this course?	d	1.35	.65	d	1.33	.65	d	1.15	.43
• use library resources in connection with your work in this course?	e	1.09	.29	e	1.17	.39	e	1.22	.63
• want to use the TICCIT system when it wasn't available?	f	2.00	.80						
Time spent on course:									
Approximately how many hours per week did you spend:	36			31					
• working on the TICCIT system/attending classes for this course?	a	7.43	3.64	a	4.54	.50	a	4.98	2.51
• in small group discussions about this course (outside of class)?	b	.39	.78	b	1.17	2.00	b	.36	1.01
• doing work for this course on your own away from TICCIT/working on homework assignments?	c	1.43	2.59	c	4.21	2.29	c	3.93	3.86
• in total for this course?	d	9.13	5.58	d	10.05	4.19	d	8.55	4.45

Item Coding (Form 070): Item 35(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Northern Virginia Community College
Math 32
Spring Quarter, 1976

Item Stems	TICCIT (N = 18) Item Number (Form 070)	N	Percent	Lecture (N = 30) Item Number (Form 062)	N	Percent
Plans for further courses or work in math:						
At the beginning of this term did you plan to take more than just the introductory course(s) in math?	32	Yes-13	81.3	27	24	80.0
		No- 3	18.8		6	20.0
When you finish the introductory course(s) do you plan to take any more advanced courses in math?	31	Yes-17	100.0	26	27	93.1
		No- 0	0.0		2	6.9
Has your experience in this course:						
· encouraged you to take further courses in math?	33	7	41.2	28	16	53.3
· discouraged you about taking further courses in math?		1	5.9		3	10.0
· had no effect on your plans for further courses in math?		9	52.9		11	36.7
Is a job related to math more appealing to you now than it was at the beginning of this course?	34	Yes- 8	47.1	29	14	48.3
		No- 9	52.9		15	51.7
Frequency of interpersonal contact:						
During this semester about how often did you:		Mean	sd		Mean	sd
· meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	35			30		
· meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	a	1.35	.61	a	1.48	.57
· discuss questions related to the course with fellow students?	b	1.28	.67	b	1.07	.27
· seek the help of a tutor for this course?	c	2.06	.54	c	1.93	.70
· use library resources in connection with your work in this course?	d	1.50	.79	d	1.11	.32
· want to use the TICCIT system when it wasn't available?	e	1.17	.38	e	1.07	.26
	f	1.83	.62			
Time spent on course:						
Approximately how many hours per week did you spend:	36			31		
· working on the TICCIT system/attending classes for this course?	a	12.28	17.29	a	4.68	.64
· in small group discussions about this course (outside of class)?	b	.69	2.35	b	.73	1.27
· doing work for this course on your own away from TICCIT/working on homework assignments?	c	1.47	1.62	c	4.74	3.40
· in total for this course?	d	10.69	6.65	d	9.42	4.93

Item Coding (Form 070): Item 35(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Phoenix College
English 19 and 29
Fall Semester, 1976

Item Stems	TICCIT (N ≅ 109) Item Number (Form 068)	N	Percent	Lecture (N ≅ 170) Item Number (Form 067)	N	Percent
Plans for further courses or work in English:						
At the beginning of this term did you plan to take more than just the introductory course(s) in English?	34	Yes-67	61.5	29	116	66.3
		No-42	38.5		59	33.7
When you finish the introductory course(s) do you plan to take any more advanced courses in English?	33	Yes-96	88.1	28	159	90.9
		No-13	11.9		16	9.1
Has your experience in this course:						
• encouraged you to take further courses in English?	35	56	51.4	30	103	58.9
• discouraged you about taking further courses in English?		1	.9		5	2.9
• had no effect on your plans for further courses in English?		52	47.7		67	38.3
Is a job related to English more appealing to you now than it was at the beginning of this course?	36	Yes-57	52.3	31	83	48.3
		No-52	47.7		89	51.7
		Mean	sd		Mean	sd
Frequency of interpersonal contact:						
During this semester about how often did you:	37			32		
• meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.51	.70	a	1.37	.58
• meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.18	.43	b	1.19	.43
• discuss questions related to the course with fellow students?	c	1.99	.75	c	1.85	.73
• seek the help of a tutor for this course?	d	1.45	.69	d	1.12	.39
• use library resources in connection with your work in this course?	e	1.19	.46	e	1.60	.68
• want to use the TICCIT system when it wasn't available?	f	1.60	.78			
Time spent on course:						
Approximately how many hours per week did you spend:	38			33		
• working on the TICCIT system/attending classes for this course?	a	5.43	5.05	a	2.91	.71
• attending regular class meetings, without TICCIT, for this course?	b	1.17	2.84		—	—
• in small group discussions about this course (outside of class periods)?	c	.26	.72	b	.51	.99
• doing work for this course on your own away from TICCIT/working on homework assignments?	d	1.51	2.58	c	3.39	3.00
• in total for this course?	e	9.37	10.54	d	6.77	5.30

