

A Correlation Analysis of the Noel-Levitz Instrument and Student Program

Retention Data at Chippewa Valley Technical College

Margo Keys

A Research Paper  
Submitted in Partial Fulfillment of the  
Requirements for the Education Specialist Degree  
With a Major in  
Career and Technical Education

Approved: 6 Semester Credits



---

Dr. Howard Lee, Chair



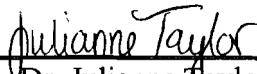
---

Dr. Cynthia Gilberts



---

Dr. Katherine Lui



---

Dr. Julianne Taylor

The Graduate School

University of Wisconsin-Stout

December, 2006

## Table of Contents

	Page
.....	
List of Tables .....	i
ABSTRACT.....	ii
Chapter I: Introduction.....	1
<i>Background of the Study</i> .....	1
<i>Statement of the Problem:</i> .....	5
<i>Purpose of the Study</i> .....	5
<i>Objectives of the Study</i> .....	5
<i>Assumptions and Limitations</i> .....	6
<i>Significance of the Study</i> .....	7
<i>Definition of Terms</i> .....	7
Chapter II: Review of Literature.....	9
<i>Summary</i> .....	18
Chapter III: Methods and Procedures .....	19
<i>Method of Study</i> .....	19
<i>Sample Selection</i> .....	19
<i>Instrumentation</i> .....	20
<i>Procedures Followed</i> .....	22
<i>Method of Analysis</i> .....	22
Chapter IV: Results and Discussion .....	24
<i>Research Objective 1</i> .....	25
<i>Research Objective 2</i> .....	26
<i>Research Objective 3</i> .....	28

Chapter V: Summary, Conclusions and Recommendations ..... 31

*Summary* ..... 31

*Conclusions*..... 32

*Recommendations Related to This Study*..... 33

*Recommendations for Further Study* ..... 34

References..... 35

Appendix A: Binary Logistic Regresssion, Gap Scores for Retention..... 39

Appendix B: Regression of SSI Gap Score on “Months Out”..... 45

Appendix C: SSI items predictability on Student Retention ..... 53

## List of Tables

Table 1: <i>Constant variable related to satisfaction variable</i> .....	15
Table 2: <i>Binary Logistic Regression on Gap Scores for Retention (yes/no)</i> .....	26
Table 3: <i>Regression of SSI Gap Score on “Months Out”</i> .....	27
Table 4: <i>Intermittent correlation matrix on SSI</i> .....	29

**The Graduate School  
University of Wisconsin – Stout  
Menomonie, WI**

**Author:** Margo Keys

**Title:** *A Correlation Analysis of the Noel-Levitz Instrument and Student Retention  
Data at Chippewa Valley Technical College*

**Graduate Degree/Major:** Ed.S. Career and Technical Education

**Research Advisory:** Howard Lee Ph.D.

**Month/Year:** December 2006

**Number of Pages:** 79

**Style Manual Used:** American Psychological Association, 5<sup>th</sup> edition

ABSTRACT

The purpose of this study was to analyze the relationship between student satisfaction and program retention or graduation at Chippewa Valley Technical College. Using program data from 2003, the study investigated three central objectives: (1) the inter-correlations between survey items on Noel-Levitz Student Satisfaction Inventory (SSI) and student program retention data at Chippewa Valley Technical College. (2) To investigate the correlation between student dissatisfaction as expressed by a large gap score and tenure in student program of study and (3) To determine if items within the Noel-Levitz instrument, or clusters of items within the instrument, are predictive of student program retention. Considering the overall results of all three research objectives, the Noel-Levitz Student Satisfaction Inventory could not be locally validated through this study at Chippewa Valley Technical College.

## Chapter I: Introduction

### *Background of the Study*

For over 70 years, scholars and practitioners have studied why students leave higher education and over the last 25 years, the works of Tinto, (1975; 1987; 1993) and Braxton, Sullivan, and Johnson (1997) has unraveled the complexity of the retention mystery. With approximately 45 percent of students enrolled in two-year colleges departing during their first year (American College Testing Program, 2001), administrators still struggle to understand their college attrition rate and seek to provide the services that may lower that rate. The U.S. Department of Education reports the expenditures in public 2-year institutions in 2002-03 was 34.9 billion dollars. This figure is projected to rise to 50.0 billion by 2013-14. As expenditures rise, the pressure of increased accountability for academic institutions to retain their students is expected to follow. In an attempt to proactively approach this problem, some academic institutions are focusing their efforts to improve student retention by adding student services as reported in the 2004 Summary Report from the Community College Survey of Student Engagement (2004). The report highlights results from Sinclair Community College in Ohio, who claims to have increased their student retention rates after better marketing of their learning support and financial aid services (CCSSE, 2004). The report cites another example of Florida's Valencia Community College, which has developed the LifeMap program that provides developmental advising to support student planning and aims to strengthen self confidence and decision making skills for students (CCSSE, 2004).

Other institutions seek expertise through consultants who provide assessments and research capabilities that many smaller colleges do not have. One such company is Noel-Levitz,

Inc., a firm with 30-years of experience in enrollment management, recruitment, and student retention. Their current client base includes over 1700 colleges and universities throughout North America who use their services to examine student satisfaction. Clearly there is money to be made as colleges and universities continue to grapple to turn their retention headaches into student success stories. Levitz and Noel indicates that retention is an institutional performance indicator or a measure of how effectively campuses deliver what students expect, need and want. So how does student satisfaction relate to student persistence? While the subject of student retention is as complicated as the students served, understanding the interrelations between student retention and student satisfaction is valuable information for institutions. The Noel-Levitz website provides tools to help organizations sort through student perspective on key issues, such as retention consulting and satisfaction inventories (<http://www.noellevitz.com>). While completing a series of questions, students place a value of importance and a level of satisfaction on items and through careful analysis, academic institutions can begin to understand their student's perceptions related to college life. With these results, college staff can identify opportunities for improvement in an attempt to improve student satisfaction (<http://www.noellevitz.com>).

The body of knowledge related to student retention is vast, however, there is still much to learn about why some students abandon their stated goals while other students persevere to reach their academic goals. In this age of diminished funding, student retention draws even more attention as institutions are challenged to keep their students enrolled. Some research examples indicate colleges have found their answers to their retention issues, but the answers from students in Wisconsin's Chippewa Valley region has yet to be discovered.

Chippewa Valley Technical College is one of those colleges focused on improving their student retention rates (CVTC, 2005). Chippewa Valley Technical College (CVTC), part of the Wisconsin Technical College System, is located in west-central Wisconsin, serving an eleven-county area. Student enrollments exceed 6,000 credit students per year drawing students from a variety of social and economic backgrounds. CVTC student profile consists of approximately 50 percent students whom are 23 years of age or under and a total student population age range from 16 to 64. Approximately 66 percent of CVTC students work part-time, or not at all. Many students, whom do work full-time, take classes on a part-time basis. Other reasons for enrolling as a part-time student include family responsibilities and/or the desire to go at a slower pace. Approximately 60 percent of full-time, first-time degree-seeking students receive financial aid (CVTC 2006). Considering those demographics, many CVTC students may have life circumstances that potentially jeopardize their ability to remain in college.

As a college, CVTC first began to formally assess the issue of student retention in 1994. This initial investigation sparked several institutional projects to improve student retention rates, including adoption of the Noel-Levitz Student Satisfaction Inventory (SSI), improvements in the student orientation program and an institutional campaign to build awareness on the issues related to student retention. Over the years, those efforts have persisted; however, no formal program existed to manage and coordinate the efforts college-wide or steer ongoing evaluation of the outcomes. CVTC Leadership is well aware of this void and has identified this initiative as a quality improvement project through their accreditation process (CVTC, 2005).

Chippewa Valley Technical College is accredited by the Commission on Institutions of Higher Education, North Central Association of Colleges and Schools. Within the parameters of this accreditation, CVTC participates in ongoing quality monitoring through the Accreditation

Quality Improvement Program (AQIP) which directs institutions to identify quality improvement projects for each academic year. This student retention initiative has been selected as one of three projects CVTC will focus on for the coming year. Progress and outcomes of this project will be incorporated into the CVTC AQIP 2006 Progress Report.

Currently, CVTC's student retention rate averages approximately 45 percent college-wide based on program graduation rates according to Phil Palsler, CVTCs Curriculum/Assessment Specialist and Student Retention Steering committee member (personal communication, April 5, 2006). From an external perspective, CVTC's retention rate is higher than other regional institutions as noted on data captured through the Integrated Postsecondary Education Data Systems (IPEDs) reports (IPEDS, 2005). The IPEDs data is collected and managed by the National Center of Education Statistics and reported annual to postsecondary member institutions. In this report, CVTC was compared to other public, 2-year, degree-granting colleges in the Great Lakes region of the country. CVTC's 58 percent retention rate was considerably higher than peers in this region who averaged 34 percent (IPEDS, 2005). While CVTC's college-wide student retention rate is favorable, one wonders if there is a correlation between retention and satisfaction. If students remain satisfied, does the chance of retention increase?

CVTC has collected student satisfaction data using the Noel –Levitz, Student Satisfaction Inventory (SSI) for the past 10 years. Periodic assessments throughout this ten year period have provided insight as to student's opinions related to over 100 data elements specific to instructional effectiveness, counseling and advising, registration effectiveness, etcetera. According to Joe Hegge, CVTCs Vice President of Education (personal communication, January

5, 2006) this data provides insight to student satisfaction and is channeled back to program and departments for analysis with occasional action planning based on Student Satisfaction results.

*Statement of the Problem:*

The relationship between student satisfaction and student retention has not been analyzed at Chippewa Valley Technical College. Over the past 10 years, CVTC has systematically collected student satisfaction data using a standardized tool developed by Noel-Levitz, Inc, however, the relationship between student satisfaction and program retention has not been determined.

*Purpose of the Study*

The purpose of this study is to analyze the relationship between student satisfaction with program graduation. This field study will focus on Chippewa Valley Technical College program data from 2003. In addition, this study will build a foundation for CVTC to identify potential interventions related to faculty development, academic and student services, as well as serve as the impetus for a formal college-wide retention program in alignment with their AQIP quality improvement project.

*Objectives of the Study*

The objectives of this study are to:

1. Investigate the correlations between Noel-Levitz Student Satisfaction Inventory (SSI) responses and student program retention data at Chippewa Valley Technical College.
2. Investigate the correlation between student dissatisfaction as expressed by a large gap score and tenure in student program of study.

3. Determine if items within the Noel-Levitz instrument, or clusters of items within the instrument, are predictive of student program retention.

### *Assumptions and Limitations*

The assumptions of this study are:

1. Noel-Levitz Student Satisfaction Inventory (SSI) data from Chippewa Valley Technical College in Fall term 2003 was the same data collected by CVTC staff in the Fall term 2003. No cross referencing was done of raw data reported to raw data submitted.
2. Program retention data reported for 2003 at Chippewa Valley Technical College was retrieved from the internal database system without error. Data is compiled into one source.

The limitations of this study are:

1. Sample was drawn from students who self-identified when reporting their Noel-Levitz student satisfaction data in 2003. Student identification allowed matched data points to program retention.
2. Sample represented 23 out of 30 of the Associate Degree programs at Chippewa Valley Technical College with six of those programs with < 5 respondents.
3. The present study seeks a local validation of the predictive power of the Noel-Levitz Satisfaction Inventory. As such, findings from this study may not generalize to career and technical colleges that are unlike Chippewa Valley Technical College

### *Significance of the Study*

This research is significant for the following reasons:

1. This research will be used by the Chippewa Valley Technical College Leadership team in collaboration with the Retention Steering Committee to justify the continued use of Student Satisfaction Inventory data related to student retention.
2. Results of this research will be used to guide Chippewa Valley Technical College policy and procedure for implementation of a formal student retention program college-wide. Retention program will alignment with CVTC's Accreditation Quality Improvement Program (AQIP) improvement project.
3. Results of this study may also be used to develop strategies to improve retention at CVTC. Recommendations may deal with specific strategies that the student services and program faculty can accomplish to increase retention.
4. Other colleges may benefit from the data analysis. Similar institutions may benefit from understanding how student satisfaction correlates to student retention in the Community or Technical college environment.

### *Definition of Terms*

The following terms will be used throughout this research study:

*Course retention* - Number of students enrolled in each credit course after the course census date and the number of students who successfully complete the course (CSCSR, 2005)

*Persistence rate* - Program students continuing from one semester to the next. (CVTC, 2005)

*Program retention/attrition* - Full-time, first time student tracked over a period of time to ascertain whether or not the student graduated in the intended major or entry. (Seidman 1996)

*Student satisfaction* - When student expectations are met or exceeded by an institution. (Noel-Levitz, 2006)

*Student retention* - Whether or not the student attained his/her academic and/or personal goals at exit. (Seidman, 1996)

*Satisfaction inventory* - A survey measuring student satisfaction and priorities showing how satisfied students are as well as what issues are important to them. (Noel-Levitz, 2006)

## Chapter II: Review of Literature

The body of knowledge related to student retention is vast; however, there is still much to learn about why some students abandon their stated academic goals while other students persevere to reach those goals. The purpose of this study is to analyze the relationship between student satisfaction and retention at Chippewa Valley Technical College. Over the next few pages, this literature review will describe the main points relevant to this study. Initially, describing the impact student retention has on students financially as well as governmental expenditures for higher education. A historical perspective on the evolution of student retention theories is provided, narrowing finally to research specific to student satisfaction and retention.

The US Department of Education reports the expenditures in public 2-year institutions in 2002-03 was 34.9 billion dollars. This figure is projected to rise to 50 billion by 2013-14. For 4-year institutions, the expenditure in 2002-03 was 159 billion and is expected to increase to 223 billion by 2013-14. In the year 2000, the Department of Education also reported that nearly 44 percent of community college students left college without a credential within three years of entering, representing a potential loss in human potential (NCES, 2005).

As these statistics indicate, the cost of higher education is increasing and a significant number of students (44 percent) are leaving 2-year colleges without acquiring a credential. What is the economic impact of acquiring that credential versus not acquiring the credential? According to the National Center for Educational Statistics (NCES), the annual income for males with Associate degrees in 2003 was 17.4 percent higher as compared to males with a high school education only. Interestingly enough, the difference between woman with and without an

Associate degree was slightly higher at 20 percent. (NCES, table 386) The financial impact when students are not retained can be felt at the personal level through decreased income over a career, organizationally through decreased revenue from students not retained and governmentally from high expenditures without goal attainment.

Beyond the financial impact, to students and higher educational institutions, there is also an impact to the long term viability of the US workforce. Can the United States compete in a global economy without a skilled workforce? According to Alan Greenspan, (2004, p. 9) the United States is at risk. "And if we want to maintain an economy and a society which has been at the cutting edge of technology ... we have to enhance the capability or the skills of people coming out of our schools. You cannot have a highly complex capital structure without skilled people to essentially staff it." ([www.competeamerica.org](http://www.competeamerica.org)).

Providing an opportunity for students to access and complete a credential and/or degree in post secondary education is important for the reasons already stated. At times, this acquisition of a degree, and the concept of student retention, can be quite complicated with the multiple variables involved. This field of study and the variables involved can, create ambiguous dialogue on definitions, data interpretations, and resulting outcomes. In an effort to sort through the research, this chapter will begin with a brief overview of student retention by identifying some of the established student retention theories, and then narrow down to literature related to student satisfaction and student retention.

When referring to student retention, colleges involved in formal retention programs are advised by the Center for Study of College Student Retention to define their use of the terms, communicate the definitions to staff and faculty, and collect data within the boundaries of that

definition. Individual institutions tend to define student retention specific to their unique environment with additional clarification given to program, course, and semester to semester student retention. According to the Center for Study of College Student Retention (2004), program retention tends to track full-time students in a degree program and determines whether the student has completed the program; course retention refers to the number of students enrolled in each credit course after the course census date and the number of students who successfully complete the course; semester-to-semester retention generally refers to students who remain at a college from one semester to another but may have switched into another program area. (CSCSR, 2004).

The American College Testing Program (ACT) is a nonprofit organization providing assessment and research services in the fields of education and workforce development. After 20 years of data collection and reporting of college retention, the 2004 ACT Brief, *The Role of Academic and Non-academic Factors in Improving College Retention* listed a combination of Academic and Non-academic factors (socioeconomic status, high school GPA and ACT assessment scores combined with institutional commitment, academic goals, social support, academic self-confidence and social involvement) as 17 percent of the variability of college retention across students. By simple subtraction, this leaves 83 percent of the variability in college retention still unaccounted (ACT, 2004).

