



5-1-2003

## The Predictive Validity of the Teacher Perceiver Interview in Selecting Effective Elementary Teachers in a Mid-Sized Midwestern School District

Richard John Buresh

Follow this and additional works at: <https://commons.und.edu/theses>

[How does access to this work benefit you? Let us know!](#)

---

### Recommended Citation

Buresh, Richard John, "The Predictive Validity of the Teacher Perceiver Interview in Selecting Effective Elementary Teachers in a Mid-Sized Midwestern School District" (2003). *Theses and Dissertations*. 3210.  
<https://commons.und.edu/theses/3210>

This Dissertation is brought to you for free and open access by the Theses, Dissertations, and Senior Projects at UND Scholarly Commons. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of UND Scholarly Commons. For more information, please contact [und.common@library.und.edu](mailto:und.common@library.und.edu).

THE PREDICTIVE VALIDITY OF THE TEACHER PERCEIVER INTERVIEW IN  
SELECTING EFFECTIVE ELEMENTARY TEACHERS IN A MID-SIZED  
MIDWESTERN SCHOOL DISTRICT

By

Richard John Buresh

Bachelor of Arts, Zoology, North Dakota State University, 1971  
Bachelor of Science, Elementary Education, University of North Dakota, 1973  
Master of Education Administration, University of North Dakota, 1984

A Dissertation

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Doctor of Education

Grand Forks, North Dakota

May  
2003

This dissertation, submitted by Richard John Buresh in partial fulfillment of the requirements for the Degree of Doctor of Education from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

Donald L. Piper (4-22-03)  
(Chair)

Donald K. Lemo

Richard W. Landry

Shirley Barntine  
Jeff. Radloff

This dissertation meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

Joseph A. Benard  
Dean of the Graduate School

April 28, 2003  
Date

## PERMISSION

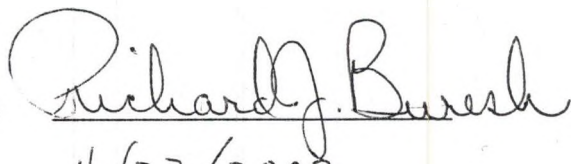
Title                      The Predictive Validity of the Teacher Perceiver Interview in  
Selecting Effective Elementary Teachers in a Mid-Sized  
Midwestern School District

Department              Educational Leadership

Degree                    Doctor of Education

In presenting this dissertation in partial fulfillment of the requirements for a graduate degree from the University of North Dakota, I agree that the library of this University shall make it freely available for inspection. I further agree that permission for extensive copying for scholarly purposes may be granted by the professor who supervised my dissertation work or, in his absence, by the chairperson of the department or the dean of the Graduate School. It is understood that any copying or publication or other use of this dissertation or part thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of North Dakota in any scholarly use which may be made of any material in my dissertation.

Signature



Date

4/22/2003



## TABLE OF CONTENTS

LIST OF FIGURES .....	vi
LIST OF TABLES .....	vii
ACKNOWLEDGMENTS .....	ix
ABSTRACT .....	x
CHAPTER	
I. INTRODUCTION .....	1
Purpose of the Study and Research Questions .....	7
Significance .....	8
Delimitations .....	10
Definitions .....	10
Assumptions .....	11
Overview .....	12
II. LITERATURE REVIEW .....	13
The Teacher Selection Process .....	14
Criteria in Teacher Selection .....	19
Structured Interview Instruments .....	27
SRI Gallup and the Teacher Perceiver Interview .....	36
Validity Studies of the Teacher Perceiver Interview .....	43
Summary of Literature Review .....	54

III. DESIGN OF THE STUDY .....	56
Population .....	57
Instrumentation .....	58
Data Collection .....	65
Data Analysis .....	65
Overview .....	65
IV. REPORT AND ANALYSIS OF THE DATA .....	68
Descriptive Report of the Data .....	68
Inferential Report of the Data .....	73
V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS .....	94
Summary .....	94
Conclusions .....	101
Limitations .....	102
Recommendations .....	103
APPENDICES .....	105
APPENDIX A. Bonferroni's Post Hoc Results .....	106
APPENDIX B. Correlation Matrix of Predictor and Criterion Variables .....	117
BIBLIOGRAPHY .....	119

## LIST OF FIGURES

Figure	Page
1. Distribution of TPI Scores of All Applicants 1986 through 2001 .....	71
2. Distribution of TPI Scores of Applicants Hired 1989 through 2001 .....	74
3. Distribution of Evaluation Scores .....	77
4. Scattergram Results of Evaluation Score and TPI .....	88
5. Scattergram of Total TPI Score to Accumulated Leave Per Year .....	91
6. Scattergram of Total TPI Score to Undergraduate GPA .....	92

## LIST OF TABLES

Table	Page
1. Number of Elementary Applicants and Number Hired .....	4
2. Teacher Perceiver Themes and Subscales .....	40
3. Description of Variables .....	64
4. Statistical Analyses Applied to Selected Research Questions .....	66
5. Descriptive Statistics for TPI Total Scores of Applicants 1986 through 2001 ( <i>N</i> = 851) .....	69
6. TPI Scores of All Applicants: Frequency Table .....	70
7. Descriptive Statistics for TPI Total Score of Applicants Hired from 1989 through 2001 ( <i>N</i> = 77) .....	72
8. Frequency Table of TPI Scores of Applicants Hired 1989 through 2001 .....	73
9. Descriptive Statistics for Themes of TPIs 1986 through 2001 ( <i>N</i> = 851) .....	74
10. Descriptive Statistics for Performance Evaluation Scores ( <i>N</i> = 59) .....	75
11. Frequency Table of Evaluation Scores .....	76
12. Descriptive Statistics for Interviewers on Total TPI Scores .....	78
13. Analysis of Variance (ANOVA) .....	79
14. Scheffé's Post Hoc Test – Means of Total TPI Scores .....	80
15. Means, Standard Deviations, and <i>t</i> Values Comparing TPI Scores between Those Candidates Hired ( <i>N</i> = 77) and Not Hired ( <i>N</i> = 774) .....	82
16. Descriptives of TPI Total Scores Obtained Over Time Spans .....	83
17. Analysis of Variance (ANOVA) of TPI Total Scores Over Time Spans .....	84
18. Expert Panel Reliability Analysis – Means .....	85
19. Expert Panel Reliability Analysis – Correlation Matrix .....	86
20. Descriptives of Aggregate Expert Panel Administrator Ratings .....	86

Table	Page
21. Expert Panel Reliability Analysis – Inter-Total Statistics .....	87
22. Correlation Coefficients between Predictor and Criterion Variables ( $N = 59$ ) .....	89
23. Descriptive Statistics for Selected Variables .....	90
24. Correlations between TPI Scores and Selected Criterion Variables .....	91
25. Bonferroni's Post Hoc Test – Multiple Comparisons .....	107
26. Correlation Matrix of Predictor and Criterion Variables .....	118



## ACKNOWLEDGMENTS

To the members of my graduate committee, I am very grateful. Dr. Don Lemon has been a mentor, teacher, and advisor to me for more than 25 years. Dr. Richard Landry has provided significant professional guidance in my work and in my formal study. He also has provided much needed technical assistance with the intricacies of research statistics. Dr. Shelby Barrentine and Dr. Stephen Rendahl provided critical feedback from an outside perspective that honed my analyses and my formal writing.

I wish to thank Dr. Jerry Bass, Dr. Dan Rice, and others for their work at establishing the cohort doctoral program at UND. This is a wonderful program that has enabled many well-established ND educators to pursue their educational goals without having to sacrifice their jobs. I am confident that it will continue to grow and improve.

I am deeply indebted to Dr. Don Piper for his continuing influence over my professional development for over 25 years. Even after he moved on to a well-deserved retirement, he consented to a return call for advisement for a small number of his former graduate students. As a dissertation advisor he was steadfast, encouraging, brutally honest, and meticulous with details. He simply would not permit me to falter or pull up short of my goals or short of his standard of excellence. He was exactly what I needed.

My wife and family matched, step-by-step, whatever sacrifices I have made in pursuit of this goal. My achievements have been ours. My wife and family have been saints to stand by and support me as I have doggedly pursued this goal. For their love, understanding, and sacrifices during this quest, I will be forever grateful.



## ABSTRACT

The purpose of this study was to collect and analyze various data to determine the effectiveness of the Teacher Perceiver Interview (TPI) as a tool to assist administrators in selecting elementary teachers in a mid-sized midwestern public school district. Eight research questions asked whether there were differences (1) among TPI scores assigned by various administrators who conducted and scored the interviews, (2) between TPI scores of applicants hired and not hired, and (3) in the mean TPI scores for all applicants during the time period included in the study as well as whether there were relationships (4) between TPI scores and administrator ratings of teacher performance during the first year of employment in the district, (5) between TPI scores and the teacher's mean days of absenteeism during tenure in the district, (6) between TPI scores and the undergraduate grade point averages (GPAs) of the teachers who were hired, (7) between TPI scores and the number of credits of graduate work earned by teachers at the time they were hired, and (8) between TPI scores and the number of years of teaching experience at the time the interviews were conducted. Reliability analysis and statistical single factor analysis of variance were used to test questions 1 and 3. A *t* test was used for question 2. The Pearson product-moment correlation was used for questions 4, 5, 6, 7, and 8.

There were very few significant differences in TPI scores assigned by various administrators who conducted the interviews. TPI scores of applicants hired were significantly higher than those not hired. There was no discernible change in TPI scores over the 16 years included in the study. No significant correlations were found between

TPI scores and administrator ratings of teacher performance during the first year of employment. There was a small and yet unexplained correlation between higher TPI scores and higher absenteeism. A small but statistically significant correlation was found between TPI scores and undergraduate GPAs. However, there were no significant correlations between TPI scores and credits of graduate work earned or years of teaching experience when interviewed.

Questions remain about the criterion variable used, so the researcher recommended continued cautious use of the TPI in this district along with development of a system to measure teacher effectiveness that would yield quantifiable data for research purposes.

## CHAPTER I

### INTRODUCTION

Selecting quality teachers should be a first order priority for building principals. Perhaps Martin Haberman of the University of Milwaukee said it best, “No school can be better than its teachers” (Haberman, 1995, p. 777). He contends that selection is the most important of functions of a school principal. He asserts that the best way to improve schools is to get better teachers.

Companies throughout the private sector have learned that the most significant asset of their organization is not its physical resources. It is their employees. Finding the right employees results in improved organizational performance and a decline in the need for remedial programs. Still, employers occasionally make mistakes in selection of employees. In private business, it is reported that half of all new hires stay with a company for six months or less. Further, each mistake in hiring can cost the employer 30 to 50 percent above annual salary in productivity losses and replacement expenses (Bacas, 1987). It seems clear that time spent in careful selection is time well spent. Bacas cites three factors contributing to selection failures:

1. Not spending enough time analyzing the requirements of the job.
2. Failing to ask the right interview questions.
3. Trusting too much in your gut reaction – failure to be objective in measuring against predetermined criteria (Bacas, 1987).



Finding the right teachers is a critical step in helping schools improve (Gordon, 1999). Selection can be a complex and labor-intensive process, especially when applicants are abundant. Two authors noted the importance of developing effective selection processes. “The complexity of teaching and the importance of the teaching act demand that we use every tool available to select the very best. The young people we serve deserve nothing less” (Hulling & Resta, 1996, p. 63).

Perhaps the single most significant responsibility of administrators is the selection of quality teachers. Can administrators be certain that they are selecting the best qualified available candidates? No, but they can significantly improve the odds by developing and using careful, effective selection procedures (Denney, 1979). They either can work hard to select outstanding teachers initially or they can pay later for not doing so – all the while forcing students to suffer in the process (Gordon, 1999).

Employers often use a variety of techniques, processes, and candidate-prepared artifacts to select employees from a pool of candidates. Still, a traditional interview often remains as the primary determining performance that discriminates the selected candidate from the others (Cohen & Gump, 1984). After the application form, the interview is the most widely used selection device (Dawson, 1986). Despite heavy reliance on the interview as the tool of choice for making selection decisions, data attesting to its success are not very encouraging. Traditional interviews often lack sophistication and are not very predictive of success (Cohen & Gump, 1984).

Untrained interviewers are common among our administrative corps. Rarely do aspiring principals receive training and practice in administering and evaluating interviews (Farrell, 1986). Often, these unsophisticated interviews become well

intentioned but ineffective general discussions, the subjects of which tend to wander and vary from one candidate to the next. Researchers have demonstrated that staff development and guided practice can greatly improve the effectiveness of leaders at conducting interviews. In particular, training has proven effective when directed at conducting structured interviews in which predetermined scripted questions are asked of all candidates with little variation. Interviewers trained to complete a structured interview have a higher level of reliability than those conducting traditional interviews (Gordon, 1999).

Half of all new hires stay with a company no more than six months (Bacas, 1987). Education is only slightly better. One set of researchers estimated that 40 percent of new teachers abandon the teaching profession in the first three years of teaching (Schlechty & Vance, 1983). This concern may relate more to issues of retention than to the selection process. However, through careful selection (coupled with high quality, supportive induction and supervision programs), educational leaders may be able to reduce early attrition.

There is only moderate consensus about what constitutes teacher effectiveness. When asked about criteria, the responses most often are based upon a single article, experience, and/or interaction with other teachers or administrators. Rarely are the criteria developed from empirical research or a scholarly search of literature (Beecher, 1979; Irwin, 1984). Often there is a lack of standardization (Cohen & Gump, 1984). Each new candidate experiences a largely unique interview with questions often dependent on answers from previous questions or related experiences of the interviewer. There is little opportunity for objective, unbiased comparisons of candidates (Gordon, 1999). Most

managers talk too much, listen too little, and ask the wrong questions. Interviewing is both a science and an art. We can become better at it through study, coaching, and practice (Keichel, 1986).

One researcher pointed out that in times of general oversupply of teachers, employers tend to become more selective in their hiring practices (Haefele, 1978). The school district in this study has an abundant pool of applicants for elementary teaching positions. The following table illustrates the magnitude of the application/selection process for this district.

Table 1

*Number of Elementary Applicants and Number Hired*

Year	Number of Applicants	Number of New Elem. Teachers Hired
1993-1994	250 (est.)	13
1994-1995	250 (est.)	11
1995-1996	250 (est.)	6
1996-1997	250 (est.)	10
1997-1998	250 (est.)	10
1998-1999	250 (est.)	10
1999-2000	250 (est.)	19
2000-2001	275	20
2001-2002	264	9



This large number of applicants poses significant challenges in finding sufficient manpower and comparative data to make quality selection decisions.

Many employers strive to standardize their selection process in order to remove bias and to raise confidence in the process to a high level within their organization. One such attempt was conceived at the University of Nebraska. Two researchers, Clifton and Hall (1952), studied educators who were acclaimed to be highly effective and compared them to a sample of those who were not. They identified 12 themes that seemed to be significant factors. These factors appeared to exist prominently in those teachers acclaimed as highly effective and were largely absent, by comparison, in those teachers identified as not effective. Assessing the presence or absence of these 12 themes is the focus of the process developed by Clifton and Hall to select candidates most likely to succeed as teachers in our schools. The instrument central to this process is a structured interview entitled the Teacher Perceiver Interview (TPI). It is produced and marketed by Selection Research Incorporated – Gallup, commonly referred to as SRI Gallup or simply SRI.

SRI directs considerable investment and attention toward establishing consistent standard procedures in implementing the TPI in participating school districts. Districts, in turn, also strive toward consistency within their own organization. Understandably, the validity and reliability of this evaluative process is critical to its integrity. Still, each organization is comprised of a unique culture, has a unique cast of practitioners, and exists within a unique community. Consequently, any implementation of the TPI will vary somewhat as will its effectiveness.

Users of structured interviews or other purportedly standardized instruments in selection processes sometimes are faced with challenges of reliability and validity. It is difficult to take issue with the following challenge from Haefele, "Research must yield a high degree of association between TPI scores and teacher competence in the classroom to justify its use in the selection of teachers" (1978, p. 684). It appears that administrators in any district using this process occasionally should re-examine what they are doing to determine if their original objective still is being met, if their procedures continue to possess a high measure of reliability and objectivity, and if the TPI scores continue to be reliable predictors of high quality teacher performance.

The school district chosen for this study, a district of approximately 10,500 students, has been using the TPI since 1984. From 1986 (when TPI data first were collected and stored in this district in a standardized way) to 2002 this school district has administered TPIs to approximately 1,800 teacher applicants. In striving to properly carry out this process, the district has invested much time and much money in training interviewers, conducting TPIs, and evaluating TPIs. Other than through anecdotal feedback, there never has been an objective attempt within this district to measure the degree to which the TPI works in selecting those candidates most likely to succeed.

School districts struggle with developing and carrying out teacher selection processes that both meet fair labor practices and decisively identify the most effective teacher candidates. The specific problem for the school district being studied is to determine the extent to which one such process, the Teacher Perceiver Instrument (TPI), accurately identifies the most effective teachers during the selection process. School

districts need data to determine the extent to which their teacher selection processes effectively identify the best possible candidates.

Anecdotal feedback from school principals on the effectiveness of this process has been largely positive. Still, when pressed to document the validity of this process in assisting in the selection of high quality teachers, school leaders in this district report that they have not analyzed the available data to measure the predictive validity of the TPI as it is applied in the district studied.

### Purpose of the Study and Research Questions

The purpose of this study was to collect and analyze various data to determine the effectiveness of the TPI as a tool to assist administrators in selecting elementary teachers in a mid-sized midwestern public school district. The following specific research questions were used to guide the study.

1. How much difference is there among TPI scores assigned by various administrators who conducted and scored the interviews in the district for elementary applicants?
2. Are there significant differences between TPI scores of elementary applicants who were hired to teach in the district and applicants who were not hired?
3. Are there significant differences in the mean TPI scores recorded for elementary applicants during the time period included in the study?
4. What is the relationship between TPI scores and administrator ratings of elementary teacher performance during the first year of employment in the district?



5. What is the relationship between TPI scores and the elementary teacher's mean number of days of absenteeism during his or her tenure in the district?
6. What is the relationship between TPI scores and the undergraduate grade point averages (GPAs) of the elementary teachers who were hired?
7. What is the relationship between TPI scores and the number of credits of graduate work earned by elementary teachers at the time they were hired?
8. What is the relationship between TPI scores and the number of years of teaching experience at the time the interviews were conducted for elementary applicants?

Note: Research questions 1-3 included a time span of 1986-2001; due to limitations on availability of complete data, research questions 4-8 included a time span of 1989-2001.

### Significance

It is assumed that the school district targeted for this study is a rather typical school district without significant variation from other school districts of similar size in the region. The findings and conclusions of this study understandably will have most relevance and impact for educators in the district studied. However, the findings of this study also may have implications for similar school districts or for others who have questions about the validity and utility of the TPI process.

Some researchers have found that there is considerable agreement among principals across the nation about selection criteria for teachers. Although processes may vary, there appears to be general agreement as to which predictors are being sought. There is broad agreement that teacher selection is a fundamental task of principals from all regions of the country and there is general consensus about how the process works and

what is being sought in that process (Place & Drake, 1994). Therefore, it seems likely that principals from a variety of locations and districts would have an interest in the results of this study.

According to Gordon (1999) research suggests that outstanding teachers certainly do exist, they can be identified, and they can make a huge difference in student learning. Yet many districts have unsophisticated, unsystematic, and unorganized approaches to selecting teachers. Truly successful school districts of the future must develop effective systems to recruit, select, and develop teacher talent at the district and building level. When systems are developed to assist in teacher selection by providing systematic, focused, and organized approaches, there is a need to evaluate those systems to determine if they are effective in accomplishing their advertised objectives. This study is intended to address this need.

Continued scrutiny and constructive skepticism are necessary and helpful in the evolution of educational systems. Confronting challenges, conducting research, and adjusting practices for greater effectiveness are essential to continued improvement as learning organizations. SRI Gallup expresses this need for continued study.

Perceiver Academies has a conceptual base and system for researching and learning how to understand teachers who focus on student growth and learning. Research is essential. Constructive skepticism is welcomed. Not all results are spectacular, but the magnitude of the need and the many positive results from research data and the professional observation of the users warrant an even greater investment of time, thought, and energy. I encourage others to join in this effort. (Muller, 1978, p. 685)

### Delimitations

This study was limited to the selection of elementary teachers in one mid-sized midwestern public school district from the years 1986 through 2001. Subjects of this study were limited to applicants for elementary positions. Different subsets of this total pool of elementary applicants were examined depending on the research question under study.

### Definitions

Elementary teacher. For the purposes of this study, an elementary teacher is defined as one whose primary assignment is in kindergarten through grade six.

Career stage. This term will be used to express the relative position along a continuum from a novice teacher to a highly experienced teacher nearing retirement. It will be expressed in terms of years of service in teaching.

SRI Gallup. Selection Research Incorporated. Gallup is a large organization with multiple divisions. Gallup provides the following information about their firm:

The Gallup Organization is one of the world's largest management consulting firms. Gallup's core expertise is in measuring and understanding human attitudes and behavior. Gallup applies this expertise to help companies improve business performance by leveraging their employee and customer assets. Gallup also conducts The Gallup Poll, the world's leading source of public opinion since 1935.

Gallup has wholly owned or majority-owned subsidiaries in more than 25 countries. Worldwide, more than 3,000 research, consulting, and training professionals work together to provide clients with comparable practices,



procedures, and standards across national, cultural, and linguistic boundaries. An employee-owned firm, Gallup's revenues have grown by an average of 25% annually over the past decade. (The Gallup Organization Today, 2002, ¶ 1)

TPI. The Teacher Perceiver Interview is a structured interview consisting of 60 questions. Five questions are asked relative to each of 12 themes that are central to the TPI rationale. Researchers at SRI Gallup have determined that these 12 themes are effective discriminators between effective and ineffective teachers. Interviewers undergo several days of training until they reach an inter-rater reliability factor of 85%.

#### Assumptions

This study was based on several assumptions that underlie all the research questions, procedures, and results.

1. It was assumed that administrators doing the TPI interviews were suitably trained in methods of administration and scoring of the TPI.
2. It was assumed that application of the TPI process in this district was in accordance with methods recommended by The Gallup Organization.
3. It was further assumed that the purposes to which this district applied the TPI were consistent with those The Gallup Organization advocates.
4. It was assumed that teachers submitting to the TPI did so without inappropriate prior "inside information" about TPI content.
5. It was assumed that principals were suitably trained and consistent in completing teacher summative performance evaluations.

### Overview

Selection of the most effective teachers available is a high priority task of educational leaders. Complying with fair labor laws and providing internal consistency generally result in establishing procedures and processes for selecting teachers. A major part of that process for the school district studied is the Teacher Perceiver Interview. The purpose of this study was to assess the extent to which the Teacher Perceiver Interview is related to the selection of effective elementary teachers to be employed in the school district studied.

In Chapter I the purpose of the study and research questions, significance, delimitations, and definitions were introduced. A review of the literature is compiled in Chapter II. Chapter III describes research methodology applied to this study. Data analyzed in the study are presented in Chapter IV. Chapter V presents a summary of findings, conclusions, and recommendations.