Item Coding (Form 068): Item 37(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Phoenix College
English 19 and 29
Spring Semester, 1976

Item Stems	TICCIT (N ≅ 42) Item Number (Form 068)	N	Percent	Lecture (N ≅ 74) Item Number (Form 067)	N	Percent
Plans for further courses or work in English:						
At the beginning of this term did you plan to take more than just the introductory course(s) in English?	34	Yes-31	73.8	29	55	69.6
		No-11	26.2		24	30.4
When you finish the introductory course(s) do you plan to take any more advanced courses in English?	33	Yes-37	88.1	28	69	88.5
		No- 5	11.9		9	11.5
Has your experience in this course:						
• encouraged you to take further courses in English?	35	19	46.3	30	49	62.8
• discouraged you about taking further courses in English?		1	2.4		3	3.8
• had no effect on your plans for further courses in English?		21	51.2		26	33.3
Is a job related to English more appealing to you now than it was at the beginning of this course?	36	Yes-19	45.2	31	36	47.4
		No-23	54.8		40	52.6
Frequency of interpersonal contact:		Mean	sd		Mean	sd
During this semester about how often did you:	37			32		
• meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.31	.51	a	1.42	.64
• meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.17	.37	b	1.15	.46
• discuss questions related to the course with fellow students?	c	1.83	.65	c	1.86	.68
• seek the help of a tutor for this course?	d	1.24	.58	d	1.10	.34
• use library resources in connection with your work in this course?	e	1.33	.56	e	1.60	.70
• want to use the TICCIT system when it wasn't available?	f	1.66	.68			
Time spent on course:						
Approximately how many hours per week did you spend:	38			33		
• working on the TICCIT system/attending classes for this course?	a	4.82	3.08	a	2.75	.78
• attending regular class meetings, without TICCIT, for this course?	b	1.06	2.59			
• in small group discussions about this course (outside of class periods)?	c	.08	.26	b	.28	.50
• doing work for this course on your own away from TICCIT/working on homework assignments?	d	1.78	2.09	c	3.89	3.75
• in total for this course?	e	9.54	7.85	d	7.91	6.66

Item Coding (Form 068): Item 37(a)-(f)
3 = Quite
2 = Occa
1 = Almost N

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Student Activity Survey
Item Responses across Instructional Conditions
Northern Virginia Community College
English 111
Winter Quarter, 1976

Item Stems	TICCIT (N ≅ 54) Item Number (Form 066)	N	Percent	Lecture (N ≅ 52) Item Number (Form 065)	N	Percent
Plans for further courses or work in English:						
At the beginning of this term did you plan to take more than just the introductory course(s) in English?	34	Yes-41	73.2	29	32	61.5
		No-15	26.8		20	38.5
When you finish the introductory course(s) do you plan to take any more advanced courses in English?	33	Yes-42	76.4	28	45	13.5
		No-13	23.6		7	86.5
Has your experience in this course:						
• encouraged you to take further courses in English?	35	17	30.4	30	24	45.3
• discouraged you about taking further courses in English?		8	14.3		1	1.9
• had no effect on your plans for further courses in English?		31	55.4		28	52.8
Is a job related to English more appealing to you now than it was at the beginning of this course?	36	Yes-18	32.1	31	27	51.9
		No-38	67.9		25	48.1
		Mean	sd		Mean	sd
Frequency of interpersonal contact:						
During this semester about how often did you:	37			32		
• meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.50	.53	a	1.45	.64
• meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.20	.48	b	1.06	.23
• discuss questions related to the course with fellow students?	c	2.20	.61	c	1.94	.70
• seek the help of a tutor for this course?	d	1.16	.42	d	1.06	.24
• use library resources in connection with your work in this course?	e	1.29	.49	e	1.59	.69
• want to use the TICCIT system when it wasn't available?	f	1.77	.73			
Time spent on course:						
Approximately how many hours per week did you spend:	38			33		
• working on the TICCIT system/attending classes for this course?	a	4.97	2.97	a	3.43	.93
• attending regular class meetings, without TICCIT, for this course?	b	2.54	2.02		—	—
• in small group discussions about this course (outside of class periods)?	c	.34	.61	b	.57	1.04
• doing work for this course on your own away from TICCIT/working on homework assignments?	d	3.95	3.79	c	6.74	7.81
• in total for this course?	e	12.91	7.84	d	9.04	5.01