Student retention is a complicated field of research because multiple variables exist among our students and institutions. Some students who terminate the relationship leave just the college, while others leave the academic system completely. Some students leave voluntarily, perhaps out of incompatibility, while others are forced out due to academic performance, behavioral, familial or for health reasons (Tinto, 1987). Over the years, various theories have

been offered to explain student attrition factors. Psychological theories, dating back to the early 1960s, relate retention to the student's ability and characteristics (Tinto, 1975). Forty years later, psychological theory support continues as seen through the work of Swail, Redd & Perna (2003), which describes cognitive variables such as study skills, aptitude, and critical thinking ability affecting problem solving, student persistence and success in goal attainment. Environmental theories, evolving in the 1980s, relate to the social, economic and organizational forces within the college environment that contribute to student departure (Bean & Metzner, 1985). Eventually Tinto (1987) developed a theory with a sociological conceptual orientation, an interactive model of student departure with emphasis on a longitudinal process to student departure. Tinto developed the *Interactionalist Theory* that seeks to explain how interactions between individuals within the college environment, as well as the unique characteristics student exude, contributes to the decision to withdraw from the institution prior to goal attainment. "An institution's capacity to retain students is directly related to its ability to reach out and make contact with students and integrate them into the social and intellectual fabric of institutional life" (Tinto, p.180). Tinto has been described by other scholars of college student departure, as one creating "paradigmatic status" (Braxton, 2004) because of the considerable consensus among scholars in this field concerning the probable certainty of his theory. Tinto's model consists of academic and social integration as an influence to a student's subsequent commitment to the institution and graduation (Tinto, 1987).

Braxton, Sullivan and Johnson (1997) assessed the empirical validity of Tinto's theory and determined that revisions were warranted. From Tinto's model, they were able to identify 13 testable propositions to be used in a variety of institution types (4-year, 2-year, commuter and residential). Results for residential universities showed support for five of the thirteen

propositions. Commuter universities, in contrast, only showed support to two of the 13 propositions. For two-year colleges, they found only one of Tinto's propositions (student entry characteristics directly affect the likelihood of students' persistence in college) showed robust empirical affirmation. Therefore, the power of Tinto's theory in 2-year colleges remains undetermined empirically. Braxton, Sullivan and Johnson (1997) offered a revision of Tinto's theory as it relates to commuter institutions, however, they also left the subgroup of 2-year institutions out of their focus in the revision.

Tinto's theory implies that the more students integrate and interact with the college environment, the higher the chance they will remain (Tinto, 1997). Specifically is integration and interaction a cause or a consequent? Are there intermediary variables like satisfaction? Does satisfaction precede (temporally) integration? Is student satisfaction a predictor of student retention? If this connection is sound, colleges around the world could benefit from this knowledge as a firm understanding of what makes students unsatisfied could lead to the answers to student satisfaction, eventually leading to improved student retention. Is there a clear line between student retention and satisfaction?

Searching the literature for confirmation of the relationship between student satisfaction and retention uncovered few studies on the subject. One such study from a major university in the Southeast United States, focused on student satisfaction and retention. Patti, Tarpley, Goree and Tice (1993) found three factors of statistical significance (.05 level) between student satisfaction and student's plans to remain. An *Enrolled Student Survey*, was developed internally to collect specific information on satisfaction with college facilities, programs and services. The survey was administered with 313 survey respondents and using multiple regressions, three factors (Counseling Center (5.2 percent), concern for you as an individual (4.5 percent), Career

Service Center (2.8 percent)) accounted for 12.6 percent of variance between students who plan to stay and students who plan to leave. The survey findings reported each coefficient was statistically significant. However, a major limitation of this study is lack of matched data points on student satisfaction and actual retention. The retention data (outcome variable) was generated from a demographic question on the instrument asking students to “describe your plans for the coming year”. No verification of this retention fact was noted in the published report. It appears they were unable to confirm if student satisfaction did equate to student retention (Patti et al., 1993).

Cross comparisons of studies has proven problematic as there is no consensus on the most appropriate operational measures of student satisfaction. The Center for Opinion Research at Pennsylvania State System of Higher Education randomly sampled approximately 400 undergraduate students from each of their 14 university campuses and administered a 68-question telephone survey of student satisfaction (Bailey, Bauman & Lata, 1998). A Chi Square analysis revealed statistically significant differences on 40 items between persisters and non-persisters. In a factor analytical study of all 68 questions, Bailey et. al., (1998) found 14 principle component factors accounting for 56.2 percent of the variance in reported satisfaction. The three highest loading factors were, 1) “Quality of major courses,” 2) “Quality of instruction in major,” and 3) “The instruction in my major is excellent.”. Limitation of this study included the fact that no attempt was made to exclude involuntary drop-outs (students forced out of institution due to poor academic performance or behavior). In addition, both part-time and full-time students were included as well as undeclared program and transfer students.

Research completed at the University of Minnesota Duluth in 2000 investigated the relationship between student retention and satisfaction. Liu and Liu (2000) studied the inter-

correlations of social and academic integration on student satisfaction and retention. A sample of 378 freshman responded to an internally developed survey questionnaire and results revealed academic integration, social integration and academic performance having positive and statistically significant correlation with student satisfaction with social integration representing the most important variable influencing satisfaction as noted in the table below.

Table 1

*Constant variable related to satisfaction variable*

Regression Coefficients		
Constant	t	Significance
ETHNIC	-0.1.1	0.919
SOCINT	7.327	0.000
ACADINT	2.871	0.004
SEX	0.675	0.500
GPA	5.458	0.000
AGE	0.533	0.595

Using logistic regression in the second stage of their analysis, Lui and Lui found that academic integration, academic performance and satisfaction were predictive of student retention. Their work, in general, partially validated Tinto's theory, though they did not find social integration to have as much correlation to retention as Tinto's model suggested. While there is some parallel between Liu and Liu's study and the new study this paper describes, there is the obvious difference in 2-year and 4-year institutions and also variation in the definition of persistence. In the present study at Chippewa Valley Technical College persistence is

operationally defined as program completion while persistence in this case was defined as continued enrollment in the university after the quarter in which data was collected.

The Office of Institutional Research from Bowling Green State University also carried out an analytical study of factors (e.g., student background, pre-college perceptions, college experience, academic engagement perception, etc.) related to student retention in the year 1999. Their study population was all new first year, full-time, degree seeking main campus students (N=3516) Their model explained 33 percent of the variance in freshman retention with the strongest predictor of retention being student satisfaction. Again 66 percent of the variance is still unexplained. Within the research report, a parallel is drawn between the current study and those preceding it,

“The fact that research model explained 33 percent of the variance in student retention represents a desirable outcome in applied educational research and this result compares favorably with those of similar published academic studies” (e.g., Pascarella & Chapman, 1983 [15 percent]; Pascarella & Terenzini, 1983 [18 percent]). The results generally confirm Tinto's contention that students' academic and social integration into college life have a stronger effect upon voluntary student retention than does their pre-college academic ability.”(p.10)

Unfortunately, yet again this study by Bowling Green State University (2001) was carried out in a 4-year institution. However, one Community College study was uncovered during this review. Florida's Valencia Community College was the site of a related study in 1998 on academic and social integration of community college students. Borglum & Kubala (1998) studied 462 second-semester degree-seeking community college students who completed the

college's Enrolled Student Satisfaction Survey. Results of those surveys were compared to student's computerized placement tests (CPTs) for algebra, math, arithmetic, reading and writing. This study attempted to validate Tinto's model therefore the satisfaction survey was categorized into (a) Pre-entry attributes, (b) Goals and intentions (c) Social integration, and (d) Academic integration. Descriptive statistics were used to report satisfaction results with overall results showing students satisfied with the quality of the college (83 percent). One-way analysis of variance (ANOVA) revealed no correlation between academic or social integration and withdrawal rates. In addition, One-way ANOVAs also revealed significance between academic skills and withdrawal patterns. A selection threat was noted in the design of this study as only the surveys of second-semester students who had signed an informed consent form were used.

Another 2-year institution study authored by Rajasekhara and Hirsch (2000) examined types of student retention (semester and annual) and as a separate data set, student satisfaction using the Noel-Levitz Inventory instrument at the Community College of Baltimore City (MD). At first blush, this study appeared to be the ideal comparison for the current research project, however after close review, the parallels diminished as no matched data points were used in this study. In the final analysis, the researchers implied major generalizations claiming it was clear to them that demographics, student status and goals influenced retention rates, however, their report did not include any statistical evidence of how this clear connection was obtained. No matched data points were described in their report indicating a significant assumption on the correlation between student satisfaction and retention.

There seems to be little empirical evidence on the relationship between student retention and satisfaction, especially in the 2-year community or technical college institutions. Seeking advice from an industry expert, Lana Low, a national consultant and former Noel-Levitz

executive was contacted. Lana (personal communication, June 5, 2006) was not able to produce any additional resources to support the correlation between retention and satisfaction and agreed that more research was needed in this area, especially in the community and technical college population.

An inquiry on instrument development was sent to Noel-Levitz, Inc., on two separate occasions seeking to understand the research associated with their Student Satisfaction Inventory development. To date, no response has been received (J. Bryant, personal communication, September 10, 2006). The Noel-Levitz Instrument is not listed in the 16<sup>th</sup> edition of the Burros Mental Measurement Yearbook (2005).

### *Summary*

In summary, the factors that account for student retention in higher education are complicated and the documented empirical investigation of these factors sparse. However, colleges have an obligation to their students' future incomes and the future economy of our country, to understand the student retention issues within their institutions. As earlier stated, a significant investment is being made in higher educational programs both at the 2-year and 4-year levels and the expectations of accountability and the need for a strong return on investment continues to grow.

The purpose of the present study is to investigate the empirical connection between student self-reports of satisfaction and academic program retention. Lacking robust empirical generalization from the literature, a local investigation of these correlations is warranted. For the purpose of this study, explaining 50 percent of the variance in student retention would be highly successful.

### Chapter III: Methods and Procedures

The methods and procedures used in this study of student retention and satisfaction are explained in this chapter under the headings of (1) method of study, (2) sample selection, (3) instrumentation, (4) procedures followed, and (5) method of analysis.

#### *Method of Study*

The purpose of the present study was to investigate the empirical connection between student self-reports of satisfaction and academic program retention. At a global level, the connection between student retention and satisfaction was ambiguous necessitating a local validation. The data for this study was drawn from two data sources at Chippewa Valley Technical College, (1) Noel-Levitz Student Satisfaction Inventory data file which holds all student responses for biennial survey, and (2) Chippewa Valley Technical College's Student information system (program student graduation report). Cross comparisons of studies has proven problematic as there is no consensus on the most appropriate operational measures of student satisfaction, however uncovering variation between graduates and nongraduates was a common approach. Therefore, this study investigated if satisfaction scores, as operationalized through the Noel-Levitz instrument, are predictive of those who graduate from 2-year programs at Chippewa Valley Technical College versus those who do not.

#### *Sample Selection*

Chippewa Valley Technical College offers 23 two-year Associate degree programs in varied industries such as healthcare, manufacturing, and business. In the Fall 2003 semester, over 1200 program students completed the Noel-Levitz Student Satisfaction Inventory (SSI) at

Chippewa Valley Technical College. From that group of students, 309 voluntarily self-reported their student identification allowing their graduation outcome to be linked to this satisfaction data. The demographics of this core group includes students ages 18-44, both part-time and full-time students, GPA ranges from 1.99 or below to 3.5 or above, and both full-time and part-time employment status. The respondents included students both with and without disabilities and students who identified CVTC as their 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> choice of schools to attend. In addition, ethnicity groups included Caucasian, American Indian, Asian, Hispanic or African American. This sample included students from 23 of the 30 Associate Degree programs at Chippewa Valley Technical College with six of those programs having < 5 respondents who voluntarily self identified (AgriScience, Accounting, Hotel Restaurant Management, Computer Information Systems-Network, Diagnostic Medical Sonography, Electrical Engineering).

### *Instrumentation*

The Student Satisfaction Inventory is an instrument developed by Schreiner and Juillerat (1993) through a series of phases. Initially, student and educational experts were interviewed to determine important aspects of student satisfaction, followed by piloted random sample testing and a series of reviews and revisions. In the 1993 version, the SSI was divided into 11 factor analyzed scales similar to the version used today by Noel-Levitz, Inc.. The original 11 scales included: Campus Climate, Campus Organizations and Activities, Responsiveness to Diverse Populations, Curriculum and Instruction, Financial Aid, Campus Support Services, Academic Advising, Resident Life, Student Acclimation, Safety and Security and Faculty Effectiveness (Juillerat, 1993). Tests of validity on the SSI included convergent validity testing, construct validity and predictive validity testing. The SSI instrument was copyrighted by the Noel-Levitz

company in 1994 and has continued to evolve over the past decade. Noel-Levitz, Inc. offers the SSI instrument for four-year institutions and a version geared toward Community, Junior and Technical Colleges, the latter of which CVTC began using in the mid 1990s. The current version used by CVTC probes 113 survey questions asked in two ways. To each probe respondents are asked to identify their level of importance and then respondents are asked to identify their level of satisfaction. This survey is designed to create a gap score indicating the difference between the level of importance and the level of satisfaction with each item. This Likert scale instrument includes a large variety of questions grouped into 12 scales which included: Academic Advising Effectiveness, Campus Climate, Campus Support Service, Concern for the Individual, Instructional Effectiveness, Admissions and Financial Aid Effectiveness, Registration Effectiveness, Responsiveness to Diverse Populations, Safety and Security, Service Excellence, Student Centeredness, Academic Services,

The Noel-Levitz Student Satisfactory instrument is not listed in the 16<sup>th</sup> edition of the Burros Mental Measurement Yearbook (2005). Apparently, the manufacturers of the SSI instrument have not submitted this instrument for inclusion in this resource, although their Retention Measurement System is found in the 16<sup>th</sup> edition of the yearbook.

Institutions using this instrument benefit from national benchmark comparisons by institution type and are included in the annual National Student Satisfaction and Priorities Report. Program students at Chippewa Valley Technical College participate in the satisfaction survey biennially near the mid-term of the Fall semester. Chippewa Valley Technical College has 10 years of experience with this instrument. All responses are collected and sent directly to the Noel-Levitz Corporation where the data is aggregated and returned to CVTC. Upon receipt, Chippewa Valley Technical College then disseminates the results to faculty and staff.

### *Procedures Followed*

Data was collected from two separate databases at Chippewa Valley Technical College. Normal operating procedure for facilitation of this satisfaction survey includes data collection at the campus through paper surveys distributed to all program students on an identified date during the Fall term. All surveys are batch file transferred to Noel-Levitz, Inc. with final results returned to CVTC within 4-6 weeks. The Noel-Levitz Student Satisfaction Inventory data disk from the Fall 2003 term was accessed and self-identified student responses were partitioned into a separate database using Minitab for statistical analysis. A cross reference was carried out matching identifiable student satisfaction results to their program outcome data (1= graduate, 0= did not graduate) along with college application and graduation dates. Program outcome and application data is located within the enterprise information system (Banner) at Chippewa Valley Technical College with each individual student account accessed by this researcher and one assistant to retrieve data elements.

### *Method of Analysis*

All statistical operations were conducted using Minitab statistical software version 14.0 (2005). Student graduation was coded as a binary variable (yes/no). Since the construct underlying the Student Satisfaction Inventory (SSI) Likert questions are assumed continuous, student reports of satisfaction and importance were treated as an interval measure (Crocker, Algina, 1986). Since the dependent measure was binary, binary logistic regression was the only form of analysis warranted (Pedhazur, 1982). Binary logistic regression allows the dependent variable to be dichotomous while the independent variables may be of many types. Binary logistic regression was used to determine if gap scores (the difference between importance and

satisfaction), for any one of the 80 SSI items, were predictive of student graduation status (yes/no). The alpha level for any given comparison was held to the  $p \geq .05$  level. The alpha level is the statistical probability that the size of the effect observed could be due to chance or Type I error. The social sciences set the alpha level at or less than five chances in 100 that the effect might be attributable due to chance before the null hypothesis (or its equivalent) is rejected. Uncorrected, the Type I error rate (a true null hypothesis incorrectly rejected) on 80 comparisons is extremely large. The probability of finding a statistically significant item is  $80 \times .05$  equaling 4.00 meaning with 80 regression runs, there is a 400 percent chance of committing a Type I error. Lacking a priori empirical and theoretical guidance for how to group and collapse items into meaningful families of items, this study explored the predictive power of individual items and corrections for Type I errors will be dealt with on a post hoc basis. Binary logistic regression was conducted on individual comparisons to determine the pattern of results and the intent was to aggregate SSI questions into empirically defensible groups to reduce the threat of a Type I error.

## Chapter IV: Results and Discussion

This research project has centered around three central objectives. (1) To investigate the correlations between Noel-Levitz Student Satisfaction Inventory (SSI) responses and student program retention data at Chippewa Valley Technical College. (2) To investigate the correlation between student dissatisfaction as expressed by a large gap score and tenure in student program of study and (3) To determine if items within the Noel-Levitz instrument, or clusters of items within the instrument, are predictive of student program retention.

All statistical operations were conducted using Minitab statistical software version 14.0 (2005). Student graduation was coded as a binary variable (yes/no). Since the construct underlying the SSI Likert questions were assumed continuous, student reports of satisfaction and importance were treated as an interval measure (equal differences between measurements represent equivalent intervals). Binary logistic regression was used to determine if there were statistical differences between students who graduated and those who did not on their “gap scores” for the 80 Likert questions in the SSI instrument. The alpha level for any given comparison was held to the  $p \geq .05$  level. Uncorrected, the Type I error rate on 80 comparisons is considered extremely large. Binary logistic regression was conducted on individual comparisons to determine the pattern of results and the intent was to aggregate SSI questions into empirically defensible groups to reduce the threat of a Type I error. However, this second step was obviated by the results discovered in the initial binary statistical runs. Specifically, no meaningful suppressor or mediator relationships were found in multiple regression runs.