## CHAPTER II

### LITERATURE REVIEW

Literature on the general topic of teacher selection is abundant. As the focus narrows to the specifics of TPI and its validity, the quantity of literature is reduced significantly – and particularly in recent literature. In order to find a substantial amount of relevant literature on the narrow focus of the TPI, the researcher searched the literature beginning with the 1950s. The literature review consisted of dissertations, papers presented at professional meetings, reports of research findings, professional journals, corporate publications, and personal interviews. The purpose of this chapter is to review historical and current literature relating to the predictive value of the Teacher Perceiver Interview in teacher selection.

Six themes were pursued during the literature search: (1) the teacher selection process, (2) criteria in teacher selection, (3) structured interview instruments, (4) SRI Gallup and the Teacher Perceiver Interview, (5) validity studies of the TPI, and (6) summary of literature review.

School districts, as the fundamental learning organizations that they should be, must be self-renewing learning organizations. They must be on a continual quest to improve their practices – to enhance their capacity to create the results they truly desire

(Keefe, 1997). It is toward this end that the following literature search on teacher selection was undertaken.

### The Teacher Selection Process

Teacher selection processes in schools appear to be rather standardized. Once applications have been collected, Blackwell and Carson (1995) indicated that the following steps commonly are employed by schools preparing to hire teachers:

1. Request to fill the position.
2. Form a search committee.
3. Decide what the organization needs.
4. Write or review a job description.
5. Determine the hiring criteria.
6. Note the legal ramifications of the criteria.
7. Develop a candidate score sheet.
8. Analyze the resume and other supporting documentation.
9. Check references.
10. Conduct an interview.
11. Review score sheets.
12. Make a decision.

Smith and Knab (1996) studied the world of industrial psychology and business to find models that could meet the teacher selection process needs of schools and school systems. They assert that schools have long sought hiring processes that were efficient,



reliable, and valid. They advocate a selection process redesign that would include the following steps or stages:

1. Submission of traditional application, resume, and supporting documentation.
2. Testing stage in which applicants are required to take or submit the results of standardized tests such as the National Teacher Examination.
3. Application of a short structured interview to select for previously determined consensus-based criteria (CBC).
4. Gathering and review of references for those candidates remaining in consideration – those who continue to show great promise as candidates.
5. Combine the objective data gathered in steps 1-4 with the subjective judgments of the interviewers trained in identifying teachers strong in the CBC.

Smith and Knab contend that using the process they describe is likely to find candidates with the desired skills, attitudes, and qualities. They claim that their method provides necessary streamlining of the process so that it becomes both cost-effective and timely.

Collaborating in a study, Wise, Darling-Hammond, Berry, Berliner, Haller, Praskac, and Schlechty (1987) focused on six districts chosen because of their reputation for having highly effective selection processes. At the conclusion of their targeted study, this team of researchers came to a series of conclusions, each accompanied by one or more recommendations. Of particular relevance to this study is their Conclusion 4, “In screening candidates, school districts inevitably balance high scores on objective

measures of academic qualifications with assessments of other characteristics deemed important for teaching” (Wise et al., p. 16).

A recommendation related to this conclusion states, “Districts should seek candidates with high academic qualifications, interpersonal competence, and potential for teaching performance, but they should recognize that objective measures are imperfect indicators of teaching performance” (Wise et al., 1987, p. 16). In drawing this conclusion and making the associated recommendation, these researchers seem to be cautioning education leaders to be sure not to depend on a single indicator. Rather, decisionmakers are reminded to review and consider all of the indicators available.

The hiring decision sometimes is a collaborative decision made by a group of stakeholders in the district. Holman (1995) wrote about the involvement of site-based committees in the staff selection process. She asserted that such participation can result in better selection decisions through increased ownership, empowerment, and accountability. However, she identified a potential problem with site-based decision making when applied to teacher selection. Organizations and individuals tend to resist change. Consequently, site-based committees can have a natural affinity toward individuals who are like them. This can have a deleterious effect on diversity of ideas, philosophy, teaching practices, and culture. Organizations should examine their unique needs for improvement and hire with these needs in mind to avoid perpetuating the status quo.

In an earlier article, Denney (1979) made the point that the teacher selection process often is identified as the single most important function of the school personnel



administrator or hiring person. Although this article is rather old, it still is quite consistent with more current descriptions. Denney generally described the selection process used in his school district as follows:

1. The school board declares a vacancy.
2. Advertise the vacancy.
3. Accept applications.
4. Appoint a selection committee.
5. Screen applicants.
6. Invite the top six candidates to come for interviews.
  - a. Teacher Perceiver Interview.
  - b. Informal interview with selection committee.
7. Select the best applicant by unanimous vote. (Denney, 1979)

Over the years, school districts have experimented with some unusual techniques with the goal of making better selection decisions. Some school districts report positive results through the use of group interviews involving several applicants interviewing concurrently. Using this idea enables districts to efficiently get a serious look at a greater number of applicants (Mueller, 1993). Mueller described a process used in a New York district that is sometimes faced with 210 applications for a single social studies teaching position. Department members feared that to apply traditional screening devices would require such unrealistic criteria that they would risk missing the best candidate. Mueller described a process in which they added one step to the selection process – a simulation in which three or four candidates worked together as a team on a project devised by the

department. Department members observed the candidates and scored them according to a predefined scale. Based on these scores and a general discussion of candidate's strengths, individuals were selected for traditional, single interviews.

Myers (1998), an educator from the United Kingdom, described a system through which students interviewed applicants as one of several interviews in the process. This article was the only one of its kind found in the literature. While there were no scholarly data to report, Myers described their experience with this practice positively on an anecdotal level.

Educational leaders from many divisions of a school seem to apply the same general selection processes. As far back as 1976, Vidaurri wrote an article suggesting processes for directors of special education to consider when hiring staff members. The processes he suggested are not unlike those found in typical general education settings of today. He made suggestions for selection processes and included some legal cautions. He then went on to suggest use of a structured interview process to identify candidates with specific desired teacher attributes. The instrument he recommended was the Teacher Perceiver Interview, the same instrument used for general educators in many districts.

A concern of some school districts is the legal standing of their teacher selection process. Young and Prince (1999) formally studied selection processes in schools to determine the extent to which they complied with the Americans with Disabilities Act (ADA) and the Age Discrimination in Employment Act (ADEA). These researchers divided teacher selection into two stages – the screening stage and the interview stage. They then submitted applications for hypothetical candidates with fabricated disabilities

and varying ages. A national random sample of school principals was given these applications to screen. Young and Prince found that there was no discernible discrimination based on disability, gender, or age. They do urge caution to school districts in developing procedures that meet the legal requirements of ADA and ADEA, both at the screening and interview decisional points (1999).

### Criteria in Teacher Selection

There seems to be an abundance of literature on the topic of what criteria should be used in selecting high quality teachers. This section includes samples of the writing of educational leaders and scholars on the topic and then synthesizes the work of these writers into some common findings.

Blackwell and Carlson (1995) suggested the following “Decisive Dozen” as key areas on which to evaluate candidates.

1. Adaptability: Is the candidate flexible?
2. Competence: Does the candidate have the core skills?
3. Experience: Does the candidate have relevant experience?
4. Manageability: Will the candidate take direction?
5. Interpersonal Skills: Can the candidate communicate clearly?
6. Attitude: Is the candidate optimistic and positive?
7. Initiative: Will the candidate take action?
8. Maturity: Is the candidate professional and polished?
9. Stability: Does the candidate have future plans and goals?
10. Emotional Control: Can the candidate remain composed?



11. Integrity: Will the candidate be honest and trustworthy?
12. Values: Will “this organization” culture satisfy the candidate?

Principals, the educational leaders most often responsible for hiring decisions, typically look on hiring new teachers as an exciting opportunity to bring new energy, ideas, and the potential for change consistent with the principal’s vision. This “opportunity” is tempered with the potential for significant demand on the principal’s time, complications of site-based decision making, and the weight of the responsibility of making such a significant decision, the consequences of which will affect many people potentially over a rather long period of time. Care must be taken (Huling, Resta, Mandeville, & Miller, 1996).

These authors combined their experiences to offer nine factors that decisionmakers (secondary school principals) should consider, in addition to their already existing criteria, in making staff-hiring decisions. Listed below are five of those factors that seem to bear on the topic of this dissertation.

1. Be aware of the limited pedagogical preparation programs typically in place for secondary teachers. It may be unrealistic to expect that a beginning secondary teacher will enter the profession as a highly skilled educator.
2. Look favorably on applicants who have been trained in programs heavy on field-based experiences. Many strengths and deficiencies show up in these experiences that might not otherwise surface until a teacher is under contract.
3. Look favorably on applicants with preparation in middle and even elementary preparation. Many high school principals are finding that some of

their best teachers come to them from middle and elementary school training and experience.

4. Appreciate the value of experience and maturity when hiring staff, especially at the secondary school level. There is an understandable notion that a somewhat older person might do better working with high school students than someone only a few years older than the students. Students may tend to concede more authority to someone with more age separation.
5. Understand the power of “predisposition” in shaping experience and behavior. Huling and her colleagues persuasively point out that a person’s perception of situations and people is heavily influenced by life experiences that have shaped values and beliefs. They call the product of these experiences “predisposition.” Depending on their predispositions, two individuals can view the same situation and perceive it quite differently. Interviewers should keenly watch for evidence of candidates’ predispositions searching for teachers who view adolescents as “fascinating creatures to teach and from whom to learn” rather than as the enemy (Huling, Resta, Mandeville, & Miller, 1996).

In making selection decisions, decisionmakers often look to written recommendations and evaluations written by previous supervisors. Halitan and Abrahamson (1996) surveyed a sample of superintendents to measure the relative significance they place on recommendations and evaluations. The researchers found that superintendents considered oral references from cooperating teachers, cooperating

principals, and previous employers more heavily than from any other source. Written references were not considered as heavily. References, written or oral, from college faculty were far down the list in order of significance. It was pointed out that legal developments have influenced the practice of producing written references in such a way that they offer little credible guidance in making selection decisions.

Haussler (1994) did a study to determine, among other things, the importance of various criteria in teacher selection, as viewed by school administrators. Haussler surveyed 768 school administrators to measure what they considered to be the most important teacher selection criteria. The administrators were asked to rate 28 attributes and were allowed to add other criteria that they felt were important but that were not listed. Listed below are the top 10 in descending order of importance.

1. Ability to relate to students
2. Ability to get along with others
3. Ability to control students
4. Honesty
5. Ability to show empathy and understanding
6. Ability to stimulate interest and participation
7. Ability to work with faculty or staff
8. Communication skills
9. Knowledge of content/subject
10. Areas of certification (Haussler, 1994)



It is interesting to note that affective criteria dominate the top 10. Content knowledge and areas of certification did not appear until toward the end of the top 10. Haussler asked a related question about the extent to which the administrators actually used the criteria in teacher selection. His top 10 criteria remained the same and mostly in the same order. However, “knowledge of content/subject” and “areas of certification,” rather practical considerations, understandably moved up the scale to number 5 and 4, respectively.

Johnson (1994) reported a similar study. He surveyed 1000 secondary principals across the United States seeking their views on the relative importance of a list of 18 criteria for the process of teacher selection and performance evaluation. The items ranked most important in teacher selection are listed below in descending order of importance.

1. Enthusiasm
2. Oral Communication Skills
3. Competence in Area of Specialization
4. Interpersonal Communication Skills
5. Listening Skills
6. Writing Skills
7. Poise
8. Recommendations
9. Resume
10. Appearance (Johnson, 1994)

Both Johnson's (1994) and Haussler's (1994) top 10 criteria appear to be heavily weighted toward innate affective traits as opposed to areas such as content knowledge, GPA, assessment results, and college attended.

The significance of these innate personal attributes was confirmed through the work of Wentzel (1997) as she studied the impact of caring on student outcomes. Specifically, she studied the extent to which adolescents' perceptions of caring on the part of their teachers predict efforts to achieve positive social and academic outcomes at school. The premise she was trying to establish was that students will be motivated to engage in classroom activities if they believe that teachers truly care about them. If that link can be established, it would seem to make sense to try to select teachers – at least partly – on the extent to which they sincerely care about children and are willing and able to demonstrate that convincingly to children. Wentzel found rather strong predictive correlations between students' perceptions of caring from their teachers and their pursuit of prosocial and social responsibility goals and their own academic effort. The results of this study seem to confirm strongly the popular expression, "They won't care what you know 'till they know that you care." The inference to be drawn from Wentzel's work, in relation to this paper, is that if the perception of caring has such strong influence on the performance of students, it is imperative that this attribute get significant attention during the process of teacher selection.

This notion of affective criteria rising to a high priority in selection decisions was posited by Smith and Pratt (1996) in a study on selection of student applicants for admission to teacher preparation programs. They studied the relative predictive value of a

number of criteria in making selection decisions. Smith and Pratt submitted candidate academic performance, as measured by GPA, to a meta-analysis. Findings showed that GPA correlated with later training success at a .30 level but dropped to .11 when correlated with supervisor ratings. Personality inventories such as Cattell's Sixteen Personality Factor Questionnaire and the Minnesota Teacher Attitude Inventory also failed to provide strong predictive measures. Even the traditional interview, widely used in admissions and job selection programs, showed predictive correlations at .03 and .14. Further, Smith and Pratt asserted that the interview is costly and labor intensive. They observed that interviews often reward interviewees' personal characteristics such as confidence, sociability, submissiveness, appearance, and attitude congruence with the interviewer. Their findings did show that interviews became more valid and reliable as a selection method as the interview became more structured and standardized.

Smith and Pratt advocate for a system of self-reporting of what they call "biodata." In fact, these researchers found that self-reported biodata have high validity, reliability, and verifiability. They reported median correlations of biodata with professional competence at .43 and with nonacademic outcomes at .35, the highest correlations among the predictors examined. The biodata are gathered through asking candidates to submit a personal statement in which they describe information about life experiences they consider relevant to teaching. Reviewers are required to participate in a training program in which they learn to assess practice reports and strive for inter-rater reliability (later found to be .73 via the Spearman-Brown formula). Smith and Pratt reported some powerful anecdotal evidence of the value of using the biodata for selection



decisions but did not report any statistical evidence to support its use. Rather, conducting such a statistical study was one of their recommendations.

Interview questions usually are fashioned in an attempt to learn the extent to which an interviewee possesses a certain attribute or meets a certain criteria. Scheetz (1989) surveyed a group of school administrators to gather a collection of favorite interview questions which he then grouped according to themes. These themes can easily be considered, in the context of this discussion, as criteria. Following is the list of themes that he found:

1. Motivation and Personality
2. Academic Preparation
3. Student Teaching Experience
4. Teaching Techniques and Style
5. Knowledge of the Employer
6. Hypothetical Questions

Scheetz (1989) also added another section to his article to describe structured interviews. In this description he listed another set of selection criteria centered around the affective personal attributes (e.g. mission, listening, rapport drive, activation) typically found in the structured interview systems. The result of his study is an excellent compilation of good interview questions for interviewers and for candidates hoping to prepare themselves for a job interview.

Another study of processes used to select students for admission to an upper division teacher preparation program was done in Australia (Shechtman & Sansbury,

1989). These researchers searched for correlations between an array of predictor variables of verbal expression, thinking, motivation, self-confidence, human relationship, leadership, flexibility, creativity, and their composite against the criterion variables of practice teaching evaluation, leadership, human relations, motivation, and academic GPA. These researchers found significant correlations for the predictor variables of thinking, self confidence, motivation (as predictor variable), human relationships, and leadership compared to all the criterion variables except motivation for teaching. Considered collectively as a composite score the correlation was reported at the  $r = .45$  level. These findings seem to place considerable emphasis on the importance of criteria in the affective realm.

#### Structured Interview Instruments

Selecting highly qualified effective employees is an important concern for all employers. Bacas, writing in Nation's Business (1987), suggested that because it is viewed as being so important, many business owners want to interview potential employees themselves rather than trusting a subordinate. He cited statistics that point to a high failure rate in selecting good employees who stay with the company along with high costs in lost productivity and replacement costs. Bacas posited that managers usually are not taught the skills and processes of effective interviewing. He lists several firms that offer seminars on interview processes and skills. Included in his list are several that continue to offer such services today such as Xerox Learning Systems, Development Dimensions International, Communispond, Inc., and Dun & Bradstreet. Bacas cited advice from several business owners as they considered selection and interview

processes. A recurring theme was the importance of listening. Several cautioned about the interviewer talking too much. One CEO urged structure and discipline in listening, “When you interview, be sure to listen more than you talk. The untrained interviewer talks too much. Be receptive, but use silence to encourage further response” (Bacas, p. 70).

Zagury and Cohen (1995) made essentially the same argument in advocating for new recruitment, selection, and retention processes. In making their case for a more rational structured process, they took a reverse approach by listing 12 deadly sins. These sins are common attributes of unstructured, irrational, and superficial selection systems. While they were directed at human resource concerns within the medical community, one can assume that they have comparable relevance in the education world.

Listed below are paraphrased descriptions of the more cogent of Zagury and Cohen’s Twelve Deadly Sins of Hiring:

1. The employer sells the job to the candidate. In an attempt to fill a vacancy quickly, an employer may tend to over emphasize the positive aspects of a job and fail to provide a realistic picture to the applicant.
2. Candidates may over sell themselves to employers. In their eagerness to get a position and knowing what the desired answers might be, candidates may misrepresent themselves.
3. Employers depend too much on resumes and job descriptions to make the selection decision. Good skills, experiences, degrees, and certifications may



be useful but they are no replacement for a face-to-face discussion and consideration of “fit.”

4. Hiring decisions are made at the gut level. Formal studies have shown that hiring decisions often are not based on objective processes and data but rather on gut instincts.
5. Hiring decisions are made on first impressions. Without a structured process to counteract it, employers tend to make premature judgments about candidates which can be very difficult to overcome. Interviewers should remain open to subsequent information gained in a structured process.
6. We tend to hire people like ourselves. Managers tend to hire people with high congruence to their own beliefs and value systems. Yet an ideal complimentary employee to the team might be a person with an entirely different profile (Zagury & Cohen, 1995).

One then can infer that avoidance of these “deadly sins” can lead to a more structured rational process likely to lead to the selection of quality employees.

There seems to be consistent understanding of the expression “structured interview” in the literature. The University of Wisconsin – Whitewater, on its teacher placement website, offers guidance to its graduates on the issue of structured interviews that seems to provide the consensus definition. The authors describe structured interviews as follows:

The purpose of the structured interview is to ask the same questions of each candidate so that valid comparisons of the quality of responses can be acquired.

The questions generally take three forms: situations, observational, and personal.

All questions, regardless of form, are job related. (Interviewing in Education, 2003, Structured Interview, ¶ 2)

As the quest to bring more structure and sophistication to the process intensified, business consulting firms have come forth to provide some processes purported to fill the void. A Michigan State University scholar listed three competing products available in the 1980s (Scheetz, 1989). He identified Ventures for Excellence – Teacher Selection, Teacher Perceiver Interview from Selection Research Inc., and Targeted Selection from Developmental Dimensions Inc. (DDI). Since then, still other products in this category have come on the market.

Rather than list “deadly sins” as did Zagury and Cohen (1995), an educational leadership professor at the University of Central Florida, Pawlas (1995), took a more positive approach to improving the process of staff selection. Pawlas made a case for a structured interview, one in which all candidates were offered the same set of questions, carefully crafted to elicit information not already available from transcripts and application forms. His process is based on a copyrighted process called Targeted Selection. Pawlas compiled a list of 36 questions divided into five categories:

1. Teacher Relationships with Students
2. Teacher Relationships with Colleagues
3. Teacher Relationships with Parents
4. Instructional Techniques
5. Potpourri of Topics and Background Information

Pawlas asserted that this structured process, with these themes of questions, will lead to systematic elimination of those candidates who are clearly unqualified or otherwise undesirable for the position under consideration.

Developmental Dimensions International (DDI) described their Targeted Selection process on their web site (2003). They claim that their structured process focuses on three processes crucial to effective selection: (1) identifying the right selection criteria through job analysis, (2) gathering relevant candidate information, and (3) properly evaluating the information gathered to make an accurate decision. Organizations wishing to use their process have several modality options in obtaining support and training from DDI. The targeted selection described in this website is a collection of selection activities from which organizations can choose in fashioning their own structured selection system. Among their list of available “products,” DDI markets their structured interview as the primary source of candidate information.

Reporting in the Journal of Occupational Psychology, researchers Weisner and Cronshaw assert, “The employment interview is a tenaciously popular but controversial selection method” (1988, p. 275). After conducting a thorough meta analysis of the validity of use of interviews in selection decisions, these researchers contradicted commonly held skepticism about the validity of interviews. In agreement with Farrell (1986), Weisner and Cronshaw suggested that interviews were found to be generally good selection instruments – particularly those of a more structured nature.

Weisner and Cronshaw provided the following recommendations:



1. Researchers should divert their attention from the unstructured to the structured interview. Finding little data to support the validity of unstructured informal interviews, these researchers recommended focusing on the more promising structured interviews.
2. Researchers should concentrate on identifying factors moderating the validity of structured interviews with a goal of maximizing predictive validity.
3. Personnel psychologists should reject the doctrine that interviews are of little value. They suggested that even unstructured interviews have modest validity – enough to make their use superior to random selection.
4. Practitioners should use structured interviews whenever possible. Interview questions should be closely linked to job-analytic information to enhance predictive validity.
5. In evaluating structured interview results, consensus results seem to be preferable to statistical combination of individual ratings (Weisner & Cronshaw, 1988).

Personnel consultant Barry Farrell (1986) argued in favor of structured interviews. He suggested some strategies to make these interviews even more effective.

1. Clearly identify the knowledge, skills, and characteristics essential to the job being sought.
2. Develop key behavior questions that relate to each of the items identified in #1.
3. For each behavioral question, develop a list of things to look for in responses.

Norris and Richburg (1997) proposed a strategy designed to select top teachers. These authors raised readers' levels of concern by describing the collective impact over time that a single teacher, for better or worse, can have on thousands of students during a career. Once their readers are sufficiently attending to the article, these authors identify a series of steps in a rational teacher selection process. They stated that they strongly believe in the value of structured interviews. They endorsed a particular structured interview, the Teacher Perceiver, developed by Selection Research, Inc., now a part of the Gallup Organization. This process is described in more detail in the next section of this chapter. Norris and Richburg contend that such structured interviews remove bias from the selection process and yield quality finalists.

A similar structured process frequently described in literature is entitled the Urban Teacher selection system developed by Martin Haberman (Angwin, 1992; Haberman, 1995; and Needham, 1992). In this structured process, candidates are asked a series of questions, two in each of seven dimensions: persistence, response to authority, ability to move from theory to practice, approach to at-risk students, professional orientation, resistance to burn-out, and willingness to deal with fallibility. Candidates must "pass" all seven themes to remain in consideration. The interview is administered by a pair of interviewers who simultaneously listen and evaluate candidate responses to a prepared script of questions designed to last about 35 minutes. Its developer, Haberman, claims very high predictive success with his interview. Haberman defines success in his process by comparing the ratings from the first year of teaching to earlier interview ratings. He

claims that this method predicts success and failure in urban teachers in 97% of the cases (Needham, 1992).

A controversial feature of Haberman's induction program is his general disdain for preservice teacher training. Haberman's strategy is, "Selection is more important than training" (1995, p. 777). In fact, Haberman argues that selection is 80% of the matter. Instead of the traditional route of preservice education, student teaching, graduation, and then to the job market, Haberman advocates for a year of mentorship under a master teacher prior to traditional preservice training. In justifying his quest for a better system of selecting staff suitable for the challenges of working in urban schools, Haberman describes the role of education in lifting children out of lives of poverty and the grim consequences of failure.

