Experience, Age, and Subject Matter Bias of Secondary Teachers Using the American Association of School Personnel Administrator's Interactive Computer Interview System

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ABSTRACT

The objective of this study was to determine whether age, teaching experience, and content area taught influences the score earned by secondary school teachers when using the Interactive Computer Interview System. Results indicate the correlation between the experience levels of the interviewees, age and the total scores earned on the ICIS interview was weak ($r = -0.033$ and -0.087).

Additionally, regression analyses were performed using age of the interviewee and experience level as a predictor of score earned on the ICIS. Their r-squares were very low for both variables (< 0.007). Because the model only accounts for less than one percent (0.7%) of the unexplained variation, the usefulness in making accurate predictions of ICIS scores based on age or experience is not good.

For the question of the four content area clusters (language arts and social studies, math and science, physical education and health, and fine arts) having influence on ICIS scores, an analysis of variance (ANOVA) was calculated to evaluate the variance across four content scales in relationship to ICIS scores achieved by the secondary teachers. The ANOVA test result was $F = 1.89$. With a critical value of .05, the critical F equaled 2.82. Therefore, since the F statistic is smaller than the critical value, the null hypotheses that the scores between the four groups are the same is not rejected. The differences in scores with these group samples appears to be due to random sampling error and normal variation.

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CHAPTER 1

Introduction

The purpose of this study was to determine the potential bias of the ICIS (Interactive Computer Interview System) with regard to experience, age, and content area of secondary school teacher candidates. This study built on several studies already completed that examined the validity and accuracy of specialty fields of education in regards to the ICIS interview system (Allshouse, 2003; Beutel, 2006; Cook, 2009; Cox, 2006; Dennis, 2008; Dillon, 2006; Dugan, 2007; Hale, 2006; Longenecker, 2006; Reik, 2007; Springston, 2006; Stevenson, 2005; Weishaar, 2007). Knowing if potential biases exist will aide in the efficiency and accuracy of evaluation of the scores from the ICIS instrument when considering secondary teacher applicants.

If a school district hires a poor teacher, time and money are spent on observation, evaluating, training; and, ultimately, the due process that could otherwise be spent on teaching students. Much of the time, stress, and energy that are spent on a poor teacher's remediation and dismissal could be prevented with a better selection process that selects the best possible applicant for the job.

Hiring a teacher is the most important decision a school administrator will make. This decision has more direct impact on children than any other administrator decision in regard to the success or failure of a young person (Pillsbury, 2005). In order to make sure make a successful choice is made when looking at secondary

teacher applicants, it is essential that the screening process used to select teachers be accurate and unbiased.

Many teacher employment processes have traditionally included an application screening process, interviewing, reference checks and possibly a portfolio of work. Applicants are generally "paper screened", meaning administrators evaluate written or on-line applications to determine which candidates to physically interview (screen). Following a successful screening interview, a variety of tools are available in order to select and rate teaching candidates. However, the employment interview seems to be the most important aid in teacher selection (Ebmeier, 2006).

Interview Styles

There are three types of interviews used in the field of education: structured, unstructured and branching. Structured interviews are interviews in which all interviewees are asked the same or similar questions. This is for the purpose of ensuring high reliability and ultimately affording the interviewer responses to evaluate that are asked under similar conditions. Often, accompanying the questions is a scoring rubric that ranks applicants' responses based on set criteria.

Unstructured interviews contain questions which are generally random in topic and not uniform for each applicant. The preparation for this type of interview varies greatly as well. Sometimes the interviewer spends time thinking through what he or she wants to ask the candidate or possibly referring to a "bank" of questions that could be placed in categories or criteria deemed important by the organization. In other situations, there is no preparation at all. The scoring for unstructured interviews

does not typically allow for the interviewer to compare multiple interviews due to the random nature of the questions and responses. The benefit of this approach is that the interviewer has flexibility in that he or she is not constrained to asking specific questions. However, it is generally documented that unstructured interviews are better suited for follow-up interviews as opposed to the initial screening interview (Van Clieaf, 1991).

The branched interview format is based on the concept of asking the candidates differing questions as a result of the responses to prior questions (Emley & Ebmeier, 1997). Initially, all candidates are typically asked the same questions. However, at some point the candidates are given differing questions as a result of answers provided earlier in the interview. Like the unstructured interview, this interview format is less rigid than structured interviews. However, because the branched interview contains various options available to the interviewer that are constructed prior to the interview beginning, it is considered to be more structured in nature than an unstructured tool (Emley & Ebmeier, 1997). Of these three types of interviews, the structured interview is believed to be the most valid due to consistency in format and scoring (Van Clieaf, 1991).

Commercial Structured Interview Programs

One structured interview used by school districts is the Teacher Perceiver Interview. The Teacher Perceiver Interview (TPI) was developed during the 1960's by Selection Research International/Gallup to identify strengths specific to effective teachers. The TPI is a structured personal interview which looks for life themes, or

patterns in a person's life which parallel the habits and behavioral patterns found in the most successful teachers.

The SRI/Gallup developers interviewed parents, administrators, students, and fellow teachers looking for the qualities in those they named as the highest quality teachers. The SRI/Gallup researchers identified twelve best teacher themes: three intrapersonal, four interpersonal, and five extra-personal themes. The themes are defined as spontaneous, recurring patterns of thought, feeling and behavior which point the way to valuable talent. These themes include mission, investment, focus, empathy, rapport drive, listening, objectivity, individual perception, input drive, activation, and innovation. Interviewers are then trained and certified to look for these themes in a structured interview that lasts approximately thirty minutes in length (Young, & Delli, 2002).

There are numerous studies indicating the validity of the TPI is strong (Stevenson, 2005). However, there are also studies which conclude that the TPI is no more able to predict the success of teachers than other less structured types of interviews (Buresh, 2003). Numerous studies have stated, however, that any structured interview, like the TPI instrument, is a more valid mechanism for predicting applicant qualifications than the unstructured interview.