Item Coding (Form 066): Item 37(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Northern Virginia Community College
English 111
Spring Quarter, 1976

Item Stems	TICCIT (N = 72) Item Number (Form 066)	N	Percent	Lecture (N = 157) Item Number (Form 065)	N	Percent
Plans for further courses or work in English:						
At the beginning of this term did you plan to take more than just the introductory course(s) in English?		Yes-50	74.6		112	71.3
	34	No-17	25.4	29	45	28.7
When you finish the introductory course(s) do you plan to take any more advanced courses in English?		Yes-59	88.1		141	89.2
	33	No- 8	11.9	28	17	10.8
Has your experience in this course:						
• encouraged you to take further courses in English?		37	56.1		88	55.7
• discouraged you about taking further courses in English?	35	8	12.1	30	8	5.1
• had no effect on your plans for further courses in English?		21	31.8		62	39.2
Is a job related to English more appealing to you now than it was at the beginning of this course?		Yes-39	59.1		81	51.3
	36	No-27	40.9	31	77	48.7
Frequency of interpersonal contact:		Mean	sd		Mean	sd
During this semester about how often did you:	37			32		
• meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.95	.71	a	1.48	.64
• meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.34	.54	b	1.13	.38
• discuss questions related to the course with fellow students?	c	2.12	.69	c	2.01	.75
• seek the help of a tutor for this course?	d	1.52	.73	d	1.14	.41
• use library resources in connection with your work in this course?	e	1.51	.73	e	1.75	.79
• want to use the TICCIT system when it wasn't available?	f	1.70	.78			
Time spent on course:						
Approximately how many hours per week did you spend:	38			33		
• working on the TICCIT system/attending classes for this course?	a	6.91	6.53	a	3.86	1.61
• attending regular class meetings, without TICCIT, for this course?	b	2.95	1.65			
• in small group discussions about this course (outside of class periods)?	c	1.20	1.81	b	.59	1.14
• doing work for this course on your own away from TICCIT/working on homework assignments?	d	4.47	4.39	c	5.39	3.36
• in total for this course?	e	13.63	9.01	d	10.39	5.48

Item Coding (Form 066): Item 37(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Student Activity Survey
Item Responses across Instructional Conditions
Northern Virginia Community College
English 111
Fall Quarter, 1976