For children in poverty, schooling is a matter of life and death. They have no other realistic options for "making" it in American society. They lack the family resources, networks, and out-of-school experiences that could compensate for what they are not offered in schools. Without school success they are doomed to lives of continued poverty and consigned to conditions that characterize a desperate existence: violence, inadequate health care, a lack of life options, and hopelessness. (Haberman, 1995, p. 781)

Perhaps partly in response to this challenge by Haberman, using concepts and processes similar to the Teacher Perceiver Interview, SRI Gallup now has introduced its own instrument specifically designed to identify candidates likely to succeed in urban teaching situations with high concentrations of poverty, mobility, and diversity. This



alternate instrument, the Urban Teacher Perceiver, contains 11 themes in which questions are categorized (Gordon, 1999).

Another structured interview process is available commercially from Ventures for Excellence (2003). Like other commercial processes, Ventures for Excellence (VE) claims to have conducted extensive research of teachers carefully categorizing them according to their level of effectiveness. Once the teachers were judged, the researchers noted common themes that were present in the teachers judged to be highly effective. Once the themes were identified, questions were fashioned that supposedly elicit qualitatively different responses from high quality teachers than what you might get from mediocre teachers. Tabulating responses from interview questions produces a score that can be used to assist in deciding who continues in the selection process (Ventures for Excellence, 2003).

A group of researchers collaborated to conduct a meta-analytic study of the validity of several forms of job interviews. They provided a cogent definition of interview as it is used in their study and this dissertation, "The interview is a selection procedure designed to predict future job performance on the basis of applicants' oral responses to oral inquires" (McDaniel, Whetzel, Schmidt, & Maurer, 1994, p. 599). Among their findings was the conclusion that structured interviews had a higher validity than unstructured interviews. These researchers also reported that their data indicated that as many as 99% of organizations use interviews when selecting employees despite the general suspicion of the validity of their use.

### SRI Gallup and the Teacher Perceiver Interview (TPI)

The Gallup Organization is a huge corporation employing thousands of people in 40 offices in 20 countries. Probably most known for its polling expertise, Gallup also has a long history in the study of human nature and behavior, especially as it applies to organizations seeking to maximize individual and group performance (The Gallup Organization Today, 2002).

Among its wide array of programs and services is a group of integrated solutions designed to assist client organizations as they attempt to recruit, hire, and develop top performers. Under this division, Gallup offers to:

- Devise and implement an effective *organizational performance strategy*.
- Provide *executive performance coaching* for senior leaders.
- Measure and improve *customer engagement*.
- Measure and improve *employee engagement*.
- *Recruit and hire* world-class performers.
- Teach all employees to *identify, deploy and develop their strengths*.
- Create an objective and easy-to-use *performance appraisal and review system*.
- Develop an effective *succession planning* system.
- Design a *performance-based compensation* system for all roles.

(Italics identify titles of the integrated components of Gallup's offerings.)

It is the fifth bullet, "recruit and hire world-class performers," that is the focus of this study. It is Gallup's belief that different jobs require different innate talents and that

these talents can be identified by asking carefully crafted and researched questions. With this belief as the foundation, Clifton, now the CEO of Gallup, developed the Teacher Perceiver Interview (TPI). Gallup claims that their product produces, better than any other process, information about the job-related characteristics and talents of the applicant (The Gallup Organization, 1993b).

The original perceiver interview process, as it is now employed by SRI Gallup, was conceived by Don Clifton at the University of Nebraska in the early 1950s in the context of attempting to identify those counselors who were especially effective at working with freshman. After a considerable amount of research, Clifton and his colleagues developed an interview instrument that seemed to effectively identify those counselors who had a high probability of succeeding at their work with freshman.

This work led to comparable applications of this process in selecting staff for other specialties and occupations. Warner, in his 1969 dissertation, reported advisement he received from Clifton as he worked toward development of a structured interview built upon previous attempts by others. A significant development in SRI Gallup's line of products is the Teacher Perceiver Interview (TPI). In the 1970s and 1980s the TPI started to gain broader application across the country and articles in journals began appearing both pro and con (Haefele, 1978; Miller, Clements, & Gardner, 1977; and Muller, 1978.)

SRI Gallup described their product in a way that is consistent with most of those who use it.

The TPI is an individually administered, structured interview composed of 60 open-ended questions. The interview questions were designed to permit



individual self-expression with regard to different job-related issues. The interview is then analyzed by life themes. A life theme is defined as a recurring and consistent pattern of thought, feeling, or behavior. A person is an aggregate of many themes. We can better understand and predict job-related behaviors of individuals through a study of their themes. (The Gallup Organization, 1993a, p. 1)

The Gallup Organization is an effective organization at marketing its products. In one of their promotional publications, they provide a compelling, attractive description of the TPI process.

- The Gallup Perceiver interview is a scientifically researched and validated interviewing system designed to elicit information relevant to a person's strengths and potential for outstanding job performance.
- Gallup Perceiver interviews are structured, personal interviews that use an objective, reliable scoring system to evaluate interviewees' responses.
- Job candidates can be screened and interviewed quickly, efficiently and objectively. The interview process is valid when administered either over the telephone or face to face.
- Individuals in your school system can be taught to administer and analyze the Gallup interview in a matter of days. Once the individuals are trained, the system can be applied to help make hiring decisions and to use as a developmental tool with existing employees.

- The consistency and proven results of the Gallup interview process assures that each applicant is afforded an equal opportunity without sacrificing your need to hire top performing candidates.
- More than any other interviewing system available today, the Gallup Perceiver interview process provides you with the most accurate information about a person's potential job performance in the least amount of time. (The Gallup Organization, 1993b, p. 2)

Central to the whole idea behind the TPI process is the notion of "Gallup Theme Theory." Gallup describes themes as fundamentally innate, spontaneous, and recurring patterns of thought, feeling, and behavior. It is their belief that these themes remain fairly constant over time and can be changed only with great effort, if at all (The Gallup Organization, 1993a). Gallup believes that it is far easier to hire someone with the desired attributes (themes) than it is to change someone's belief system to be consistent with what the employing organization desires. This view was supported by Haberman (1995) as he made a strong case that concentrating on careful targeted selection is far more productive than attempts at change and reform. Gallup has identified 12 themes for use in its TPI. These themes are grouped into three subscales as reported in Table 2.

Table 2

*Teacher Perceiver Themes and Subscales*

Intrapersonal Subscale	Interpersonal Subscale	Extrapersonal Subscale
Mission	Empathy	Individualized Perception
Investment	Rapport Drive	Input Drive
Focus	Listening	Activation
	Objectivity	Gestalt
		Innovation

(Source: The Gallup Organization, 1993a)

More detailed descriptions of these themes as defined by Clifton are provided below:

Mission – Mission is what takes some individuals and groups out of society's mainstream in order to assure the quality and purposiveness of that mainstream. Mission is a deep underlying belief that students can grow and attain self-actualization. A teacher with mission has a goal to make a significant contribution to other people.

Empathy – Empathy is the apprehension and acceptance of the state of mind of another person. Practically, we say we put ourselves into the other person's place. Empathy is the phenomenon that provides the teacher feedback about the individual student's feelings and thoughts.



Rapport Drive – The rapport drive is evidenced by the teacher's ability to have an approving and mutually favorable relationship with each student. The teacher likes students and expects them to reciprocate. The teacher sees rapport as a favorable and necessary condition of learning.

Individualized Perception – Individualized perception means that the teacher spontaneously thinks about the interests and needs of each student and makes every effort to personalize each student's program.

Listening – The listening theme is evident when a person spontaneously listens to others with responsiveness and acceptance. Listening is viewed as beneficial to the speaker.

Investment – The investment theme is indicated by the teacher's capacity to receive a satisfaction from the growth of the students. This is in contrast to the person who must personally perform to achieve satisfaction.

Input Drive – Input drive is evidenced by the teacher who is continuously searching for ideas, materials and experiences to use in helping other people, especially students.

Activation – Activation indicates that the teacher is capable of stimulating students to think, to respond, to feel – to learn.

Innovation – The innovation theme is indicated when a teacher tries new ideas and techniques. A certain amount of determination is observed in this theme because the idea has to be implemented. At a higher level of innovation is

creativity where the teacher has the capability of putting information and experience together into new configurations.

Gestalt – The gestalt theme indicates the teacher has a drive toward completeness and organization. The teacher sees in patterns – is uneasy until work is finished. When gestalt is high, the teacher tends toward perfectionism. Even though form and structure are important, the individual student is considered first. The teacher works from individual to structure.

Objectivity – Objectivity is indicated when a teacher responds to the total situation. This teacher gets facts and understands first as compared to making an impulsive reaction.

Focus – Focus is indicated when a person has models and goals. The person's life is moving in a planned direction. The teacher knows what the goals are and selects activities in terms of these goals. (The Gallup Organization, 1993a)

The TPI attempts to measure the extent to which teacher applicants possess and express these themes. Interviewers using the TPI ask a series of 60 questions, recited precisely according to a script. Each theme is probed in five separate questions. Responses to the questions are scored digitally, meaning each question receives a score of “1” for an answer that contains evidence of the theme or a “0” for an answer that does not contain sufficient evidence of the theme. Consequently, the maximum possible score is 5 for each of 12 themes for a total of 60. Each interview is tape-recorded for additional

review if needed; however, most interviews are scored during the actual interview by the interviewer as answers are given.

Employers in school districts wishing to use the Teacher Perceiver Interview must undergo a training and certification process in which many interview scripts and tapes are reviewed and scored. Individuals seeking certification must attain an 85% item-by-item consistency with Gallup trainers reviewing the same interview. Gallup claims that the TPI process yields internal consistency (The Gallup Organization, 1993a).

#### Validity Studies of the Teacher Perceiver Interview (TPI)

The Gallup Organization markets the Teacher Perceiver Interview as an objective measure that successfully predicts effective teacher behavior. The interview yields numeric scores from 0 to 60 with additional subscale scores. There also are scores on each of 12 themes. The Teacher Perceiver Interview has been commercially available since 1971 and has subsequently been administered to thousands of teacher candidates (Delli, 2000). All this readily available quantifiable data has resulted in a considerable amount of research attempting to validate or discredit the TPI. The findings of some of those researchers studying the predictive validity of the TPI are reported below.

Cornine (1980) compared TPI scores to scores on a performance questionnaire. He collected two samples. One sample consisted of teachers hired using TPI scores and the other sample consisted of teachers selected without benefit of TPI scores. In this study the teachers' students completed an evaluative instrument designed to provide a score reflective of each teacher's effectiveness. The researcher found no statistical difference in the two samples of teachers.



Eslinger (1982) studied whether or not the practice known as Management by Objectives (MBO) was an effective tool to assist school administrators in pursuit of professional and personal growth. He attempted to relate measures of use of MBO to subsequent administrator perceiver interview scores. The administrator perceiver interview is a product based on the same underlying principles as the TPI and is offered by the same company that markets the TPI. Eslinger found no statistically significant correlations between MBO measures and administrator perceiver scores. He concluded that MBO must be ineffective as a tool of professional development. (Another possible conclusion, although not reported by Eslinger, was the possibility that the administrator perceiver interview score was not valid in this application or not valid at all.)

Two unidentified researchers on the staff of Austin Independent School District (1984) reviewed a number of assessment instruments claiming to be predictive of later teaching success. Instruments reviewed were the National Teacher Examination (NTE), the Pre-Professional Skills Tests (PPST), the Wessman Personnel Classification Test, and the Teacher Perceiver Interview. These researchers concluded that there was little to be gained for the district by engaging in a testing program for teachers at the time. They concluded that psychological testing probably has no usefulness for the district. While they left open the possibility that the TPI may yet prove to be useful, they advised additional local validation before it was more widely used. The researchers did not appear to be very enthusiastic about the results they found with formal teacher assessment. These researchers pointed out the dangers associated with depending too heavily on these apparently objective measures. They warned that practitioners will be tempted by the

ready availability of this quantitative information that appears to be so concrete, handy, and beguiling. They fear that it will receive more consideration than its validity justifies and that real people will be adversely affected (Austin Independent School District, 1984).

In a study with similar results, Fowlkes (1984) studied a sample of Virginia teachers to determine if there was a relationship between pre-employment TPI scores and subsequent scores on an evaluation of effectiveness as measured on the Classroom Planning and Management Assessment (CPMA). The researcher found that there was no statistically significant relationship between the two scores.

The findings of Fowlkes were replicated in several other doctoral dissertations (Aramburo, 1981; Gatti Carson, 1990; Gillies, 1988; Mauser, 1986; Mills, 1986; and Schilling, 1975). Like previous studies cited, these researchers explored data to test for correlations between TPI scores and subsequent measures of teacher effectiveness. In all of these studies there were no significant correlations found to validate the predictive value of the TPI. Inexplicably, Gatti Carson's study reported a negative correlation between TPI scores and later measures of effectiveness.

Zaranek (1983) studied a small sample of teachers in a district in Michigan with approximately 12,000 students. His study consisted of two samples: 21 elementary teachers and 29 secondary teachers. He used scores obtained on the Teacher Perceiver Interview as the predictor variable. This study had two criterion variables, one of which was obtained by administering a self-satisfaction instrument (Job Descriptive Index) to each participant; the other was obtained by using a locally developed administrative



evaluation of each participant. Zaranek obtained significant Pearson product-moment correlations between TPI scores and both criterion variables for elementary teachers. For secondary school participants in the study, he obtained correlation coefficients that were quite small (1983). Zaranek concluded that the TPI had predictive value for use in elementary schools in his district. Since he found no relationships between TPI scores of secondary teachers and either of the criterion variables, he concluded that there may not be justification for its continued use at that level. At the secondary level he conceded that there may be some contaminating factors in this particular district that may have obscured any possible correlation.

In a Virginia study English (1983) attempted to determine if there was a relationship between TPI scores and subsequent measures of quality professional practices. The researcher did find statistically significant relationships. English also found significant correlations between individual themes and subsequent measures of teaching proficiency.

Over the years, Gallup has had a strong interest in gathering research data on the use of their TPI or, in its absence, to conduct their own studies. In a study provided by Gallup dated 1990, the researchers posed three research questions:

1. Did the TPI demonstrate an acceptable degree of internal consistency?
2. Was there a relationship between TPI scores and subsequent administrator quartile ratings of teachers?
3. Was there evidence of adverse impact based on TPI scores across race, gender, and years experience?



From a sample of 173 teachers across the United States, the researchers found correlations between each theme and at least one other theme. Based on the collective data, the researchers concluded that there was, in fact, internal consistency. The researchers also found a significant correlation between total TPI score and administrator quartile ratings of the teachers. They found no adverse impact on any of the subgroups studied. It should be noted that this study was provided upon request to Gallup as a photocopied document with no publishing information provided to determine its source for verification. The researchers are not identified. References listed at the end of the document range from 1952 to 1969 (SRI Gallup, 1990).

More recently, a similar study was done at an urban high school. Simmons (1996) looked for a correlation between TPI scores and two criterion variables, one obtained by administering the Teacher Perceiver Academy Questionnaire for Administrators (TPAQA) and one obtained via the Georgia Teacher Observation Instrument (GTOI). She used Pearson product-moment correlation statistical tests to measure both relationships. She found a slight positive correlation between TPI scores and subsequent TPAQA scores. It should be noted that the TPAQA is an assessment also created by Gallup that attempts to evaluate individuals on the extent to which they exhibit the same themes that are found on the TPI. Having the criterion variable and the predictor variables both products of instruments created by the same authors may raise some questions of circular objectivity and bias. Others have pointed out that correlations between TPI scores and student ratings of teachers do not relate to the outcomes of good teaching (Miller et al., 1977.) Simmons found a significant correlation between TPI scores and the GTOI. In

Simmons' opinion, the correlations were sufficiently strong to recommend, among other things, continued use of the TPI for teacher selection.

In a related study, preservice educators at St. Cloud State University tried to determine if the TPI screener, a subset of the full TPI, could be used to predict which students would have a successful student teaching experience. Using the chi-square statistic, Sentz (1991) found significant relationships between Perceiver Screener scores and subsequent supervising teachers' ratings. Based on these findings, Sentz concluded that the Teacher Perceiver Screener seems to show promise for use in predicting student teachers' ability to succeed at student teaching at that point in their development.

In his dissertation, Neal (1997) examined the extent to which there was congruence between what principals professed to be important teacher attributes (themes) and the scores of teachers hired by those principals. He studied 83 teachers and 14 principals. Neal surveyed principals and teachers to rank order the 12 themes published in the TPI. He found considerable consistency between teacher and principal ranking of the themes. However, he found no discernible relationship between the principals' professed ranking of themes and the profiles of the teachers they hired. He concluded that this district's selection process should have continued development and refinement.

As the TPI was gaining a foothold in public education, the National Institute of Education commissioned a study to investigate the effectiveness of the TPI. Miller, Clements, and Gardner (1977) conducted a very scholarly study in three phases.

1. Review the literature.
2. Examine the implementation of the TPI.

3. Interviews with practitioners and administrators (Miller et al., 1977).

After completing their study, these researchers came to the following conclusions:

1. Empirical bases for claims of the TPI systems are weak.
2. There is some evidence that the TPI is partially predictive of student ratings of new teachers but there is no evidence that there is any link to the outcome of good teaching.
3. There is no evidence that the TPI is superior to classical interview techniques.
4. There may be questions of conflict of interest and invasion of privacy inherent in the TPI system.

Howard (1998) also studied the extent to which TPI scores are predictive of teacher effectiveness. In her study she explored whether TPI scores correlated to subsequent teacher performance as measured on the Teacher Perceiver Academy Questionnaire for Administrators (TPAQA). She also looked for correlations between TPI scores and teacher grade point averages (GPA), grade level taught, and years of teaching experience. She included 142 teachers and 30 principals in her study. She found a fairly strong correlation between the total TPI scores and scores obtained from their TPAQA. (Like other studies that have used Gallup's TPAQA as a criterion variable, this study may be subject to question because of the use of a criterion variable created by the same people who published the predictor variable. The TPAQA measures the existence of the TPI themes, not the outcomes of good teaching.) She found similarly strong correlations between 6 of the 12 individual theme scores and TPAQA scores. She also



found significant relationships between TPI scores and GPA and years of teaching experience. Howard concluded that continued use of the TPI was a cost-effective means to carry out the function of teacher selection.

The Gallup Organization has a variety of services and products available to its customers. One of those services is called a Gallup Workplace Audit (GWA.) The GWA is similar to the TPI in format. However, it has 31 statements arranged into nine dimensions. The TPI has 60 questions arranged into 12 themes. A report of one of Gallup's GWA describes their study as using the nine dimensions of the GWA along with the 12 themes of the TPI as independent variables in a search for correlations with the dependent variables of:

1. Student Average Daily Attendance for 1997-1998
2. Teacher Average Daily Attendance for 1997-1998
3. Student Reading Achievement Scores for 1997-1998
4. Student Mathematics Achievement Scores for 1997-1998
5. Personal Illness Leave for 1997-1998
6. Family Illness Leave for 1997-1998
7. Personal Leave for 1997-1998

Focusing just on that portion of the report dealing with TPI findings, the researchers reported that total TPI scores correlated significantly to Teacher Average Daily Attendance (Harding & Wellway, 2000). The same researchers found no correlation between TPI scores or subscores and Student Reading Achievement Scores. They did find correlations with two TPI themes (Focus and Empathy) and Student

Mathematics Achievement. They also found correlations between the themes of Empathy, Input Drive, and Activation with absences due to Personal Illness, Family Illness, and Personal Leave. Interestingly, all the correlations in this category were found to be negative, meaning that the higher the score, the fewer days they were absent. While the details of the GWA results are not included in this document, it can be reported that findings of the GWA were consistent with findings of the TPI correlations. The conclusions of this study seem to suggest that strategies be put in place to increase scores on the GWA and to focus teacher selection on high TPI scores in hopes of corresponding gains in the dependent variables. While there are many other variables that contribute to higher scores on the dependent variables, the independent variables tested in this study are some obvious variables under the control of school leaders.

In a recent study at Ohio State University, Delli (2000) examined 72 teachers who participated in an abbreviated version of the TPI and another 124 teachers who participated in the full TPI version. All 196 teachers in this study were hired, presumably at least partially based on pre-employment TPI interview scores. Delli used teacher TPI scores as predictor variables and compared them to criterion measures of principal ratings of teacher performance and to rates of absenteeism. Using the Pearson product-moment correlation coefficient, the researcher found very little relationship between the variables. She attributed the insignificant relationships to a lack of internal consistency in scoring interviews and selection under the TPI process.

In another doctoral dissertation Ball (1992) attempted to measure the relationships of TPI scores to student and parent perceptions of teacher effectiveness. Students were

identified by virtue of their teacher having been selected recently using the TPI instruments. Their parents also were surveyed. It should be noted that the TPI, the student survey, and the parent survey all were produced by Gallup. Eleven teachers, their students, and the students' parents participated in this study. Ball used descriptive statistics and rankings to compare means and rankings in analyzing her data. No attempt was made to correlate perceptions of candidates by interviewers, students, or parents. Ball concluded that there was general symmetry between the rankings of students and their parents in their perceptions of their teachers. She continued by reporting on the collective perception of relative strengths as perceived by students and parents.

Jones (1978) conducted a study to determine the ability of the TPI to predict certain teaching practices. He found statistically significant relationships between TPI scores and a criterion variable called the McDaniel Observer Rating Scale that measures classroom climate.

Upon request from this researcher for empirical evidence to support the predictive validity of the TPI, Gallup provided a collection of 13 summaries of studies showing statistically significant correlations between TPI scores and some measure of teacher quality (The Gallup Organization, 1977). None of the summaries contained sufficient identifying information to independently confirm findings of these reported studies.

The June, 1978 issue of Phi Delta Kappan published an interesting debate on the validity of the TPI. The TPI was just beginning to make a significant presence in public schools at the time. Donald Haefele from Ohio State University studied the sources of its growing popularity and came away unimpressed (Haefele, 1978). Haefele conceded that



the training costs for administering the TPI and the per teacher cost for interviews seems quite reasonable. He also found favor with the standardization of the TPI that provides the potential for consistency. Beyond these two positive aspects, Haefele found little else to support the claims of Gallup sales staff and users of the TPI. He questioned the claims of objectivity in scoring, particularly over time. He also questioned the inappropriate swapping of the terms of reliability and consistency. Particularly troubling to Haefele was Gallup's claims of predictive validity. Of concern to Haefele were Gallup's reports of correlations of .44 to .75 between TPI scores and subsequent student ratings of those teachers. Haefele's concern lay with the use of student ratings which he contended bear little relationship with real teacher effectiveness. Haefele questioned why there had been no attempt by SRI to publish validity studies in a refereed journal. Publication, it was argued, would legitimize the process, the instruments, and the research upon which it was based. Failing to subject the TPI process to the rigor of refereed scrutiny cast serious doubts on the legitimacy of the entire process. Haefele found the TPI to have superficial accuracy, but he declared that it failed to meet minimal requirements for instrument and process validity. He wrote, "Publication of validity studies is an obvious means of legitimizing the TPI to the measurement, research, and related educational communities. Publication of comprehensive studies would at least open debate on the purported merits of the TPI" (Haefele, 1978, p. 684). Haefele concluded that evidence available at the time failed to support claims made in Gallup publications, by its sales force, and by its users. He feared that users had made a premature commitment to a selection instrument that appeared accurate on the surface but fails to stand up to scholarly scrutiny.