The Star Teacher Interview, another structured interview, was created by Martin Haberman from the results of interviews conducted with teachers who were identified by principals, parents, students and fellow teachers as being highly successful with at-risk students. From the data gathered, seven characteristics and

beliefs were identified and a structured interview taking approximately 30 minutes to give was designed to get at these effective characteristics in these Star teachers. The questions were based on seven characteristics including persistence, promoting learning, theory and practice, approach to at-risk students, professional versus personal, burnout and fallibility (Baskin, Ross & Smith, 1996).

As with the TPI instrument, results on the validity of the STAR Teacher Interview vary. The Haberman Foundation states that the STAR Teacher Interview has a 97% accuracy rating in predicting successful candidates and their retention. However, a study conducted by Baskin (1996) contradicts this statement. In Baskin's study, a comparison was done between STAR instrument selected teachers and their employment evaluations. The results of this study found that there was limited predictive validity with the STAR Teacher Interview (Allington & Johnston, 2000; Baskin, 1996; Klussman, 2004; Williams, 1999).

Interactive Computer Interview System (ICIS)

In terms of validity, structured interviews are superior to unstructured ones due to consistent and uniform questioning. However, in terms of flexibility and ability to adjust the line of questioning, structured interviews have greater limitations than unstructured. The need to combine the validity of a structured interview with the adjusting capabilities of an unstructured interview led to the development of the Interactive Computer Interviewing System (ICIS).

The questions asked by this interview tool are based on a conceptual framework that is the foundation of what is considered to be characteristics of high

quality teachers. There were two documents, Teacher of the Future and Praxis III: Classroom Performance Assessments, which were the catalyst for developing the questions used in the interview tool (see Appendixes A and B). Scoring rubrics for each question were then devised to assist with reliability (Ebmeier, 2003).

After completing the development of the questions and scoring rubrics, a computer program was written for two phases of the tool: the delivery or presenting of the questions and the manipulating of data once the questions had been scored. This resulted in a structured interview delivered through computer based software that eliminates much of the manipulation and wasted time caused by manually calculated analysis (Ebmeier, 2003).

The ICIS uses a laptop computer to allow the interviewer (principal) to focus on evaluating the applicant's (teacher candidate's) responses while the computer tracks the response patterns, suggests potential questions based on these response patterns, and constructs detailed summary reports to summarize the interview. In addition, the standard deviation for the subcategories in the interview system is visible at all times and is the measure used to determine when and whether a criterion has been met (Ebmeier, 2003).

One unique and essential feature of the ICIS is its ability to remember how the candidate answered previous questions; the program then uses this information to determine the subsequent questions. The ICIS is set up with the goal of efficiency. This goal is met because once stability has been achieved in the quality of the responses given, no further questions are asked in that particular category of question.

Prior to conducting the interview, the interviewer determines the minimum and maximum number of questions to be asked in each category; and, a minimum standard deviation is entered. Using this information, the computer poses only the number of questions needed to meet the parameters determined by the interviewer (Stevenson, 2005).

Because the ICIS is conducted by an interviewer using a laptop as opposed to being scripted by hand, documentation of answers offered by applicant is recorded efficiently. More importantly, computer assisted interviewing allows for the statistical analysis to be completed in real-time (Rowley, Barker, & Callaghan, 1986). It also reduces interviewer biases (Tull & Hawkins, 1987). This detail is crucial in that it allows the interviewer to focus on the scoring of the answers given rather than what questions should be asked (Ebmeier, 2003).

Purpose of the Study

For the sake of validity and accuracy, it is essential to determine whether biases exist within any interviewing or screening product. Biases in any test, survey or screening mechanism that evaluates human behavior automatically call into question the findings and results.

There is anecdotal evidence shared by some who have participated in structured screening interviews that a bias exists within some instruments against experienced educators. The belief exists for several reasons including the thought that because of the length of time since having participated in college instruction less knowledge of buzz words would negatively affect interview performance (Stevenson,

2005). Likewise, many college of education programs do an effective job of training teacher applicants on idealistic answers and therefore, scores on these interview instruments for experienced teachers would be negatively impacted.

In addition, subject area bias might also be present. As an example, does a language arts teacher with specialized training in speech and vocabulary development have an advantage over a mathematician? Would a performing arts teacher who is trained in audience perception tend to receive a higher rating than a physical education teacher? When looking within the content area, is the ICIS unbiased across subject area majors? The concern of experience, age, and content area is the basis of the question of this study.

For the ICIS to be effectively used in interviewing all teachers, then it is important to know whether there is any bias that might influence the overall scores. The primary objective of this study, therefore, is to determine whether there is a correlation between these factors and the score earned by candidates who are interviewed using the ICIS tool. If so, then revisions may need to be made to the instrument or to the scoring system to avoid this bias.

CHAPTER 2

Review of Literature

This chapter covers the following areas: the interview process itself, types and formats of interviews, a summary of the research conducted on validity of the interview formats, a brief review of the leading interview instruments used, a review of the implications of age and teaching (differences between novice and experienced teachers), content area selection and bias, and a summary of the interactive computer interview system.

The Interview Process

Many studies conducted through the years have found traditional interviews to have low validity and reliability (Mayfield, 1964; Wagner, 1949). Despite these issues, the interview is the most common hiring practice used in education. Applications, resumes, letters of recommendation, and credentials all play a role in an applicant acquiring (or not) a teaching position, but the interview is the primary tool administrators use in selecting applicants from a pool (Arvey & Campion, 1982).

Studies have shown that the traditional interview often has a lack of objectivity as rating and scoring of the interviewee varies depending upon interviewer's perspective. Specific, non-verbal cues like eye contact, hand shake, and fragrance can influence the outcome of the interview (Parsons & Liden, 1984). These factors and the question of validity and reliability have led to the development of many structured interview programs discussed later in this chapter.

While becoming such a popular choice in employee selection, much has been studied and suggested to improve the traditional interview process. For example, a study by Campion, Palmer, and Campion (1998) identified many structural suggestions to make these improvements: base questions on job analysis, ask the same questions for all applicants, limit prompting by the interviewer, engage in follow up questioning, use multiple ratings, use the same interviewer for every applicant, take detailed notes, and train the interviewer (Campion, Palmer, & Campion, 1998). Many of these suggestions are corrective in nature due to questions of legality surfacing about whether an interview is reliable enough to justify an employment decision (Pursell, Campion, & Gaylord, 1980).