Item Stems	TICCIT (N ≅ 115) Item Number (Form 066)	N	Percent	Lecture (N ≅ 74) Item Number (Form 065)	N	Percent
Plans for further courses or work in English:						
At the beginning of this term did you plan to take more than just the introductory course(s) in English?	34	Yes-80	69.6	29	45	60.8
		No-35	30.4		29	39.2
When you finish the introductory course(s) do you plan to take any more advanced courses in English?	33	Yes-97	83.6	28	59	80.8
		No-19	16.4		14	19.2
Has your experience in this course:						
• encouraged you to take further courses in English?	35	40	34.8	30	43	58.1
• discouraged you about taking further courses in English?		11	9.6		3	4.1
• had no effect on your plans for further courses in English?		64	55.7		28	37.8
Is a job related to English more appealing to you now than it was at the beginning of this course?	36	Yes-51	45.1	31	35	47.3
		No-62	54.9		39	52.7
		Mean	sd		Mean	sd
Frequency of interpersonal contact:						
During this semester about how often did you:	37			32		
• meet with the instructor [or proctor] for this course, outside of class, to discuss your classwork or anything else related to the course?	a	1.45	.62	a	1.75	.68
• meet with the instructor for this course to discuss personal or academic matters NOT specifically related to the course?	b	1.25	.49	b	1.17	.37
• discuss questions related to the course with fellow students?	c	2.14	.69	c	2.11	.72
• seek the help of a tutor for this course?	d	1.21	.47	d	1.21	.47
• use library resources in connection with your work in this course?	e	1.49	.73	e	1.85	.63
• want to use the TICCIT system when it wasn't available?	f	1.99	.80			
Time spent on course:						
Approximately how many hours per week did you spend:	38			33		
• working on the TICCIT system/attending classes for this course?	a	5.19	3.32	a	5.01	.98
• attending regular class meetings, without TICCIT, for this course?	b	3.05	1.70			
• in small group discussions about this course (outside of class periods)?	c	.69	1.17	b	1.39	2.57
• doing work for this course on your own away from TICCIT/working on homework assignments?	d	3.58	4.01	c	6.59	5.39
• in total for this course?	e	13.74	9.60	d	14.40	7.80

Item Coding (Form 066): Item 37(a)-(f)
3 = Quite Often
2 = Occasionally
1 = Almost Never

Survey of Faculty Attitudes
Alexandria and Phoenix
Spring 1974

Item Number	Stem	Frequencies and Percentages	Strongly Agree (5)	Agree (4)	Not Sure (3)	Disagree (2)	Strongly Disagree (1)	Other (omit)	Mean	s.d.
1	There are specific concepts or skills which students in all sections of a course must master.	N	158	64	8	5	0	4		
		%	66.1	26.8	3.4	2.1	0	1.7	4.60	0.66
2	The development of self-confidence and a sense of accomplishment should be an essential part of every course.	N	63	63	10	0	0	3		
		%	68.2	26.4	4.2	0	0	1.3	4.65	0.56
3	College courses must deve op students' interest in and appreciation of the subject.	N	99	93	31	14	0	2		
		%	41.4	38.9	13.0	5.9	0	0.8	4.17	0.87
4	The primary basis for the organization of a course should be the intrinsic organization of the subject matter.	N	41	96	65	24	7	6		
		%	17.2	40.2	27.2	10.0	2.9	2.5	3.60	0.99
5	Student feedback is essential in preparing new course material.	N	110	104	15	6	2	2		
		%	46.0	43.5	6.3	2.5	0.8	0.8	4.32	0.77
6	College instruction should allow each student to proceed at his/her own pace.	N	50	83	70	31	3	2		
		%	20.9	34.7	29.3	13.0	1.3	0.8	3.62	1.00
7	Discussions among students contribute to their learning.	N	137	82	15	2	0	3		
		%	57.3	34.3	6.3	0.8	0	1.3	4.50	0.65
8	Without close faculty supervision, any students at this college would not be able to sustain sufficient motivation to complete their studies.	N	80	104	33	18	1	3		
		%	33.5	43.5	13.9	7.5	0.4	1.3	4.03	0.91
9	Most students need peer competition as an incentive for working and learning.	N	22	91	69	48	9	0		
		%	9.2	38.1	28.9	20.1	3.8	0	3.29	1.01
10	Students can benefit from increased flexibility and responsibility for their own instruction.	N	49	127	46	14	1	2		
		%	20.5	53.1	19.3	5.9	0.4	0.8	3.88	0.81
11	Informal interactions between students and faculty are an important part of education.	N	115	113	9	1	0	1		
		%	48.1	47.3	3.8	0.4	0	0.4	4.44	0.59
12	Students should be evaluated against a well-defined criterion of knowledge or skills.	N	65	120	36	11	4	3		
		%	27.2	50.2	15.1	4.6	1.7	1.3	3.98	0.88
13	A student's progress is more important than his final level of achievement.	N	37	95	53	44	6	4		
		%	15.5	39.8	22.2	18.4	2.5	1.7	3.48	1.05
14	Testing is an important and integral part of the educational process.	N	64	124	37	9	3	2		
		%	26.8	51.9	15.9	3.8	1.3	0.8	4.00	0.83
15	The responsibility for a student's grade must rest with the instructor.	N	48	67	46	52	21	5		
		%	20.1	28.0	19.3	21.8	8.8	2.1	3.29	1.27
16	It has not been possible for new ideas about educational practice to receive a hearing at this institution.	N	2	11	24	93	105	4		
		%	0.8	4.6	10.0	38.9	43.9	1.7	1.77	0.87
17	Administrators or department chairmen generally encourage faculty to experiment with new courses and/or teaching methods.	N	55	139	26	13	2	4		
		%	23.0	58.2	10.9	5.4	0.8	1.7	3.99	0.80