Haefele's criticism of the TPI in the Kappan (1978) was questioned by Gale Muller (1978), vice president and general manager of SRI Perceiver Academies. He criticized Haefele's article for a lack of depth and alleged that it was based on only superficial efforts at learning about the process. Muller alleged that Haefele overlooked a plethora of doctoral dissertations, ERIC articles, and numerous reports available through SRI. Muller inserted testimonials from six educational leaders responsible for staff selection in school districts. Each of them produced compelling testimonials on their findings supporting the continued use of the TPI. Muller concluded by inviting additional study of the TPI by local districts.

Research is essential. Constructive skepticism is welcomed. Not all results are spectacular, but the magnitude of the need and the many positive results from research data and the professional observation of the users warrant an even greater investment of time, thought, and energy. I encourage others to join in this effort.  
(Muller, 1978, p. 685)

#### Summary of Literature Review

Thirty years after introduction of the Teacher Perceiver Interview, there remains much disagreement about whether or not it actually accomplishes what its promoters claim. In the previous section of this chapter, several studies and articles have been cited. Some of them were generally supportive of the TPI, concluding that there is predictive validity to the TPI. A comparable number of studies or articles cited in this chapter tend to question the validity of the TPI. There did not appear to be a preponderance of research on one side or the other to settle the questions.

University scholars and researchers tended to challenge claims of Gallup while practitioners seemed to perceive benefits that justified its continued use. There seems to be broad agreement that structured, objective, and consistently administered processes should be used to select teaching staff, a leadership role considered extremely important. There also was consensus that the TPI should be subjected to further study to determine the extent to which it works, how to improve its effectiveness, or whether or not it should be discarded in favor of other processes.

Delli (2000) concluded that there should be more study, particularly study focused within districts. Doing so would control for processes, applications, and traditions unique to that district. Delli ended her dissertation by asserting, "All school districts utilizing the Teacher Perceiver Interview must conduct validity assessments of the instrument rather than relying on validity studies generalizable only to specific populations" (p. 145).

This chapter has provided an examination of literature related to the teacher selection process, criteria used in teacher selection, structured interview instruments, SRI Gallup Organization, and the validity of the Teacher Perceiver Interview. The next chapter presents a description of the methodology used to conduct this study including the design of the study, the population under study, instruments used, data collection methods, and methods of data analysis.



### CHAPTER III

#### DESIGN OF THE STUDY

The purpose of this study was to collect and analyze various data to determine the effectiveness of the TPI as a tool to assist administrators in selecting elementary teachers in a mid-sized midwestern public school district. The following specific research questions were used to guide the study.

1. How much difference is there among TPI scores assigned by various administrators who conducted and scored the interviews in the district for elementary applicants?
2. Are there significant differences between TPI scores of elementary applicants who were hired to teach in the district and applicants who were not hired?
3. Are there significant differences in the mean TPI scores recorded for elementary applicants during the time period included in the study?
4. What is the relationship between TPI scores and administrator ratings of elementary teacher performance during the first year of employment in the district?
5. What is the relationship between TPI scores and the elementary teacher's mean number of days of absenteeism during his or her tenure in the district?

6. What is the relationship between TPI scores and the undergraduate grade point averages (GPAs) of the elementary teachers who were hired?
7. What is the relationship between TPI scores and the number of credits of graduate work earned by elementary teachers at the time they were hired?
8. What is the relationship between TPI scores and the number of years of teaching experience at the time the interviews were conducted for elementary applicants?

Note: Research questions 1-3 included a time span of 1986-2001; due to limitations on availability of complete data, research questions 4-8 included a time span of 1989-2001.

An abundant body of pre-existing TPI data already existed in this school district's archives. Up to this point school leaders have not carefully analyzed the available data to measure the predictive validity of the TPI as it is applied in the school district studied. These TPI scores were compared to a variety of indicators – ratings by principals, teacher absenteeism, undergraduate college GPAs, number of credits of graduate work earned, and number of years of teaching experience – to determine if there was, in fact, a significant correlation between TPI scores and teacher effectiveness.

Other related research questions relating to teacher selection, inter-rater reliability, and TPI score trends were explored by studying descriptive data within personnel files and TPI data.

### Population

The school district under study is located in a mid-sized midwestern city, a small neighboring town, and a relatively small rural area immediately surrounding these communities. A large majority of this school district's students live within the city limits

of the city and the small town. By enrollment, this school district is the second largest district in the state with 10,485 students as of May 21, 2002. The district consists of two comprehensive high schools, one alternative high school, three middle schools, sixteen elementary schools, and one early childhood center.

The population for this study consists of 1,747 elementary teacher applicants who have taken the TPI during the process of applying for an elementary teaching position in the district being studied. Depending on the research question being explored, and the availability of data, only subsets of this data set were studied as noted for each question.

### Instrumentation

Clifton, then leading the counseling program at the University of Nebraska in the 1950s, developed the Teacher Perceiver Interview instrument over a period of years. His objective was to establish a selection process to identify the best applicants for counseling positions at the University. Highly successful practitioners were identified, as were more ordinary or ineffective practitioners. These individuals were interviewed extensively. A careful examination of scripts of these interviews indicated that certain commonalities seemed to be evident in those practitioners who were highly successful but were rare in the less-effective practitioners. After undergoing years of development and adaptation to other occupations, the Teacher Perceiver Interview was established and put into service in school districts across the country.

For teachers, Clifton identified 12 commonalities or themes that seemed to be present consistently in the responses of highly effective teachers and not so evident in less effective teachers. Clifton has named and defined them as follows (The Gallup Organization, 1993):



**Mission** – Mission is what takes some individuals and groups out of society's mainstream in order to assure the quality and purposiveness of that mainstream. Mission is a deep underlying belief that students can grow and attain self-actualization. A teacher with mission has a goal to make a significant contribution to other people.

**Empathy** – Empathy is the apprehension and acceptance of the state of mind of another person. Practically, we say we put ourselves into the other person's place. Empathy is the phenomenon that provides the teacher feedback about the individual student's feelings and thoughts.

**Rapport Drive** – The rapport drive is evidenced by the teacher's ability to have an approving and mutually favorable relationship with each student. The teacher likes students and expects them to reciprocate. The teacher sees rapport as a favorable and necessary condition of learning.

**Individualized Perception** – Individualized perception means that the teacher spontaneously thinks about the interests and needs of each student and makes every effort to personalize each student's program.

**Listening** – The listening theme is evident when a person spontaneously listens to others with responsiveness and acceptance. Listening is viewed as beneficial to the speaker.

**Investment** – The investment theme is indicated by the teacher's capacity to receive a satisfaction from the growth of the students. This is in contrast to the person who must personally perform to achieve satisfaction.

Input Drive – Input drive is evidenced by the teacher who is continuously searching for ideas, materials and experiences to use in helping other people, especially students.

Activation – Activation indicates that the teacher is capable of stimulating students to think, to respond, to feel – to learn.

Innovation – The innovation theme is indicated when a teacher tries new ideas and techniques. A certain amount of determination is observed in this theme because the idea has to be implemented. At a higher level of innovation is creativity where the teacher has the capability of putting information and experience together into new configurations.

Gestalt – The gestalt theme indicates the teacher has a drive toward completeness and organization. The teacher sees in patterns – is uneasy until work is finished. When gestalt is high, the teacher tends toward perfectionism. Even though form and structure are important, the individual student is considered first. The teacher works from individual to structure.

Objectivity – Objectivity is indicated when a teacher responds to the total situation. This teacher gets facts and understands first as compared to making an impulsive reaction.

Focus – Focus is indicated when a person has models and goals. The person's life is moving in a planned direction. The teacher knows what the goals are and selects activities in terms of these goals.

The TPI attempts to measure the extent to which teacher applicants possess and express these themes. Interviewers using the TPI ask a series of 60 questions, recited precisely according to a script. Each theme is probed in five separate questions. Responses to the questions are scored digitally, meaning each question receives a score of “1” for an answer that contains evidence of the theme or a “0” for an answer that does not contain sufficient evidence of the theme. Consequently, the maximum possible score is 5 for each of 12 themes for a total of 60. Each interview is tape-recorded for additional review if needed; however, most interviews are scored during the actual interview by the interviewer as answers are given.

For those teachers hired, teacher effectiveness was measured through “expert jury” analysis of summative teacher evaluations provided by the principals of teachers being studied. A “jury,” or panel, of three education experts without vested interest in this study were provided copies of summative teacher evaluation reports for those elementary teachers hired. For the purposes of this study evaluation reports under study were limited to only the final evaluation filed for each teacher’s first year of employment in the school district. Each of three expert panelists applied a scale against the evaluations to obtain an effectiveness rating with possible scores ranging from 0 to 10. Use of a scale enabled the panel to convert the fundamentally subjective evaluations into numerical data more suitable to quantitative study. The writer summed the three panelist scores (PS), doubled them, and then added the Likert score (LS) reported on their annual summative evaluation to obtain evaluation scores (ES) that could be compared to TPI scores. This scoring can be described by the formula  $ES = (2 \times (PS_1 + PS_2 + PS_3)) + LS$ . In an attempt to test for error due to potential lack of inter-rater reliability, the researcher then



examined scores reported by each panelist to determine if scores reported by any one of the panelists varied significantly from the scores reported by fellow panelists. If scores of any panelist were judged to be at great variance from his/her fellow panelists, those scores were to be set aside and removed from further analysis in this study.

Teacher rate of absenteeism was used as a variable in this study. Personnel records of teachers selected for this study who were hired by the school district were studied to determine the number of days absent per year due to illness and personal leave. This number was compared to their TPI score to test for correlation.

The TPI is costly to use in the amount of staff time to conduct and score the interviews and in training costs. It adds time to the selection process that sometimes places TPI-using districts at a competitive disadvantage with districts that can act more quickly. Perhaps there are other less costly indicators that could be used for candidate screening that are readily available, such as college cumulative grade point averages (GPA). Personnel records of teachers selected for this study who were hired by the school district were studied to compare college GPAs to TPI scores, to the effectiveness ratings of their supervisors, and to absenteeism to compare correlations. Perhaps GPAs are just as predictive as TPI scores and are much more efficiently obtained.

Another variable tested for possible relationship to TPI scores was the amount of graduate credit earned. Personnel records of teachers hired by the school district were studied to compare the amount of graduate credit earned at the time of employment to TPI scores. Amount of advanced college work also could be an indicator of effectiveness.

Some educators have alleged that the TPI favors either new inexperienced teachers or that it favors experienced teachers. Personnel records of teachers selected for

this study who were hired by the school district were studied. Tests were applied to determine whether there was a correlation between TPI scores and the amount of experience that applicants had at the time when they applied.

In the district studied, teacher applicants who pass initial screening advance to take the TPI. TPI scores then are used as one of several attributes in identifying a pool of candidates from which principals can select teachers to fill vacancies in their building. Some school leaders have hypothesized that at this point, principals may ignore TPI scores in deference to other attributes in making selection decisions. To test this hypothesis, the body of existing TPI data in this district were examined to compare the TPI scores of those hired with the TPI scores of those not hired to determine the status of this hypothesis. If the TPI is not going to be a significant factor in employment decisions, it may not be worth the substantial monetary and labor cost of using it.

Candidates submitting to a TPI interview are interviewed by one of approximately 20 administrators trained and certified for this purpose. In order to be certified, interviewers must reach a level of 85% consistency with the scores of the TPI trainers. This measure of consistency is intended to provide an acceptable level of inter-rater reliability. This measure of reliability is supposed to be reinforced by biennial retraining and recertification. Existing TPI scores in the district studied, which included the names of the interviewers, were obtained and analyzed to make some inferences about the extent to which internal consistency exists within the district's interviewers.

The TPI is kept in relative confidence by Selection Research Incorporated – Gallup along with its clients, the cadre of certified teacher perceiver interviewers across the country. Interview and scoring matrix security are essential to prevent the possibility

that a candidate could prepare unfairly for the interview by gaining advance knowledge of the questions and the preferred answers. However, the TPI has been in use for nearly 50 years. Many articles have been published revealing more and more details of its content. Some websites have disclosed details of the TPI questions and answers likely to enhance scores. Some administrators have theorized that they seem to be giving out higher scores as time goes on – for whatever reason. It is also possible that the quality of teacher applicants has increased over time – or decreased. Examination of the descriptive statistics of this district's TPI data should provide evidence of the presence or absence of score trends.

Table 3 provides summary information on the variables examined in this study.

Table 3

*Description of Variables*

Name of Variable	Scale Type	Projected Range of Values
Teacher Perceiver Interview Score	Ratio	0-60
Teacher Evaluation Rating	Ordinal	1-10
Mean Annual Days Absent	Ratio	0-25
Undergraduate Grade Point Average	Ratio	2.00-4.00
Graduate Semester Credit Hours	Ratio	0-100
Years of Teaching Experience	Ratio	0-25
Status	Nominal	Hired – Not Hired
Administrator (masked by alias)	Nominal	22 unique administrators
Year of TPI	Interval	1986-2001



### Data Collection

The names of all teachers and their supervisors were kept in strict confidence, even though all the data were pre-existing and already a matter of public record accessible to all. Aliases were assigned to replace the names of teachers and administrators. TPI scores and summative teacher evaluation reports were obtained from archives of the district being studied. Personnel evaluations, absenteeism rates, GPAs, years of experience, and college credits earned were obtained from personnel files. Evaluations were obtained from district personnel files and ratings of those evaluations were obtained from a panel of experts. The collection, analysis, and reporting of these data were approved by the University of North Dakota Institutional Review Board on November 10, 2002.

### Data Analysis

The purpose of this study was to collect and analyze various data to determine the effectiveness of the TPI as a tool to assist administrators in selecting elementary teachers in a mid-sized midwestern public school district. Eight research questions have been posed. Table 4 identifies the statistical tests that were applied to each of these research questions.

### Overview

Research questions 1 and 3 were analyzed using ANOVA. Research question 2 was analyzed using a *t* test. The basic design for this research was correlational. Research questions 4-8 were analyzed using the Pearson product-moment correlation coefficient. Because the TPI is divided into 12 separate subsections, it was possible to obtain a coefficient of multiple correlation to determine if there were some sections of the TPI that

were more predictive than others. Each of these research questions was tested using an alpha level of .05.

Table 4

*Statistical Analyses Applied to Selected Research Questions*

No.	Question	Test Statistic
1	Variability between interviewer TPI scoring?	<ul style="list-style-type: none"> <li>• Reliability Analysis</li> <li>• Single Factor ANOVA</li> </ul>
2	Differences – TPI for those hired and not hired?	<ul style="list-style-type: none"> <li>• <i>t</i> Test</li> </ul>
3	Trends in TPI scores over time?	<ul style="list-style-type: none"> <li>• Single Factor ANOVA</li> </ul>
4	Relationship - TPI and teacher effectiveness?	<ul style="list-style-type: none"> <li>• Pearson Product Moment</li> <li>• Coefficient of Multiple Correlation</li> </ul>
5	Relationship - TPI and absenteeism?	<ul style="list-style-type: none"> <li>• Pearson Product Moment</li> <li>• Coefficient of Multiple Correlation</li> </ul>
6	Relationship – TPI and undergraduate GPA?	<ul style="list-style-type: none"> <li>• Pearson Product Moment</li> <li>• Coefficient of Multiple Correlation</li> </ul>
7	Relationship - TPI and graduate credit hours?	<ul style="list-style-type: none"> <li>• Pearson Product Moment</li> <li>• Coefficient of Multiple Correlation</li> </ul>
8	Relationship - TPI and prior teaching experience?	<ul style="list-style-type: none"> <li>• Pearson Product Moment</li> <li>• Coefficient of Multiple Correlation</li> </ul>

TPI scores were obtained from a master database of TPI data maintained on applicants for teaching positions in the school district studied. Administrator ratings, absenteeism records, GPAs, graduate credit hours earned, and teacher experience were obtained from personnel records. Data were compiled and analyzed via computer using

software entitled Microsoft Excel and SPSS. The results of these analyses are reported and discussed in the next chapter.



## CHAPTER IV

### REPORT AND ANALYSIS OF THE DATA

The purpose of this study was to determine the effectiveness of the TPI as a tool to assist administrators in selecting elementary teachers in a mid-sized midwestern public school district. In this chapter, the writer reports the results of the analyses of the data that were collected and compiled from school district records and from input from a panel of experts. There are two sections to this chapter: (1) descriptive statistics and (2) inferential statistics. The first section describes the sample studied and the general characteristics of the data. The second section provides inferential statistical reporting of the results, particularly as it related to the specific research questions.

The computer program, SPSS, Version 11.0.1, was the principal tool used to assist with the statistical analyses of the data. Microsoft Excel was used also.

#### Descriptive Report of the Data

This section describes the sample studied, the total scores of the applicants who were hired, and teacher performance evaluation scores.

#### Descriptive Statistics for Samples Studied

There were 851 cases analyzed in this study. Some of the cases had missing data elements for which statistically acceptable adjustments were generated. Central to this study was a quantitative measure, the Teacher Perceiver Interview (TPI), advertised as being able to assist in predicting which candidates are most likely to be high performing

teachers once hired. Those applicants to the district under study who successfully passed initial screening were invited to submit to the TPI which results in a score that can range from 0 to 60. Table 5, Table 6, and Figure 1 present the TPI data of applicants for this school district.

Table 5

*Descriptive Statistics for TPI Total Scores of Applicants 1986 through 2001 (N = 851)*

Attribute	Value
Mean	36.9
Median	37.0
Std. Deviation	6.0
Variance	36.2
Minimum	17
Maximum	53

*Note.* Maximum TPI score = 60.

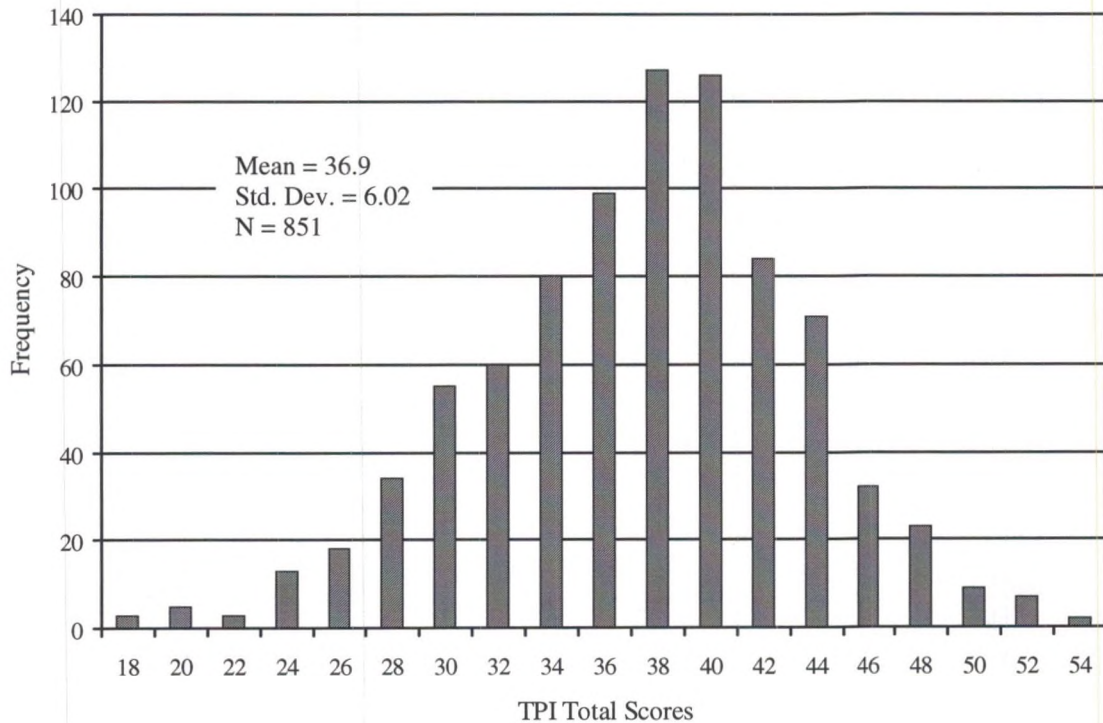
Table 6 and Figure 1 indicate a slight negative skewness. This may be the result of range restriction caused by initial screening of applicants prior to qualifying for the TPI round of this district's application process. The mean score of 36.9 generally is higher than that reported in earlier studies of the TPI. A possible explanation is the situation in this district wherein they receive a large quantity of applications and are able to screen applicants to apply the TPI to only those who survive the initial screening.

Table 6

*TPI Scores of All Applicants: Frequency Table*

TPI Score	Frequency	Valid Percent	Cumulative Percent
17	2	.2	.2
18	1	.1	.4
19	1	.1	.5
20	4	.5	.9
21	2	.2	1.2
22	1	.1	1.3
23	5	.6	1.9
24	8	.9	2.8
25	6	.7	3.5
26	12	1.4	4.9
27	12	1.4	6.3
28	22	2.6	8.9
29	32	3.8	12.7
30	23	2.7	15.4
31	27	3.2	18.6
32	33	3.9	22.4
33	36	4.2	26.7
34	44	5.2	31.8
35	45	5.3	37.1
36	54	6.3	43.5
37	71	8.3	51.8
38	56	6.6	58.4
39	69	8.1	66.5
40	57	6.7	73.2
41	47	5.5	78.7
42	37	4.3	83.1
43	44	5.2	88.2
44	27	3.2	91.4
45	19	2.2	93.7
46	13	1.5	95.2
47	11	1.3	96.5
48	12	1.4	97.9
49	4	.5	98.4
50	5	.6	98.9
51	4	.5	99.4
52	3	.4	99.8
53	2	.2	100.0
Total	851	100.0	





*Figure 1. Distribution of TPI Scores of All Applicants 1986 through 2001.*

#### Descriptive Statistics for TPI Total Scores of Applicants Hired

In this study 851 cases were analyzed with the help of SPSS. Some of the cases had missing data elements for which statistically acceptable adjustments were generated, resulting in 77 cases in which the applicants were hired in the years selected for this study. Of the 77 cases in which applicants were hired, there were 59 cases that had complete enough data to be included in analyses that involved evaluation scores. This sample is described in Table 7, Table 8, and Figure 2.

Reflecting the pattern of the larger population from which it was drawn, this sample of teachers hired shows some negative skewness to the left. It is notable that the reported mean score of 39.3 for those applicants hired is higher than the reported mean score of 36.3 for those not hired as shown on Tables 5 and 7. While one would expect

higher TPI scores from those hired from those not hired, it might seem logical to expect an even greater difference between the means of these two groups.

Table 7

*Descriptive Statistics for TPI Total Score of Applicants Hired from 1989 through 2001 (N = 77)*

Attribute	Value
Mean	39.3
Median	40.0
Std. Deviation	6.0
Variance	36.5
Minimum	24
Maximum	52

*Note.* Maximum TPI score = 60.

The TPI scores described earlier are comprised of 12 theme scores. Descriptive statistics on these themes are shown in Table 9. The themes of the TPI are sorted in Table 9 according to their mean score. It shows that Empathy was the theme with the highest value followed by Rapport Drive. Individualized Perception was the theme with the lowest value.