The value of the interview when it comes to accurately selecting the best candidate has routinely been questioned, criticized, and even legally challenged. This has led to the pursuit of an interview format that eliminates the subjective nature of the traditional, unstructured interview to focus the interview to a degree that only the most critical and research based criteria are factors in applicant selection. More recent studies have found interviews to be valid and reliable (Huffcutt & Arthur, 1994; McDaniel, Whetzel, Schmidt, & Maurer, 1994). However, this increased validity is only applicable when the interview is structured: the structured interview is objective and standardized while the unstructured interview is subjective and inconsistent in nature (Arvey & Campion, 1982).

Types and Formats of Interviews Used

Traditionally, interviews have been described as either being structured or unstructured. The key differences between the two types of interviews are objectivity and the level of standardization. Unstructured interviews tend to vary in length, types of questions asked, and consistency amongst multiple applicants when compared to the structured interview.

The legality question is more applicable to the unstructured interview. With this interview format, the interviewer does very little preparation or planning for what criteria he/she is looking for to determine a successful interview. This not only questions the validity of candidate selection, but also questions how this interview could select the best teaching candidate when not all essential components of teaching could be asked and compared amongst multiple candidates.

The structured interview is constructed from consistent, predetermined questions that are job-related. More often than not, a structured interview would be rated or scored based on a rubric or scale that could be used to compare and rank multiple candidates. This provides standardization, reliability, and increased validity to the interview process (Pursell, Campion & Gaylord, 1980). From a legal standpoint, this also provides a process that is fair and equitable.

The branched interview format is a third interview format used in applicant selection today. This model, taken from computer adaptive testing programs such as the Scholastic Aptitude Test, is based on the concept of asking the candidates differing questions based on the responses to prior questions (Emley & Ebmeier,

1997). When using this type of interview, all candidates are typically asked the same initial questions. However, eventually the candidates are asked different questions as a result of answers the candidate provided earlier in the interview. The branched interview instrument is structured in that the various options available to the interviewee are constructed prior to the interview beginning. That is, the various options available when using the branched interview are established before the interview is conducted (Emley & Ebmeier, 1997).

Research completed in 2005 by Gary Stevenson showed the advantage and disadvantages of the various tools when comparing the three interview formats:

Advantages of the unstructured interview:

- The interviewer is able to ask follow-up questions in order to delve into particular areas of interest or areas that seem to need further exploring.
- Because of less rigidity in the format of the interview, the interviewee is most likely more at ease which would most likely result in them being more able to display their knowledge.

Disadvantages of the unstructured interview:

- The limitation of the unstructured interview is simply that the connection between its use and the hiring of quality teaching candidates is weak.
- Because human nature is at play and is so easily influenced by subtle nuances, the unstructured interview tends to be influenced greatly by the biases of the interviewee.
- Likewise, because of the very nature of the interview, the interview does not necessarily cover all elements and components of quality instruction.

Advantages of the structured interview:

- Research indicates it is better able to identify a quality instructor than a tool that is less structured.
- Personal biases are more substantially eliminated as a result of the same questions being asked of all candidates.

- Legality issues may be lessened as a result of the same questions being asked of all candidates.

Disadvantages of the structured interview instrument:

- Because of the rigidity of the interview, the person conducting the interview has no leeway or flexibility in giving the interview. Follow-up questions cannot be asked. Neither can there be any variation of the questions that are asked.

Advantages of the branching interview format:

- Some would argue the branched interview is more efficient than the structured interview because not all candidates are required to answer all questions.
- As a result of probing questions being asked, the interview is individualized in content in regards to the particular context of the vacancy as well as interview.

Disadvantages of the branching interview format:

- This interview is less structured and therefore research would indicate it is has a lower level of validity in identifying quality teachers.
- Because it is less standardized in regards to the same questions being asked of all candidates, the interviewer is more susceptible to legal challenges involving the fairness of the interview process used.
- This interview is less standardized than some and as a result the interviewer is more influenced by personal biases than with more structured interview formats.

The Validity and Reliability of the Interview

The question of validity and reliability of the employment interview has been studied for many years (Arvey & Campion, 1982; Eder & Buckley, 1988; Hakel, 1989; Harris, 1989; Schmitt, 1976; Ulrich & Trumbo, 1965; Wright, 1969). Initial studies found traditional, unstructured interviews to have low validity and reliability due to their unstructured, inconsistent nature (Mayfield, 1964; Wagner, 1949). More recent studies have given a more positive outlook on the question of validity and

reliability when the interview is structured (Huffcutt & Arthur, 1994; McDaniel, Whetzel, Schmidt, & Maurer, 1994).

Wagner (1949) suggested that standardizing the interview process would be one way of increasing the validity of the employment interview. Mayfield (1964) supported the findings of Wagner. His work found the validity of unstructured interviews to be questionable due to the lack of consistency and subjectivity of the interview. Analyzing the studies and literature of the past sixty years yields the conclusion that standardizing and structuring the employment interview improves the validity and reliability.

The overwhelming majority of validity studies have nearly unanimously supported the superiority of structured interviews over unstructured. There were differences in the studies they summarized and in the corrections they used for range restriction and unreliability, but their overall findings were similar. For example, Wiesner and Cronshaw (1988) analyzed 87 validity coefficients and found validities of .34 (.62 corrected) for structured interviews and .17 (.31) for unstructured interviews.

Wright, Lichtenfels, and Pursell (1989) reviewed 13 coefficients for structured interviews and found a validity of .27 (.35 corrected for unreliability only), which they compared to an estimate of .14 for unstructured interviews (J. Hunter & R. Hunter, 1984). Huffcutt and Arthur (1994) summarized 114 coefficients in relation to degree of structure and found that validity ranged from .11 (.20 corrected) for the lowest level to .34 (.57) for the highest level of structure. McDaniel, Whetzel,

Schmidt, and Maurer (1994) summarized 145 coefficients and found a validity of .24 (.44 corrected) compared to .18 (.33) for unstructured interviews. Finally, Conway, Jako, and Goodman (1995) summarized 160 reliability coefficients and showed that reliability was correlated from .26 to .56 with degree of structure. They also estimated that reliability placed an upper limit on validity of .67 for highly structured and.34 for unstructured interviews.