APPENDIX T

FACULTY ATTITUDE SUMMARIES

Item Number	Stem	Frequencies and Percentages	Strongly Agree (5)	(4) Agree	(3) Not Sure	(2) Disagree	Strongly Disagree (1)	Other (omit)		
18	I have become familiar with computers through my previous experience.	N	30	68	24	53	53	11	2.86	1.40
		%	12.6	28.5	10.0	22.2	22.2	4.6		
19	I feel comfortable working with computers.	N	24	48	64	54	40	9	2.83	1.24
		%	10.0	20.1	26.8	22.6	16.7	3.8		
20	CAI, is one of the most significant developments in education today.	N	17	47	129	22	13	11	3.14	0.90
		%	7.1	19.7	54.0	9.2	5.4	4.6		
21	CAI allows students to assume greater responsibility for their own learning.	N	26	98	93	7	4	11	3.59	0.84
		%	10.9	41.0	38.9	2.9	1.7	4.6		
22	Computers are too impersonal to replace conventional instruction.	N	31	66	84	42	6	10	3.32	1.01
		%	13.0	27.6	35.2	17.6	2.5	4.2		
23	CAI tailors instruction to the individual student.	N	22	80	98	20	6	13	3.41	0.88
		%	9.2	33.5	41.0	8.4	2.5	5.4		
24	CAI is a potential threat to the jobs of faculty members.	N	10	27	77	73	41	11	2.53	1.05
		%	4.2	11.3	32.2	30.5	17.2	4.6		
25	CAI can relieve instructors of routine duties.	N	39	110	61	12	7	10	3.71	0.91
		%	16.3	46.0	25.5	5.0	2.9	4.2		
26	Immediate feedback to students makes CAI a highly desirable instructional method.	N	45	119	58	4	1	12	3.89	0.74
		%	18.8	49.8	24.3	1.7	0.4	5.0		
27	CAI will make students more active agents in their own education.	N	30	80	107	7	2	13	3.57	0.79
		%	12.6	33.5	44.8	2.9	0.8	5.4		
28	Student interest in or appreciation of a subject can not be developed with CAI.	N	6	13	119	70	19	12	2.63	0.82
		%	2.5	5.4	49.8	29.3	8.0	5.0		
29	CAI is a passing fad.	N	1	6	121	69	30	12	2.47	0.77
		%	0.4	2.5	50.6	28.9	12.6	5.0		
30	CAI can help to make better and fuller use of instructors' capabilities.	N	30	89	95	10	3	12	3.58	0.82
		%	12.6	37.2	39.8	4.2	1.3	5.0		
		(Lowest) ← Priority → (Highest)								
31 a	The success of CAI should be judged in terms of: Faculty acceptance.	N	49	57	86	29	7	11	3.49	1.06
		%	20.5	23.9	36.0	12.1	2.9	4.6		
31 b	The success of CAI should be judged in terms of: The technical capabilities and reliability of the computer system.	N	61	71	51	32	13	11	3.56	1.18
		%	25.5	29.7	21.3	13.4	5.4	4.6		
31 c	The success of CAI should be judged in terms of: Student attitudes.	N	19	26	59	101	23	11	2.64	1.08
		%	8.0	10.9	24.7	42.3	9.6	4.6		
		(Lowest) ← Priority → (Highest)								
31 d	The success of CAI should be judged in terms of: Its cost.	N	122	47	28	19	12	11	4.09	1.21
		%	51.1	19.7	11.7	8.0	5.0	4.6		
31 e	The success of CAI should be judged in terms of: Student achievement.	N	6	0	15	33	174	11	1.38	0.81
		%	2.5	0	6.3	13.8	72.8	4.6		
			Yes	No	Other (omit)					
32	Have you heard enough about TICCIT to feel that you have a grasp of what it is?	N	144	84	11					
		%	60.3	35.1	4.6					