Table 8

*Frequency Table of TPI Scores of Applicants Hired 1989 through 2001*

TPI Score	Frequency	Valid Percent	Cumulative Percent
24	1	1.3	1.3
26	2	2.6	3.9
27	1	1.3	5.2
28	1	1.3	6.5
29	3	3.9	10.4
30	1	1.3	11.7
31	1	1.3	13.0
32	2	2.6	15.6
33	2	2.6	18.2
35	1	1.3	19.5
36	2	2.6	22.1
37	8	10.4	32.5
38	6	7.8	40.3
39	4	5.2	45.5
40	5	6.5	51.9
41	10	13.0	64.9
42	4	5.2	70.1
43	5	6.5	76.6
44	8	10.4	87.0
45	3	3.9	90.9
46	1	1.3	92.2
48	2	2.6	94.8
49	1	1.3	96.1
51	1	1.3	97.4
52	2	2.6	100.0
Total	77	100.0	



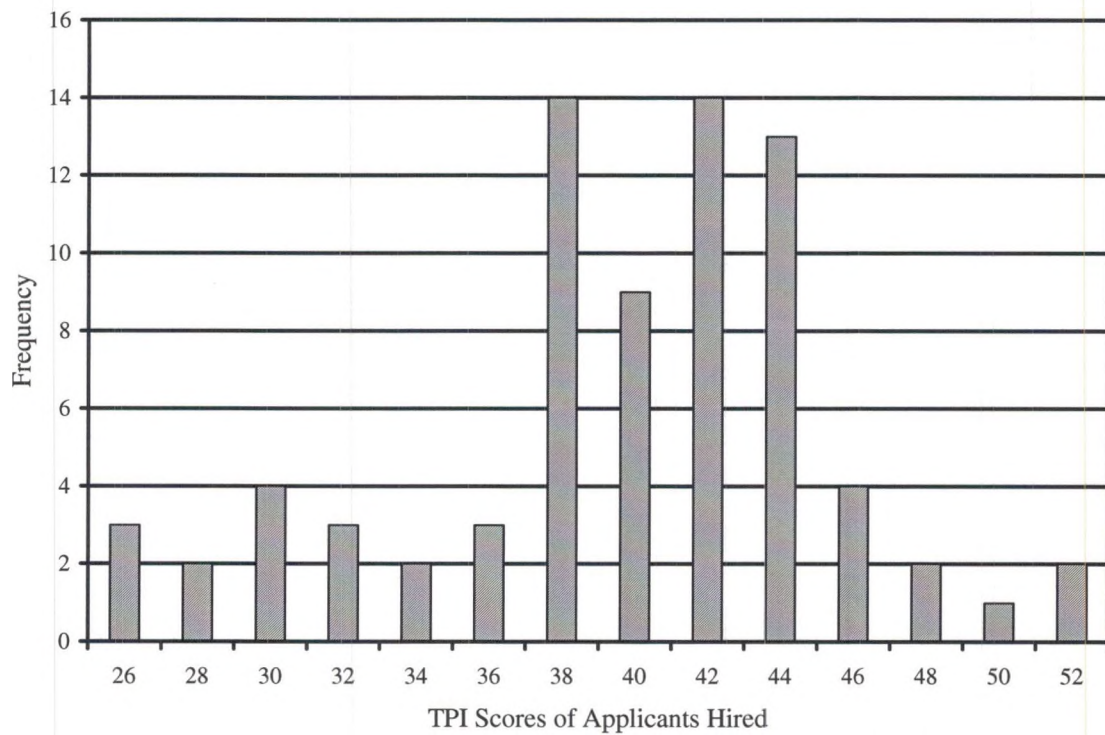


Figure 2. Distribution of TPI Scores of Applicants Hired 1989 through 2001.

Table 9

*Descriptive Statistics for Themes of TPIs 1986 through 2001 (N = 851)*

TPI Theme	Min.	Max.	Mean	Std. Dev.
Empathy	1	5	4.11	.89
Rapport Drive	1	5	4.01	.95
Innovation	0	5	3.46	1.10
Focus	0	5	3.18	1.13
Gestalt	0	5	3.17	1.13
Activation	0	5	2.98	1.08
Mission	0	5	2.95	1.16
Objectivity	0	5	2.86	1.23
Listening	0	5	2.78	1.14
Input Drive	0	5	2.73	1.11
Investment	0	5	2.49	1.16
Individualized Perception	0	5	2.14	1.18

### Descriptive Statistics for Evaluation Scores

In the district studied, performance evaluations are conducted on all employees at least once per year. Over the range of years examined in this study, two different evaluation systems were utilized with two different forms of documentation. To avoid the complications of an additional variable, the researcher reduced the sample of 77 cases to 59 to focus on those with common forms of evaluation documentation. Table 10, Table 11, and Figure 3 describe data collected on teacher evaluations.

Each of the three expert panelists applied a scale to the evaluations for each of the applicants to obtain an evaluation score with possible scores ranging from 0 to 10. Use of a scale enabled the panel to convert the fundamentally subjective evaluations into numerical data more suitable for quantitative study. The writer then summed the scores from each of the three panelists, doubled them, and then added the Likert score reported on their annual summative evaluation to obtain single scores that could be compared to TPI scores.

Table 10

#### *Descriptive Statistics for Performance Evaluation Scores (N = 59)*

Attribute	Value
Mean	83.1
Median	84.0
Std. Deviation	8.3
Variance	69.2
Minimum	61
Maximum	101

Table 11

*Frequency Table of Evaluation Scores*

Evaluation Score	Frequency	Valid Percent	Cumulative Percent
61	1	1.7	1.7
64	2	3.4	5.1
69	1	1.7	6.8
71	2	3.4	10.2
73	1	1.7	11.9
74	3	5.1	16.9
76	3	5.1	22.0
78	2	3.4	25.4
79	2	3.4	28.8
80	1	1.7	30.5
81	2	3.4	33.9
82	3	5.1	39.0
83	6	10.2	49.2
84	4	6.8	55.9
85	3	5.1	61.0
86	1	1.7	62.7
87	3	5.1	67.8
88	3	5.1	72.9
89	1	1.7	74.6
90	6	10.2	84.7
91	2	3.4	88.1
93	2	3.4	91.5
94	1	1.7	93.2
95	2	3.4	96.6
97	1	1.7	98.3
101	1	1.7	100.0
Total	59	100.0	



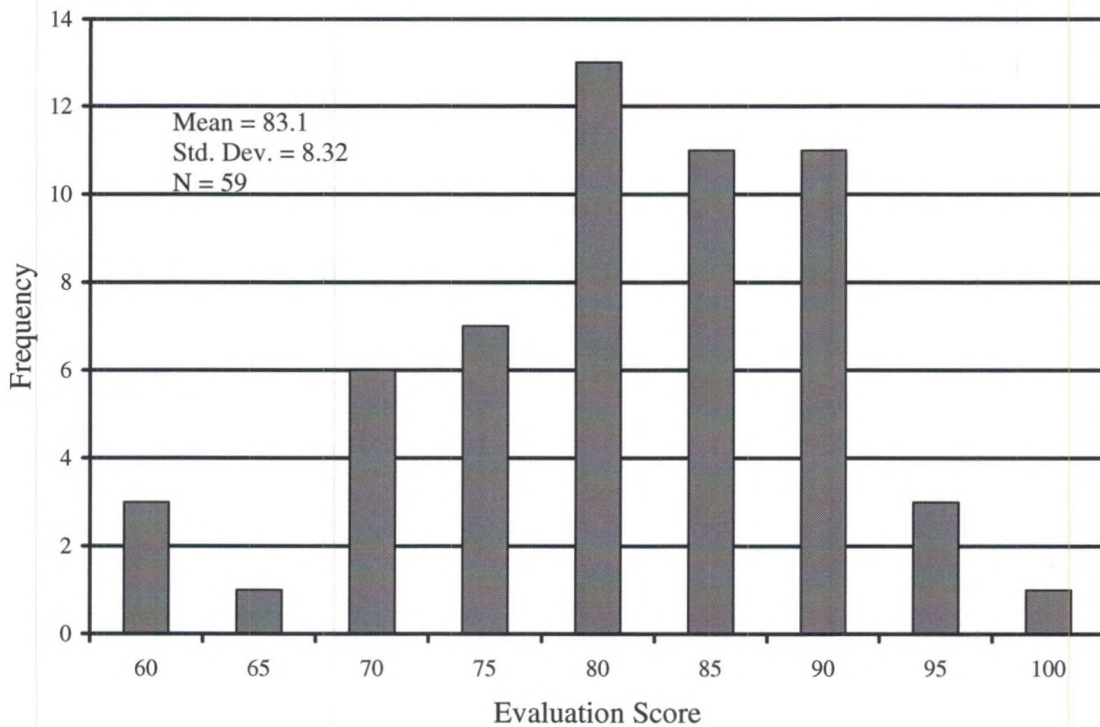


Figure 3. Distribution of Evaluation Scores.

### Inferential Report of the Data

This section provides inferential reporting of the results related to each of the research questions.

#### Research Question #1

How much difference is there among TPI scores assigned by various administrators who conducted and scored the interviews in the district for elementary applicants? In order to answer this question, mean scores obtained by each interviewer were compared to the mean scores of their peers. There were 26 interviewers. Of those, four produced a very small number of TPI scores. These four raters were excluded from further study because of the small number of ratings submitted by them. The mean scores

obtained from the remaining 22 interviewers were subjected to a one-way analysis of variance to determine if there were statistical differences among scores of the different interviewers in this study.

Table 12 reports scores obtained for the 22 interviewers. The interviewers are ranked in this table according to the mean scores that they reported on TPIs that they administered. They ranged from a low mean TPI score of 31.94 to a high mean TPI score of 40.82. The number of TPI interviews administered by these interviewers ranged from 12 to 90.

Table 12

*Descriptive Statistics for Interviewers on Total TPI Scores*

Interviewer ID	Number of Interviews	Mean Scores	Std. Deviation	Minimum	Maximum
26	17	31.94	7.128	19	40
7	33	33.61	6.666	23	45
9	26	33.77	5.101	26	45
19	35	34.57	6.545	25	49
8	55	34.58	5.283	23	46
3	20	35.20	5.662	24	44
2	30	36.10	6.493	23	46
20	90	36.11	6.290	18	52
24	40	36.42	4.971	24	46
17	16	36.50	4.099	31	44
13	28	36.89	4.166	27	46
25	34	37.06	4.874	28	50
1	12	37.50	2.611	33	40
11	53	37.55	5.649	22	52
5	56	37.66	5.922	26	53
18	34	37.71	6.450	21	50
4	70	38.43	6.261	17	50
23	28	38.50	7.239	20	52
12	75	38.89	4.289	29	51
15	34	39.44	5.842	27	50
21	39	40.82	6.160	24	50
Total	825	36.92	6.019	17	53

The ANOVA comparison in Table 13 indicated that there were differences in scores by the interviewers beyond that which might be expected through normal variation. Because of the differences among groups indicated in Table 13, further post hoc analysis was performed.

Scheffé's post hoc analysis provided more detail to establish which interviewers contributed most to the differences found in the ANOVA. Results of the Scheffé post hoc test are reported in Table 14. From the data shown there, it appears that scores reported by interviewer #26 and interviewer #21 were significantly different from those reported by other interviewers. Interviewer #26 appears to produce scores lower than the group while interviewer #21 tends to produce scores higher than his/her colleagues.

To further establish relative contribution to variation among groups, the researcher performed a Bonferroni's post hoc analysis. Because of the length of this report, it has been published as Table 25, Appendix A. Bonferroni's post hoc review showed the same two interviewers as did Scheffé (#21 and #26) as varying most from the other interviewers. The Bonferroni post hoc test also showed several additional interviewers who contributed to the differences among groups, albeit less significantly than did interviewers #21 and #26. Other interviewers who appeared to vary from some of their peers were #7, #9, #12, and #15.

Table 13

*Analysis of Variance (ANOVA)*

	Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	<i>p</i>
Between Groups	3094.516	20	154.726	4.649	<.001
Within Groups	26755.673	804	33.278		
Total	29850.189	824			



Based on the data collected and reported herein, one would have to conclude that the answer to research question number 1 is that of the 26 interviewers, there was a certain amount of difference that did rise to the statistically significant level, particularly for interviewer #21 and interviewer #26. While there was statistically significant variability established for these two interviewers, the variability was not considered to be practically significant because of the small magnitude of mean variability. There was not a significant amount of difference found among the other interviewers. Therefore, the TPI scores from all 26 of these interviewers were used in the data analyses for this study.

Table 14

*Scheffé's Post Hoc Test – Means of Total TPI Scores*

Interviewer ID	N	Subset for alpha < .05		
		1	2	3
26	17	31.9		
7	33		33.6	
9	26		33.8	
19	35		34.6	
8	55		34.6	
3	20		35.2	
2	30		36.1	
20	90		36.1	
24	40		36.4	
17	16		36.5	
13	28		36.9	
25	34		37.1	
1	12		37.5	
11	53		37.6	
5	56		37.7	
18	34		37.7	
4	70		38.4	
23	28		38.5	
12	75		38.9	
15	34		39.4	
21	39			40.8

Means for groups in homogeneous subsets are displayed.

### Research Question #2

Are there significant differences between TPI scores of elementary applicants who were hired to teach in the district and applicants who were not hired? Of the 850 teacher-candidates in the population under study, 655 were not hired and 195 were hired. The test statistic selected to explore this question was the *t* test for independent samples.

In examining the data generated by this test and reported in Table 15, one has to consider the practice in this district, and many others reported in the literature. The TPI is not given to all candidates, only to those who pass screening, presumably those with greater potential eventually to score well on the TPI and ultimately to be hired. It is reasonable, then, to hypothesize that data generated from the TPI will be skewed toward the higher end of the distribution, restricting variability and limiting the potential to establish statistically significant differences between the means of these two groups.

The *t* test results shown in Table 15 indicated that there was a significant difference between TPI scores of those hired and those not hired despite the probable existence of range restriction. The *t* value for the difference between means was -4.86 with  $\alpha < .01$ . While it was not tested in this study, one might infer that there also would be a difference of at least the same magnitude separating those not hired who did not survive initial screening to even have an opportunity to take the TPI. (No data were available to test this hypothesis.)

Table 15 shows that several of the themes of the TPI also independently rose to a level of significance by comparing means of those not hired to those hired. Themes showing the greatest difference were Individualized Perception and Activation. TPI themes are sometimes placed into three descriptive categories as reported, italicized, and

annotated in Table 15 – Intrapersonal Skills, Interpersonal Skills, and Extrapersonal Skills.

Table 15

*Means, Standard Deviations and t Values Comparing TPI Scores and Subscores between Those Applicants Hired (N = 77) and Not Hired (N = 774)*

	Not Hired		Hired		t value
	Mean	SD	Mean	SD	
Mission	2.89	1.19	3.14	1.02	-2.58*
Empathy	4.09	0.89	4.17	0.90	-1.20
Rapport Drive	3.98	0.99	4.12	0.82	-1.82
<i>Intrapersonal Skills***</i>	<i>10.96</i>	<i>1.98</i>	<i>11.44</i>	<i>1.81</i>	<i>-3.00**</i>
Individualized Perception	2.06	1.18	2.42	1.17	-3.73**
Listening	2.73	1.15	2.94	1.09	-2.27*
Investment	2.45	1.15	2.62	1.19	-1.73
Input Drive	2.68	1.12	2.90	1.07	-2.45*
<i>Interpersonal Skills***</i>	<i>9.92</i>	<i>2.77</i>	<i>10.89</i>	<i>2.71</i>	<i>-4.31**</i>
Activation	2.92	1.08	3.19	1.05	-3.04**
Innovation	3.44	1.10	3.56	1.07	-1.44
Gestalt	3.11	1.16	3.36	1.00	-2.76**
Objectivity	2.83	1.23	2.97	1.23	-1.36
Focus	3.15	1.14	3.28	1.09	-1.35
<i>Extrapersonal Skills***</i>	<i>15.45</i>	<i>3.33</i>	<i>16.37</i>	<i>2.97</i>	<i>-3.45**</i>
TPI Total Score	36.34	6.10	38.69	5.39	-4.86**

\* Significant at alpha < .05

\*\* Significant at alpha < .01

\*\*\* Subgroups derived by aggregating scores from the TPI themes that precede them on this table.

From the data collected and reported for this research question, one has to conclude that there were significant differences between TPI scores of elementary teachers who were hired to teach in the district and teacher applicants who were not hired. These differences were noted especially in the three aggregated scores of Intrapersonal Skills, Interpersonal Skills, and Extrapersonal Skills. The practical



significance of this finding is to establish that decisionmakers in this district were making hiring decisions, at least in part, consistent with data obtained by the TPI.

### Research Question #3

Are there significant differences in the mean TPI scores recorded for elementary applicants during the time period included in the study? There were 851 teacher applicants in the population studied over a span of 16 years. Of those, 785 had complete data adequate for analysis in exploring this question. To facilitate statistical analysis, the years were grouped into four spans, each including four years. The grouping of years along with descriptive statistics is shown in Table 16.

Table 16

#### *Descriptives of TPI Total Scores Obtained Over Time Spans*

Time Span	N	Mean	Std. Deviation	Minimum	Maximum
1986-1989	127	37.1	6.0	17	52
1990-1993	197	36.4	6.5	20	52
1994-1997	172	37.0	6.1	22	53
1998-2001	214	36.6	5.8	18	49

Review of the descriptive data collected for this question and reported in Table 16 did not appear to reveal significant differences in mean TPI scores over time. To statistically establish whether significant differences exist, means were subjected to an analysis of variance. Results are reported in Table 17.

Table 17

*Analysis of Variance (ANOVA) of TPI Total Scores Over Time Spans*

	SS	df	Mean Square	F	p
Between Groups	50.340	3	16.780	.450	.717
Within Groups	26330.815	706	37.296		
Total	26381.155	709			

The *F* value obtained by application of ANOVA was not statistically significant at the .05 level (see Table 17). The variability that existed was small enough to be considered attributable to chance. The conclusion one has to make in reference to research question number 3 is that there were no significant differences in mean TPI scores over time. Since differences across the years were not determined to be significant, no post hoc testing for this question was conducted.

Research Question #4

What is the relationship between TPI scores and administrator ratings of elementary teacher performance during the first year of employment in the district? There were 851 teacher candidates in the population studied over a span of 16 years. For this research question a sample was created consisting of those teachers with complete data sets. There were 59 teachers who had data sufficiently complete to participate in the study of this research question. For the purposes of this study, evaluation reports were limited to only the final evaluation filed for each teacher's first year of employment in the

school district. Each of three expert panelists applied a scale to the evaluations to obtain an effectiveness rating with possible scores ranging from 0 to 10. Use of the scale enabled the panel to convert the fundamentally subjective evaluations into numerical data more suitable to quantitative study. The writer summed the three panelist scores, doubled them, and then added the Likert score reported on their annual summative evaluation to obtain single scores that could be compared to TPI scores. In an attempt to test for error due to potential lack of inter-rater reliability, the researcher then examined scores reported by each panelist to determine if scores reported by any one of the panelists varied significantly from the scores reported by fellow panelists. It was planned so that scores of any panelist judged to be at great variance from his/her fellow panelists were to be set aside and removed from further analysis in this study. Tables 18 through 21 report output from reliability analyses that indicate that scores obtained from the three panelists were sufficiently reliable to retain their scores for use in later tests.

Table 18

*Expert Panel Reliability Analysis – Means*

	Mean	Standard Deviation	Cases
Expert 1	7.7	.96	59
Expert 2	7.3	1.17	59
Expert 3	6.9	1.08	59

Table 18 indicates that mean scores from the three panelists were quite similar. Table 19, a correlation matrix, seems to suggest that the scores reported by each panelist generally were positively related.



Table 19

*Expert Panel Reliability Analysis – Correlation Matrix*

	Expert 1	Expert 2	Expert 3
Expert 1	1.000		
Expert 2	.608	1.000	
Expert 3	.459	.648	1.000

Individual ratings by the panelists were added, doubled, and then added to the sum of Likert scores previously recorded by supervisors. This aggregated data produced descriptive statistics as reported in Table 20. Table 21 reported the potential gains in reliability that could be obtained through omission of any one of the panelists. Potential gains through omission were judged to be small enough to reject the need to eliminate scores from any of the panelists.

Table 20

*Descriptives of Aggregate Expert Panel Administrator Ratings*

	Mean	Variance	Std. Dev.
Scale	61.6	34.7	5.9

Table 21

*Expert Panel Reliability Analysis – Inter-Total Statistics*

	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item- Total Correlation	Alpha If Item Deleted
Expert 1	14.2	4.2	.590	.785
Expert 2	14.5	3.0	.736	.626
Expert 3	15.0	3.6	.627	.747

Reliability Coefficients 3 items  
Alpha = .8003  
Standardized item alpha = .8001

After establishing the validity of the expert panel, the writer then explored the critical aspect of this research question, “What is the relationship between TPI scores and administrator ratings of elementary teacher performance during the first year of employment in the district?” This question was one of relationship that was examined through application of a correlation matrix. The predictor variable of TPI score was plotted along with the criterion variable of Teacher Evaluation Score to produce the scattergram shown in Figure 4. No patterns appear to be evident in this scattergram. This suggests that there is no apparent relationship between the total TPI score and subsequent administrator ratings of teachers.

To further establish an answer to this question, the researcher computed a correlation matrix, the results of which are reported in Table 22 and again in Table 23. These data show the correlation between these two variables to be .038. This confirmed the indication derived from the scattergram that there is no significant relationship between the Total TPI Score and administrator ratings.

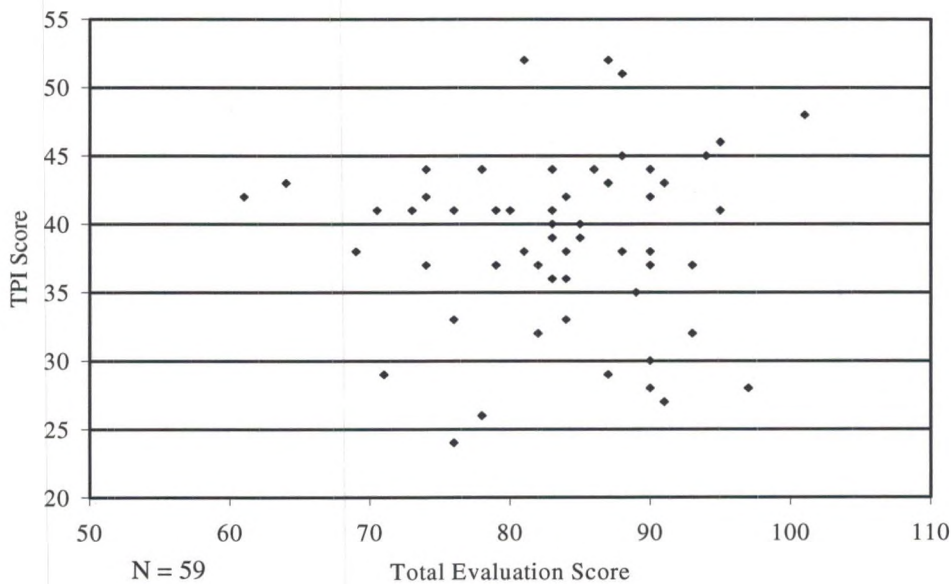


Figure 4. Scattergram Results of Evaluation Score and TPI

Results reported in Table 22 and Table 26 (included in Appendix B) suggest that there is a small but statistically significant correlation,  $r = .309$ , between the TPI theme score of Mission and Total Evaluation Scores. This table also reports on strengths of correlations found among other TPI themes, the Total TPI Score, and the Total Evaluation Score. The only significant correlations are those expected to occur between subscales and the total score to which they contribute.