Data was gathered through the Noel-Levitz Student Satisfaction Inventory at Chippewa Valley Technical College during Fall 2003 semester. Three hundred and nine students self-reported their student identification allowing their graduation outcome to be linked to this

satisfaction data. The demographics of this core group includes students ages 18-44, both part-time and full-time students, GPA ranges from 1.99 or below to 3.5 or above, and both full-time and part-time employment status. The respondents included students both with and without disabilities and students who identified CVTC as their 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> choice of schools to attend. In addition, ethnicity groups included Caucasian, American Indian, Asian, Hispanic or African American

### *Research Objective 1*

The first objective was to investigate the correlations between Noel-Levitz Student Satisfaction Inventory (SSI) responses and student program retention data at Chippewa Valley Technical College. Focusing on this first research objective, “gap scores” for students who graduated were compared with gap scores for students who did not graduate on the 80 SSI Likert questions. Among the 80 binary logistic regression runs, statistically significant differences were discovered on only three survey questions as shown in the table on the next page. The table shows the binary logistic regression on gap scores for retention on item 20 (Financial aid counselors are helpful), item 34 (Computer labs are adequate and accessible), and item 38 (The student center is a comfortable place for students to spend their leisure time). As noted in the table, the p value for each item is below 0.05 showing statistical significance. The question answered by binary logistic regression is if the pattern of values in the independent variable (in this instance gap scores) is predictive of correctly identifying what group they would occupy in the dependent measure (student graduation yes/no). The gap scores on SSI items #20, 34 and 38 were statistically significant. However, these three items remain practically meaningless.

Table 2

*Binary Logistic Regression on Gap Scores for Retention (yes/no)*

<u>Predictor</u>	<u>Coef</u>	<u>SE Coef</u>	<u>Z</u>	<u>P</u>	<u>Odds Ratio</u>
Constant	0.603	0.140	4.30		
Gap 20	-0.132	0.066	-2.01	0.044*	0.88
Constant	0.288	0.133	2.16	0.031	
Gap 34	0.152	0.066	2.30	0.022*	1.16
Constant	0.358	0.126	2.84	0.005	
Gap 38	0.162	0.065	2.50	0.013*	1.013

\*  $p < .05$ .

For a complete listing of all binary logistic regression runs on Gap scores for Retention, see appendix A.

Straightforward mathematics reveals that (i.e.,  $p = .05 \times 80$  comparisons = 4.00) the true Type I error rate for this number of comparisons approached 400 percent. Stated alternatively, with 80 regression runs, there is a 400 percent chance that difference on these variables is due to the mathematical artifact of chance alone and that in reality no meaningful differences exist on these three variables.

*Research Objective 2*

The second research objective was to investigate the correlation between student dissatisfaction as expressed by a large gap score and tenure in student program of study. For this objective the correlation between student dissatisfaction as expressed by a large gap score (the difference between importance and level of satisfaction) and tenure in student program of study provided the following results. Retention has been defined operationally as the student having

completed his or her program of study within 36 months (or 150 percent of the time allowed in a 24 month program). The variable success was delineated as yes or no and tenure as a ratio. In this sample, however, 17 students were in pursuit of their degree but had not yet graduated. This second research question investigated gap scores on the SSI instrument but this time regressed on the number of months ( $\geq 36$ ) students had been progressing toward their graduation or “months out”. Since the second variable is now a ratio level measure, the statistical analysis was regression. The 80 SSI items were regressed on “months out” resulting in no statistically significance with any of the items. Sample data showing the regression of SSI gap scores on “months out” is provided in Table 3 below.

Table 3

*Regression of SSI Gap Score on “Months Out”*

<u>Source</u>	<u>df</u>	<u>ss</u>	<u>ms</u>	<u>F</u>	<u>P</u>
Gap 1	1	54.8	54.8	0.29	0.600
Error	<u>15</u>	<u>2868.3</u>	191.2		
Total	16	2923.1			
Gap 2	1	1.0	1.0	0.00	0.945
Error	<u>15</u>	<u>2922.1</u>	194.8		
Total	16	2923.1			
Gap 3	1	8.7	8.7	0.04	0.835
Error	<u>15</u>	<u>2914.4</u>	194.3		
Total	16	2923.1			

\*  $p < .05$

For a complete listing of all regression runs on Gap Scores on Months Out, see appendix B.

In essence, student satisfaction scores did not decrease (larger gap scores) with extended tenure in their academic program. It is noted that the sample size was small and the standard error of measure was relative large, however, it was found that student satisfaction scores remained constant regardless of tenure in their program for this sample.

### *Research Objective 3*

The third research objective was to determine if items within the Noel-Levitz instrument, or clusters of items within the instrument, are predictive of student program retention. Every combination of potential candidates was investigated. First order correlations were extremely small as noted in the small sample table titled *Intermittent correlation matrix on SSI* shown on the following page. See Appendix C for a complete listing of all gap score correlations. There was hope that suppressor or moderator variables would reveal meaningful relationships, however, in the end no cluster of SSI items were predictive of student retention.

Table 4

*Intermittent correlation matrix on SSI.*


---

 Sample Correlations: Gap1- Gap7

	Gap1	Gap2	Gap3	Gap4	Gap5	Gap6	Gap7
Gap2	0.562 0.000						
Gap3	0.401 0.000	0.563 0.000					
Gap4	0.294 0.000	0.329 0.000	0.262 0.000				
Gap5	0.110 0.138	0.234 0.001	0.201 0.007	0.358 0.000			
Gap6	0.294 0.000	0.296 0.000	0.308 0.000	0.291 0.000	0.320 0.000		
Gap7	0.145 0.053	0.185 0.013	0.254 0.001	0.219 0.004	0.162 0.030	0.277 0.000	
Gap8	0.241 0.001	0.315 0.000	0.375 0.000	0.278 0.000	0.357 0.000	0.230 0.002	0.186 0.013

---

The responses from this sample of students did not predict who would successfully graduate from those who did not graduate. There is little reason to believe these findings are a Type II error (a false null hypothesis can fail to be rejected) as the sample is relatively large and statistical analysis robust.

The results of this statistical analysis did not bring forth the results expected. The bias of this researcher was gained through the marketing strategies used by the proprietor of this satisfaction instrument. Could it be that Chippewa Valley Technical College is not representative of the colleges this instrument is targeted to? It is possible, that through this local validation we

have found that the local population of students, the large market share CVTC holds and the type of programs offered at CVTC, create a unique situation. CVTC is the only college in this region of Wisconsin that offers many of these occupational programming options, such that some students have no other choice of college other than Chippewa Valley Technical College. If students are geographically bound to this region or financially restricted to attend a low cost college, CVTC is their only option for face-to-face instruction towards an Associate Degree. It appears that program completion (graduation) and student satisfaction at Chippewa Valley Technical College are not as related as some would lead us to believe. If students have established goals to complete an Associate Degree program in a face-to-face learning environment, combined with limited economic means and geographic restrictions, Chippewa Valley Technical College is their only option and student satisfaction does not inter-correlate to the achievement of that goal.

## Chapter V: Summary, Conclusions and Recommendations

### *Summary*

Chippewa Valley Technical College (CVTC) has spent over a decade attempting to understand student satisfaction on its campus. The college has systematically collected student satisfaction data using a standardized tool developed by Noel-Levitz, Incorporated. The results of this survey have been funneled back to program and departmental areas of the college with some effort focused on implementation of interventions to improve satisfaction. In 2005, CVTC identified student retention as a focus for its accreditation quality improvement program (AQIP), and devoted a multidisciplinary task force to the project with the ultimate goal of establishing a comprehensive college program on student retention. Through this initiative, the task force began to investigate the link between student satisfaction and student retention. Early within this initiative, this researcher began to investigate the relationship between student satisfaction and student retention.

Very little empirical evidence exists within the literature to explain the relationship between student satisfaction and student retention, especially in the 2-year technical or community college environment. Of the studies found, Patti, Tarpley, Goree & Tice (1993) found that student satisfaction measures accounted for 12.6 percent of the variance in retention while Bailey, Bauman & Lata (1998) were able to account for 56.2 percent of the variance in a similar investigation of predictive validity. Lacking robust inter-correlations between satisfaction and retention from the literature, a local investigation of these correlations was warranted.

The purpose of the present study was to investigate three central objectives: (1) the inter-correlations between survey items on Noel-Levitz Student Satisfaction Inventory (SSI) and student program retention data at Chippewa Valley Technical College. (2) To investigate the

correlation between student dissatisfaction as expressed by a large gap score and tenure in student program of study and (3) To determine if items within the Noel-Levitz instrument, or clusters of items within the instrument, are predictive of student program retention.

In the Fall 2003 semester, over 1200 program students completed the Noel-Levitz Student Satisfaction Inventory (SSI) at Chippewa Valley Technical College. From that group of students, 309 voluntarily, self-reported their student identification allowing their graduation outcome to be linked to this satisfaction data. A cross reference was carried out matching identifiable student satisfaction results to their program outcome data (1= graduate, 0= did not graduate) along with college application and graduation dates. The statistical analysis associated with each of the research objectives was completed and reported below.

### *Conclusions*

The first research objective was to investigate the correlations between Noel-Levitz Student Satisfaction Inventory (SSI) responses and student retention at Chippewa Valley Technical College. Binary logistic regression was used to determine if there were statistical differences between students who graduated and those who did not, as determined by their “gap scores” for the 80 Likert questions in the SSI instrument. Statistically significant differences were discovered on only three survey questions (#20 – Financial aid counselors were helpful. #34 Computer labs are adequate and accessible, and #38 Student center is a comfortable place for students to spend their leisure time). However, it is clear that a Type I error correction for multiple comparisons would render these three findings mathematically meaningless. The data, from this sample of Chippewa Valley Technical College students, did not show an inter-

correlation between student satisfaction and student retention at Chippewa Valley Technical College.

The second research objective, an investigation on the correlation between student dissatisfaction as expressed by a large gap score and tenure in student program of study, revealed yet more meaningless results. The 80 SSI items were regressed on “months out” resulting in no statistically significance in any of the 80 items. Extended tenure (beyond 150 percent allowed in twenty-four month program) did not reveal differences in student satisfaction as expressed by large gap scores (the difference between importance and satisfaction) within this population of students at Chippewa Valley Technical College.

The third research objective, to determine if items within the Noel-Levitz instrument or clusters of items within the instrument, were predictive of student program retention, in the end revealed no cluster of SSI items were predictive of student retention for this sample. The responses from this sample of students at Chippewa Valley Technical College did not predict who would successfully graduate from those who would not.

Considering the overall results of all three research objectives, the Noel-Levitz Student Satisfaction Inventory could not be locally validated through this study at Chippewa Valley Technical College.

#### *Recommendations Related to This Study*

Results of this study will be presented to the Chippewa Valley Technical College Leadership team along with the following recommendations:

- (1) It is recommended that Chippewa Valley Technical College suspend associating the Noel-Levitz Student Satisfaction Inventory results with student retention intervention planning until additional studies can prove a strong inter-correlation

between satisfaction and retention. The results of this study did not indicate a correlation between student retention and student satisfaction, as noted by program graduation data and results of Student Satisfaction Inventory.

- (2) It is recommended that Chippewa Valley Technical College develop an instrument, unique to this population, which could be used to predict student retention.. A unique instrument developed to account for 50 percent of the variance between students who achieve their academic goals and those who do not, would have the potential to enhance student retention intervention planning and ongoing management of the comprehensive retention program college-wide.

#### *Recommendations for Further Study*

- (1) It is recommended that CVTC continue to research student satisfaction related to student retention using matched data points of individual student satisfaction data (SSI) and student program completion. An investigation of local variables is warranted.
- (2) It is recommended that CVTC collaborate with other Wisconsin Technical Colleges on the issue of student retention and satisfaction. Facilitating a similar study across the Wisconsin state technical college system would provide more breadth and depth to future study.

## References

- American College Testing Program (2004). ACT Brief. *The Role of Academic and Non-academic Factors in Improving College Retention*. Retrieved November 2005 from <http://www.act.org>.
- Bailey, B.L., Bauman, C., & Lata, K.A. (1998) *Student Retention and Satisfaction: The Evolution of a Predictive Model*, Proceedings of AIR 1998 Annual Forum Paper. Minneapolis, MN. Retrieved March 8, 2006 from ERIC database (ED424797).
- Bean, J.P., & Metzner, B.S. (1985). *A conceptual model of nontraditional undergraduate student attrition*. *Review of Educational Research*, 55, 485-540.
- Borglum, K., Kubala, T. (2000) *Academic and Social Integration of Community College Students: A Case Study*. Retrieved June 1, 2006 from Academic Search Elite (Community College Journal of Research & Practice, 3508269).
- Braxton, J.M., Hirschy A.S., & McClendon S.A. (2004). *Understanding and reducing college student departure*. Hoboken, NJ: Wiley Periodicals, Inc.
- Braxton, J.M., Sullivan, A.S., & Johnson, R.M. (1997). Appraising Tinto's Theory of *College Student Departure*. In J.C. Smart (ed.) *Higher education: A handbook of theory and research*, vol12, pp. 107-164. New York: Agathon Press.
- Center for Study of College Student Retention (2004). *Engagement by Design 2004 Findings*. Retrieved Nov 2005 from <http://www.cscsr.org>.
- Community College Survey of Student Engagement (2004). *2004 Summary Report* Retrieved Nov 2005 from <http://www.ccsse.org>.

Crocker, L., Algina, J., (1986). *Introduction to Classical and Modern Test Theory*. New York: CBC College Publishing.

Greenspan, Alan. Former Chairman of the Federal Reserve, Testimony before the House Financial Service Committee, U.S. House, February 11, 2004, "Semiannual Monetary Policy Report to the Congress". Retrieved on June 15, 2006 from [www.competeamerica.org](http://www.competeamerica.org).

Habley, W., & McClanahan, R., (2004). *What Works in Student Retention? Two-Year Public Colleges*. ACT Integrated Postsecondary Education Data System (IPEDS) Data Feedback Report 2005 for Chippewa Valley Technical College. National Center for Education Statistics. (2005).

Juillerat, S. (1995). *Investigating a two-dimensional approach to the assessment of student satisfaction: validation of the student satisfaction inventor*. (Doctoral dissertation. Temple University, 1995). Retrieved from Temple University microfiche, printed September 20, 2006.

Levitz R., Noel L. (2000). *Tired of Moving Mountains? Getting Retention Results really is Easy*. Retrieved February 7, 2006 from <http://www.noellevitz.com>.

Liu, R., Liu, E., (2000). *Institutional Integration: An Analysis of Tinto's Theory*. Paper presented at the Annual Forum of the Association of Institutional Research 40<sup>th</sup>, Cincinnati OH. Retrieved March 2006 from the ERIC database (ED445629).

National Center for Education Statistics. *Pocket projections report: Projections of Educational Statistics to 2014*. Retrieved June 10, 2006 from <http://www.ed.gov>

- Office of Institutional Research (2001). *An Analytic Study of First Year Student Retention at Bowling Green State University*. Retrieved June 15, 2006 from <http://www.bgsu.edu>.
- Patti, M.V., Tarpley, R.S., Goree, C.T., & Tice, G.E. *The Relationship of College Facilities and Services to Student Retention* Proceedings of Mid-South Educational Research Association. New Orleans LA. Retrieved March 9, 2006 from the ERIC database (ED368312).
- Pedhazur, E. (1982). *Multiple Regression in Behavior Research*. New York: CBC College Publishing.
- Rajasekhara. K., Hirsch. T., (2000) *Retention and Its Impact on Institutional Effectiveness at a Large Urban Community College*. Presented at 40<sup>th</sup> Association for Institutional Research (AIR) Annual Forum, Cincinnati OH. Retrieved November 2005 from ERIC database (ED 446799).
- Seidman, A. (1996). *Retention Revisited:  $RET = E Id + (E+I+C)Iv$* . College and University, 71 (4), 18-20.
- Swail W. Redd K. Perna L. (2003). *Retaining Minority Students in Higher Education: A Framework for Success*. ASHE-ERIC Higher Education Report. (2003), 30(2), 75-112.
- Tinto, V. (1975). *Dropout from higher education: A theoretical synthesis of recent research*. Review of Educational Research, 65 (winter): 89-125.
- Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago: The University of Chicago Press.

Tinto, V. (1993). 2nd Edition. *Leaving college: Rethinking the causes and cures of student attrition*. Chicago: The University of Chicago Press.