Survey of Faculty Attitudes
Alexandria and Phoenix
Spring 1976

Item Number	Stem	Frequencies and Percentages	Strongly Agree (5)	Agree (4)	Not Sure (3)	Disagree (2)	Strongly Disagree (1)	Other (omit)	Mean	s.d.
2	I feel comfortable working with computers.	N	42	59	44	30	7	19		
		%	20.9	29.4	21.9	14.9	3.5	9.5	3.54	1.13
3	I have become familiar with computers from my previous experience.	N	31	54	13	40	41	22		
		%	15.4	26.9	6.5	20.0	20.4	11.0	2.97	1.46
4	TICCIT is less convenient for students than a combination of classes and homework.	N	15	34	67	40	22	23		
		%	7.5	16.9	33.3	19.9	11.0	11.4	1.23	1.11
5	Students become active in their own learning through the use of TICCIT.	N	24	74	66	13	7	17		
		%	11.9	36.8	32.8	6.5	3.5	8.5	3.52	.94
6	The TICCIT program tailors instruction to the individual student.	N	24	77	56	23	5	16		
		%	11.9	38.3	27.9	11.4	2.5	8.0	3.50	.96
7	With TICCIT, students receive more individual attention from instructors.	N	9	32	87	40	14	19		
		%	4.5	15.9	43.3	19.9	7.0	9.5	2.90	.94
8	In TICCIT classes students had to assume too much responsibility for their own progress in order to complete a course.	N	16	34	76	47	9	19		
		%	8.0	16.9	37.8	23.4	4.5	9.5	3.01	1.00
9	A student in a TICCIT class learns at his/her own pace.	N	45	105	26	7	4	14		
		%	22.4	52.2	13.0	3.5	2.0	7.0	3.96	.85
10	Working on the TICCIT system improves students' learning strategies and study habits in other courses.	N	8	21	113	32	11	16		
		%	4.0	10.5	56.2	15.9	5.5	8.0	2.91	.83
11	Students discuss their course work with fellow students more often in TICCIT classes than other classes.	N	2	5	135	28	12	19		
		%	1.0	2.5	67.2	13.9	6.0	9.5	2.76	.66
12	Students on TICCIT miss peer competition as an incentive for working and learning.	N	11	36	107	24	5	18		
		%	5.5	17.9	52.2	11.9	2.5	9.0	3.13	.81
13	TICCIT is a potential threat to the jobs of faculty members.	N	3	14	44	56	69	15		
		%	1.5	7.0	21.9	27.9	34.3	7.5	2.06	1.02
14	I would prefer to teach a regular section to a TICCIT section in my subject area.	N	52	34	52	25	16	22		
		%	25.9	16.9	25.9	12.4	8.0	11.0	3.45	1.28
15	TICCIT helps to make better and fuller use of instructors' capabilities.	N	11	31	77	40	22	20		
		%	5.5	15.4	38.3	19.9	11.0	10.0	2.83	1.06
16	TICCIT relieves instructors of routine duties.	N	19	53	60	38	13	18		
		%	9.5	26.4	26.4	29.9	18.9	9.0	3.15	1.08
17	Instructors in the TICCIT program spend too much time on mechanical problems and errors in the curriculum.	N	16	52	95	18	3	17		
		%	8.0	25.9	47.3	9.0	1.5	8.5	3.33	.83
18	It is difficult for an instructor to manage students' learning in TICCIT classes.	N	12	27	96	41	7	18		
		%	6.0	13.4	47.8	20.4	3.5	9.0	2.98	.89
19	An instructor has to meet greater demands on his/her time in a TICCIT class than in regular classes.	N	2	31	115	26	8	19		
		%	1.0	15.4	57.2	12.9	4.0	9.5	2.96	.73
20	My colleagues seem to be favorably impressed by TICCIT.	N	3	50	62	51	18	17		
		%	1.5	24.9	30.9	25.4	9.0	8.5	2.83	.99
21	I would recommend a TICCIT course to my students.	N	18	73	45	29	17	19		
		%	9.0	9.0	36.3	22.4	14.4	9.5	3.25	1.13
22	As a pre-packaged program, the TICCIT curriculum affords instructors little flexibility in teaching a course.	N	16	53	75	36	4	17		
		%	8.5	34.3	36.5	7.0	5.0	9.0	3.22	.93
23	I consider the method of presentation on TICCIT to be innovative and effective.	N	25	88	50	14	5	19		
		%	12.4	43.8	24.9	7.0	2.5	9.5	3.38	.95