The conclusion to this research question is that there does not appear to be a significant correlation between Total TPI Scores and Total Evaluation Scores. There was a low positive correlation between the TPI theme of Mission and Total Evaluation Scores.



Table 22

*Correlation Coefficients between Predictor and Criterion Variables (N = 59)*

	Evaluation Score
Evaluation Score	1.000
TPI Total Score	0.038
Mission	0.309*
Empathy	-0.002
Rapport Drive	0.037
Individualized Perception	0.065
Listening	-0.196
Investment	-0.097
Input Drive	-0.060
Activation	-0.040
Innovation	-0.020
Gestalt	0.092
Objectivity	0.076
Focus	0.042

\* Significant at alpha &lt; .05 (2-tailed).

### Research Question # 5

What is the relationship between TPI scores and the elementary teacher's mean number of days of absenteeism during his or her tenure in the district? To respond to this question the researcher collected personnel records pertaining to absenteeism and recorded the number of days of sick leave that each teacher in the sample had accumulated with the district. To neutralize the unwanted variable of length of service, the total number of days accumulated was divided by the number of years employed to obtain the number of days of Leave Per Year as shown in Table 23 and Table 24.

Table 23

#### *Descriptive Statistics for Selected Variables*

	N	Mean	Std. Deviation
TPI Total Score	851	36.9	6.0
Leave Per Year	62	5.8	3.1
Undergraduate GPA	69	3.3	.4
Graduate Credit at DOH	71	8.5	13.9
Prior Experience	71	3.9	5.5
Valid N (listwise)	59		

The data suggest that there is a negative correlation, a small but significant one,  $r = -.353$ , between Total TPI Scores and the amount of Leave Per Year. This suggests that the higher the TPI score, the more days a teacher is absent. This finding seems to be counter-intuitive. Figure 5 depicts this relationship graphically.

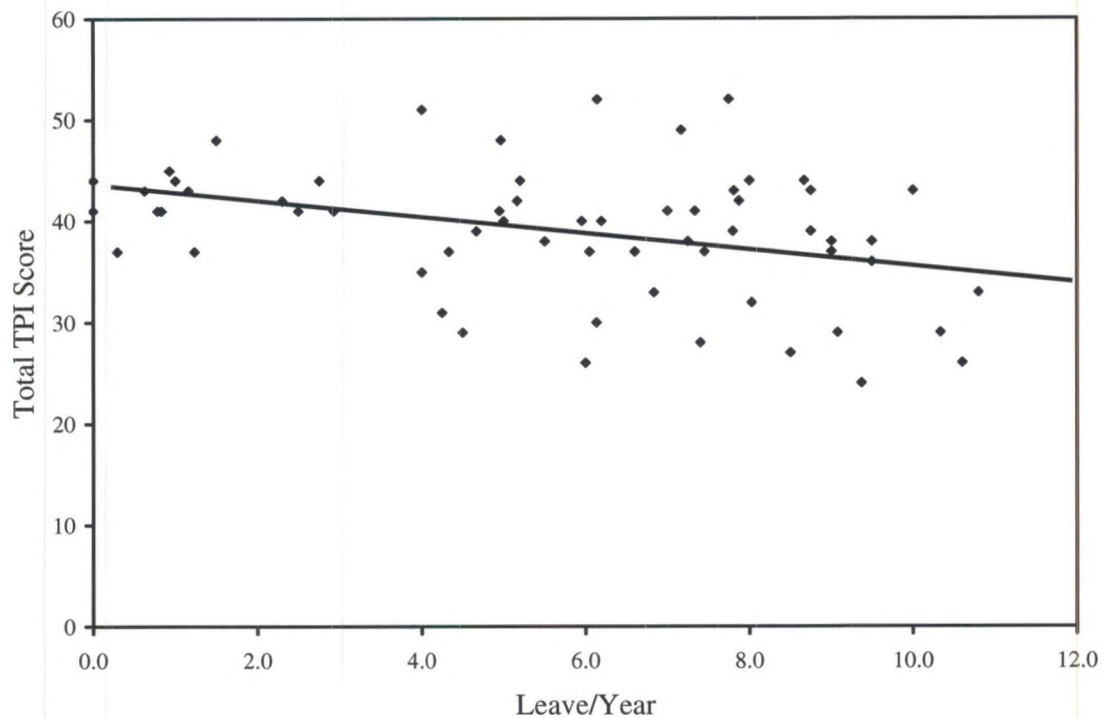


Figure 5. Scattergram of Total TPI Score to Accumulated Leave Per Year

Table 24

*Correlations between TPI Scores and Selected Criterion Variables*

		TPI Total Score	Accum. Sick Leave	Undergrad. GPA	Graduate Credit at DOH	Prior Experience
Leave per Year	Pearson Correlation	-.353**	1			
	Sig. (2-tailed)	.005				
	N	62	62			
Undergraduate GPA	Pearson Correlation	.237*	.093	1		
	Sig. (2-tailed)	.050	.482			
	N	69	60	69		
Graduate Credit at DOH	Pearson Correlation	.021	-.003	-.084	1	
	Sig. (2-tailed)	.862	.980	.493		
	N	71	61	69	71	
Prior Experience	Pearson Correlation	-.042	.075	-.219	.730**	1
	Sig. (2-tailed)	.731	.566	.073	.000	
	N	71	61	68	70	71

\* Significant at alpha < .05 (2-tailed).

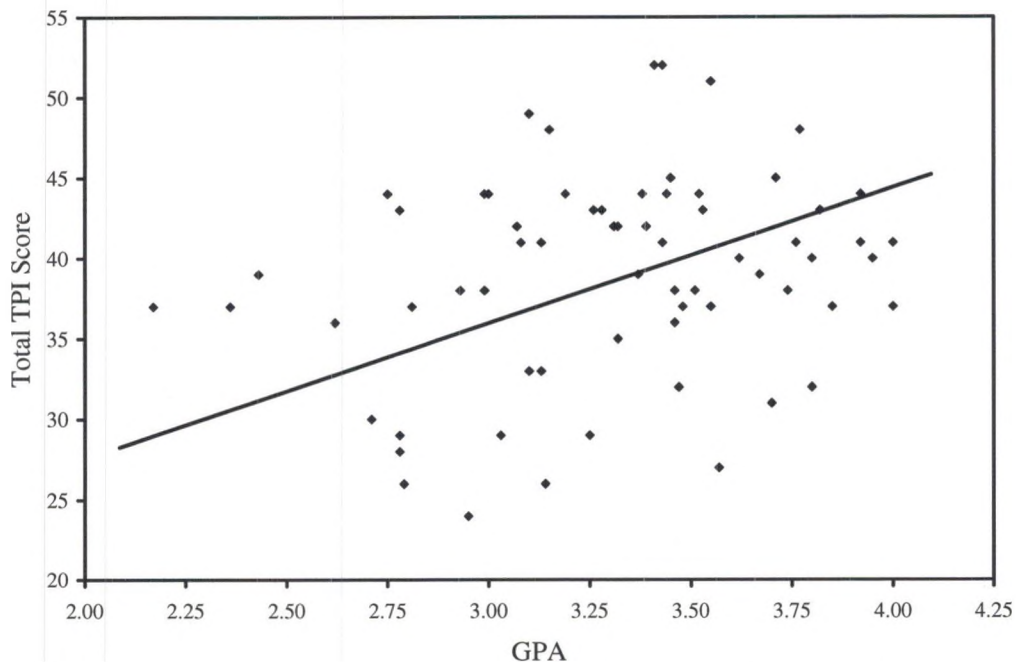
\*\* Significant at alpha < .01 (2-tailed).



This finding suggests that the answer to research question #5 is that there does appear to be a relationship, though an unexpected and unexplained one, between TPI scores and absenteeism.

#### Research Question #6

What is the relationship between TPI scores and the undergraduate grade point averages (GPAs) of the elementary teachers who were hired? Table 24 reports correlations calculated to respond to this question. Figure 6 graphically suggests that there is a small correlation between TPI scores and GPA. There is a small but statistically significant correlation,  $r = .237$ ,  $\alpha < .05$ , between the two variables.



*Figure 6.* Scattergram of Total TPI Score to Undergraduate GPA

#### Research Question #7

What is the relationship between TPI scores and the number of credits of graduate work earned by elementary teachers at the time they were hired? By referring to Table 24, one can conclude that there is no statistically significant relationship between TPI scores and graduate credits earned.

#### Research Question #8

What is the relationship between TPI scores and the number of years of teaching experience at the time the interviews were conducted for elementary applicants? This question explores the possibility that experience may provide candidates with an advantage, or disadvantage, in competing for positions in a district that uses the TPI. Results reported in Table 24 suggest that there is no significant relationship between the two variables examined in research question number 8.

This chapter has presented the results of the data analyses relevant to the topic studied. General descriptive statistics were presented followed by results of statistical tests applied to each of the research questions. Chapter V presents a summary and discussion of the findings. Included are some cautions and recommendations for practitioners and researchers. The study concludes with appendices, which contain additional data, and a bibliography.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

In this chapter, the writer presents a summary of the literature, summarizes the findings, shares some conclusions, points out some limitations of the study, and offers some recommendations.

#### Summary

The purpose of this study was to collect and analyze various data to determine the effectiveness of the TPI as a tool to assist administrators in selecting elementary teachers in a mid-sized midwestern public school district. Data for conducting the study were collected primarily from publicly available district records, along with ratings of teacher evaluations reviewed by a panel of experts.

#### Literature

The purpose of the literature review was to review historical and current literature relating to the predictive value of the Teacher Perceiver Interview in teacher selection. The review of literature provided a foundation and context in which this topic could be studied. There was an abundance of information on the general topic of teacher selection even as the search narrowed to structured interviews and the TPI. The literature reviewed and reported in Chapter II was organized into six sections: (1) the teacher selection



process, (2) criteria in teacher selection, (3) structured interview instruments, (4) SRI Gallup, (5) validity studies of TPI, and (6) summary of literature review.

Thirty years after introduction of the Teacher Perceiver Interview, there remains much disagreement about whether or not it actually accomplishes what its promoters claim. Some studies were generally supportive of the TPI concluding that there is predictive validity to the TPI. Chapter II provided a balanced report of findings both supportive of continued use of the TPI and suggesting abandoning the TPI in favor of other more effective selection tools. Included were 12 studies that reported very small or no correlation (Aramburo, 1981; Austin Independent School District, 1984; Cornine, 1980; Delli, 2000; Eslinger, 1982; Fowlkes, 1984; Gatti Carson, 1990; Gillies, 1988; Mauser, 1986; Miller, 1977; Mills, 1986; and Schilling, 1975). Nine studies reported finding significant correlations between TPI scores and teacher performance (Ball, 1992; English, 1983; Gallup, 1990; Harding & Wellway, 2000; Howard, 1998; Jones, 1978; Sentz, 1981; Simmons, 1996; and Zaranek, 1983).

University scholars and researchers tended to challenge claims of Gallup while practitioners seemed to perceive benefits that justified its continued use. There seems to be broad agreement that structured, objective, and consistently administered processes be used to carefully select teaching staff, a leadership role considered extremely important. There was also consensus that the TPI should be studied to determine the extent to which it works, how to improve its effectiveness, or whether or not it should be discarded in favor of other more valid processes.

Delli (2000) concluded that there should be more study, particularly study focused within districts. Doing so would control for processes, applications, and traditions unique

to that district. Delli ended her dissertation by asserting, “All school districts utilizing the Teacher Perceiver Interview must conduct validity assessments of the instrument rather than relying on validity studies generalizable only to specific populations” (p. 145).

Many of the writers cited in this study advocated use of a structured interview process. Representative of many of the writers cited in Chapter II, Zagury and Cohen (1995) make a compelling case for a more rational structured process of teacher selection. A frequent recommendation for interviewers was to listen more and talk less.

### Procedures

Pre-existing TPI data already existed in this school district’s archives. TPI scores were compared to a variety of indicators – performance review ratings by principals, teacher absenteeism, undergraduate college GPAs, number of credits of work earned, and number of years of teaching experience – to determine if there was a significant correlation between TPI scores and teacher effectiveness. Other related research questions relating to teacher selection, inter-rater reliability, and TPI score trends were explored by studying descriptive data within personnel files and TPI data.

The test statistic used most often was Pearson product-moment correlation, calculated as the basis for most inferential statistical findings in this study. Also used were *t* tests, ANOVA, and post hoc tests of Bonferroni and Scheffé. SPSS was the primary computer software used for statistical computation and analysis. Microsoft Excel was used also.

### Findings

The findings are summarized in relation to each of the research questions.



Research Question #1. How much difference is there among TPI scores assigned by various administrators who conducted and scored the interviews in the district for elementary applicants? Data collected for this question suggests that TPI score differences among interviewers was practically insignificant. While there were some differences that rose to statistical difference, these differences were small. With the data that was available to this investigator, the differences among interviewers were very small. Additional study involving multiple interviewers scoring the same candidates on the same or subsequent interviews might yield data to provide a more thorough answer to this question.

Research Question #2. Are there significant differences between TPI scores of elementary applicants who were hired to teach in the district and applicants who were not hired? Results of statistical tests for this question were conclusive. There were significant differences between the TPI scores of those applicants hired and the scores of applicants not hired. One can infer from this finding that principals are making hiring decisions generally consistent with TPI scores.

Research Question #3. Are there significant differences in the mean TPI scores recorded for elementary applicants during the time period included in the study? Some administrators have alleged that TPI scores have been gradually inflating over the years. Findings from researching this question seem to refute the allegation. The data collected show that the mean scores of TPI interviews do not appear to have varied much since the district began preserving data on TPI scores. The scores of applicants obtained in 1986 appear to be about the same as scores obtained from applicants in 2001 and in the intervening years.



Research Question #4. What is the relationship between TPI scores and administrator ratings of elementary teacher performance during the first year of employment in the district? This question was central to this study to determine the predictive validity of the TPI. The data available for this question did not establish the existence of a relationship between TPI scores and subsequent evaluations of teachers. There are several possible explanations for this finding.

TPI scores did not predict success at teaching. It could be that there are too many variables affecting successful teaching and that the TPI is just too simple and inadequate. The TPI may not measure the critical variables or it may not be effective at measuring the variables it attempts to score.

The teacher evaluations used to establish the evaluation scores may not be suited for use as a criterion variable in a quantitative study such as this. These evaluations were identified as summative performance reviews. However, in practice they were used for formative purposes to emphasize strengths and encourage growth. The use of these evaluations for this research design may have been a misapplication.

There is a possibility that attenuation of data affected the results of analysis for this question. Before submitting to a TPI, candidates first had to pass several screenings. The preliminary screening presumably eliminated those candidates less likely to do well on the TPI. Further, it has already been established that the scores of those candidates hired scored higher than those not hired – further restricting the range of data included in this study. What was left was a subset of the normal distribution of TPI scores skewed toward the upper end of the range. This restricted range probably made it more difficult to establish relationships between variables.

Another factor to consider was the procedure in this study in which only those evaluations obtained during a teacher's first year of employment were studied. This was done purposely to avoid introducing another variable in which some teachers were being evaluated after considerable experience in the district while others were being evaluated with no prior experience. The disadvantage of this procedure was that it resulted in judgments being made about teachers' effectiveness very early in their career. It is possible that some teachers may have had rather unimpressive starts to their careers and yet developed into highly effective teachers over time. The design of this study may not have provided a means to acknowledge this sort of professional growth over time.

Because of the questions pointed out in this analysis of research question #4, it is difficult to establish conclusively or to deny the predictive validity of the TPI. Using only the data available in this study, one would have to conclude that there is no predictive validity from the TPI. Additional research using a more credible criterion variable may result in more definitive findings.

Research Question #5. What is the relationship between TPI scores and the elementary teacher's mean number of days of absenteeism during his or her tenure in the district? This question resulted in an unexpected finding. The data indicated that there was a correlation between TPI scores and the rate of absenteeism with a magnitude of  $-.353$ . Stated more simply, the higher the TPI score, the more days the teacher was absent. While the correlation was not profound, it was significant enough to establish an unmistakable trend. The scope of this study stopped at determining whether or not a relationship existed. It would be interesting to explore this finding further to determine what factors lay behind this unusual relationship.



Research Question #6. What is the relationship between TPI scores and the undergraduate grade point averages (GPAs) of the elementary teachers who were hired? There was a small but statistically significant correlation between TPI scores and GPAs ( $r = .237$ ). One would have to conclude that applicants with higher GPAs tended to do better on TPIs as well. This finding may support the practice of using GPAs as one criteria in the screening process. It might also encourage use of GPAs as a cross reference to validate questionable TPI scores.

Research Question #7. What is the relationship between TPI scores and the number of credits of graduate work earned by elementary teachers at the time they were hired? The data did not support the existence of a relationship between TPI scores and the number of credits earned for college study beyond their degree. The amount of graduate work completed by applicants is readily available to those making hiring decisions outside of the TPI process. If this information is considered important to the decisionmaking process, it should be considered in addition to the TPI.

Research Question #8. What is the relationship between TPI scores and the number of years of teaching experience at the time the interviews were conducted for elementary applicants? According to the data reviewed, there was no relationship between TPI scores and the number of years of teaching experience at the time the TPI occurred. Experience may well be a criterion that decisionmakers deem important in making selection decisions. However, the amount of teaching experience did not appear to affect TPI scores. Like the criterion of graduate credit, years of experience, if considered important, should be obtained from a source other than the TPI.



### Conclusions

This study attempted to determine if TPI scores can be used to predict later teacher effectiveness. The findings seemed to agree that no relationship was evident – at least as discernible from data available. Still, the writer is reluctant to recommend discontinuation of the TPI in this district due to the apparently questionable suitability of the criterion variable used in this study. Despite the ambiguous conclusions from the data available, the researcher remains confident enough to recommend continued use of the TPI until such time as a more credible system can be found to establish a level of teacher effectiveness and to test for relationships between variables. Doing so is likely to be controversial and filled with challenges. Still, in this era of public skepticism and an emphasis on decisionmaking based on data and scientific research, it is likely that this effort at establishing a defensible measure of teacher effectiveness will be worth the effort.

Additional study should be done on how to measure accurately a teacher's effectiveness and to do so in a way that yields quantitative ranking data against which relationships can be studied. Once this measure of teacher effectiveness is established with broad consensus, then relationships between predictor variables such as TPI scores and criterion variables of teacher effectiveness can be more satisfactorily established. Having a credible criterion variable will be central to future efforts to measure the effectiveness of the TPI teacher selection process.

The TPI is an expensive and time consuming means to help in the teacher selection process. If the TPI is to continue to be used, the education community should have research to support the validity of its predictions. Without supportive research

findings at the district level, the confidence of practitioners, applicants, and the public is likely to fade soon.

### Limitations

Data collected for this study were primarily in the public domain. The data were intended to be used for personnel functions of a school business office. The data collected were not originally intended for use in a scholarly quantitative study. The summative evaluations, the basis for the criterion variable, were obtained only from teachers' first year of employment in the district. These performance evaluations were rather subjective in nature and required interpretation by a panel of experts in order to render them useful for this study. The summative evaluations turned out to be more subjective and formative than the investigator had anticipated. The questionable existence of a highly credible, objective criterion variable to measure teacher effectiveness presents the greatest challenge to this study as well as to most of the studies examined in this investigation. Without a widely accepted criterion variable that enjoys a high level of confidence, the sort of questions posed in this investigation will likely remain debatable and unresolved. One never can be certain if the lack of relationship is attributed to failure of the predictor variable of TPI or failure of the criterion variable of teacher evaluation in its inability to provide rankable scores.

This study was limited to the specific eight research questions. Additional interesting questions and hypotheses may have been implied as new data were collected and analyzed. These additional questions were not explored but are listed later under "Recommendations for Further Research."

### Recommendations

The following recommendations are based on the review of the literature and the findings of this study.

#### Recommendations for Action and Policy

1. Practitioners, especially those in the district studied, should continue to use the TPI but with caution. Anecdotal reports of interviewers consistently seem to be supportive of the TPI's value. While this study did not establish a clear correlation between TPI scores and subsequent evaluations, neither did it clearly discredit the TPI. Too many issues surrounding use of the teacher evaluation as a criterion variable made it difficult to establish conclusively or to discredit TPI validity.

2. People making hiring decisions should consider TPI scores only in the context of a much broader collection of information about candidates. Use of only the TPI, or any other single measure, greatly increases the risk of a poor hiring decision based on incomplete information.

3. This district should at least explore some of the competing systems of structured selection processes now available in the marketplace. While the TPI has remained largely unchanged over many years, new practices, laws, techniques, and research have resulted in the development of some competing products that may produce desirable results.

#### Recommendations for Further Research

1. Continue to search for or develop an instrument that provides rank order scores on teacher effectiveness so that more definitive answers can be found to the sort of questions posed in this study. It would be most helpful to conduct further study of the TPI using a more definitive criterion variable – one that was developed specifically with this purpose



in mind. It seems likely that a more definitive criterion variable, one created independently of SRI-Gallup, would result in findings less open to question and multiple interpretations.

2. Replicate validity studies like this one in other school districts using the TPI to assess whether or not the process is working in those districts. Districts should conduct district-specific research to determine the extent of inter-rater reliability, consistency, equity, degree of use, predictive validity, cost-effectiveness, and relevance.

3. Explore and explain the apparent relationship between TPI scores and absenteeism and suggest implications for practitioners. The data seem to suggest that those teachers with higher TPI scores tend to be absent more often. This relationship begs for further study and explanation.

Martin Haberman (1995, p. 777) stated, "No school can be better than its teachers." Haberman declared that teacher selection is the most important function of a school principal. Few educators are likely to disagree with this assertion. Structured selection processes such as the TPI probably will help principals make better teacher selection decisions, but definitive proof of that claim still remains to be found.