## Appendix A: Binary Logistic Regression, Gap Scores for Retention

## Binary Logistic Regression on Gap Scores for Retention (yes/no)

<u>Predictor</u>	<u>Coef</u>	<u>SE Coef</u>	<u>Z</u>	<u>P</u>	<u>Odds Ratio</u>
Constant	0.463	0.118	3.89	0.000	
Gap 1	-0.012	0.080	-0.15	0.881	0.99
Constant	0.476	0.123	3.85	0.000	
Gap 2	-0.034	0.080	-0.42	0.673	.097
Constant	0.432	0.136	3.17	0.002	
Gap 3	0.051	0.088	0.58	0.560	1.05
Constant	0.463	0.125	3.70	0.00	
Gap 4	0.025	0.068	0.37	0.713	1.03
Constant	0.348	0.134	2.59	0.010	
Gap 5	0.123	0.075	1.64	0.101	1.13
Constant	0.450	0.135	3.33	.0001	
Gap 6	-0.007	0.074	-0.10	0.924	0.99
Constant	0.459	0.141	3.24	0.001	
Gap 7	-0.005	0.060	-0.08	0.932	0.99
Constant	0.352	0.150	2.34	0.019	
Gap 8	0.088	0.071	1.23	0.219	1.09
Constant	0.461	0.134	3.42	0.001	
Gap 9	0.020	0.070	0.30	0.767	1.02
Constant	0.462	0.120	3.82	0.000	
Gap 10	0.024	0.044	0.55	0.581	1.03
Constant	0.539	0.139	3.87	0.000	
Gap 11	-0.054	0.048	-1.13	0.256	0.95
Constant	0.484	0.137	3.52	0.000	
Gap 12	-0.010	0.060	-0.18	0.858	0.99
Constant	0.578	0.143	4.02	0.000	
Gap 13	-0.080	0.061	-1.30	0.193	0.92

<u>Predictor</u>	<u>Coef</u>	<u>SE Coef</u>	<u>Z</u>	<u>P</u>	<u>Odds Ratio</u>
Constant	0.442	0.129	3.42	0.001	
Gap 14	0.035	0.070	0.49	0.621	1.04
Constant	0.353	0.146	2.42	0.016	
Gap 15	0.106	0.073	1.44	0.149	1.11
Constant	0.477	0.143	3.33	0.001	
Gap 16	-0.001	0.069	-0.03	0.980	1.00
Constant	0.484	0.120	4.01	0.000	
Gap 17	-0.010	0.063	-0.17	0.866	0.99
Constant	0.434	0.136	3.19	0.001	
Gap 18	0.051	0.081	0.63	0.529	1.05
Constant	0.445	0.123	3.60	0.000	
Gap 19	-0.005	0.061	-0.08	0.934	0.99
Constant	0.603	0.140	4.30		
Gap 20	-0.132	0.066	-2.01	0.044*	0.88
Constant	0.323	0.133	2.43	0.015	
Gap 21	0.119	0.064	1.87	0.062	1.13
Constant	0.382	0.128	2.97	0.003	
Gap 22	0.093	0.087	1.07	0.282	1.10
Constant	0.500	0.141	3.55	0.000	
Gap 23	-0.046	0.069	-0.66	0.507	0.95
Constant	0.349	0.142	2.45	0.014	
Gap 24	0.078	0.054	1.44	0.149	1.08
Constant	0.443	0.142	3.11	0.002	
Gap 25	0.002	0.061	0.04	0.967	1.00
Constant	0.464	0.129	3.59	0.000	
Gap 26	-0.020	0.061	-0.33	0.739	0.98
Constant	0.408	0.129	3.15	0.002	
Gap 27	0.062	0.085	0.73	0.466	1.06
Constant	0.484	0.132	3.67	0.000	

<u>Predictor</u>	<u>Coef</u>	<u>SE Coef</u>	<u>Z</u>	<u>P</u>	<u>Odds Ratio</u>
Gap 28	-0.018	0.091	-0.21	0.837	0.98
Constant	0.452	0.136	3.30	0.001	
Gap 29	0.002	0.075	0.03	0.972	1.00
Constant	0.333	0.136	2.44	0.015	
Gap 30	0.100	0.055	1.81	0.070	1.11
Constant	0.478	0.131	3.64	0.000	
Gap 31	-0.036	0.089	-0.40	0.687	0.96
Constant	0.375	0.135	2.78	0.005	
Gap 32	0.076	0.069	1.10	0.273	1.08
Constant	0.341	0.128	2.65	0.008	
Gap 33	0.148	0.086	1.73	0.084	1.16
Constant	0.288	0.133	2.16	0.031	
Gap 34	0.152	0.066	2.30	0.022	1.16
Constant	0.322	0.135	2.39	0.017	
Gap 35	0.151	0.078	1.92	0.055	1.16
Constant	0.497	0.128	3.86	0.000	
Gap 36	-0.080	0.081	-0.98	0.327	0.92
Constant	0.407	0.132	3.09	0.002	
Gap 37	0.075	0.082	0.92	0.357	1.08
Constant	0.358	0.126	2.84	0.005	
Gap 38	0.162	0.065	2.50	0.013	1.18
Constant	0.219	0.179	1.22	0.222	
Gap 39	0.080	0.046	1.75	0.080	1.08
Constant	0.416	0.136	3.04	0.002	
Gap 40	0.022	0.063	0.36	0.718	1.02
Constant	0.333	0.132	2.53	0.011	
Gap 41	0.151	0.084	1.78	0.075	1.16
Constant	0.425	0.125	3.40	0.001	
Gap 42	0.040	0.084	0.49	0.627	1.04
Constant	0.480	0.127	3.76	0.000	

Gap 43	-0.031	0.069	-0.46	0.646	0.97
Constant	0.435	0.126	3.43	0.001	
Gap 44	0.030	0.072	0.42	0.677	1.03
Constant	0.433	0.120	3.59	0.000	
Gap 45	0.043	0.097	0.45	0.653	1.04
Constant	0.454	0.131	3.45	0.001	
Gap 46	-0.015	0.081	-0.19	0.852	0.98
Constant	0.424	0.135	3.13	0.002	
Gap 47	0.031	0.068	0.46	0.648	1.03
Constant	0.408	0.137	2.97	0.003	
Gap 48	0.059	0.063	0.94	0.349	1.06
Constant	0.391	0.134	2.91	0.004	
Gap 49	0.074	0.070	1.06	0.288	1.08
Constant	0.527	0.130	4.04	0.000	
Gap 50	0.082	0.053	-1.54	0.124	0.92
Constant	0.502	0.135	3.70	0.000	
Gap 51	0.067	0.067	-1.01	0.315	0.93
Constant	0.501	0.142	3.51	0.000	
Gap 52	0.046	0.075	-0.61	0.539	0.95
Constant	0.422	0.131	3.22	0.001	
Gap 53	0.057	0.088	0.65	0.518	1.06
Constant	0.500	0.136	3.67	0.000	
Gap 54	-0.054	0.076	-0.71	0.477	0.95
Constant	0.486	0.134	3.62	0.000	
Gap 55	0.014	0.063	-0.23	0.821	0.99
Constant	0.463	0.129	3.58	0.000	
Gap 56	0.003	0.074	-0.04	0.966	1.00
Constant	0.479	0.137	3.49	0.000	
Gap 57	-0.014	0.064	-0.23	0.821	0.99
Constant	0.533	0.132	4.04	0.000	
Gap 58	-0.120	0.089	-1.35	0.178	0.89

<u>Predictor</u>	<u>Coef</u>	<u>SE Coef</u>	<u>Z</u>	<u>P</u>	<u>Odds Ratio</u>
Constant	0.459	0.129	3.56	0.000	
Gap 59	0.005	0.074	0.08	0.939	1.01
Constant	0.525	0.135	3.88	0.000	
Gap 60	-0.087	0.074	-1.17	0.243	0.92
Constant	4.464	0.132	3.51	0.000	
Gap 61	-0.028	0.085	-0.34	0.736	0.97
Constant	0.416	0.136	3.05	0.002	
Gap 62	0.026	0.065	0.40	0.688	1.03
Constant	0.461	0.136	3.38	0.001	
Gap 63	0.002	0.064	0.04	0.971	1.00
Constant	0.379	0.130	2.91	0.004	
Gap 64	0.136	0.104	1.30	0.194	1.15
Constant	0.539	0.148	3.64	0.000	
Gap 65	-0.049	0.058	-0.86	0.392	0.95
Constant	0.440	0.129	3.39	0.001	
Gap 66	0.010	0.094	0.12	0.908	1.01
Constant	0.453	0.140	3.23	0.001	
Gap 67	-0.000	0.061	-0.01	0.989	1.00
Constant	0.415	0.121	3.41	0.001	
Gap 68	0.075	0.083	0.90	0.367	1.08
Constant	0.365	0.133	2.74	0.006	
Gap 69	0.120	0.082	1.47	0.142	1.13
Constant	0.451	0.130	3.44	0.001	
Gap 70	0.021	0.100	0.22	0.827	1.02
Constant	0.497	0.124	3.98	0.000	
Gap 71	-0.070	0.063	-1.11	0.268	0.93
Constant	0.422	0.139	3.03	0.002	
Gap 72	0.087	0.110	0.79	0.427	1.09
Constant	0.527	0.137	3.84	0.000	

<u>Predictor</u>	<u>Coef</u>	<u>SE Coef</u>	<u>Z</u>	<u>P</u>	<u>Odds Ratio</u>
Gap 73	-0.080	0.089	-0.91	0.365	0.92
Constant	0.451	0.126	3.57	0.000	
Gap 74	0.046	0.086	0.54	0.592	1.05
Constant	0.543	.133	4.07	0.000	
Gap 75	-0.073	0.061	-1.18	0.238	0.93
Constant	0.425	0.144	2.94	0.003	
Gap 76	0.020	0.060	0.33	0.738	1.02
Constant	0.549	0.142	3.87	0.000	
Gap 77	-0.061	0.060	-1.03	0.305	0.94
Constant	0.519	0.130	3.99	0.000	
Gap 78	-0.055	0.064	-0.85	0.393	0.95
Constant	0.475	0.132	3.60	0.000	
Gap 79	-0.002	0.074	-0.04	0.968	1.00
Constant	0.408	0.147	2.78	0.006	
Gap 80	0.059	0.061	0.97	0.332	1.06

---

\*  $p < .05$ .

## Appendix B: Regression of SSI Gap Score on “Months Out”

## Regression of SSI Gap Score on “Months Out”

---

<u>Source</u>	<u>df</u>	<u>ss</u>	<u>ms</u>	<u>F</u>	<u>P</u>
Gap 1	1	54.8	54.8	0.29	0.600
Error	<u>15</u>	<u>2868.3</u>	191.2		
Total	16	2923.1			
Gap 2	1	1.0	1.0	0.00	0.945
Error	<u>15</u>	<u>2922.1</u>	194.8		
Total	16	2923.1			
Gap 3	1	8.7	8.7	0.04	0.835
Error	<u>15</u>	<u>2914.4</u>	194.3		
Total	16	2923.1			
Gap 4	1	7.6	7.6	0.04	0.846
Error	<u>15</u>	<u>2915.5</u>	194.4		
Total	16	2923.1			
Gap 5	1	67.0	67.0	0.35	0.562
Error	<u>15</u>	<u>2856.1</u>	190.4		
Total	16	2923.1			
Gap 6	1	5.8	5.8	0.03	0.865
Error	<u>15</u>	<u>2917.2</u>	194.5		
Total	16	2923.1			
Gap 7	1	450.0	450.0	2.64	0.126
Error	<u>14</u>	<u>2382.4</u>	170.2		
Total	15	2832.4			
Gap 8	1	134.9	134.9	0.73	0.408
Error	<u>15</u>	<u>2788.1</u>	185.9		
Total	16	2923.1			
Gap 9	1	8.1	8.1	0.04	0.841
Error	<u>15</u>	<u>2914.9</u>	194.3		
Total	16	2923.1			
Gap 10	1	10.2	10.2	0.05	0.825
Error	<u>14</u>	<u>2822.2</u>	201.6		
Total	15	2832.4			

<u>Source</u>	<u>df</u>	<u>ss</u>	<u>ms</u>	<u>F</u>	<u>P</u>
Gap 11	1	195.3	195.3	1.07	0.316
Error	<u>15</u>	<u>2727.7</u>	181.8		
Total	16	2923.1			
Gap 12	1	39.4	39.4	0.21	0.657
Error	<u>15</u>	<u>2883.6</u>	192.2		
Total	16	2923.1			
Gap 13	1	46.1	46.1	0.23	0.638
Error	14	<u>2786.3</u>	199.0		
Total	15	2832.4			
Gap 14	1	43.7	43.7	0.23	0.640
Error	<u>15</u>	<u>2879.3</u>	192.0		
Total	16	2923.1			
Gap 15	1	8.1	8.1	0.04	0.841
Error	<u>15</u>	<u>2914.9</u>	194.3		
Total	16	2923.1			
Gap 16	1	76.4	76.4	0.40	0.535
Error	<u>15</u>	<u>2846.7</u>	189.8		
Total	16	2923.1			
Gap 17	1	215.7	215.7	1.20	0.292
Error	<u>15</u>	<u>2707.3</u>	180.5		
Total	16	2923.1			
Gap 18	1	34.5	34.5	0.18	0.678
Error	15	<u>2888.5</u>	192.6		
Total	<u>16</u>	2923.1			
Gap 19	1	398.0	398.0	2.17	0.165
Error	<u>13</u>	<u>2385.0</u>	183.5		
Total	14	2782.9			
Gap 20	1	2.9	2.9	0.01	0.906
Error	<u>14</u>	<u>2829.5</u>	202.1		
Total	15	2832.4			
Gap 21	1	92.8	92.8	0.49	0.494
Error	<u>15</u>	<u>2830.2</u>	188.7		
Total	16	2823.1			

<u>Source</u>	<u>df</u>	<u>ss</u>	<u>ms</u>	<u>F</u>	<u>P</u>
Gap 22	1	1.8	1.8	0.01	0.924
Error	<u>15</u>	<u>2921.2</u>	194.7		
Total	16	2923.1			
Gap 23	1	184.5	184.5	1.01	0.331
Error	<u>15</u>	<u>2738.6</u>	182.6		
Total	16	2923.1			
Gap 24	1	68.0	68.0	0.36	0.559
Error	<u>15</u>	<u>2855.0</u>	190.3		
Total	16	2923.1			
Gap 25	1	11.6	11.6	0.06	0.810
Error	<u>15</u>	<u>2911.4</u>	194.1		
Total	16	2923.1			
Gap 26	1	8.6	8.6	0.04	0.836
Error	<u>15</u>	<u>2914.5</u>	194.3		
Total	16	2923.1			
Gap 27	1	20.1	20.1	0.10	0.752
Error	<u>15</u>	<u>2903.0</u>	193.5		
Total	16	2923.1			
Gap 28	1	5.6	5.6	0.03	0.868
Error	<u>15</u>	<u>2917.5</u>	194.5		
Total	16	2923.1			
Gap 29	1	0.3	0.3	0.00	0.967
Error	<u>15</u>	<u>2922.7</u>	194.8		
Total	16	2923.1			
Gap 30	1	16.4	16.4	0.08	0.779
Error	<u>14</u>	<u>2816.0</u>	201.1		
Total	15	2832.4			
Gap 31	1	11.3	11.3	0.06	0.813
Error	<u>15</u>	<u>2911.8</u>	194.1		
Total	16	2923.1			
Gap 32	1	63.1	63.1	0.33	0.574
Error	<u>15</u>	<u>2860.0</u>	190.7		
Total	16	2923.1			

<u>Source</u>	<u>df</u>	<u>ss</u>	<u>ms</u>	<u>F</u>	<u>P</u>
Gap 33	1	4.6	4.6	0.02	0.882
Error	<u>14</u>	<u>2827.8</u>	202.0		
Total	15	2832.4			
Gap 34	1	13.3	13.3	0.07	0.797
Error	<u>15</u>	<u>2909.8</u>	194.0		
Total	16	2923.1			
Gap 35	1	22.1	22.1	0.11	0.740
Error	<u>15</u>	<u>2901.0</u>	193.4		
Total	16	2923.1			
Gap 36	1	163.2	163.2	0.89	0.361
Error	<u>15</u>	<u>2759.8</u>	184.0		
Total	16	2923.1			
Gap 37	1	0.0	0.0	0.00	0.988
Error	<u>15</u>	<u>2923.0</u>	194.9		
Total	16	2923.1			
Gap 38	1	100.4	100.4	0.51	0.485
Error	<u>14</u>	<u>2723.1</u>	195.1		
Total	15	2832.4			
Gap 39	1	1.0	1.0	0.00	0.945
Error	<u>15</u>	<u>2922.1</u>	194.8		
Total	16	2923.1			
Gap 40	1	0.8	0.8	0.00	0.947
Error	<u>14</u>	<u>2464.1</u>	176.0		
Total	15	2464.9			
Gap 41	1	14.6	14.6	0.08	0.788
Error	<u>15</u>	<u>2908.5</u>	193.9		
Total	16	2923.1			
Gap 42	1	119.7	119.7	0.64	0.436
Error	<u>15</u>	<u>2803.4</u>	186.9		
Total	16	2923.1			
Gap 43	1	27.9	27.9	0.14	0.709
Error	<u>15</u>	<u>2895.1</u>	193.0		
Total	16	2923.1			