Review of Existing Interview Instruments

Teacher Perceiver Interview (TPI)

With a history of approximately forty years, Gallup's Teacher Perceiver Interview has been the most commonly used commercial teacher screening tool. Over 1,200 school districts have employed the TPI in recent years (Young & Delli, 2002).

Donald O. Clifton developed the TPI from an experience he had while leading a counseling program at the University of Nebraska. The counseling program's aim was to help undergraduates discover their potential. By having the counselor spend time with the student each week and evaluate the academic, social, creative, and leadership development of the student, it was thought that the student would develop their full potential (Selection Research Inc., 1990).

Based on the experiences stemming from the college counseling program, research was conducted that led to the believed conclusion that thought patterns differed between successful and unsuccessful people. Interviews were conducted and studied for the purposes of analyzing a person's thought patterns to determine what

made a person successful. The process was built into the original Teacher Perceiver Interview in 1971 (Chalker, 1981).

The interview was constructed around the notion of life themes. Questions were developed to fit the themes, and answer keys identifying key words were written (Chalker, 1981). The TPI then became an interview in which the administrator asks the applicant to respond to 60 open-ended prompts directly related to the themes. These themes are listed below:

1. Intrapersonal Theme

 Mission: The teacher sees education as the foundation for future life and wants to help children grow to improve society.

 Investment: The teacher's satisfaction in teaching is derived from the success of the students, and he or she is concerned when students do not succeed.

 Focus: The teacher has personal role models and goals that direct him/her in a purposeful direction professionally, and he/she sees teaching as a lifelong career.

2. Interpersonal Theme

 Empathy: The teacher understands and accepts a student's emotions and is able to perceive and respond directly to a child's immediate emotions.

 Rapport Drive: This teacher sees him/herself as a friendly person whom the students like. This teacher works to build strong mutual relationships with students and views this relationship as an essential part of the learning process.

 Listening: The teacher sees listening as a way to help others talk and believes the answer to a problem lies within the speaker.

 Objectivity: The teacher responds to the total situation and gets all information before responding.

3. Extrapersonal Theme

 Individual Perception: The teacher gets to know the needs and interests of each child and builds an individualized learning program based on this knowledge. The teacher provides a variety of activities in order for each student to express his/her creativity.

 Input Drive: The teacher is excited about his/her own learning and uses new acquired ideas to help others. This teacher is constantly seeking materials and knowledge from the outside to bring into the classroom.

 Activation: The teacher sees student successes as a key in helping students learn and knows and uses many ways to get students interested in the learning process.

 Innovation: The teacher is constantly looking for, or trying, new or different approaches to learning. The teacher assists students in the development of their creativity in order for the students to become actively involved in the classroom.
 Gestalt: The teacher is well organized with a drive toward completion, albeit a perfectionist. The teacher helps students develop a need for closure but does so by working from the students' level. (Ryan and Alcock, 2002).

In order to administer the TPI, an interviewer must achieve an 85% match on the same responses between the trainer and the trainee before certification from Gallup is given. In the assessor training, individuals are taught to listen for certain answers or phrases provided by the applicant. To determine their assessment, those administering the interview compare the candidates' responses to the answers given by outstanding teachers during the initial development and the subsequent updates of this interview instrument. Scores earned on the TPI can range from 0 to 60 for the complete version and from 0 to 22 for the abbreviated version. These scores can be translated into subject area themes: the full version producing 12 themes and the abbreviated version producing 10 of those same themes (Young & Delli, 2002).

Studies by Metzger and Wu (2003 & 2008) have raised questions regarding the TPI. The 2003 study consisted of a review of TPI literature that encompassed over 450 reports including 16 dissertations provided by Gallup, parent company of TPI. Only studies that provided Pearson correlation coefficient (*r*) statistics were used between the r of the total theme scores and the indicator of teacher quality. Reliability issues of the TPI occur with the identification and definition of individual TPI themes which have changed over time, raising concerns with the psychometric properties of the themes. The 2008 study was a meta-analysis of 24 correlational studies that concluded by raising questions about the TPI's effectiveness in a teacher

selection tool, "…the TPI does seem to measure something, but we are not convinced that what it measures relates meaningfully to what matters for teaching effectiveness." (Metzger & Wu, 2008).

STAR Teacher Interview

The Star Teacher Interview screening tool was created by Dr. Martin Haberman, professor of Education at the University of Wisconsin-Milwaukee. He designed a screening tool in part to remedy ineffective teacher training and poor hiring practices causing poor teacher retention (Haberman Foundation, 2008). Dr. Haberman studied teachers who were successful with at-risk students in these urban districts. His researchers interviewed teachers whom principals, parents, other teachers, and the urban students identified as being highly successful. From these interviews and studies, the researchers identified seven characteristics or traits common in these teachers. A structured, personal interview of approximately 30 minutes was designed to look for these effective characteristics in teacher candidates (Ryan & Alcock, 2002).

The seven characteristics found to be in common among the highly successful teachers Haberman identified through his research and subsequently looked for through use of the Star Teacher Interview include the following:

> **1. Persistence** – commitment to problem solving in the educational arena. Teachers with a high level of persistence continuously generate and maintain student interest while being quite successful at accurately perceiving problems.
>
> **2. Promoting Learning** – value learning over most anything else. Teachers who promote learning have sufficient and essential knowledge in their subject

matter to teach while also working to turn on their students to learning. They work to protect children from school bureaucracy.

3. Theory and Practice – are able to put generalizations and big ideas into practice by connecting ideas with actions. They work to grow through reflection and self-analysis.

4. Approach to At-Risk – have appropriate approaches in working with at-risk children. These teachers do not blame the students and tend to see school curriculum and methods as the problem. They genuinely care about students and find ways to involve them in learning no matter what children's out of school lives are like.

5. Professional Versus Personal – they help their students become self-directed learners by establishing close and supportive relationships with them. They model learning.