## APPENDICES

APPENDIX A

BONFERRONI'S POST HOC RESULTS



Table 25

*Bonferroni's Post Hoc Test – Multiple Comparisons*

Group ID	Compared to Group	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	1.40	1.970	1.000	-5.87	8.67
	3.00	2.30	2.106	1.000	-5.48	10.08
	4.00	-.93	1.802	1.000	-7.58	5.72
	5.00	-.16	1.835	1.000	-6.93	6.61
	7.00	3.89	1.945	1.000	-3.28	11.07
	8.00	2.92	1.838	1.000	-3.87	9.70
	9.00	3.73	2.013	1.000	-3.70	11.16
	11.00	-.05	1.844	1.000	-6.85	6.76
	12.00	-1.39	1.794	1.000	-8.01	5.23
	13.00	.61	1.990	1.000	-6.74	7.95
	15.00	-1.94	1.937	1.000	-9.09	5.21
	17.00	1.00	2.203	1.000	-7.13	9.13
	18.00	-.21	1.937	1.000	-7.36	6.94
	19.00	2.93	1.930	1.000	-4.19	10.05
	20.00	1.39	1.773	1.000	-5.16	7.93
	21.00	-3.32	1.904	1.000	-10.35	3.71
	23.00	-1.00	1.990	1.000	-8.35	6.35
	24.00	1.08	1.899	1.000	-5.93	8.08
	25.00	.44	1.937	1.000	-6.71	7.59
	26.00	5.56	2.175	1.000	-2.47	13.59
2.00	1.00	-1.40	1.970	1.000	-8.67	5.87
	3.00	.90	1.665	1.000	-5.25	7.05
	4.00	-2.33	1.259	1.000	-6.98	2.32
	5.00	-1.56	1.305	1.000	-6.38	3.26
	7.00	2.49	1.455	1.000	-2.88	7.87
	8.00	1.52	1.309	1.000	-3.32	6.35
	9.00	2.33	1.546	1.000	-3.38	8.04
	11.00	-1.45	1.318	1.000	-6.31	3.42
	12.00	-2.79	1.246	1.000	-7.39	1.81
	13.00	-.79	1.516	1.000	-6.39	4.80
	15.00	-3.34	1.445	1.000	-8.68	1.99
	17.00	-.40	1.786	1.000	-6.99	6.19
	18.00	-1.61	1.445	1.000	-6.94	3.73
	19.00	1.53	1.435	1.000	-3.77	6.83
	20.00	-.01	1.216	1.000	-4.50	4.48
	21.00	-4.72	1.401	.166	-9.89	.45
	23.00	-2.40	1.516	1.000	-8.00	3.20
	24.00	-.32	1.393	1.000	-5.47	4.82
	25.00	-.96	1.445	1.000	-6.29	4.38
	26.00	4.16	1.751	1.000	-2.31	10.62

Table 25 cont.

*Bonferroni's Post Hoc Test – Multiple Comparisons*

Group ID	Compared to Group	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
3.00	1.00	-2.30	2.106	1.000	-10.08	5.48
	2.00	-.90	1.665	1.000	-7.05	5.25
	4.00	-3.23	1.463	1.000	-8.63	2.17
	5.00	-2.46	1.503	1.000	-8.01	3.09
	7.00	1.59	1.635	1.000	-4.44	7.63
	8.00	.62	1.506	1.000	-4.94	6.18
	9.00	1.43	1.716	1.000	-4.90	7.76
	11.00	-2.35	1.514	1.000	-7.94	3.24
	12.00	-3.69	1.452	1.000	-9.05	1.67
	13.00	-1.69	1.689	1.000	-7.93	4.54
	15.00	-4.24	1.626	1.000	-10.24	1.76
	17.00	-1.30	1.935	1.000	-8.44	5.84
	18.00	-2.51	1.626	1.000	-8.51	3.49
	19.00	.63	1.617	1.000	-5.34	6.60
	20.00	-.91	1.426	1.000	-6.18	4.35
	21.00	-5.62	1.587	.088	-11.48	.24
	23.00	-3.30	1.689	1.000	-9.53	2.93
	24.00	-1.22	1.580	1.000	-7.06	4.61
	25.00	-1.86	1.626	1.000	-7.86	4.14
	26.00	3.26	1.903	1.000	-3.77	10.28
4.00	1.00	.93	1.802	1.000	-5.72	7.58
	2.00	2.33	1.259	1.000	-2.32	6.98
	3.00	3.23	1.463	1.000	-2.17	8.63
	5.00	.77	1.034	1.000	-3.05	4.59
	7.00	4.82	1.218	.017	.33	9.32
	8.00	3.85	1.039	.048	.01	7.68
	9.00	4.66	1.325	.097	-.23	9.55
	11.00	.88	1.050	1.000	-3.00	4.76
	12.00	-.46	.959	1.000	-4.00	3.07
	13.00	1.54	1.290	1.000	-3.23	6.30
	15.00	-1.01	1.206	1.000	-5.46	3.44
	17.00	1.93	1.599	1.000	-3.97	7.83
	18.00	.72	1.206	1.000	-3.73	5.17
	19.00	3.86	1.194	.271	-.55	8.27
	20.00	2.32	.919	1.000	-1.08	5.71
	21.00	-2.39	1.153	1.000	-6.65	1.86
	23.00	-.07	1.290	1.000	-4.83	4.69
	24.00	2.00	1.143	1.000	-2.22	6.22
	25.00	1.37	1.206	1.000	-3.08	5.82
	26.00	6.49	1.560	.007	.73	12.25
5.00	1.00	.16	1.835	1.000	-6.61	6.93
	2.00	1.56	1.305	1.000	-3.26	6.38
	3.00	2.46	1.503	1.000	-3.09	8.01

Table 25 cont.

*Bonferroni's Post Hoc Test – Multiple Comparisons*

Group ID	Compared to Group	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
4.00	7.00	4.05	1.266	.297	-.62	8.73
	8.00	3.08	1.095	1.000	-.96	7.12
	9.00	3.89	1.369	.964	-1.16	8.95
	11.00	.11	1.106	1.000	-3.97	4.19
	12.00	-1.23	1.019	1.000	-4.99	2.53
	13.00	.77	1.335	1.000	-4.16	5.70
	15.00	-1.78	1.254	1.000	-6.41	2.85
	17.00	1.16	1.635	1.000	-4.88	7.20
	18.00	-.05	1.254	1.000	-4.67	4.58
	19.00	3.09	1.243	1.000	-1.50	7.68
	20.00	1.55	.982	1.000	-2.07	5.17
	21.00	-3.16	1.203	1.000	-7.60	1.28
	23.00	-.84	1.335	1.000	-5.77	4.09
	24.00	1.24	1.194	1.000	-3.17	5.64
	25.00	.60	1.254	1.000	-4.03	5.23
	26.00	5.72	1.597	.076	-.18	11.62
7.00	1.00	-3.89	1.945	1.000	-11.07	3.28
	2.00	-2.49	1.455	1.000	-7.87	2.88
	3.00	-1.59	1.635	1.000	-7.63	4.44
	4.00	-4.82	1.218	.017	-9.32	-.33
	5.00	-4.05	1.266	.297	-8.73	.62
	8.00	-.98	1.270	1.000	-5.66	3.71
	9.00	-.16	1.513	1.000	-5.75	5.42
	11.00	-3.94	1.279	.448	-8.66	.78
	12.00	-5.29	1.205	.003	-9.74	-.84
	13.00	-3.29	1.482	1.000	-8.76	2.18
	15.00	-5.84	1.410	.008	-11.04	-.63
	17.00	-2.89	1.757	1.000	-9.38	3.59
	18.00	-4.10	1.410	.784	-9.30	1.10
	19.00	-.97	1.400	1.000	-6.13	4.20
	20.00	-2.51	1.174	1.000	-6.84	1.83
	21.00	-7.21	1.364	.000	-12.25	-2.18
	23.00	-4.89	1.482	.211	-10.37	.58
	24.00	-2.82	1.357	1.000	-7.83	2.19
	25.00	-3.45	1.410	1.000	-8.66	1.75
	26.00	1.66	1.722	1.000	-4.69	8.02
8.00	1.00	-2.92	1.838	1.000	-9.70	3.87
	2.00	-1.52	1.309	1.000	-6.35	3.32
	3.00	-.62	1.506	1.000	-6.18	4.94
	4.00	-3.85	1.039	.048	-7.68	-.01
	5.00	-3.08	1.095	1.000	-7.12	.96
	7.00	.98	1.270	1.000	-3.71	5.66



Table 25 cont.

*Bonferroni's Post Hoc Test – Multiple Comparisons*

Group ID	Compared to Group	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
9.00	9.00	.81	1.373	1.000	-4.26	5.88
	11.00	-2.97	1.110	1.000	-7.06	1.13
	12.00	-4.31	1.024	.006	-8.09	-.53
	13.00	-2.31	1.339	1.000	-7.25	2.63
	15.00	-4.86	1.259	.026	-9.50	-.21
	17.00	-1.92	1.639	1.000	-7.97	4.13
	18.00	-3.12	1.259	1.000	-7.77	1.52
	19.00	.01	1.247	1.000	-4.59	4.61
	20.00	-1.53	.987	1.000	-5.17	2.12
	21.00	-6.24	1.208	.000	-10.70	-1.78
	23.00	-3.92	1.339	.742	-8.86	1.03
	24.00	-1.84	1.199	1.000	-6.27	2.58
	25.00	-2.48	1.259	1.000	-7.12	2.17
	26.00	2.64	1.601	1.000	-3.27	8.55
	1.00	-3.73	2.013	1.000	-11.16	3.70
	2.00	-2.33	1.546	1.000	-8.04	3.38
	3.00	-1.43	1.716	1.000	-7.76	4.90
	4.00	-4.66	1.325	.097	-9.55	.23
	5.00	-3.89	1.369	.964	-8.95	1.16
	7.00	.16	1.513	1.000	-5.42	5.75
	8.00	-.81	1.373	1.000	-5.88	4.26
	11.00	-3.78	1.381	1.000	-8.88	1.32
	12.00	-5.12	1.313	.022	-9.97	-.28
	13.00	-3.12	1.571	1.000	-8.92	2.68
	15.00	-5.67	1.503	.036	-11.22	-.12
	17.00	-2.73	1.833	1.000	-9.50	4.04
	18.00	-3.94	1.503	1.000	-9.48	1.61
	19.00	-.80	1.494	1.000	-6.32	4.71
	20.00	-2.34	1.284	1.000	-7.08	2.40
	21.00	-7.05	1.461	.000	-12.44	-1.66
	23.00	-4.73	1.571	.564	-10.53	1.07
	24.00	-2.66	1.453	1.000	-8.02	2.71
	25.00	-3.29	1.503	1.000	-8.84	2.26
	26.00	1.83	1.799	1.000	-4.81	8.47
11.00	1.00	.05	1.844	1.000	-6.76	6.85
	2.00	1.45	1.318	1.000	-3.42	6.31
	3.00	2.35	1.514	1.000	-3.24	7.94
	4.00	-.88	1.050	1.000	-4.76	3.00
	5.00	-.11	1.106	1.000	-4.19	3.97
	7.00	3.94	1.279	.448	-.78	8.66
	8.00	2.97	1.110	1.000	-1.13	7.06
	9.00	3.78	1.381	1.000	-1.32	8.88
	12.00	-1.35	1.035	1.000	-5.17	2.48

Table 25 cont.

*Bonferroni's Post Hoc Test – Multiple Comparisons*

Group ID	Compared to Group	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	13.00	.65	1.348	1.000	-4.32	5.63
	15.00	-1.89	1.268	1.000	-6.57	2.78
	17.00	1.05	1.646	1.000	-5.03	7.12
	18.00	-.16	1.268	1.000	-4.84	4.52
	19.00	2.98	1.256	1.000	-1.66	7.61
	20.00	1.44	.999	1.000	-2.25	5.12
	21.00	-3.27	1.217	1.000	-7.77	1.22
	23.00	-.95	1.348	1.000	-5.93	4.02
	24.00	1.12	1.208	1.000	-3.34	5.58
	25.00	.49	1.268	1.000	-4.19	5.17
	26.00	5.61	1.608	.108	-.33	11.54
12.00	1.00	1.39	1.794	1.000	-5.23	8.01
	2.00	2.79	1.246	1.000	-1.81	7.39
	3.00	3.69	1.452	1.000	-1.67	9.05
	4.00	.46	.959	1.000	-3.07	4.00
	5.00	1.23	1.019	1.000	-2.53	4.99
	7.00	5.29	1.205	.003	.84	9.74
	8.00	4.31	1.024	.006	.53	8.09
	9.00	5.12	1.313	.022	.28	9.97
	11.00	1.35	1.035	1.000	-2.48	5.17
	13.00	2.00	1.278	1.000	-2.72	6.72
	15.00	-.55	1.193	1.000	-4.95	3.85
	17.00	2.39	1.589	1.000	-3.47	8.26
	18.00	1.19	1.193	1.000	-3.22	5.59
	19.00	4.32	1.181	.056	-.04	8.68
	20.00	2.78	.902	.442	-.55	6.11
	21.00	-1.93	1.139	1.000	-6.13	2.28
	23.00	.39	1.278	1.000	-4.32	5.11
	24.00	2.47	1.129	1.000	-1.70	6.64
	25.00	1.83	1.193	1.000	-2.57	6.24
	26.00	6.95	1.550	.002	1.23	12.67
13.00	1.00	-.61	1.990	1.000	-7.95	6.74
	2.00	.79	1.516	1.000	-4.80	6.39
	3.00	1.69	1.689	1.000	-4.54	7.93
	4.00	-1.54	1.290	1.000	-6.30	3.23
	5.00	-.77	1.335	1.000	-5.70	4.16
	7.00	3.29	1.482	1.000	-2.18	8.76
	8.00	2.31	1.339	1.000	-2.63	7.25
	9.00	3.12	1.571	1.000	-2.68	8.92
	11.00	-.65	1.348	1.000	-5.63	4.32
	12.00	-2.00	1.278	1.000	-6.72	2.72
	15.00	-2.55	1.472	1.000	-7.98	2.89
	17.00	.39	1.808	1.000	-6.28	7.07

Table 25 cont.

*Bonferroni's Post Hoc Test – Multiple Comparisons*

Group ID	Compared to Group	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
15.00	18.00	-.81	1.472	1.000	-6.25	4.62
	19.00	2.32	1.463	1.000	-3.08	7.72
	20.00	.78	1.248	1.000	-3.83	5.39
	21.00	-3.93	1.429	1.000	-9.20	1.35
	23.00	-1.61	1.542	1.000	-7.30	4.08
	24.00	.47	1.421	1.000	-4.78	5.71
	25.00	-.17	1.472	1.000	-5.60	5.27
	26.00	4.95	1.774	1.000	-1.60	11.50
	1.00	1.94	1.937	1.000	-5.21	9.09
	2.00	3.34	1.445	1.000	-1.99	8.68
	3.00	4.24	1.626	1.000	-1.76	10.24
	4.00	1.01	1.206	1.000	-3.44	5.46
	5.00	1.78	1.254	1.000	-2.85	6.41
	7.00	5.84	1.410	.008	.63	11.04
	8.00	4.86	1.259	.026	.21	9.50
	9.00	5.67	1.503	.036	.12	11.22
17.00	11.00	1.89	1.268	1.000	-2.78	6.57
	12.00	.55	1.193	1.000	-3.85	4.95
	13.00	2.55	1.472	1.000	-2.89	7.98
	17.00	2.94	1.749	1.000	-3.51	9.40
	18.00	1.74	1.399	1.000	-3.43	6.90
	19.00	4.87	1.389	.101	-.26	10.00
	20.00	3.33	1.161	.891	-.96	7.62
	21.00	-1.38	1.354	1.000	-6.38	3.62
	23.00	.94	1.472	1.000	-4.49	6.38
	24.00	3.02	1.346	1.000	-1.95	7.98
	25.00	2.38	1.399	1.000	-2.78	7.55
	26.00	7.50	1.714	.003	1.17	13.83
	1.00	-1.00	2.203	1.000	-9.13	7.13
	2.00	.40	1.786	1.000	-6.19	6.99
	3.00	1.30	1.935	1.000	-5.84	8.44
	4.00	-1.93	1.599	1.000	-7.83	3.97
	5.00	-1.16	1.635	1.000	-7.20	4.88
	7.00	2.89	1.757	1.000	-3.59	9.38
	8.00	1.92	1.639	1.000	-4.13	7.97
	9.00	2.73	1.833	1.000	-4.04	9.50
	11.00	-1.05	1.646	1.000	-7.12	5.03
	12.00	-2.39	1.589	1.000	-8.26	3.47
	13.00	-.39	1.808	1.000	-7.07	6.28
	15.00	-2.94	1.749	1.000	-9.40	3.51
	18.00	-1.21	1.749	1.000	-7.66	5.25
	19.00	1.93	1.741	1.000	-4.50	8.35
	20.00	.39	1.565	1.000	-5.39	6.17



Table 25 cont.

*Bonferroni's Post Hoc Test – Multiple Comparisons*

Group ID	Compared to Group	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
18.00	21.00	-4.32	1.713	1.000	-10.64	2.00
	23.00	-2.00	1.808	1.000	-8.67	4.67
	24.00	.08	1.706	1.000	-6.22	6.37
	25.00	-.56	1.749	1.000	-7.01	5.90
	26.00	4.56	2.009	1.000	-2.86	11.98
	1.00	.21	1.937	1.000	-6.94	7.36
	2.00	1.61	1.445	1.000	-3.73	6.94
	3.00	2.51	1.626	1.000	-3.49	8.51
	4.00	-.72	1.206	1.000	-5.17	3.73
	5.00	.05	1.254	1.000	-4.58	4.67
	7.00	4.10	1.410	.784	-1.10	9.30
	8.00	3.12	1.259	1.000	-1.52	7.77
	9.00	3.94	1.503	1.000	-1.61	9.48
	11.00	.16	1.268	1.000	-4.52	4.84
	12.00	-1.19	1.193	1.000	-5.59	3.22
	13.00	.81	1.472	1.000	-4.62	6.25
	15.00	-1.74	1.399	1.000	-6.90	3.43
	17.00	1.21	1.749	1.000	-5.25	7.66
	19.00	3.13	1.389	1.000	-1.99	8.26
	20.00	1.59	1.161	1.000	-2.69	5.88
	21.00	-3.11	1.354	1.000	-8.11	1.88
	23.00	-.79	1.472	1.000	-6.23	4.64
	24.00	1.28	1.346	1.000	-3.69	6.25
	25.00	.65	1.399	1.000	-4.52	5.81
	26.00	5.76	1.714	.169	-.56	12.09
19.00	1.00	-2.93	1.930	1.000	-10.05	4.19
	2.00	-1.53	1.435	1.000	-6.83	3.77
	3.00	-.63	1.617	1.000	-6.60	5.34
	4.00	-3.86	1.194	.271	-8.27	.55
	5.00	-3.09	1.243	1.000	-7.68	1.50
	7.00	.97	1.400	1.000	-4.20	6.13
	8.00	-.01	1.247	1.000	-4.61	4.59
	9.00	.80	1.494	1.000	-4.71	6.32
	11.00	-2.98	1.256	1.000	-7.61	1.66
	12.00	-4.32	1.181	.056	-8.68	.04
	13.00	-2.32	1.463	1.000	-7.72	3.08
	15.00	-4.87	1.389	.101	-10.00	.26
	17.00	-1.93	1.741	1.000	-8.35	4.50
	18.00	-3.13	1.389	1.000	-8.26	1.99
	20.00	-1.54	1.149	1.000	-5.78	2.70
	21.00	-6.25	1.343	.001	-11.21	-1.29
	23.00	-3.93	1.463	1.000	-9.33	1.47
	24.00	-1.85	1.335	1.000	-6.78	3.08

Table 25 cont.

*Bonferroni's Post Hoc Test – Multiple Comparisons*

Group ID	Compared to Group	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
20.00	25.00	-2.49	1.389	1.000	-7.62	2.64
	26.00	2.63	1.705	1.000	-3.66	8.93
	1.00	-1.39	1.773	1.000	-7.93	5.16
	2.00	.01	1.216	1.000	-4.48	4.50
	3.00	.91	1.426	1.000	-4.35	6.18
	4.00	-2.32	.919	1.000	-5.71	1.08
	5.00	-1.55	.982	1.000	-5.17	2.07
	7.00	2.51	1.174	1.000	-1.83	6.84
	8.00	1.53	.987	1.000	-2.12	5.17
	9.00	2.34	1.284	1.000	-2.40	7.08
	11.00	-1.44	.999	1.000	-5.12	2.25
	12.00	-2.78	.902	.442	-6.11	.55
	13.00	-.78	1.248	1.000	-5.39	3.83
	15.00	-3.33	1.161	.891	-7.62	.96
	17.00	-.39	1.565	1.000	-6.17	5.39
	18.00	-1.59	1.161	1.000	-5.88	2.69
	19.00	1.54	1.149	1.000	-2.70	5.78
	21.00	-4.71	1.106	.005	-8.79	-.63
	23.00	-2.39	1.248	1.000	-7.00	2.22
	24.00	-.31	1.096	1.000	-4.36	3.73
	25.00	-.95	1.161	1.000	-5.23	3.34
	26.00	4.17	1.526	1.000	-1.46	9.80
21.00	1.00	3.32	1.904	1.000	-3.71	10.35
	2.00	4.72	1.401	.166	-.45	9.89
	3.00	5.62	1.587	.088	-.24	11.48
	4.00	2.39	1.153	1.000	-1.86	6.65
	5.00	3.16	1.203	1.000	-1.28	7.60
	7.00	7.21	1.364	.000	2.18	12.25
	8.00	6.24	1.208	.000	1.78	10.70
	9.00	7.05	1.461	.000	1.66	12.44
	11.00	3.27	1.217	1.000	-1.22	7.77
	12.00	1.93	1.139	1.000	-2.28	6.13
	13.00	3.93	1.429	1.000	-1.35	9.20
	15.00	1.38	1.354	1.000	-3.62	6.38
	17.00	4.32	1.713	1.000	-2.00	10.64
	18.00	3.11	1.354	1.000	-1.88	8.11
	19.00	6.25	1.343	.001	1.29	11.21
	20.00	4.71	1.106	.005	.63	8.79
	23.00	2.32	1.429	1.000	-2.95	7.60
	24.00	4.40	1.298	.156	-.40	9.19
	25.00	3.76	1.354	1.000	-1.23	8.76
	26.00	8.88	1.677	.000	2.69	15.07

Table 25 cont.

*Bonferroni's Post Hoc Test – Multiple Comparisons*

Group ID	Compared to Group	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
23.00	1.00	1.00	1.990	1.000	-6.35	8.35
	2.00	2.40	1.516	1.000	-3.20	8.00
	3.00	3.30	1.689	1.000	-2.93	9.53
	4.00	.07	1.290	1.000	-4.69	4.83
	5.00	.84	1.335	1.000	-4.09	5.77
	7.00	4.89	1.482	.211	-.58	10.37
	8.00	3.92	1.339	.742	-1.03	8.86
	9.00	4.73	1.571	.564	-1.07	10.53
	11.00	.95	1.348	1.000	-4.02	5.93
	12.00	-.39	1.278	1.000	-5.11	4.32
	13.00	1.61	1.542	1.000	-4.08	7.30
	15.00	-.94	1.472	1.000	-6.38	4.49
	17.00	2.00	1.808	1.000	-4.67	8.67
	18.00	.79	1.472	1.000	-4.64	6.23
	19.00	3.93	1.463	1.000	-1.47	9.33
	20.00	2.39	1.248	1.000	-2.22	7.00
	21.00	-2.32	1.429	1.000	-7.60	2.95
	24.00	2.08	1.421	1.000	-3.17	7.32
	25.00	1.44	1.472	1.000	-3.99	6.88
	26.00	6.56	1.774	.049	.01	13.11
24.00	1.00	-1.08	1.899	1.000	-8.08	5.93
	2.00	.32	1.393	1.000	-4.82	5.47
	3.00	1.22	1.580	1.000	-4.61	7.06
	4.00	-2.00	1.143	1.000	-6.22	2.22
	5.00	-1.24	1.194	1.000	-5.64	3.17
	7.00	2.82	1.357	1.000	-2.19	7.83
	8.00	1.84	1.199	1.000	-2.58	6.27
	9.00	2.66	1.453	1.000	-2.71	8.02
	11.00	-1.12	1.208	1.000	-5.58	3.34
	12.00	-2.47	1.129	1.000	-6.64	1.70
	13.00	-.47	1.421	1.000	-5.71	4.78
	15.00	-3.02	1.346	1.000	-7.98	1.95
	17.00	-.08	1.706	1.000	-6.37	6.22
	18.00	-1.28	1.346	1.000	-6.25	3.69
	19.00	1.85	1.335	1.000	-3.08	6.78
	20.00	.31	1.096	1.000	-3.73	4.36
	21.00	-4.40	1.298	.156	-9.19	.40
	23.00	-2.08	1.421	1.000	-7.32	3.17
	25.00	-.63	1.346	1.000	-5.60	4.33
	26.00	4.48	1.670	1.000	-1.68	10.65
25.00	1.00	-.44	1.937	1.000	-7.59	6.71
	2.00	.96	1.445	1.000	-4.38	6.29
	3.00	1.86	1.626	1.000	-4.14	7.86



Table 25 cont.