<u>Source</u>	<u>df</u>	<u>ss</u>	<u>ms</u>	<u>F</u>	<u>P</u>
Gap 44	1	38.7	38.7	0.20	0.660
Error	<u>15</u>	<u>2884.3</u>	192.3		
Total	16	2923.1			
Gap 45	1	41.3	41.3	0.21	0.650
Error	<u>15</u>	<u>2881.8</u>	192.1		
Total	16	2923.1			
Gap 46	1	0.1	0.1	0.00	0.986
Error	<u>15</u>	<u>2923.0</u>	194.9		
Total	16	2923.1			
Gap 47	1	2.3	2.3	0.01	0.915
Error	<u>15</u>	<u>2920.8</u>	194.7		
Total	16	2923.1			
Gap 48	1	0.5	0.5	0.00	0.958
Error	<u>15</u>	<u>2922.5</u>	194.8		
Total	16	2923.1			
Gap 49	1	69.0	69.0	0.36	0.556
Error	<u>15</u>	<u>2854.0</u>	190.3		
Total	16	2923.1			
Gap 50	1	431.5	431.5	2.60	0.128
Error	<u>15</u>	<u>2491.5</u>	166.1		
Total	16	2923.1			
Gap 51	1	0.1	0.1	0.00	0.979
Error	<u>15</u>	<u>2922.9</u>	194.9		
Total	16	2923.1			
Gap 52	1	13.8	13.8	0.07	0.793
Error	<u>15</u>	<u>2909.3</u>	194.0		
Total	16	2923.1			
Gap 53	1	9.3	9.3	0.05	0.829
Error	<u>15</u>	<u>2913.7</u>	194.2		
Total	16	2923.1			

<u>Source</u>	<u>df</u>	<u>ss</u>	<u>ms</u>	<u>F</u>	<u>P</u>
Gap 54	1	53.3	53.3	0.28	0.605
Error	<u>15</u>	<u>2869.7</u>	191.3		
Total	16	2923.1			
Gap 55	1	16.8	16.8	0.09	0.772
Error	<u>15</u>	<u>2906.2</u>	193.7		
Total	16	2923.1			
Gap 56	1	18.7	18.7	0.10	0.760
Error	<u>15</u>	<u>2904.3</u>	193.6		
Total	16	2923.1			
Gap 57	1	66.6	66.6	0.35	0.563
Error	<u>15</u>	<u>2856.4</u>	190.4		
Total	16	2923.1			
Gap 58	1	55.6	55.6	0.29	0.598
Error	<u>15</u>	<u>2867.5</u>	191.2		
Total	16	2923.1			
Gap 59	1	115.7	115.7	0.62	0.444
Error	<u>15</u>	<u>2807.4</u>	187.2		
Total	16	2923.1			
Gap 60	1	156.1	156.1	0.83	0.379
Error	<u>14</u>	<u>2643.9</u>	188.8		
Total	15	2799.9			
Gap 61	1	5.9	5.9	0.03	0.864
Error	<u>15</u>	<u>2917.2</u>	194.5		
Total	16	2923.1			
Gap 62	1	105.8	105.8	0.56	0.465
Error	<u>15</u>	<u>2817.3</u>	187.8		
Total	16	2923.1			
Gap 63	1	0.2	0.2	0.00	0.976
Error	<u>15</u>	<u>2922.9</u>	194.9		
Total	16	2923.1			
Gap 64	1	0.5	0.5	0.00	0.961
Error	<u>15</u>	<u>2922.6</u>	194.8		
Total	16	2923.1			

<u>Source</u>	<u>df</u>	<u>ss</u>	<u>ms</u>	<u>F</u>	<u>P</u>
Gap 65	1	23.4	23.4	0.12	0.733
Error	<u>15</u>	<u>2899.6</u>	193.3		
Total	16	2923.1			
Gap 66	1	4.8	4.8	0.02	0.877
Error	<u>15</u>	<u>2918.2</u>	194.5		
Total	16	2923.1			
Gap 67	1	303.2	303.2	1.74	0.207
Error	<u>15</u>	<u>2619.9</u>	174.7		
Total	16	2923.1			
Gap 68	1	136.7	136.7	0.74	0.404
Error	<u>15</u>	<u>2786.3</u>	185.8		
Total	16	2923.1			
Gap 69	1	36.2	36.2	0.19	0.671
Error	<u>15</u>	<u>2886.9</u>	192.5		
Total	16	2923.1			
Gap 70	1	7.6	7.6	0.04	0.846
Error	<u>15</u>	<u>2915.4</u>	194.4		
Total	16	2923.1			
Gap 71	1	56.4	56.4	0.28	0.602
Error	<u>14</u>	<u>2776.1</u>	198.3		
Total	15	2832.4			
Gap 72	1	64.4	64.4	0.34	0.570
Error	<u>15</u>	<u>2858.6</u>	190.6		
Total	16	2923.1			
Gap 73	1	2.8	2.8	0.01	0.906
Error	<u>15</u>	<u>2920.3</u>	194.7		
Total	16	2923.1			
Gap 74	1	397.6	397.6	2.29	0.153
Error	<u>14</u>	<u>2434.8</u>	173.9		
Total	15	2832.4			
Gap 75	1	167.2	167.2	0.88	0.365
Error	<u>14</u>	<u>2665.2</u>	190.4		
Total	15	2832.4			

<u>Source</u>	<u>df</u>	<u>ss</u>	<u>ms</u>	<u>F</u>	<u>P</u>
Gap 76	1	135.9	135.9	0.73	0.406
Error	<u>15</u>	<u>2787.1</u>	185.8		
Total	16	2923.1			
Gap 77	1	119.8	119.8	0.64	0.436
Error	<u>15</u>	<u>2803.3</u>	186.9		
Total	16	2923.1			
Gap 78	1	301.1	301.1	1.67	0.218
Error	<u>14</u>	<u>2531.3</u>	180.8		
Total	15	2832.4			
Gap 79	1	530.5	530.5	3.33	0.088
Error	<u>15</u>	<u>2392.6</u>	159.5		
Total	16	2923.1			
Gap 80	1	0.7	0.7	0.00	0.952
Error	<u>15</u>	<u>2922.3</u>	194.8		
Total	16	2923.1			

---

\*  $p < .05$ .

## Appendix C: SSI items predictability on Student Retention

Correlations: Gap1, Gap2, Gap3, Gap4, Gap5, Gap6, Gap7, Gap8, ...

	Gap1	Gap2	Gap3	Gap4	Gap5	Gap6	Gap7	Gap8	Gap9
Gap2	0.562 0.000								
Gap3	0.401 0.000	0.563 0.000							
Gap4	0.294 0.000	0.329 0.000	0.262 0.000						
Gap5	0.110 0.138	0.234 0.001	0.201 0.007	0.358 0.000					
Gap6	0.294 0.000	0.296 0.000	0.308 0.000	0.291 0.000	0.320 0.000				
Gap7	0.145 0.053	0.185 0.013	0.254 0.001	0.219 0.004	0.162 0.030	0.277 0.000			
Gap8	0.241 0.001	0.315 0.000	0.375 0.000	0.278 0.000	0.357 0.000	0.230 0.002	0.186 0.013		
Gap9	0.289 0.000	0.220 0.003	0.331 0.000	0.204 0.007	0.063 0.399	0.208 0.005	0.248 0.001	0.291 0.000	
Gap10	0.124 0.099	0.201 0.007	0.083 0.274	0.328 0.000	0.139 0.065	0.162 0.032	0.144 0.057	0.138 0.071	0.153 0.042
Gap11	0.142 0.059	0.153 0.043	0.247 0.001	0.537 0.000	0.228 0.002	0.246 0.001	0.261 0.001	0.249 0.001	0.184 0.015
Gap12	0.338 0.000	0.422 0.000	0.434 0.000	0.313 0.000	0.232 0.002	0.493 0.000	0.190 0.011	0.296 0.000	0.359 0.000
Gap13	0.190 0.011	0.339 0.000	0.414 0.000	0.368 0.000	0.222 0.003	0.327 0.000	0.503 0.000	0.340 0.000	0.288 0.000
Gap14	0.296 0.000	0.383 0.000	0.316 0.000	0.167 0.026	0.096 0.197	0.177 0.018	0.201 0.007	0.259 0.000	0.273 0.000
Gap15	0.126 0.092	0.374 0.000	0.335 0.000	0.251 0.001	0.577 0.000	0.249 0.001	0.311 0.000	0.534 0.000	0.158 0.035

Gap16	0.484	0.578	0.538	0.386	0.436	0.412	0.331	0.506	0.220
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
Gap17	0.054	0.102	0.008	0.107	-0.009	0.015	0.019	-0.015	-0.067
	0.480	0.180	0.916	0.162	0.904	0.842	0.803	0.846	0.379
Gap18	0.310	0.490	0.626	0.279	0.175	0.307	0.255	0.447	0.286
	0.000	0.000	0.000	0.000	0.018	0.000	0.001	0.000	0.000
Gap19	0.150	0.201	0.024	0.314	0.147	0.045	0.108	0.113	0.019
	0.051	0.008	0.753	0.000	0.055	0.558	0.160	0.144	0.808
Gap20	0.235	0.216	0.384	0.294	0.266	0.321	0.436	0.281	0.175
	0.001	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.019
Gap21	0.217	0.284	0.221	0.117	0.165	0.156	0.161	0.172	0.178
	0.003	0.000	0.003	0.122	0.027	0.037	0.032	0.022	0.017
Gap22	0.417	0.272	0.202	0.123	0.240	0.226	0.203	0.171	0.152
	0.000	0.000	0.007	0.103	0.001	0.002	0.007	0.024	0.042
Gap23	0.407	0.456	0.353	0.174	0.284	0.320	0.352	0.366	0.237
	0.000	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.001
Gap24	0.217	0.298	0.266	0.268	0.408	0.077	0.197	0.283	0.137
	0.003	0.000	0.000	0.000	0.000	0.307	0.008	0.000	0.068
Gap25	0.343	0.301	0.340	0.213	0.289	0.577	0.154	0.178	0.155
	0.000	0.000	0.000	0.005	0.000	0.000	0.040	0.018	0.038
Gap26	0.267	0.216	0.113	0.151	0.196	0.084	0.152	0.217	0.145
	0.000	0.003	0.131	0.045	0.008	0.264	0.043	0.004	0.053
Gap27	0.365	0.344	0.271	0.132	0.380	0.209	0.258	0.282	0.100
	0.000	0.000	0.000	0.080	0.000	0.005	0.001	0.000	0.182
Gap28	0.531	0.500	0.435	0.198	0.260	0.369	0.331	0.404	0.292
	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000
Gap29	0.399	0.400	0.438	0.199	0.292	0.294	0.368	0.421	0.261
	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000
Gap30	0.218	0.254	0.298	0.349	0.088	0.174	0.143	0.257	0.265
	0.003	0.001	0.000	0.000	0.243	0.022	0.060	0.001	0.000

Gap31	0.210	0.329	0.350	0.393	0.263	0.167	0.240	0.316	0.163
	0.005	0.000	0.000	0.000	0.000	0.026	0.001	0.000	0.029
Gap32	0.185	0.142	0.261	0.180	0.159	0.507	0.258	0.241	0.140
	0.013	0.057	0.000	0.017	0.033	0.000	0.001	0.001	0.062
Gap33	0.293	0.212	0.177	0.119	0.214	0.335	0.173	0.255	0.180
	0.000	0.005	0.019	0.119	0.004	0.000	0.023	0.001	0.017
Gap34	0.266	0.301	0.378	0.142	0.229	0.179	0.168	0.338	0.257
	0.000	0.000	0.000	0.061	0.002	0.017	0.025	0.000	0.001
Gap35	0.342	0.388	0.402	0.182	0.443	0.243	0.168	0.340	0.179
	0.000	0.000	0.000	0.015	0.000	0.001	0.025	0.000	0.016
Gap36	0.593	0.549	0.478	0.223	0.312	0.300	0.236	0.447	0.277
	0.000	0.000	0.000	0.003	0.000	0.000	0.002	0.000	0.000
Gap37	0.444	0.478	0.443	0.212	0.191	0.240	0.299	0.346	0.196
	0.000	0.000	0.000	0.005	0.010	0.001	0.000	0.000	0.008
Gap38	0.279	0.232	0.190	0.180	0.157	0.101	0.227	0.181	0.212
	0.000	0.002	0.011	0.017	0.035	0.181	0.002	0.017	0.005
Gap39	0.245	0.247	0.370	0.331	0.395	0.176	0.248	0.332	0.124
	0.001	0.001	0.000	0.000	0.000	0.019	0.001	0.000	0.097
Gap40	0.133	0.196	0.284	0.274	0.322	0.239	0.238	0.218	0.117
	0.077	0.009	0.000	0.000	0.000	0.001	0.002	0.004	0.120
Gap41	0.309	0.304	0.321	0.193	0.467	0.416	0.316	0.263	0.198
	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.008
Gap42	0.255	0.315	0.295	0.195	0.125	0.164	0.224	0.206	0.267
	0.001	0.000	0.000	0.010	0.095	0.029	0.003	0.006	0.000
Gap43	0.303	0.182	0.242	0.201	0.123	0.135	0.324	0.201	0.311
	0.000	0.014	0.001	0.008	0.099	0.073	0.000	0.008	0.000
Gap44	0.334	0.305	0.308	0.313	0.299	0.157	0.225	0.326	0.214
	0.000	0.000	0.000	0.000	0.000	0.036	0.003	0.000	0.004
Gap45	0.244	0.268	0.298	0.178	0.124	0.214	0.225	0.285	0.288
	0.001	0.000	0.000	0.018	0.096	0.004	0.003	0.000	0.000

Gap46	0.346	0.415	0.387	0.245	0.239	0.316	0.235	0.429	0.325
	0.000	0.000	0.000	0.001	0.001	0.000	0.002	0.000	0.000
Gap47	0.344	0.330	0.356	0.319	0.203	0.103	0.240	0.213	0.325
	0.000	0.000	0.000	0.000	0.006	0.171	0.001	0.004	0.000
Gap48	0.413	0.303	0.285	0.248	0.306	0.291	0.232	0.281	0.299
	0.000	0.000	0.000	0.001	0.000	0.000	0.002	0.000	0.000
Gap49	0.318	0.296	0.310	0.236	0.313	0.272	0.188	0.122	0.313
	0.000	0.000	0.000	0.002	0.000	0.000	0.013	0.110	0.000
Gap50	0.246	0.318	0.132	0.110	0.060	0.142	0.182	0.101	0.204
	0.001	0.000	0.079	0.150	0.425	0.060	0.016	0.187	0.006
Gap51	0.277	0.276	0.292	0.036	0.205	0.252	0.344	0.257	0.200
	0.000	0.000	0.000	0.637	0.006	0.001	0.000	0.001	0.007
Gap52	0.445	0.358	0.440	0.145	0.219	0.220	0.222	0.420	0.359
	0.000	0.000	0.000	0.056	0.003	0.003	0.003	0.000	0.000
Gap53	0.325	0.343	0.335	0.076	0.302	0.223	0.142	0.204	0.297
	0.000	0.000	0.000	0.312	0.000	0.003	0.057	0.006	0.000
Gap54	0.437	0.461	0.407	0.133	0.274	0.287	0.231	0.352	0.281
	0.000	0.000	0.000	0.077	0.000	0.000	0.002	0.000	0.000
Gap55	0.375	0.300	0.301	0.094	0.155	0.398	0.231	0.203	0.305
	0.000	0.000	0.000	0.213	0.037	0.000	0.002	0.007	0.000
Gap56	0.147	0.061	0.253	0.211	0.094	0.337	0.274	0.135	0.277
	0.050	0.419	0.001	0.005	0.210	0.000	0.000	0.075	0.000
Gap57	0.301	0.327	0.306	0.280	0.255	0.324	0.308	0.296	0.188
	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.012
Gap58	0.140	0.290	0.475	0.147	0.199	0.212	0.320	0.294	0.228
	0.060	0.000	0.000	0.051	0.007	0.004	0.000	0.000	0.002
Gap59	0.191	0.078	0.128	0.126	0.088	0.137	0.239	0.059	0.125
	0.010	0.296	0.087	0.097	0.241	0.068	0.001	0.438	0.095
Gap60	0.306	0.210	0.243	0.092	0.230	0.275	0.357	0.215	0.136
	0.000	0.005	0.001	0.224	0.002	0.000	0.000	0.004	0.070