6. Burnout – they understand that bureaucracy is part of the school structure and burn out is part of the job. Therefore they find an appropriate balance of following the most important rules and ignoring those that don't matter. Because they are an expert at how school bureaucracy works, they find ways to establish a support network.

7. Fallibility – they confess to serious errors, understand their fallibility and realize there can be no learning without mistakes. These teachers tend to be tolerant of others' mistakes as a result.

Training for administrators using the Star Interview tool is available. Based on internal research posted on their website, there is a 97% accuracy rate in predicting which teachers will succeed (Haberman Foundation). However, a study of the STAR performed by Baskin (1996) reported limited predictive validity was established when scores earned by selected teachers on this interview were compared with the evaluation markings given to those same teachers by supervising administrators. Furthermore, a study by Frey (2003) discussed possible range restriction issues in terms of teacher retention with the STAR due to it only being an instrument used in initial teacher interview.

Omaha Teacher Interview

The Omaha Interview system was developed in the 1970's for the purpose of developing a research-based method of selecting high quality teachers (Thayer, 1978). The interview system was based on responses from students, teachers, parents, and administrators as to what qualities are needed in a candidate to be a high quality teacher (Mickler, 1985). Those qualities are listed below as eight themes that emerged from the responses:

1) **Relationship** – Does the teacher have strong listening skills, show patience and demonstrate caring? Does he/she see the development of relationships as the best way to help pupils grow and develop? If so, he or she has strong relationship skills.

2) **Democratic Orientation** – A teacher who has strong skills in this area tends to work out problems with pupils and sees the best type of supervision as being supportive and understanding. Tends not to approach things in an authoritarian manner.

3) **Rapport Drive** – Rapport drive is a teacher's ability to develop an approving and favorable relationship with each pupil. This teacher likes pupils and, in turn, wants to be liked by them.

4) **Empathy** – The empathetic teacher puts herself or himself in the other person's place. He/she understands the pupil's state of mind and as a result, seeks to feel what the student is feeling.
5) **Student Orientation** – This involves a belief that pupils ought to be heard, understood and dealt with as people first; and such things as curriculum, materials and public image would take second place.

6) **Acceptance** – The person with this quality accepts a person as is and helps from that point of view. It is neither a condemn nor condone approach. It has been defined as unconditional regard.

7) **Student Success** – The teacher receives satisfaction from the success of pupils and sees pupil success as fulfillment of his/her goal.

8) **Work and Professional Orientation** – This includes work organization, professional relationships and belief in his/her profession.

Once the themes listed above were established, a structured interview was constructed based on these eight themes. This interview was very similar to the TPI in that appropriate answers were preestablished and written. The Omaha Teacher Interview system was examined in three independent studies to determine whether it was an effective process to identify potentially successful teachers (Solomon, 1982). The studies were conducted with both elementary and secondary teachers in suburban, Midwest school districts during the summer of 1979. A correlation was calculated using the scores from the OTI and the districts' employee evaluation checklist. The checklist divided teacher traits into three categories: organization and instruction, professional responsibility, and personal attributes. An analysis of data found positive correlations, but they were not significant at the .05 level (Solomon, 1982).

Two additional studies, Brown (1986) and McGarity (1987), concluded that the Omaha system did not adequately distinguish and identify exemplary teachers. None of the studies were able to determine a significant difference in identifying teacher candidates who would be outstanding teachers by using the Omaha system as a district's means of interview selection. Questions as to its validity and reliability has led to it not being widely used today (Mickler, 1985).

Ventures for Excellence Interview

The fourth interview instrument discussed in this study is the Ventures for Excellence tool developed by Dr. Vic Cottrell. A former affiliate with SRI Gallup,

Dr. Cottrell founded Ventures for Excellence as another option in the structured interview product market for educational organizations (Robison, 2003).

The Ventures for Excellence tool comes in two formats: a 7 item paper screener and the 22 item structured interview. The tool is considered to be one of the most structured of interviews in that it strictly follows a set of predetermined questions for all applicants with no deviation from the format. The structured interview version of Ventures for Excellence is designed to elicit responses to questions from eleven distinct theme areas. These themes are shown in Table 2.1 on the next page (Robison, 2003).

Table 2.1

Themes from Ventures for Excellence 22-Item Teacher Interview

Theme #	Theme Name	# of Items	Domain
1	Positive	2	Purpose
2	Investing	2	Purpose
3	Committed	2	Purpose
4	Communicative	2	Human Interaction
5	Personable	2	Human Interaction
6	Compassionate	2	Human Interaction
7	Motivating	2	Teaching/Learning
8	Objective	2	Teaching/Learning
9	Generator of Alternatives	2	Teaching/Learning
10	Lesson Design	2	Teaching/Learning
11	Application of Learning	2	Teaching/Learning

As seen in Table 2.1 above, the Ventures for Excellence interview themes are arranged in three distinct categories. Themes 1-3 (positive, investing, and committed) are said to comprise the purpose category. Themes 4-6 (communicative, personable, and compassionate) are said to comprise the human interaction category. Finally, themes 7-11 (motivating, objective, generator of alternatives, and lesson design) are said to comprise the teaching/learning category (Robison, 2003).

There are several instructions and methods that interviewers are trained to follow with the Ventures for Excellence program. Very little conversation besides the questions and answers are to take place during these structured interviews, feedback is kept to a minimum (eye contact only), and the interviewer is instructed to maintain a professional, focused and business-like manner. Interviewers are also trained to listen for particular words or phrases in the responses given by the candidates being interviewed. These words and phrases are printed alongside the interview questions in the interviewer's handbook. Coding and scoring are accomplished by way of a minus, zero, or plus system (Robison, 2003).

The training and instructions for the Ventures for Excellence program are formatted in a three-day professional development training. Interviewers develop skills in coding interviewee's responses and checking for inter-rater reliability which is required prior to Ventures for Excellence certification of an administrator to use the 22-question instrument (Robison, 2003).