Item Number	Stem	Frequencies and Percentages	Strongly Agree (5)	Agree (4)	Not Sure (3)	Disagree (2)	Strongly Disagree (1)	Other (omit)	Mean	s.d.
24	Students exercise control over their instruction the TICCIT program.	N	25	88	50	14	5	19		
		%	12.4	43.8	24.9	7.0	2.5	9.5	3.63	.91
25	The TICCIT curriculum is dull and fails to excite students about the subject matter.	N	12	21	82	58	8	20		
		%	6.0	10.5	40.8	28.9	4.0	10.0	2.84	.92
26	The TICCIT program develops student interest in or appreciation of a subject.	N	4	32	107	27	11	20		
		%	2.0	15.9	52.2	13.4	5.5	10.0	2.95	.81
27	TICCIT promotes self-confidence and a sense of accomplishment among students.	N	9	51	96	17	9	19		
		%	4.5	25.4	47.8	8.5	4.5	9.5	3.19	.86
28	The TICCIT program teaches only lower level sbilities.	N	15	30	61	60	16	19		
		%	7.5	14.9	30.4	29.9	8.0	9.5	2.82	1.07
29	Students who've completed a course on TICCIT have mastered all the specific concepts and skills covered in the TICCIT curriculum.	N	6	33	99	28	15	20		
		%	3.0	16.4	49.3	13.9	7.5	10.0	2.93	.89
30	The TICCIT program does not allow for the integration and constant review of subject matter skills.	N	4	22	71	61	21	22		
		%	2.0	11.0	35.3	30.4	10.5	11.0	2.59	.93
31	Breakdowns of the computer system disrupted students' learning on TICCIT.	N	55	73	47	9	1	16		
		%	27.4	36.3	23.4	4.5	.5	8.0	3.93	.89
32	Students find it easier to learn with TICCIT.	N	3	17	119	30	13	19		
		%	1.5	8.5	59.2	14.9	6.5	9.5	2.82	.76
33	The TICCIT program is not worth the dollars and space which this institution has invested in it.	N	26	28	80	35	14	18		
		%	12.9	13.9	39.8	17.4	7.0	9.0	3.09	1.10
34	TICCIT is a valuable resource for this institution.	N	25	59	73	10	15	19		
		%	12.4	29.4	36.3	5.0	7.5	9.5	3.38	1.06
35	TICCIT is a passing fad.	N	10	12	63	73	24	19		
		%	5.0	6.0	31.3	36.3	11.9	9.5	2.51	.99
36	TICCIT is one of the most significant developments in education today.	N	11	43	71	39	17	20		
		%	5.5	21.4	35.3	19.4	8.5	10.0	2.96	1.07

Item Number	Stem	Frequencies and Percentages	High Positive Impact (5)	Positive Impact (4)	No Impact (3)	Negative Impact (2)	High Negative Impact (1)	Other (omit)	Mean	s.d.
37	What is TICCIT's impact on the following:									
a	Student achievement.	N	7	68	57	14	4	51		
		%	3.5	33.8	28.4	7.0	2.0	25.4	3.40	.82
b	Student attitudes toward subject matter.	N	5	53	61	25	5	52		
		%	2.5	26.4	30.4	12.4	2.5	25.9	3.19	.87
c	Course completion rates.	N	2	25	69	28	20	57		
		%	1.0	12.4	34.3	13.9	10.0	28.4	2.73	.95
d	Quality of student-instructor interactions.	N	4	50	56	29	7	55		
		%	2.0	24.9	27.9	14.4	3.5	27.4	3.10	.91
e	Quality of student-student interactions.	N	2	23	76	38	8	54		
		%	1.0	11.4	37.8	18.9	4.0	26.9	2.82	.81