Gap61	0.353	0.403	0.420	0.289	0.185	0.340	0.381	0.252	0.196
	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.001	0.009
Gap62	0.172	0.157	0.176	0.250	0.348	0.153	0.220	0.243	0.156
	0.021	0.035	0.019	0.001	0.000	0.043	0.003	0.001	0.038
Gap63	0.280	0.321	0.339	0.231	0.447	0.363	0.350	0.352	0.162
	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.030
Gap64	0.304	0.304	0.388	0.191	0.206	0.215	0.252	0.365	0.210
	0.000	0.000	0.000	0.011	0.005	0.004	0.001	0.000	0.005
Gap65	0.239	0.210	0.260	0.244	0.193	0.264	0.251	0.302	0.242
	0.001	0.005	0.000	0.001	0.009	0.000	0.001	0.000	0.001
Gap66	0.319	0.393	0.381	0.087	0.312	0.257	0.182	0.328	0.158
	0.000	0.000	0.000	0.250	0.000	0.001	0.015	0.000	0.034
Gap67	0.332	0.332	0.342	0.177	0.226	0.389	0.285	0.336	0.162
	0.000	0.000	0.000	0.018	0.002	0.000	0.000	0.000	0.029
Gap68	0.398	0.386	0.293	0.160	0.159	0.079	0.188	0.310	0.191
	0.000	0.000	0.000	0.034	0.033	0.292	0.012	0.000	0.010
Gap69	0.124	0.300	0.269	0.178	0.256	0.140	0.031	0.243	0.141
	0.094	0.000	0.000	0.018	0.000	0.062	0.680	0.001	0.058
Gap70	0.170	0.294	0.323	0.138	0.228	0.250	0.132	0.291	0.261
	0.022	0.000	0.000	0.069	0.002	0.001	0.079	0.000	0.000
Gap71	0.254	0.197	0.057	0.125	0.118	0.111	-0.009	0.161	0.176
	0.001	0.010	0.463	0.107	0.124	0.149	0.905	0.038	0.022
Gap72	0.292	0.265	0.281	0.129	0.143	0.094	0.195	0.263	0.232
	0.000	0.000	0.000	0.095	0.059	0.223	0.011	0.001	0.002
Gap73	0.308	0.374	0.241	0.128	0.369	0.254	0.090	0.296	0.188
	0.000	0.000	0.001	0.098	0.000	0.001	0.240	0.000	0.013
Gap74	0.147	0.204	0.095	0.150	0.168	0.072	-0.077	0.281	0.248
	0.054	0.007	0.216	0.052	0.027	0.348	0.318	0.000	0.001
Gap75	0.120	0.153	0.113	0.060	0.095	0.187	0.152	0.220	0.106
	0.120	0.046	0.143	0.445	0.218	0.015	0.050	0.004	0.168

Gap76 0.162 0.219 0.111 0.310 0.212 0.138 0.061 0.240 0.233  
0.034 0.004 0.150 0.000 0.005 0.074 0.430 0.002 0.002

Gap77 0.244 0.252 0.216 0.251 0.181 0.182 0.151 0.273 0.309  
0.001 0.001 0.004 0.001 0.017 0.018 0.051 0.000 0.000

Gap78 0.254 0.164 0.172 0.197 0.127 0.151 0.231 0.167 0.039  
0.001 0.033 0.025 0.011 0.099 0.051 0.003 0.032 0.614

Gap79 0.305 0.258 0.182 0.264 0.090 0.220 0.205 0.170 0.002  
0.000 0.001 0.018 0.001 0.242 0.004 0.008 0.029 0.975

Gap80 0.331 0.379 0.299 0.320 0.296 0.309 0.256 0.318 0.091  
0.000 0.000 0.000 0.000 0.000 0.000 0.001 0.000 0.235

Gap10 Gap11 Gap12 Gap13 Gap14 Gap15 Gap16 Gap17 Gap18  
Gap11 0.399  
0.000

Gap12 0.311 0.439  
0.000 0.000

Gap13 0.265 0.402 0.330  
0.000 0.000 0.000

Gap14 0.150 0.177 0.237 0.297  
0.045 0.019 0.001 0.000

Gap15 0.176 0.157 0.279 0.294 0.282  
0.019 0.037 0.000 0.000 0.000

Gap16 0.216 0.236 0.413 0.343 0.254 0.562  
0.004 0.002 0.000 0.000 0.001 0.000

Gap17 0.380 0.082 0.107 0.097 0.045 0.039 0.059  
0.000 0.284 0.159 0.204 0.557 0.613 0.440

Gap18 0.029 0.113 0.417 0.312 0.195 0.346 0.541 -0.084  
0.701 0.133 0.000 0.000 0.008 0.000 0.000 0.271

Gap19 0.503 0.200 0.133 0.166 0.163 0.191 0.283 0.578 0.051  
0.000 0.009 0.083 0.030 0.034 0.013 0.000 0.000 0.505

Gap20 0.333 0.390 0.350 0.563 0.318 0.386 0.337 0.085 0.279

	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.267	0.000
Gap21	0.173	0.115	0.237	0.218	0.293	0.236	0.353	0.026	0.269
	0.021	0.127	0.001	0.003	0.000	0.001	0.000	0.731	0.000
Gap22	0.121	0.169	0.253	0.203	0.148	0.255	0.391	-0.072	0.228
	0.109	0.025	0.001	0.007	0.047	0.001	0.000	0.346	0.002
Gap23	0.196	0.140	0.351	0.334	0.274	0.459	0.576	0.059	0.364
	0.009	0.064	0.000	0.000	0.000	0.000	0.000	0.437	0.000
Gap24	0.039	0.119	0.166	0.227	0.172	0.302	0.355	-0.108	0.148
	0.604	0.116	0.026	0.002	0.021	0.000	0.000	0.155	0.047
Gap25	0.060	0.230	0.505	0.301	0.194	0.214	0.275	-0.081	0.241
	0.426	0.002	0.000	0.000	0.009	0.004	0.000	0.285	0.001
Gap26	0.130	0.133	0.115	0.282	0.456	0.216	0.232	-0.020	0.087
	0.083	0.079	0.123	0.000	0.000	0.004	0.002	0.789	0.243
Gap27	0.188	0.076	0.250	0.141	0.384	0.431	0.483	-0.057	0.239
	0.012	0.318	0.001	0.060	0.000	0.000	0.000	0.453	0.001
Gap28	0.078	0.145	0.445	0.291	0.314	0.374	0.590	-0.045	0.460
	0.304	0.054	0.000	0.000	0.000	0.000	0.000	0.554	0.000
Gap29	0.167	0.128	0.325	0.343	0.351	0.435	0.477	0.001	0.442
	0.027	0.089	0.000	0.000	0.000	0.000	0.000	0.989	0.000
Gap30	0.282	0.448	0.315	0.335	0.252	0.150	0.225	0.251	0.239
	0.000	0.000	0.000	0.000	0.001	0.047	0.003	0.001	0.001
Gap31	0.095	0.197	0.308	0.306	0.217	0.256	0.337	-0.020	0.382
	0.209	0.009	0.000	0.000	0.003	0.001	0.000	0.795	0.000
Gap32	0.111	0.261	0.387	0.200	0.174	0.217	0.276	-0.007	0.245
	0.142	0.000	0.000	0.008	0.020	0.004	0.000	0.929	0.001
Gap33	0.062	0.219	0.179	0.140	0.250	0.264	0.323	-0.084	0.189
	0.417	0.004	0.018	0.064	0.001	0.000	0.000	0.272	0.012
Gap34	0.113	0.154	0.278	0.141	0.434	0.323	0.373	-0.023	0.417
	0.137	0.042	0.000	0.061	0.000	0.000	0.000	0.760	0.000
Gap35	-0.023	0.095	0.336	0.204	0.304	0.574	0.510	0.071	0.393
	0.757	0.209	0.000	0.006	0.000	0.000	0.000	0.350	0.000

Gap36	0.095	0.128	0.349	0.319	0.392	0.416	0.613	0.006	0.467
	0.208	0.091	0.000	0.000	0.000	0.000	0.000	0.936	0.000
Gap37	0.052	-0.001	0.240	0.337	0.348	0.419	0.521	0.122	0.422
	0.489	0.992	0.001	0.000	0.000	0.000	0.000	0.110	0.000
Gap38	0.194	0.203	0.274	0.273	0.367	0.203	0.275	0.160	0.233
	0.010	0.007	0.000	0.000	0.000	0.007	0.000	0.034	0.002
Gap39	0.019	0.192	0.288	0.205	0.168	0.349	0.413	0.016	0.324
	0.801	0.010	0.000	0.006	0.024	0.000	0.000	0.835	0.000
Gap40	0.212	0.282	0.282	0.272	0.260	0.298	0.324	0.078	0.263
	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.312	0.000
Gap41	-0.014	0.147	0.302	0.246	0.269	0.396	0.457	-0.060	0.357
	0.857	0.051	0.000	0.001	0.000	0.000	0.000	0.435	0.000
Gap42	0.185	0.189	0.134	0.161	0.376	0.225	0.274	-0.036	0.282
	0.014	0.012	0.073	0.031	0.000	0.002	0.000	0.642	0.000
Gap43	0.147	0.212	0.040	0.295	0.411	0.155	0.293	0.020	0.225
	0.052	0.005	0.591	0.000	0.000	0.039	0.000	0.798	0.002
Gap44	0.049	0.208	0.260	0.253	0.269	0.266	0.332	0.001	0.369
	0.519	0.006	0.000	0.001	0.000	0.000	0.000	0.993	0.000
Gap45	0.076	0.080	0.244	0.270	0.301	0.218	0.351	0.010	0.400
	0.316	0.293	0.001	0.000	0.000	0.003	0.000	0.898	0.000
Gap46	0.036	0.029	0.368	0.324	0.312	0.394	0.496	-0.013	0.446
	0.636	0.699	0.000	0.000	0.000	0.000	0.000	0.869	0.000
Gap47	0.073	0.333	0.339	0.326	0.354	0.273	0.356	0.050	0.275
	0.336	0.000	0.000	0.000	0.000	0.000	0.000	0.509	0.000
Gap48	0.156	0.385	0.407	0.293	0.280	0.335	0.416	0.056	0.256
	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.463	0.001
Gap49	0.144	0.210	0.392	0.225	0.343	0.286	0.398	0.055	0.237
	0.058	0.005	0.000	0.003	0.000	0.000	0.000	0.471	0.001
Gap50	0.189	0.262	0.329	0.204	0.350	0.126	0.264	0.252	0.088
	0.013	0.000	0.000	0.007	0.000	0.095	0.000	0.001	0.242

Gap51 -0.099 0.123 0.232 0.226 0.204 0.312 0.367 -0.057 0.363  
 0.193 0.104 0.002 0.003 0.006 0.000 0.000 0.452 0.000

Gap52 0.008 0.103 0.245 0.301 0.454 0.353 0.444 -0.083 0.444  
 0.920 0.176 0.001 0.000 0.000 0.000 0.000 0.278 0.000

Gap53 0.181 0.254 0.344 0.270 0.332 0.298 0.329 0.068 0.259  
 0.016 0.001 0.000 0.000 0.000 0.000 0.000 0.372 0.000

Gap54 0.086 0.012 0.317 0.295 0.342 0.343 0.477 0.052 0.419  
 0.252 0.877 0.000 0.000 0.000 0.000 0.000 0.491 0.000

Gap55 0.039 0.203 0.416 0.300 0.342 0.180 0.315 0.026 0.275  
 0.603 0.007 0.000 0.000 0.000 0.016 0.000 0.737 0.000

Gap56 0.055 0.238 0.267 0.205 0.263 0.136 0.296 0.007 0.222  
 0.473 0.001 0.000 0.006 0.000 0.069 0.000 0.925 0.003

Gap57 0.005 0.325 0.294 0.238 0.316 0.314 0.439 0.045 0.371  
 0.952 0.000 0.000 0.001 0.000 0.000 0.000 0.559 0.000

Gap58 0.064 0.186 0.294 0.282 0.331 0.327 0.377 -0.090 0.460  
 0.398 0.013 0.000 0.000 0.000 0.000 0.000 0.239 0.000

Gap59 0.115 0.257 0.196 0.122 0.152 0.197 0.229 0.106 0.130  
 0.128 0.001 0.008 0.105 0.041 0.008 0.002 0.166 0.082

Gap60 -0.004 0.236 0.267 0.226 0.171 0.300 0.347 -0.054 0.242  
 0.961 0.002 0.000 0.002 0.021 0.000 0.000 0.479 0.001

Gap61 0.103 0.059 0.365 0.341 0.317 0.367 0.543 0.081 0.482  
 0.175 0.438 0.000 0.000 0.000 0.000 0.000 0.290 0.000

Gap62 0.135 0.153 0.274 0.177 0.241 0.290 0.368 0.031 0.237  
 0.075 0.043 0.000 0.018 0.001 0.000 0.000 0.682 0.001

Gap63 0.119 0.238 0.365 0.294 0.387 0.467 0.485 0.066 0.374  
 0.115 0.001 0.000 0.000 0.000 0.000 0.000 0.385 0.000

Gap64 0.032 0.051 0.259 0.184 0.258 0.391 0.419 0.014 0.574  
 0.671 0.499 0.000 0.014 0.000 0.000 0.000 0.859 0.000

Gap65 0.125 0.280 0.296 0.291 0.279 0.243 0.291 0.098 0.248  
 0.098 0.000 0.000 0.000 0.000 0.001 0.000 0.195 0.001

Gap66 0.033 0.056 0.332 0.348 0.260 0.348 0.429 -0.039 0.312  
 0.666 0.462 0.000 0.000 0.000 0.000 0.000 0.609 0.000

Gap67 0.250 0.145 0.311 0.297 0.372 0.241 0.423 0.147 0.306  
 0.001 0.054 0.000 0.000 0.000 0.001 0.000 0.052 0.000

Gap68 0.077 0.062 0.260 0.175 0.299 0.262 0.426 -0.110 0.260  
 0.307 0.412 0.000 0.019 0.000 0.000 0.000 0.147 0.000

Gap69 0.068 0.062 0.286 0.181 0.305 0.289 0.309 -0.134 0.322  
 0.370 0.414 0.000 0.015 0.000 0.000 0.000 0.077 0.000

Gap70 -0.032 0.110 0.380 0.253 0.211 0.255 0.284 -0.133 0.403  
 0.674 0.146 0.000 0.001 0.004 0.001 0.000 0.080 0.000

Gap71 0.043 -0.007 0.221 0.041 0.214 0.056 0.148 0.144 0.149  
 0.584 0.931 0.004 0.596 0.005 0.465 0.055 0.064 0.051

Gap72 0.063 0.029 0.230 0.226 0.186 0.191 0.281 0.041 0.315  
 0.411 0.705 0.002 0.003 0.014 0.012 0.000 0.602 0.000

Gap73 -0.020 0.138 0.280 0.166 0.270 0.416 0.434 -0.120 0.289  
 0.797 0.075 0.000 0.029 0.000 0.000 0.000 0.122 0.000

Gap74 0.075 -0.097 0.096 0.147 0.267 0.249 0.163 0.021 0.154  
 0.335 0.209 0.208 0.056 0.000 0.001 0.033 0.791 0.043

Gap75 0.224 0.166 0.128 0.190 0.170 0.301 0.152 0.242 0.099  
 0.004 0.033 0.098 0.014 0.027 0.000 0.049 0.002 0.199

Gap76 0.161 0.211 0.216 0.359 0.210 0.295 0.325 0.020 0.210  
 0.038 0.006 0.005 0.000 0.006 0.000 0.000 0.799 0.006

Gap77 0.221 0.299 0.351 0.295 0.203 0.295 0.273 0.083 0.301  
 0.004 0.000 0.000 0.000 0.008 0.000 0.000 0.285 0.000

Gap78 0.087 0.183 0.066 0.157 0.079 0.287 0.241 -0.047 0.079  
 0.266 0.018 0.393 0.043 0.308 0.000 0.002 0.549 0.307

Gap79 0.116 0.267 0.194 0.340 0.158 0.183 0.218 0.035 0.180  
 0.136 0.001 0.011 0.000 0.039 0.017 0.005 0.657 0.019

Gap80 0.111 0.247 0.304 0.342 0.278 0.423 0.506 0.087 0.380  
 0.150 0.001 0.000 0.000 0.000 0.000 0.000 0.266 0.000

	Gap19	Gap20	Gap21	Gap22	Gap23	Gap24	Gap25	Gap26	Gap27
Gap20	0.186								
	0.015								
Gap21	0.130	0.143							
	0.092	0.056							
Gap22	0.110	0.276	0.590						
	0.155	0.000	0.000						
Gap23	0.157	0.395	0.419	0.486					
	0.042	0.000	0.000	0.000					
Gap24	0.079	0.254	0.345	0.377	0.319				
	0.305	0.001	0.000	0.000	0.000				
Gap25	-0.016	0.390	0.222	0.341	0.289	0.330			
	0.835	0.000	0.003	0.000	0.000	0.000			
Gap26	0.165	0.131	0.375	0.412	0.266	0.313	0.192		
	0.031	0.080	0.000	0.000	0.000	0.000	0.010		
Gap27	0.192	0.309	0.328	0.376	0.489	0.391	0.338	0.460	
	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Gap28	0.147	0.250	0.313	0.405	0.505	0.335	0.487	0.377	0.548
	0.056	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap29	0.204	0.381	0.332	0.443	0.586	0.320	0.349	0.363	0.516
	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap30	0.306	0.294	0.224	0.118	0.252	0.160	0.224	0.347	0.218
	0.000	0.000	0.003	0.121	0.001	0.034	0.003	0.000	0.004
Gap31	0.286	0.219	0.199	0.223	0.284	0.499	0.255	0.352	0.251
	0.000	0.003	0.008	0.003	0.000	0.000	0.001	0.000	0.001
Gap32	0.019	0.318	0.146	0.227	0.200	0.252	0.623	0.159	0.251
	0.810	0.000	0.052	0.002	0.007	0.001	0.000	0.033	0.001
Gap33	0.112	0.181	0.148	0.370	0.304	0.289	0.412	0.349	0.397
	0.147	0.016	0.050	0.000	0.000	0.000	0.000	0.000	0.000
Gap34	0.149	0.194	0.451	0.399	0.392	0.351	0.164	0.351	0.339
	0.053	0.009	0.000	0.000	0.000	0.000	0.028	0.000	0.000