Interactive Computer Interview System (ICIS)

The ICIS is the result of work done by Dr. Howard Ebmeier at the University of Kansas and the American Association of School Personnel Administrators. This screening tool was commissioned for the purpose of improving some of the deficiencies found in the previously developed systems. The ICIS is based on a conceptual framework that is the foundation of what are thought to be characteristics of quality teachers (Ebmeier, 2003).

There were two documents, Teacher of the Future and Praxis III: Classroom Performance Assessments that served as the basis for question development (See Appendix A). Teacher of the Future is a compilation of nine areas of knowledge and eleven areas of skills needed by all teachers. This work was the result of a two-year review of existing literature and practitioner advice done by a national commission of school personnel officers (Ebmeier, 2003).

The second document that served as the basis for questions selected for use with the ICIS was the Praxis III: Classroom Performance Assessments (See Appendix B). This instrument was written for use with new teachers and their evaluation. Education Testing Service carried out the work that led to the writing of these assessments in collaboration with a group of practicing teachers over a ten-year period and under the direction of a National Advisory Committee (Ebmeier, 2003).

For the purpose of achieving content validity, questions used for the interviewing instrument had to measure constructs represented in both documents upon which the interview was based. After the questions had been written, they were sorted into four categories: Working with Others, Knowledge of Teaching, Knowledge of Content and Knowledge of Students. For the purpose of reliability, scoring rubrics for each question were devised. A computer program was then written to assist in the presenting of the questions and the manipulating of the data once the questions had been scored. This resulted in a structured interview delivered through computer-based software that was more efficient than hand figured analysis (Ebmeier, 2003).

The ICIS program is conducted via a laptop computer to allow the interviewer to focus on evaluating the candidate's responses while the computer completes three tasks: tracks response patterns, suggests potential questions based on these response patterns, and constructs detailed summary reports to capture various aspects of the interview (See Appendix C). The standard deviation of the answers given by the candidate for the four subcategories determines when and if criteria are met. This standard deviation is visible to the interviewer during the interview (Ebmeier, 2003).

As mentioned above the computer system is efficient due to scoring being conducted via a laptop computer. The computer program also has the ability to remember how the candidate answered previous questions and to use that information to determine the appropriate subsequent questions. The program is set up with the goal of efficiency and reliability. That goal is met with this program because once stability has been achieved in the quality of the responses given, no further questions are asked in that particular category of question (Ebmeier, 2003).

Prior to conducting the interview, the interviewer determines the minimum and maximum number of questions to be asked in each of the four categories. A minimum standard deviation is also determined and entered. Using this information, the computer poses only the number of questions needed to meet the parameters laid out by the interviewer. The ICIS instrument uses a branching interview technique; once a specified level of standard deviation has been achieved in one of the four categories, the instrument no longer pulls questions from that particular category.

The instrument then moves (branches) the questions to another one of the three categories (Ebmeier, 2003).

Numerous studies have been conducted to evaluate the ICIS (Allshouse, 2003; Beutel, 2006; Cook, 2009; Cox, 2006; Dennis, 2008; Dillon, 2006; Dugan, 2007; Hale, 2006; Longenecker, 2006; Reik, 2007; Springston, 2006; Stevenson, 2005; Weishaar, 2007). For the specific purposes of this section, two dissertations stand out as having foundational knowledge to consider: Allshouse (2003) and Stevenson (2005). Allshouse's study examined whether or not the questions used in the Knowledge of the Content theme truly predicted a prospective employee's level of content knowledge. Specifically, it sought to determine whether or not there were questions, in relation to content knowledge, that did not discriminate between those interviewing in their content area and those interviewing outside of their content area. That is, is there a correlation between those interviewing in their content area and those not interviewing in their content area? The study accomplished this by comparing how the interviewees scored on the Knowledge of Content portion of the ICIS (Allshouse, 2003).

The results of the work done in Allshouse's study showed a significant difference between the ICIS Knowledge of Content scores earned by those interviewing in their content area and applicants who were interviewing outside their content area. Those interviewing in content had a mean score of 2.846 with a standard deviation of .1897. Candidates interviewing out of content area had a mean score of 1.5542 with a standard deviation of .2422 (Allshouse, 2003). These results

indicate that the questions included in the Knowledge of Content section of the ICIS do indeed discriminate between those with greater knowledge of content and those without that knowledge.

A further finding of Allshouse's study that has implications for this study is the fact that it found that all but two questions required teaching candidates to have strong content area skills and not simply good teaching skills. This was determined by establishing the correlation between the scores to the answers given to each question. The results showed moderate to strong correlations existed between the scores given for each of the twelve questions except for two (Allshouse, 2003).

In another study done by Gary Stevenson, (2005) research was done to evaluate whether age or teaching experience influences the score earned by elementary teacher applicants when using the ICIS. Results from Stevenson's study determined that the correlation between the experience levels of the interviewees and the total scores earned on the ICIS interview was weak. His study found that age and experience matter, but not sufficiently to warrant adjusting the ICIS interview scores based on his findings (Stevenson, 2005).

The Difference Between Novice and Experienced Teachers

The first question that is the focus of this study is whether or not there is a difference in scores between novice and experienced secondary teachers when interviewed using the ICIS. Numerous studies have yielded consistent findings on differences in the thoughts and instructional practices of experienced versus novice teachers (Borko & Livingston, 1989; Leinhardt, 1989; Westerman, 1992). The Borko

and Livingston study (1989) looked specifically at secondary math teachers. This study found that novices showed their lesson planning to be more inefficiently time-consuming than experienced teachers. The novices also were more likely to encounter problems when responses to students led them away from scripted lesson plans. These differences were accounted for by the assumptions that novices' cognitive schemata are less elaborate, interconnected, and accessible than experienced teachers and that the novices' pedagogical reasoning skills are less developed (Borko & Livingston, 1989).

A study similar to this was conducted by Stevenson (2005) to consider the impact of age and experience on ICIS performance of elementary candidates. His study found that age and experience do indeed matter in elementary teachers, but probably not sufficiently to warrant adjusting the interview scores based on these two factors. Chronological age was found to be significantly less important among elementary principals than among middle and high school principals (Wede, 1996).