*Bonferroni's Post Hoc Test – Multiple Comparisons*

Group ID	Compared to Group	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
26.00	4.00	-1.37	1.206	1.000	-5.82	3.08
	5.00	-.60	1.254	1.000	-5.23	4.03
	7.00	3.45	1.410	1.000	-1.75	8.66
	8.00	2.48	1.259	1.000	-2.17	7.12
	9.00	3.29	1.503	1.000	-2.26	8.84
	11.00	-.49	1.268	1.000	-5.17	4.19
	12.00	-1.83	1.193	1.000	-6.24	2.57
	13.00	.17	1.472	1.000	-5.27	5.60
	15.00	-2.38	1.399	1.000	-7.55	2.78
	17.00	.56	1.749	1.000	-5.90	7.01
	18.00	-.65	1.399	1.000	-5.81	4.52
	19.00	2.49	1.389	1.000	-2.64	7.62
	20.00	.95	1.161	1.000	-3.34	5.23
	21.00	-3.76	1.354	1.000	-8.76	1.23
	23.00	-1.44	1.472	1.000	-6.88	3.99
	24.00	.63	1.346	1.000	-4.33	5.60
	26.00	5.12	1.714	.611	-1.21	11.44
26.00	1.00	-5.56	2.175	1.000	-13.59	2.47
	2.00	-4.16	1.751	1.000	-10.62	2.31
	3.00	-3.26	1.903	1.000	-10.28	3.77
	4.00	-6.49	1.560	.007	-12.25	-.73
	5.00	-5.72	1.597	.076	-11.62	.18
	7.00	-1.66	1.722	1.000	-8.02	4.69
	8.00	-2.64	1.601	1.000	-8.55	3.27
	9.00	-1.83	1.799	1.000	-8.47	4.81
	11.00	-5.61	1.608	.108	-11.54	.33
	12.00	-6.95	1.550	.002	-12.67	-1.23
	13.00	-4.95	1.774	1.000	-11.50	1.60
	15.00	-7.50	1.714	.003	-13.83	-1.17
	17.00	-4.56	2.009	1.000	-11.98	2.86
	18.00	-5.76	1.714	.169	-12.09	.56
	19.00	-2.63	1.705	1.000	-8.93	3.66
	20.00	-4.17	1.526	1.000	-9.80	1.46
	21.00	-8.88	1.677	.000	-15.07	-2.69
	23.00	-6.56	1.774	.049	-13.11	-.01
	24.00	-4.48	1.670	1.000	-10.65	1.68
	25.00	-5.12	1.714	.611	-11.44	1.21

The mean difference is significant at alpha < .05.

Multiple Comparisons

Dependent Variable: TPI Total Score

Bonferroni

## APPENDIX B

### CORRELATION MATRIX OF PREDICTOR AND CRITERION VARIABLES

Table 26

*Correlation Matrix of Predictor and Criterion Variables*

TPI Theme	Evaluation Score	TPI Total Score	Mission	Empathy	Rapport Drive	Individualized Perception	Listening	Investment	Input Drive	Activation	Innovation	Gestalt	Objectivity	Focus
Evaluation Score	1.000													
TPI Total Score	0.038	1.000												
Mission	0.309*	0.418**	1.000											
Empathy	-0.002	0.385**	0.115**	1.000										
Rapport Drive	0.037	0.422**	0.168**	0.080*	1.000									
Individualized Perception	0.065	0.479**	0.045	0.112**	0.139**	1.000								
Listening	-0.196	0.465**	0.107**	0.147**	0.143**	0.217**	1.000							
Investment	-0.097	0.444**	0.108**	0.083*	0.143**	0.151**	0.170**	1.000						
Input Drive	-0.060	0.437**	0.077*	0.065	0.136**	0.193**	0.093**	0.111**	1.000					
Activation	-0.040	0.465**	0.103**	0.165**	0.133**	0.237**	0.179**	0.133**	0.127**	1.000				
Innovation	-0.020	0.450**	0.159**	0.142**	0.116**	0.068*	0.097**	0.074*	0.116**	0.083*	1.000			
Gestalt	0.092	0.502**	0.127**	0.126**	0.106**	0.180**	0.070*	0.133**	0.209**	0.140**	0.230**	1.000		
Objectivity	0.076	0.517**	0.119**	0.147**	0.158**	0.155**	0.139**	0.151**	0.141**	0.154**	0.166**	0.198**	1.000	
Focus	0.042	0.445**	0.122**	0.081*	0.088*	0.051	0.146**	0.109**	0.101**	0.105**	0.201**	0.187**	0.194**	1.000
N	59	850	850	850	850	850	850	850	850	850	850	850	850	850

\* Significant at alpha &lt; .05 (2-tailed).

\*\* Significant at alpha &lt; .01 (2-tailed).



## BIBLIOGRAPHY

## BIBLIOGRAPHY

- Aarestad, J. S. (1980). Analysis of teacher selection/retention and student achievement as related to selection research incorporated teacher perceiver interview (Doctoral dissertation, University of Minnesota, 1980). Dissertation Abstracts International, 41(07), 2841.
- Alger, R. G. (1989). Teacher characteristics related to meeting affective needs of early adolescents: Implications for inservice and hiring (Doctoral dissertation, Marquette University, 1989). Dissertation Abstracts International, 50(12), 3799.
- Angwin, J. (1992, April 5). Spotting teachers who'll fail. The New York Times, 141. p. ED10.
- Aramburo, D. (1957). The efficacy of the structured interview in the selection of special education teachers. (Doctoral dissertation, University of New Orleans, LA).
- Austin Independent School District, (1984). No panaceas: A brief discussion of teacher selection instruments. (Report No. AISD-ORE-83.43). Austin, TX: Austin Independent School District, Office of Research and Evaluation. (ERIC Document Reproduction Service No. ED 252 569).
- Bacas, H. (1987, October). Hiring the best. Nation's Business, 68-71.
- Ball, J. R. (1992). A validation study of students' and parents' perceptions of the talent of teachers selected using the SRI teacher perceiver interview (Doctoral dissertation, Kansas State University, 1992). Dissertation Abstracts International, 53(09), 3054.

- Beecher, R. S. (1979). Staff evaluation: The essential administrative task. Phi Delta Kappan, 60, 515-517.
- Blackwell, E., & Carlson, G. (March, 1995). Academic and legal ramifications of hiring the best. Paper presented at the Annual Meeting of the American Alliance for Health, Physical Education, Recreation, and Dance. Portland, OR.
- Chalker, D. M. (1981). The teacher perceiver interview as an instrument for predicting successful teaching behavior (Doctoral dissertation, Wayne State University, 1981). Dissertation Abstracts International, 42(02), 469.
- Cohen, S., & Gump, F. (1984). Using simulations to improve selection decisions. Training and Development Journal, 38(12), 85-88.
- Cornine, L. L. (1980). A validation study of the teacher perceiver interview using the Illinois teacher evaluation questionnaire (Doctoral dissertation, University of Kansas, 1980). Dissertation Abstracts International, 41(07), 2848.
- Dawson, C. (1986, May). Using video as an aid to selection. Personnel Management, 67.
- Delli, D. A. (2000). The predictive validity of the teacher perceiver interview on the teaching performance of classroom teachers. (Doctoral dissertation, Ohio State University).
- Denney, L. H. (1979, March 24-28). Selection of staff – The kids come first! Washington, DC: Paper presented at the Annual Meeting of the National Association of Elementary School Principals. (ERIC Document Reproduction Service No. ED 172 403)



- Developmental Dimensions. (2003). Factsheet: Targeted selection. Retrieved January 30, 2003, from [http:// www.ddiworld.com/pdf/ddi\\_targetedselection\\_fs.pdf](http://www.ddiworld.com/pdf/ddi_targetedselection_fs.pdf)
- Dickerson, D. B. (1980). A personalized approach to preservice teacher development (Doctoral dissertation, University of Wyoming, 1980). Dissertation Abstracts International, 42(01), 176.
- Dickerson, E. (1987, January). The hiring decision: Assessing fit into the workplace. Management Solutions, 24-30.
- Diemer, J. S. (1998). Identifying effective teachers of behavior disordered students: Is the Gallup teacher perceiver interview an answer? (Doctoral dissertation, New Mexico State University, 1998). Dissertation Abstracts International, 59(05), 1524.
- English, J. J. (1983). The relationship between structured selection criteria and the assessment of proficient teaching (Doctoral dissertation, University of Virginia, 1983, 1984). Dissertation Abstracts International, 44(12), 3553.
- Eslinger, R. M. (1982). Use of the selection research administrator perceiver and management objectives as tools for administrator growth. (Doctoral dissertation, University of Northern Colorado, 1982). Dissertation Abstracts International, 43(10), 3166.
- Farrell, B. (1986). The art and science of employment interviews. Personnel Journal, 65(5), 91-94.

- Fowlkes, R. D. (1984). The relationship between the teacher perceiver interview and instructional behaviors of teachers of learning disabled students. (Doctoral dissertation, University of Virginia, 1984). Dissertation Abstracts International, 46(07), 1790.
- Gatti Carson, Sharon R. (1990). Predictors of Future teacher effectiveness for nontraditional teacher certification candidates. (Doctoral dissertation, Colorado State University, 1990). Dissertation Abstracts International, 52(01), 134.
- Gillies, T. K. (1988). The relationship between selection variables and subsequent performance ratings for teachers in an Oregon school district. (Doctoral dissertation, University of Oregon, 1988). Dissertation Abstracts International, 48(12), 355.
- Goodwin, G. D. (1990). Selected characteristics of Minnie Stevens Piper professors. (Doctoral dissertation, University of North Texas, 1990). Dissertation Abstracts International, 41(05), 1518.
- Gordon, G. (1999). Teacher talent and urban schools. Phi Delta Kappan, 85(4), 304.
- Haberman, M. (1995). Selecting 'star' teachers for children and youth in urban poverty. Phi Delta Kappan, 76(10), 777-781.
- Haefele, D. L. (1978). The teacher perceiver interview: How valid? Phi Delta Kappan, 59(10), 683-684.

- Halitin, T. J., & Abrahamson, R. L. (1996). Written or oral job references for new teachers? Perceptions of superintendents. Journal of Teacher Education, 47(1), 43-52.
- Harding, R. E., & Wellway, D. (2000). Research study: A study of talent, attitudes, and teacher/student outcomes. Unpublished report of The Gallup Organization. Lincoln, NE.
- Harwood, S., & Briscoe, D. (1987). Improving the interview process: A case study. Personnel, 64(9), 48-50.
- Haussler, J. (1994). Selection of secondary school teachers: Perceptions of school administrators concerning criteria, procedures, and problems. (Doctoral dissertation, University of North Dakota).
- Hill, K. R. (1980). The relationship between a preservice interview and student teaching performance. (Doctoral dissertation, University of Nebraska – Lincoln, 1980). Dissertation Abstracts International, 41(07), 3057.
- Holman, L. J. (1995). Should site-based committees be involved in the campus staffing process? NASSP Bulletin, 79(569), 65-69.
- Howard, M. A. (1998). The relationships among teacher selection predictors and teacher performance with principals' opinions about a teacher selection process (Doctoral dissertation, Georgia State University, 1998). Dissertation Abstracts International, 59(02), 384.



- Hulling, L., Resta, V, Mandeville, T., & Miller, P. (1996). Factors in the selection of secondary school teachers. NASSP Bulletin, 80(580), 57-65.
- Interviewing in Education. (2003). Structured interviews. Retrieved January 30, 2003, from [http://www.uww.edu/StdRscs/career/jobsearc/d1c3.htm#Structured Interview](http://www.uww.edu/StdRscs/career/jobsearc/d1c3.htm#StructuredInterview)
- Irwin, C. (Feb., 1984). What research tells the principal about effective instruction. Paper presented at the Annual Meeting of the National Association of Secondary School Principals. Las Vegas, NV. (ERIC Document Reproduction Service No. ED24655).
- Johannsen, K. L. (1981). The relationship of a unique teacher selection method to student achievement. (Doctoral dissertation, Peabody College for Teachers of Vanderbilt University, 1981). Dissertation Abstracts International, 42(11), 4671.
- Johnson, S. D. (1994). A national assessment of secondary-school principals' perceptions of teaching effectiveness. Communications Education, 43(1), 1-16.
- Jones, D. (1978). Predicting teaching processes with the Teacher Perceiver Interview. (Doctoral dissertation. Virginia Polytechnic Institute and State University, Blacksburg, VA).
- Keefe, J. W. & Howard, E. R. (1997). The school as a learning organization. NASSP Bulletin, 81(589), 35-44.
- Keichel, W. (1986, September). How to pick talent. Fortune, 201-203.

- Leahy, R. E. (1984). Teacher characteristics and student achievement: An exploration of the employment interview. (Doctoral dissertation, University of Minnesota, 1984). Dissertation Abstracts International, 45(11), 3254.
- Loretto, V. (1986). Effective interviewing is based on more than intuition. Personnel Journal, 65(12), 101-107.
- Mausser, P. J. (1986). The predictive validity of the teacher perceiver interview to teacher effectiveness. (Doctoral dissertation, Oklahoma State University, 1986). Dissertation Abstracts International, 48(01), 21.
- McDaniel, M. A., Whetzel, D. L., Schmidt, F. L., & Maurer, S. D. (1994). The validity of employment interviews: A comprehensive review and meta-analysis. Journal of Applied Psychology, 79(4), 599-616.
- Miller, J. D., Clements, R. O., & Gardner, C. H. (1977). A preliminary investigation of the teacher perceiver instrument for teacher selection (Tech. Rep. No. 5077). Austin, TX: University of Texas. Research and Development Center for Teacher Education. (ERIC Document Reproduction Service No. ED 206 706).
- Mills, J. K. (1986). The teacher perceiver instrument and its correlation with observer ratings of teacher-pupil relationships. (Doctoral dissertation, Loma Linda University). Dissertation Abstracts International, 47(11), 3927.
- Moss, M. L. (1982). An analysis of an interview scale for administrative job candidates used as a rating scale for practicing administrators. (Doctoral dissertation,

- University of Nevada, Reno, 1982). Dissertation Abstracts International, 43(09), 2848.
- Mueller, H. E. (1993). Group activity interviews: An important step in selecting new teachers. NASSP Bulletin, 77(555), 111-113.
- Muller, G. D. (1978). In defense of the teacher perceiver. Phi Delta Kappan 59(10), 684-685.
- Myers, K. (Jan., 1998). Questions of humour and respect. Times Educational Supplement 4255, A32.
- Neal, S. O. (1997). A comparison of principals' perceptions of teacher candidates and selected talent profiles. (Doctoral dissertation, Northern Illinois University, 1997) Dissertation Abstracts International, 58(08), 2941.
- Needham, N. R. (1992). Tomorrow's teaching stars: Can you spot them today in half an hour? NEA Today, 11(3), 24.
- Norris G., & Richburg, R. (1997). Hiring the best: Try these strategies for selecting top teachers. The American School Board Journal 184(11), 46, 48, 55.
- Office of Research and Evaluation. (1984). No panaceas: A brief discussion of teacher selection instruments (Publication No. 83.43). Austin, TX: Austin Independent School District. (ERIC Document Retrieval Service No. ED 252 569).
- Overman, W. F. (1981). The importance of the teacher perceiver interview as a teacher selection criterion to administrators in relationship to their leadership style.



- (Doctoral dissertation, University of Northern Colorado, 1981). Dissertation Abstracts International, 42(08), 3373.
- Papiernik, H. J. (1988). An analysis of rating proficiency in the use of the teacher perceiver interview in the selection of teachers. (Doctoral dissertation, Temple University, 1988). Dissertation Abstracts International, 49(08), 2057.
- Pawlas, G. (1995). The structured interview: Three dozen questions to ask prospective teachers. National Association of Secondary School Principals (NASSP) Journal, January, 65-66.
- Place, A. W., & Drake, T. L. (Jan., 1994). The priorities of elementary and secondary principals for the criteria used in the teacher selection process. Journal of School Leadership 4(1), 87-93.
- Potthoff, D. E. (1991). A qualitative case study of the relationship between the scores of selected students on the SRI/UNL teacher perceiver interview and their subsequent student teaching success. (Doctoral dissertation, University of Nebraska – Lincoln, 1991). Dissertation Abstracts International, 52(06), 2012.
- Preuss, W. (1972). Profile and selection of teacher candidates in Seward, NE. Unpublished report prepared by Selection Research, Inc., Lincoln, NE.
- Ricker, A. (1999). Teacher selection: Chicago region one elementary neighborhood school administrators since school reform. (Doctoral dissertation, Northern Illinois University, 1999). Dissertation Abstracts International, 60(04), 966.

- Salkind, N. J. (2000). Statistics for people who (think they) hate statistics. Thousand Oaks, CA: Sage.
- Scheetz, L. Patrick. 1989. Recruiting Trends 1989-90. East Lansing, MI.: Collegiate Employment Research Institute, Michigan State University, p. 69-71.
- Schilling, E. J. (1975). The relationship between an innovative hiring technique and teacher performance ratings. (Unpublished doctoral dissertation, University of Akron, OH).
- Schlechty, P. C., & Vance, V. S. (1983). Recruitment, selection, and retention: The shape of the teaching force. Elementary School Journal, 4, 469-487.
- Schmidt, F. L., & Rader, M. (1999). Exploring the boundary conditions for interview validity: Meta-analytic validity findings for a new interview type. Personnel Psychology, 52, 445-464.
- Schmidt, W. D. (1993). The teacher perceiver interview as a predictor of teacher performance. (Doctoral dissertation, University of Missouri – Columbia, 1993). Dissertation Abstracts International, 54(09), 3286.
- Sentz, E. I. (1991). Predicting success in student teacher from teacher perceiver screeners and pre-professional skills tests. St. Cloud, Minnesota: St. Cloud State University, Department of Teacher Development. (ERIC Document Reproduction Service No. ED 329 517).

- Shechtman, Z., & Sansbury, D. (1989). Validation of a group assessment procedure for the selection of teacher-education candidates. Educational and Psychological Measurement, 49(3), 653-661.
- Simmons, A. C. (Brown). (1996). A validation study of the use of the teacher perceiver interview (TPI) in a selected southeastern urban high school. (Doctoral dissertation, Georgia State University, 1996). Dissertation Abstracts International, 57(10), 4271.
- Simmons, B. A. (1984). An analytical and comparative study of the selection research interview as an instrument for selecting teachers for a large, urban school district. (Doctoral dissertation, Texas Southern University, 1984). Dissertation Abstracts International, 46(04), 868.
- Simmons, J. E. (1976). A study to test the teacher perceiver interview as an instrument that would select vocational agriculture instructors that develop rapport with their students. (Unpublished doctoral dissertation, University of Nebraska).
- Smith, B. C. (1996). Differentiating more effective and less effective teachers of elementary-aged, at-risk students. (Doctoral dissertation, Virginia Polytechnic Institute and State University, 1996). Dissertation Abstracts International, 57(07), 2789.
- Smith, H. A., & Pratt, D. (1996). The use of biodata in admissions to teacher education. Journal of Teacher Education, 47(1), 43-52.



- Smith, M. C., & Knab, K. M. (1996). Designing and implementing teacher selection systems. NASSP Bulletin, 80(579), 101-106.
- SRI Gallup. (1990). SRI teacher perceiver: Concurrent validity study. Unpublished report: Lincoln, NE.
- The Gallup Organization Today. (2002). The Gallup organization. Retrieved September 18, 2002, from <http://www.gallup.ro/english/about.htm>
- The Gallup Organization. (1977). Summary of validation studies. Unpublished report. Lincoln, NE.
- The Gallup Organization. (1993a). Gallup teacher perceiver: Overview, background and research. Unpublished report. Lincoln, NE.
- The Gallup Organization. (1993b). The Gallup perceiver interviewing system. Unpublished report. Lincoln, NE.
- The Gallup Organization. (1996). Gallup teacher perceiver: Overview, background and research. Unpublished report. Lincoln, NE.
- The Gallup Organization. (1996). Teacher perceiver interview process. Unpublished report. Lincoln, NE.
- Thompson, A. R. (1982). The teacher perceiver interview as related to student achievement. (Doctoral dissertation, University of Northern Colorado, 1982). Dissertation Abstracts International, 13(09), 2852.
- Trinka, R. (1983). The relationship between administrator ratings, selection criteria, and demographic variables of teachers employed by Baltimore County Public

- Schools. (Doctoral dissertation, University of Maryland College Park, 1983).  
Dissertation Abstracts International, 44(12), 2852.
- Ventures for Excellence. (2003). People make the difference. Retrieved January 30, 2003,  
 from <http://www.venturesforexcellence.com>
- Vidaurri, O. V. (1976). Changing the staff selection process: A source book for directors  
 of special education. Fort Lauderdale, FL: Nova University. (ERIC Document  
 Reproduction Service No. ED 136 527).
- Warner, A. K. (1969). A structured interview for predicting future pupil-teacher rapport.  
 (Unpublished doctoral dissertation. University of Nebraska. Lincoln, Nebraska).
- Watson, R. L. (1991). A study comparing the profile of selected university of Wyoming  
 student teachers with the SRI Gallup teacher perceiver interview. (Doctoral  
 dissertation, University of Wyoming, 1991). Dissertation Abstracts International,  
 53(02), 373.
- Weisner, W.H., & Cronshaw, S.F. (1988). A meta-analytic investigation of the impact of  
 interview format and degree of structure on the validity of the employment  
 interview. Journal of Occupational Psychology, 61, 275-290.
- Wentzel, K. (1997). Student motivation in middle school: The role of perceived  
 pedagogical caring. Journal of Educational Psychology, 17, 411-419.
- Williams, F. (1992). Reasoning with statistics: How to read quantitative research (4th  
 ed.). Fort Worth, TX: Harcourt Brace Jovanovich College Publishers.

- Wise, A., Darling-Hammond, L., Berry, B., Berliner, D., Haller, E., Praskac, A., & Schlechty, P. (1987). Effective teacher selection. Education Digest, 53(3), 14-18.
- Young, I. P., & Prince, A. L. (1999). Legal implications for teacher selection as defined by the ADA and ADEA. The Journal of Law and Education, 28(4), 517-530.
- Young, I. P. (1983). Administrators perceptions of teacher candidates in dyad and panel interviews. Educational Administration Quarterly, 19(2), 46-61.
- Zagury, C., & Cohen, K. (1995). The dirty dozen – the 12 deadly sins of hiring. Nursing Management, 26(7), 92-98.
- Zaranek, R. J. (1983). A correlational analysis between the teacher perceiver interview and teacher success in the Chippewa Valley School system. (Doctoral dissertation, Western Michigan University, 1983). Dissertation Abstracts International, 44(03), 642.