Gap35	0.144	0.238	0.324	0.383	0.431	0.308	0.304	0.263	0.366
	0.060	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap36	0.241	0.336	0.362	0.553	0.564	0.336	0.425	0.344	0.491
	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap37	0.213	0.309	0.331	0.424	0.556	0.380	0.270	0.345	0.413
	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap38	0.166	0.303	0.396	0.258	0.297	0.255	0.217	0.406	0.328
	0.032	0.000	0.000	0.001	0.000	0.001	0.004	0.000	0.000
Gap39	0.090	0.238	0.235	0.215	0.362	0.493	0.304	0.179	0.371
	0.244	0.001	0.001	0.004	0.000	0.000	0.000	0.016	0.000
Gap40	0.182	0.367	0.108	0.112	0.197	0.273	0.396	0.225	0.322
	0.018	0.000	0.152	0.140	0.009	0.000	0.000	0.003	0.000
Gap41	0.045	0.330	0.338	0.305	0.313	0.358	0.385	0.263	0.423
	0.564	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap42	0.205	0.187	0.303	0.399	0.294	0.285	0.190	0.343	0.247
	0.007	0.012	0.000	0.000	0.000	0.000	0.011	0.000	0.001
Gap43	0.167	0.220	0.318	0.357	0.303	0.247	0.161	0.422	0.382
	0.029	0.003	0.000	0.000	0.000	0.001	0.032	0.000	0.000
Gap44	0.141	0.246	0.387	0.461	0.305	0.411	0.239	0.383	0.278
	0.066	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000
Gap45	0.188	0.212	0.222	0.275	0.256	0.234	0.190	0.348	0.228
	0.014	0.004	0.003	0.000	0.001	0.002	0.011	0.000	0.002
Gap46	0.191	0.289	0.252	0.313	0.385	0.306	0.346	0.295	0.375
	0.012	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Gap47	0.217	0.254	0.201	0.239	0.265	0.381	0.269	0.326	0.209
	0.004	0.001	0.007	0.001	0.000	0.000	0.000	0.000	0.005
Gap48	0.280	0.343	0.181	0.377	0.435	0.273	0.394	0.307	0.391
	0.000	0.000	0.015	0.000	0.000	0.000	0.000	0.000	0.000
Gap49	0.204	0.305	0.272	0.366	0.430	0.309	0.341	0.311	0.470
	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Gap50	0.327	0.155	0.295	0.281	0.324	0.071	0.002	0.265	0.192
	0.000	0.040	0.000	0.000	0.000	0.349	0.977	0.000	0.011
Gap51	0.072	0.228	0.200	0.370	0.352	0.270	0.228	0.282	0.267
	0.354	0.002	0.008	0.000	0.000	0.000	0.002	0.000	0.000
Gap52	0.189	0.432	0.198	0.397	0.437	0.382	0.422	0.322	0.394
	0.014	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000
Gap53	0.173	0.315	0.249	0.317	0.364	0.271	0.310	0.316	0.408
	0.024	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Gap54	0.197	0.332	0.321	0.418	0.571	0.362	0.321	0.352	0.552
	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap55	0.170	0.281	0.275	0.379	0.371	0.240	0.342	0.305	0.247
	0.026	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001
Gap56	0.148	0.252	0.103	0.277	0.289	0.169	0.177	0.276	0.164
	0.055	0.001	0.172	0.000	0.000	0.024	0.018	0.000	0.029
Gap57	0.106	0.234	0.289	0.346	0.300	0.309	0.260	0.397	0.428
	0.169	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap58	0.006	0.302	0.332	0.272	0.315	0.384	0.281	0.317	0.354
	0.942	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap59	0.188	0.282	0.220	0.389	0.200	0.268	0.167	0.329	0.232
	0.014	0.000	0.003	0.000	0.007	0.000	0.025	0.000	0.002
Gap60	0.150	0.251	0.193	0.445	0.247	0.235	0.318	0.275	0.380
	0.050	0.001	0.010	0.000	0.001	0.002	0.000	0.000	0.000
Gap61	0.223	0.370	0.277	0.377	0.489	0.235	0.346	0.219	0.356
	0.004	0.000	0.000	0.000	0.000	0.002	0.000	0.003	0.000
Gap62	0.139	0.303	0.325	0.270	0.283	0.410	0.172	0.336	0.418
	0.072	0.000	0.000	0.000	0.000	0.000	0.022	0.000	0.000
Gap63	0.143	0.447	0.401	0.326	0.411	0.373	0.436	0.284	0.567
	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap64	0.079	0.205	0.260	0.274	0.377	0.191	0.260	0.215	0.355
	0.303	0.006	0.000	0.000	0.000	0.010	0.000	0.004	0.000

Gap65	0.167	0.327	0.253	0.297	0.292	0.288	0.263	0.313	0.345
	0.029	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Gap66	0.157	0.391	0.332	0.482	0.414	0.425	0.419	0.283	0.448
	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap67	0.303	0.380	0.265	0.267	0.367	0.267	0.362	0.353	0.542
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap68	0.125	0.168	0.287	0.544	0.325	0.458	0.270	0.306	0.472
	0.104	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap69	0.104	0.171	0.369	0.415	0.282	0.285	0.273	0.230	0.310
	0.174	0.021	0.000	0.000	0.000	0.000	0.000	0.002	0.000
Gap70	0.056	0.218	0.250	0.288	0.296	0.170	0.327	0.204	0.319
	0.470	0.003	0.001	0.000	0.000	0.023	0.000	0.006	0.000
Gap71	0.191	-0.082	0.149	0.145	0.177	0.099	0.053	0.357	0.137
	0.015	0.290	0.052	0.058	0.020	0.200	0.492	0.000	0.075
Gap72	0.097	0.182	0.280	0.281	0.392	0.248	0.224	0.254	0.253
	0.217	0.017	0.000	0.000	0.000	0.001	0.003	0.001	0.001
Gap73	0.000	0.227	0.220	0.298	0.355	0.301	0.257	0.215	0.335
	0.999	0.003	0.004	0.000	0.000	0.000	0.001	0.005	0.000
Gap74	0.145	0.082	0.068	0.093	0.190	0.170	0.083	0.322	0.122
	0.066	0.287	0.374	0.226	0.013	0.026	0.276	0.000	0.111
Gap75	0.318	0.171	0.107	0.133	0.286	0.008	0.159	0.162	0.147
	0.000	0.026	0.164	0.084	0.000	0.921	0.039	0.036	0.057
Gap76	0.261	0.167	0.261	0.149	0.160	0.182	0.120	0.247	0.116
	0.001	0.030	0.001	0.052	0.037	0.017	0.118	0.001	0.134
Gap77	0.110	0.309	0.198	0.276	0.250	0.142	0.206	0.199	0.145
	0.162	0.000	0.010	0.000	0.001	0.064	0.007	0.009	0.060
Gap78	0.165	0.241	0.230	0.331	0.258	0.184	0.141	0.243	0.276
	0.036	0.002	0.003	0.000	0.001	0.017	0.067	0.001	0.000
Gap79	0.081	0.364	0.327	0.442	0.366	0.251	0.328	0.219	0.175
	0.304	0.000	0.000	0.000	0.000	0.001	0.000	0.004	0.024

Gap80 0.256 0.256 0.405 0.320 0.455 0.293 0.215 0.317 0.358  
0.001 0.001 0.000 0.000 0.000 0.000 0.005 0.000 0.000

Gap28 Gap29 Gap30 Gap31 Gap32 Gap33 Gap34 Gap35 Gap36  
Gap29 0.661  
0.000

Gap30 0.249 0.209  
0.001 0.005

Gap31 0.413 0.404 0.388  
0.000 0.000 0.000

Gap32 0.350 0.311 0.215 0.272  
0.000 0.000 0.004 0.000

Gap33 0.482 0.411 0.317 0.257 0.425  
0.000 0.000 0.000 0.001 0.000

Gap34 0.371 0.454 0.255 0.285 0.171 0.343  
0.000 0.000 0.001 0.000 0.022 0.000

Gap35 0.468 0.479 0.131 0.286 0.272 0.337 0.446  
0.000 0.000 0.083 0.000 0.000 0.000 0.000

Gap36 0.652 0.679 0.260 0.402 0.272 0.414 0.447 0.528  
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000

Gap37 0.553 0.609 0.222 0.361 0.200 0.369 0.400 0.531 0.593  
0.000 0.000 0.003 0.000 0.007 0.000 0.000 0.000 0.000

Gap38 0.305 0.322 0.371 0.206 0.257 0.287 0.321 0.280 0.299  
0.000 0.000 0.000 0.006 0.001 0.000 0.000 0.000 0.000

Gap39 0.372 0.443 0.176 0.304 0.184 0.195 0.268 0.392 0.359  
0.000 0.000 0.019 0.000 0.014 0.009 0.000 0.000 0.000

Gap40 0.270 0.311 0.204 0.226 0.427 0.380 0.218 0.262 0.290  
0.000 0.000 0.007 0.002 0.000 0.000 0.004 0.000 0.000

Gap41 0.446 0.394 0.192 0.292 0.343 0.424 0.324 0.369 0.391  
0.000 0.000 0.011 0.000 0.000 0.000 0.000 0.000 0.000

Gap42 0.296 0.305 0.306 0.338 0.263 0.364 0.432 0.359 0.362

	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap43	0.377	0.335	0.356	0.288	0.227	0.435	0.350	0.230	0.402
	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.002	0.000
Gap44	0.379	0.333	0.303	0.345	0.169	0.298	0.400	0.468	0.490
	0.000	0.000	0.000	0.000	0.024	0.000	0.000	0.000	0.000
Gap45	0.383	0.373	0.305	0.423	0.261	0.354	0.358	0.281	0.453
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap46	0.461	0.429	0.205	0.380	0.267	0.224	0.348	0.480	0.476
	0.000	0.000	0.006	0.000	0.000	0.003	0.000	0.000	0.000
Gap47	0.403	0.354	0.420	0.524	0.323	0.343	0.265	0.313	0.427
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap48	0.461	0.502	0.234	0.265	0.366	0.512	0.291	0.482	0.520
	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000
Gap49	0.439	0.417	0.236	0.193	0.223	0.415	0.439	0.427	0.440
	0.000	0.000	0.002	0.010	0.003	0.000	0.000	0.000	0.000
Gap50	0.298	0.240	0.238	0.068	0.017	0.214	0.293	0.267	0.211
	0.000	0.001	0.002	0.366	0.819	0.005	0.000	0.000	0.005
Gap51	0.368	0.340	0.138	0.310	0.199	0.341	0.310	0.454	0.381
	0.000	0.000	0.068	0.000	0.008	0.000	0.000	0.000	0.000
Gap52	0.521	0.458	0.266	0.353	0.337	0.466	0.434	0.509	0.584
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap53	0.474	0.468	0.257	0.277	0.274	0.432	0.326	0.467	0.494
	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Gap54	0.552	0.628	0.234	0.339	0.184	0.382	0.336	0.454	0.627
	0.000	0.000	0.002	0.000	0.013	0.000	0.000	0.000	0.000
Gap55	0.441	0.502	0.191	0.307	0.275	0.442	0.376	0.361	0.541
	0.000	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.000
Gap56	0.299	0.366	0.256	0.272	0.314	0.403	0.319	0.268	0.407
	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Gap57	0.479	0.415	0.326	0.280	0.388	0.447	0.324	0.356	0.441
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Gap58	0.477	0.439	0.208	0.524	0.258	0.238	0.351	0.273	0.399
	0.000	0.000	0.006	0.000	0.001	0.001	0.000	0.000	0.000
Gap59	0.243	0.287	0.213	0.160	0.382	0.355	0.249	0.240	0.294
	0.001	0.000	0.005	0.032	0.000	0.000	0.001	0.001	0.000
Gap60	0.446	0.350	0.163	0.184	0.192	0.393	0.293	0.378	0.400
	0.000	0.000	0.031	0.014	0.010	0.000	0.000	0.000	0.000
Gap61	0.487	0.561	0.219	0.411	0.293	0.276	0.357	0.453	0.584
	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000
Gap62	0.306	0.286	0.108	0.185	0.153	0.088	0.405	0.311	0.273
	0.000	0.000	0.154	0.013	0.042	0.248	0.000	0.000	0.000
Gap63	0.468	0.535	0.206	0.299	0.330	0.319	0.411	0.452	0.490
	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000
Gap64	0.582	0.450	0.203	0.382	0.231	0.279	0.359	0.377	0.438
	0.000	0.000	0.007	0.000	0.002	0.000	0.000	0.000	0.000
Gap65	0.283	0.266	0.296	0.296	0.210	0.294	0.263	0.390	0.254
	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.001
Gap66	0.542	0.434	0.162	0.327	0.224	0.293	0.337	0.449	0.523
	0.000	0.000	0.032	0.000	0.003	0.000	0.000	0.000	0.000
Gap67	0.501	0.410	0.373	0.249	0.344	0.423	0.400	0.316	0.361
	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Gap68	0.513	0.422	0.068	0.351	0.210	0.281	0.296	0.367	0.497
	0.000	0.000	0.367	0.000	0.005	0.000	0.000	0.000	0.000
Gap69	0.344	0.324	0.161	0.348	0.178	0.179	0.318	0.348	0.372
	0.000	0.000	0.032	0.000	0.017	0.017	0.000	0.000	0.000
Gap70	0.553	0.460	0.214	0.356	0.218	0.250	0.268	0.326	0.501
	0.000	0.000	0.004	0.000	0.003	0.001	0.000	0.000	0.000
Gap71	0.238	0.114	0.255	0.136	0.019	0.194	0.288	0.219	0.177
	0.002	0.137	0.001	0.076	0.809	0.012	0.000	0.004	0.020
Gap72	0.436	0.415	0.297	0.312	0.182	0.210	0.288	0.290	0.345
	0.000	0.000	0.000	0.000	0.017	0.006	0.000	0.000	0.000

Gap73 0.325 0.334 0.062 0.186 0.158 0.319 0.355 0.426 0.365  
0.000 0.000 0.427 0.014 0.039 0.000 0.000 0.000 0.000

Gap74 0.071 0.146 0.150 0.269 0.012 0.096 0.218 0.234 0.235  
0.358 0.055 0.051 0.000 0.874 0.215 0.004 0.002 0.002

Gap75 0.231 0.260 0.242 0.062 0.176 0.323 0.226 0.263 0.155  
0.003 0.001 0.002 0.426 0.023 0.000 0.003 0.001 0.045

Gap76 0.269 0.198 0.263 0.157 0.122 0.237 0.203 0.262 0.192  
0.000 0.010 0.001 0.041 0.113 0.002 0.008 0.001 0.012

Gap77 0.269 0.219 0.264 0.108 0.153 0.181 0.270 0.261 0.267  
0.000 0.004 0.001 0.162 0.046 0.019 0.000 0.001 0.000

Gap78 0.179 0.287 0.135 0.149 0.117 0.199 0.169 0.241 0.234  
0.020 0.000 0.082 0.053 0.131 0.010 0.029 0.002 0.002

Gap79 0.241 0.301 0.294 0.245 0.193 0.263 0.173 0.241 0.348  
0.002 0.000 0.000 0.001 0.012 0.001 0.025 0.002 0.000

Gap80 0.435 0.470 0.340 0.328 0.269 0.321 0.323 0.396 0.411  
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000

Gap37 Gap38 Gap39 Gap40 Gap41 Gap42 Gap43 Gap44 Gap45  
Gap38 0.337  
0.000

Gap39 0.383 0.246  
0.000 0.001

Gap40 0.233 0.374 0.257  
0.002 0.000 0.001

Gap41 0.369 0.272 0.305 0.309  
0.000 0.000 0.000 0.000

Gap42 0.327 0.274 0.232 0.208 0.289  
0.000 0.000 0.002 0.005 0.000

Gap43 0.344 0.354 0.251 0.258 0.347 0.606  
0.000 0.000 0.001 0.001 0.000 0.000

Gap44 0.471 0.443 0.269 0.184 0.349 0.475 0.390  
0.000 0.000 0.000 0.014 0.000 0.000 0.000