A teaching candidate's age and experience definitely have an impact on teacher selection. The question is whether this impact is positive or negative. The perceived advantage or disadvantage could depend on the administrator considering the applicant pool: one administrator could prefer a young candidate with no set expectations or habits while another administrator wants a candidate who has a set of experiences and practices already in place before hiring. Research has verified these mixed results in that studies which sampled administrators in Montana (Hills, 1976), Kentucky (Polsgrove, 1979), and Indiana (Buffie, 1979) indicated that teaching

experience had a positive impact on selection. At the same time, another group of studies revealed just the opposite effect. Kronnick (as cited in Young & Allison, 1982), for example, stated, "experience will work against you". Snyder (as cited in Young & Allison) wrote "…a beginning teacher has an advantage over the experienced teacher.".

One study that looked at three groups of teachers and their ability to recall specific student behaviors in the classroom was done by Allen and Casbergue (1997). The three participant groups of teachers consisted of four novices (just beginning their teaching), five transition (1-6.5 years of experience), and three experts (10-30 years of experience). The teachers were observed teaching one class period and then interviewed immediately following to recall two behaviors: their own and their students'. The researchers were trying to determine what impact experience has on accuracy and thoroughness of teachers' recall.

When comparing the interviews with the researchers' observations, they found that the novice group's accuracy and thoroughness of recall of their own behaviors clustered around 47%; and, accuracy and recall of their students' specific behaviors clustered around 40% when compared with the researcher's recorded observations. The transition groups' accuracy and thoroughness of recall of their own behaviors clustered around 71%; and, recall of their students' behaviors clustered around 76% when compared to the researcher's recorded observations. Finally, the expert groups' general recall clustered at 52% for their own behaviors and at 48% for their students' behaviors. The expert group statistically appeared similar to the novice group in

accuracy and thoroughness. However, the study noted that when asked to elaborate, the expert group was generally able to give specific detail (Allen & Casbergue, 1997).

The discussion of the Allen & Casbergue study emphasizes that there are differences in accuracy and thoroughness of recall in the stages of experience amongst teachers. The emphasis is placed on difference rather than superiority of experience. If the study was considered by its exact statistical results, the findings would lead the reader to believe that the transition stage (1-6.5 years of experience) might be the most accurate and thorough group to look at when considering teaching applicants. However, a study by Borko and Livingston (1989) found that novice teachers have limited ability to reflect and analyze when compared to experienced teachers.

The relevance in the Borko study was not only the difference in novice versus experienced teachers, but also that the authors were looking at cognition and improvisation in a specific content area (mathematics). Borko and Livingston found that novices showed more time-consuming, less efficient planning while also encountering problems when attempts to be responsive to students led them away from scripted lesson plans. Novices were much less able to adjust their instruction based on the needs of their students and resisted the call to deviate from their plans (Borko & Livingston, 1989). While these findings may be more relevant to professional development than personnel selection, they do show research has found inherent differences between novice and experienced teachers.

Improvisation (ability to shift focus) and planning on the part of the expert teachers was also superior to the novices' skills in these areas. The expert group had the ability to stay focused on lesson objective, answer student questions, and bridge questions and distractions back to lesson or objective (Borko & Livingston, 1989). Although the sample size in this study was small and examined only one content area, the implications this has towards the validity of ICIS is whether this ability, due solely to experience, skews results on the ICIS towards favoring experience.

The Importance of Content Specialization

When examining potential age and experience bias with secondary teachers, a second, possibly of equal importance, question surfaces: what validity issues does the ICIS have in regards to content and subject area. That is, could this interview tool lead an administrator to potentially grade a math teacher lower when compared to a language arts teacher with vast curriculum experience in forensics or speech?

When considering teaching applicants, administrators consider content area knowledge a critical factor in hiring. The knowledge teachers have and the verbal ability to instruct using this knowledge is the basis for student learning (Berliner, 1996). Special education, math, and science have all been content areas with fewer qualified applicants. It is imperative that the ICIS be accurate and valid in the ratings given to applicants for purposes of ranking the applicants.

CHAPTER 3

Methodology

There were three purposes of this study. The first two were to determine whether teaching experience and age are associated with the score attained by secondary candidates who are interviewed using the AASPA Interactive Computer Interview System (ICIS). That is, do experience and age contribute to a better score? Or more specifically, does the lack of experience or youth give a candidate an advantage over another more experienced or older candidate?

The third purpose was to determine whether the content area of the applicant is associated with the score attained by the ICIS. In short, is there a bias towards a specific content area that would lead these applicants to a better score? For instance, would the verbal skills of a language arts teacher be associated with the outcome in a positive direction? This knowledge would aid in providing an accurate rating for candidates when the factor of content area training and experience, and its potential impact on ICIS score, is known.

With the creation and consideration of an interviewing system such as the ICIS, it is essential to determine whether biases exist within the interviewing tool. Biases in any test, survey or screening mechanism raise questions about the validity of the findings and results. If the ICIS is to be effectively used for interviewing and selecting all teachers, then it is important to know whether there is a bias that might influence the overall scores. In this case, the factors to be considered for potential bias are age, experience, and content area training of teaching candidate. By

identifying the difference in scores earned by multiple content area secondary teachers with varying degrees of experience and also various ages, the potential bias, if in existence, will be determined and the authors of this instrument will be able to make adjustments in order to eliminate this bias.

This chapter begins with a description of the development of the Interactive Computer Interview System (ICIS). Many studies have been conducted recently to consider the bias and accuracy of the ICIS in regards to specific professional areas: elementary teachers, counselors, paraprofessionals, and special education teachers. This study is specifically designed to consider interview ratings of candidates for secondary teachers in regards to age and experience as well as content area taught. Other topics in this chapter include a description of the population studied, sampling methods as well as the design and analysis of the study.

Development of the Interactive Computer Interview System (ICIS) [1]

As previously discussed in studies by Stevenson, Dugan, and others, the ICIS was developed and questions were selected based on research from two documents derived from national studies. The findings of the first publication, *Teacher of the Future*, came about as a result of the work done by a national commission of school personnel officers. Nine areas of knowledge and eleven areas of skills needed by all teachers were identified by the commission after conducting a two-year review of

[1] Much of the material in this section was taken directly from or paraphrased from the AASPA Interactive Computer Interview System Technical Manual written by Dr. Howard Ebmeier obtained from www.AASPA.org.

existing literature and practitioner advice. In order to measure the essence of these knowledge and skill areas, interview questions were then constructed.