Gap45	0.449	0.359	0.185	0.338	0.311	0.403	0.386	0.446	
	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	
Gap46	0.507	0.226	0.370	0.256	0.272	0.215	0.216	0.386	0.435
	0.000	0.002	0.000	0.001	0.000	0.004	0.004	0.000	0.000
Gap47	0.355	0.475	0.313	0.343	0.317	0.354	0.370	0.361	0.432
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap48	0.452	0.440	0.329	0.340	0.329	0.349	0.294	0.394	0.396
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap49	0.423	0.420	0.302	0.362	0.538	0.348	0.353	0.408	0.349
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap50	0.264	0.397	0.092	0.116	0.236	0.217	0.201	0.310	0.182
	0.000	0.000	0.223	0.125	0.002	0.004	0.007	0.000	0.015
Gap51	0.383	0.261	0.236	0.221	0.444	0.238	0.216	0.463	0.333
	0.000	0.000	0.002	0.003	0.000	0.001	0.004	0.000	0.000
Gap52	0.527	0.349	0.296	0.358	0.414	0.496	0.445	0.442	0.476
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap53	0.361	0.389	0.254	0.408	0.290	0.378	0.346	0.308	0.345
	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Gap54	0.659	0.296	0.436	0.326	0.384	0.306	0.376	0.429	0.421
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap55	0.470	0.333	0.231	0.339	0.392	0.313	0.331	0.294	0.359
	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000
Gap56	0.356	0.204	0.237	0.297	0.267	0.406	0.426	0.278	0.402
	0.000	0.006	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Gap57	0.422	0.460	0.302	0.383	0.480	0.289	0.422	0.479	0.337
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap58	0.364	0.252	0.349	0.234	0.405	0.328	0.345	0.315	0.336
	0.000	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.000
Gap59	0.236	0.386	0.180	0.325	0.189	0.255	0.263	0.336	0.326
	0.001	0.000	0.015	0.000	0.011	0.001	0.000	0.000	0.000

Gap60	0.341	0.251	0.290	0.146	0.333	0.197	0.288	0.391	0.209
	0.000	0.001	0.000	0.053	0.000	0.008	0.000	0.000	0.005
Gap61	0.632	0.269	0.323	0.252	0.378	0.313	0.302	0.424	0.463
	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Gap62	0.312	0.342	0.363	0.280	0.267	0.130	0.175	0.391	0.232
	0.000	0.000	0.000	0.000	0.000	0.083	0.020	0.000	0.002
Gap63	0.399	0.306	0.403	0.416	0.517	0.214	0.312	0.404	0.273
	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000
Gap64	0.470	0.311	0.398	0.241	0.370	0.274	0.276	0.375	0.355
	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
Gap65	0.310	0.186	0.239	0.226	0.311	0.231	0.232	0.367	0.222
	0.000	0.012	0.001	0.002	0.000	0.002	0.002	0.000	0.003
Gap66	0.505	0.169	0.269	0.237	0.416	0.222	0.220	0.394	0.325
	0.000	0.024	0.000	0.001	0.000	0.003	0.003	0.000	0.000
Gap67	0.364	0.280	0.271	0.332	0.456	0.370	0.368	0.280	0.310
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap68	0.472	0.278	0.343	0.141	0.352	0.395	0.352	0.464	0.339
	0.000	0.000	0.000	0.061	0.000	0.000	0.000	0.000	0.000
Gap69	0.282	0.214	0.170	0.144	0.330	0.425	0.151	0.465	0.305
	0.000	0.004	0.022	0.055	0.000	0.000	0.043	0.000	0.000
Gap70	0.323	0.262	0.288	0.156	0.365	0.283	0.273	0.370	0.334
	0.000	0.000	0.000	0.039	0.000	0.000	0.000	0.000	0.000
Gap71	0.267	0.360	0.094	0.101	0.187	0.210	0.171	0.350	0.336
	0.000	0.000	0.222	0.194	0.015	0.006	0.026	0.000	0.000
Gap72	0.389	0.221	0.297	0.037	0.271	0.296	0.289	0.387	0.259
	0.000	0.004	0.000	0.633	0.000	0.000	0.000	0.000	0.001
Gap73	0.306	0.108	0.316	0.202	0.485	0.317	0.213	0.280	0.211
	0.000	0.162	0.000	0.008	0.000	0.000	0.005	0.000	0.005
Gap74	0.202	0.074	0.164	0.116	0.150	0.209	0.154	0.197	0.248
	0.008	0.339	0.031	0.134	0.050	0.006	0.045	0.010	0.001

Gap75 0.286 0.070 0.117 0.237 0.075 0.183 0.164 0.076 0.019  
0.000 0.367 0.130 0.002 0.331 0.017 0.034 0.327 0.806

Gap76 0.239 0.237 0.235 0.126 0.178 0.220 0.194 0.253 0.207  
0.002 0.002 0.002 0.103 0.020 0.004 0.011 0.001 0.007

Gap77 0.303 0.143 0.254 0.165 0.237 0.278 0.176 0.279 0.177  
0.000 0.062 0.001 0.032 0.002 0.000 0.021 0.000 0.020

Gap78 0.339 0.053 0.153 0.045 0.339 0.178 0.145 0.181 0.085  
0.000 0.492 0.046 0.560 0.000 0.020 0.059 0.019 0.270

Gap79 0.387 0.201 0.252 0.119 0.159 0.210 0.216 0.414 0.119  
0.000 0.009 0.001 0.127 0.039 0.006 0.005 0.000 0.124

Gap80 0.380 0.351 0.370 0.256 0.362 0.285 0.291 0.385 0.218  
0.000 0.000 0.000 0.001 0.000 0.000 0.000 0.000 0.004

Gap46 Gap47 Gap48 Gap49 Gap50 Gap51 Gap52 Gap53 Gap54  
Gap47 0.362  
0.000

Gap48 0.399 0.532  
0.000 0.000

Gap49 0.347 0.391 0.654  
0.000 0.000 0.000

Gap50 0.176 0.199 0.453 0.511  
0.019 0.008 0.000 0.000

Gap51 0.436 0.260 0.412 0.383 0.351  
0.000 0.000 0.000 0.000 0.000

Gap52 0.507 0.453 0.580 0.489 0.257 0.508  
0.000 0.000 0.000 0.000 0.001 0.000

Gap53 0.282 0.434 0.623 0.530 0.370 0.271 0.456  
0.000 0.000 0.000 0.000 0.000 0.000 0.000

Gap54 0.578 0.340 0.489 0.511 0.305 0.400 0.559 0.535  
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000

Gap55 0.268 0.366 0.549 0.521 0.464 0.426 0.493 0.535 0.561  
0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000

Gap56	0.225	0.313	0.381	0.397	0.214	0.321	0.381	0.269	0.330
	0.002	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000
Gap57	0.344	0.451	0.481	0.427	0.289	0.425	0.379	0.420	0.451
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap58	0.346	0.355	0.175	0.241	0.076	0.373	0.311	0.264	0.310
	0.000	0.000	0.019	0.001	0.316	0.000	0.000	0.000	0.000
Gap59	0.181	0.362	0.409	0.328	0.281	0.433	0.303	0.337	0.245
	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Gap60	0.337	0.198	0.429	0.394	0.323	0.617	0.391	0.308	0.357
	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap61	0.511	0.341	0.384	0.379	0.237	0.389	0.443	0.326	0.529
	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000
Gap62	0.381	0.192	0.261	0.321	0.161	0.251	0.221	0.235	0.329
	0.000	0.010	0.000	0.000	0.032	0.001	0.003	0.002	0.000
Gap63	0.393	0.225	0.401	0.448	0.231	0.427	0.412	0.417	0.535
	0.000	0.002	0.000	0.000	0.002	0.000	0.000	0.000	0.000
Gap64	0.469	0.349	0.308	0.276	0.131	0.393	0.440	0.266	0.457
	0.000	0.000	0.000	0.000	0.081	0.000	0.000	0.000	0.000
Gap65	0.409	0.169	0.351	0.326	0.297	0.464	0.416	0.307	0.403
	0.000	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap66	0.568	0.293	0.402	0.435	0.234	0.405	0.545	0.409	0.499
	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000
Gap67	0.387	0.177	0.343	0.469	0.328	0.274	0.518	0.369	0.544
	0.000	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap68	0.435	0.403	0.450	0.483	0.245	0.350	0.458	0.295	0.479
	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Gap69	0.305	0.276	0.352	0.351	0.239	0.289	0.351	0.217	0.314
	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.003	0.000
Gap70	0.361	0.289	0.428	0.368	0.223	0.278	0.346	0.368	0.447

	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000
Gap71	0.185	0.203	0.297	0.405	0.420	0.162	0.334	0.279	0.257
	0.015	0.008	0.000	0.000	0.000	0.035	0.000	0.000	0.001
Gap72	0.370	0.349	0.269	0.325	0.235	0.191	0.349	0.267	0.412
	0.000	0.000	0.000	0.000	0.002	0.012	0.000	0.000	0.000
Gap73	0.350	0.235	0.378	0.421	0.254	0.379	0.432	0.389	0.442
	0.000	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Gap74	0.323	0.094	0.110	0.232	0.111	0.257	0.265	0.141	0.214
	0.000	0.219	0.152	0.002	0.150	0.001	0.000	0.064	0.005
Gap75	0.111	0.071	0.300	0.198	0.214	0.093	0.169	0.255	0.256
	0.149	0.355	0.000	0.010	0.005	0.229	0.029	0.001	0.001
Gap76	0.268	0.262	0.356	0.220	0.297	0.124	0.218	0.238	0.192
	0.000	0.001	0.000	0.004	0.000	0.108	0.005	0.002	0.012
Gap77	0.259	0.151	0.356	0.283	0.295	0.228	0.298	0.330	0.270
	0.001	0.048	0.000	0.000	0.000	0.003	0.000	0.000	0.000
Gap78	0.118	0.082	0.212	0.299	0.173	0.195	0.236	-0.017	0.213
	0.126	0.289	0.006	0.000	0.025	0.011	0.002	0.825	0.005
Gap79	0.316	0.207	0.256	0.248	0.252	0.269	0.308	0.145	0.313
	0.000	0.007	0.001	0.001	0.001	0.000	0.000	0.059	0.000
Gap80	0.323	0.272	0.363	0.335	0.303	0.322	0.344	0.276	0.414
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Gap55	Gap56	Gap57	Gap58	Gap59	Gap60	Gap61	Gap62	Gap63	
Gap56	0.496								
	0.000								
Gap57	0.417	0.401							
	0.000	0.000							
Gap58	0.293	0.248	0.360						
	0.000	0.001	0.000						
Gap59	0.380	0.436	0.440	0.273					
	0.000	0.000	0.000	0.000					

Gap60	0.422	0.351	0.409	0.275	0.541				
	0.000	0.000	0.000	0.000	0.000				
Gap61	0.400	0.372	0.325	0.433	0.278	0.325			
	0.000	0.000	0.000	0.000	0.000	0.000			
Gap62	0.142	0.251	0.355	0.273	0.279	0.237	0.330		
	0.059	0.001	0.000	0.000	0.000	0.001	0.000		
Gap63	0.427	0.322	0.514	0.432	0.303	0.414	0.423	0.518	
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Gap64	0.237	0.160	0.398	0.578	0.240	0.293	0.407	0.267	0.437
	0.001	0.033	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Gap65	0.363	0.226	0.388	0.206	0.215	0.381	0.332	0.249	0.456
	0.000	0.002	0.000	0.006	0.004	0.000	0.000	0.001	0.000
Gap66	0.377	0.137	0.370	0.359	0.132	0.445	0.411	0.273	0.460
	0.000	0.069	0.000	0.000	0.078	0.000	0.000	0.000	0.000
Gap67	0.341	0.283	0.397	0.219	0.196	0.356	0.357	0.280	0.420
	0.000	0.000	0.000	0.003	0.008	0.000	0.000	0.000	0.000
Gap68	0.328	0.172	0.383	0.437	0.234	0.400	0.425	0.254	0.344
	0.000	0.022	0.000	0.000	0.002	0.000	0.000	0.001	0.000
Gap69	0.241	0.065	0.265	0.376	0.189	0.288	0.348	0.118	0.313
	0.001	0.388	0.000	0.000	0.011	0.000	0.000	0.117	0.000
Gap70	0.365	0.231	0.360	0.455	0.191	0.366	0.424	0.202	0.390
	0.000	0.002	0.000	0.000	0.010	0.000	0.000	0.007	0.000
Gap71	0.194	0.086	0.147	-0.001	0.165	0.150	0.102	0.168	0.042
	0.011	0.267	0.055	0.994	0.031	0.050	0.187	0.028	0.586
Gap72	0.124	0.020	0.214	0.313	0.081	0.189	0.295	0.140	0.203
	0.105	0.800	0.005	0.000	0.291	0.013	0.000	0.069	0.007
Gap73	0.346	0.157	0.377	0.207	0.157	0.288	0.232	0.124	0.400
	0.000	0.040	0.000	0.006	0.039	0.000	0.002	0.107	0.000
Gap74	0.096	0.061	0.064	0.109	0.036	0.078	0.146	0.064	0.138
	0.210	0.432	0.404	0.156	0.643	0.311	0.058	0.409	0.070

Gap75 0.252 0.167 0.257 0.056 0.176 0.178 0.122 -0.073 0.255  
0.001 0.030 0.001 0.466 0.022 0.021 0.115 0.346 0.001

Gap76 0.186 0.127 0.228 0.085 0.052 0.106 0.209 0.147 0.209  
0.015 0.098 0.003 0.270 0.504 0.167 0.007 0.056 0.006

Gap77 0.290 0.121 0.211 0.207 0.204 0.146 0.288 0.115 0.248  
0.000 0.115 0.005 0.007 0.007 0.057 0.000 0.136 0.001

Gap78 0.120 0.067 0.127 0.066 0.070 0.185 0.247 0.095 0.180  
0.120 0.390 0.098 0.398 0.363 0.016 0.001 0.222 0.019

Gap79 0.246 0.163 0.112 0.187 0.179 0.305 0.385 0.055 0.199  
0.001 0.035 0.145 0.015 0.020 0.000 0.000 0.479 0.009

Gap80 0.340 0.190 0.447 0.244 0.257 0.295 0.372 0.335 0.375  
0.000 0.013 0.000 0.001 0.001 0.000 0.000 0.000 0.000

Gap64 Gap65 Gap66 Gap67 Gap68 Gap69 Gap70 Gap71 Gap72

Gap65 0.286  
0.000

Gap66 0.374 0.488  
0.000 0.000

Gap67 0.337 0.521 0.474  
0.000 0.000 0.000

Gap68 0.403 0.270 0.544 0.349  
0.000 0.000 0.000 0.000

Gap69 0.458 0.302 0.441 0.319 0.547  
0.000 0.000 0.000 0.000 0.000

Gap70 0.517 0.310 0.467 0.347 0.454 0.604  
0.000 0.000 0.000 0.000 0.000 0.000

Gap71 0.213 0.166 0.175 0.313 0.167 0.154 0.129  
0.005 0.030 0.022 0.000 0.029 0.044 0.093

Gap72 0.537 0.188 0.340 0.342 0.322 0.375 0.385 0.357  
0.000 0.013 0.000 0.000 0.000 0.000 0.000 0.000

Gap73 0.290 0.278 0.357 0.272 0.330 0.368 0.282 0.176 0.308

	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.000
Gap74	0.214	0.167	0.212	0.140	0.182	0.226	0.066	0.179	0.252
	0.005	0.028	0.005	0.067	0.017	0.003	0.386	0.019	0.001
Gap75	0.224	0.237	0.127	0.308	0.044	0.068	0.111	0.060	0.170
	0.003	0.002	0.100	0.000	0.573	0.375	0.152	0.434	0.027
Gap76	0.198	0.243	0.223	0.220	0.222	0.293	0.297	0.197	0.244
	0.009	0.001	0.003	0.004	0.004	0.000	0.000	0.010	0.001
Gap77	0.269	0.291	0.215	0.205	0.245	0.300	0.295	0.168	0.295
	0.000	0.000	0.005	0.007	0.001	0.000	0.000	0.028	0.000
Gap78	0.102	0.329	0.283	0.257	0.190	0.119	0.052	0.130	0.168
	0.187	0.000	0.000	0.001	0.013	0.122	0.502	0.091	0.028
Gap79	0.213	0.237	0.341	0.196	0.288	0.200	0.184	0.127	0.307
	0.005	0.002	0.000	0.010	0.000	0.009	0.017	0.099	0.000
Gap80	0.388	0.313	0.279	0.435	0.300	0.332	0.363	0.181	0.301
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.000

	Gap73	Gap74	Gap75	Gap76	Gap77	Gap78	Gap79
Gap74	0.260						
	0.001						
Gap75	0.182	0.195					
	0.018	0.011					
Gap76	0.215	0.164	0.260				
	0.005	0.032	0.001				
Gap77	0.297	0.152	0.244	0.586			
	0.000	0.047	0.001	0.000			
Gap78	0.202	0.048	0.200	0.102	0.140		
	0.008	0.531	0.009	0.189	0.068		
Gap79	0.179	0.072	0.092	0.117	0.309	0.405	
	0.020	0.352	0.238	0.130	0.000	0.000	
Gap80	0.331	0.143	0.163	0.288	0.230	0.237	0.348
	0.000	0.062	0.034	0.000	0.002	0.002	0.000

Cell Contents: Pearson correlation  
P-Value

# ***Thesis Writing Survival Skills***

**Tuesday, February 7<sup>th</sup> 5:00-6:00pm**

**111 Library Learning Center**

**Reservations not Necessary**

## **HANDS ON Workshop**

- ❖ **RefWorks**
- ❖ **APA Style**
- ❖ **Research Paper Template**
- ❖ **IRB/Human Subjects Overview**

**PRESENTER: Jana Reeg~Steidinger, Reference Librarian**

**FOR MORE INFORMATION: JANA | X1553 | REEGJ@UWSTOUT.EDU**