The second document used as a basis for the interview questions was the *Praxis III: Classroom Performance Assessments*. Developed to be used with beginning teachers for a variety of evaluation purposes, such as licensure and professional development, the *Praxis* builds on a base of knowledge of general principles, content and its organization, and other specific knowledge and skills necessary for effective teaching. Education Testing Services (ETS), under the direction of a National Advisory Committee, and in collaboration with a group of practicing teachers, carried out the research and development that led to the creation of these assessments. Nineteen assessment criteria, organized into four interrelated domains, form the content core of *Praxis III*.

The questions written for use in the AASPA instrument were required to measure constructs important to both the *Praxis III* and *Teacher of the Future* documents for the sake of content validity. This ensured that two national commissions had identified each concept measured by the interview instrument as critical to teaching excellence. Once all questions had been constructed, they were grouped into four clusters with each question being assigned to just one cluster. On the following page, Example 1 displays the thematic areas as well as the number of possible questions (minimum and maximum) for the short, normal and long version of the ICIS.

Upon completion of the writing of the questions, scoring rubrics were developed for each question in order to assist with reliability. Before the actual writing proceeded, however, an overall framework for effectiveness/ineffectiveness in each of the four cluster areas was first constructed. Descriptions of effective/ineffective practice were based primarily on the process-product research conducted over the last 30 years.[2]

Using the descriptions of effective/ineffective practice as well as guidance from the two documents, scoring rubrics were constructed for each question as illustrated in Example 3.1.

Example 3.1

Question and Rubric for Scoring the Answer

Q: What are the main ingredients for creating positive classroom relationships between teachers and students?

Level 3 Applicant stresses a genuine concern for caring and respect for individual students. Includes several methods for developing mutual respect and rapport among the teacher, student, and peers.

Level 2 Applicant mentions that care and respect between the teacher and student are important but less certain about how to achieve these ends.

Level 1 Applicant states that relationships between the teacher and students are less important than control and order.

[2] *...nd Abuses*, Institute for Research on Teaching, College of Education, Michigan State University, East Lansing MI: Jere Brophy, Evertson, Anderson, Baum, and Crawford (1981). *Student Characteristics and Teaching*, Longman, New York; Jere Brophy and Thomas Good, (1984). *Teacher Behavior and Student Achievement*, Institute for Research on Teaching, College of Education, Michigan State University, East Lansing, MI; Michael Dunkin and Bruce Biddle (1974). *The Study of Teaching*, Holt, Rinehart, and Winston, New York; Andrew Porter and Jere Brophy, (1988). Synthesis of Research on Good Teaching: Insights from the Work of the Institute for Research on Teaching, *Educational Leadership*, 45(8), 74-85; Carol Dwyer, (1991). *Toward High and Rigorous Standards for the Teaching Profession (3rd ed.)* National Board for Professional Teaching Standards, , Detroit, MI

Upon completion of the questions and related scoring rubrics, software from *Macromedia, Authorware,* was used to write a computer program that would present and manipulate the questions and responses. This computer program has the ability to remember how the candidate answered previous questions and to use that information to select new questions from the bank. After each response, this unique feature allows the computer to calculate the standard deviation for the series of questions on a particular scale. After a fixed number of responses (dependent on the version selected) and once the standard deviation is less than 0.6, the program assigns a score for that particular theme area and moves to the next theme area. For example, if the candidate gave very strong answers to three questions in a row on the Knowledge of Content area scale, it is very likely additional questioning in this area would continue yielding additional strong answers. Rather than gathering redundant information, the computer program (based on an analysis of the standard deviation) moves to questions from a different theme area. If, however, the candidate's responses are varied with some strong answers and some weak answers, the computer program will continue to generate questions in that theme area until stability is obtained or a fixed number of questions have been asked.

Administration

Use of this computer-based interview system is similar to using a paper-based system with a few exceptions. After being asked by the computer to select the desired version of the interview (short, normal, or long) as indicated in Example 1, one begins the interview in the normal fashion and reads the first question from the computer screen (instead of a paper document.). Once the response given by the candidate has been compared to the scoring rubric, the interviewer selects the rubric level (1, 2 or 3) that best aligns with the candidate's answer and enters his or her evaluation into the computer. If the interviewer determines that the question is not applicable or the candidate's response does not answer the question, the interviewer can request another question. After the answer is scored, another question is then randomly selected from the bank of questions measuring that theme. Questions, however, are never repeated.

This process continues until the minimum number of questions has been answered and stability has been achieved. If the evaluations of the candidate's answers are still varied after the minimum number of questions have been answered, the program continues to offer questions in that same theme area until stability has been achieved or the maximum number of questions have been asked (depending on the version selected initially). It then proceeds to the next theme area and repeats the process. At the conclusion of the session, the interviewer can enter any information he or she wishes by using the keyboard. This information will be included as part of the printout and future database.

Subjects, Setting and Procedures

The teacher participants in this study were recruited from a large suburban district with a student enrollment of approximately 26,000 students and 3200 certified staff. Fort-eight subjects participated in this study (n = 48). The subjects were all secondary teachers and had taught a varying number of years. Twelve subjects were selected from four major content areas: math/science, language arts/social sciences, performing/fine arts, and health/physical education. The district human resources and technology departments identified the teachers currently teaching in the district who had taught between one and five years, between six and 10 years, between 11 and 15 years, between 16 and 20 years and finally, between 21 and 25 years. A chart of random numbers was used to randomly select teachers from each content area grouping within these five age groups. Forty-eight participants were then asked to participate in this study.

Forty-eight initial letters were sent to selected candidates. Of the original forty-eight requests, thirty-five responded favorably. Additional teachers were randomly selected from the specific age and content groups in which interview slots remained unfilled. Slots were filled with teachers randomly selected from human resources until the study had twelve participants in each content area group with equal variation in regards to age and experience.

Interviews were conducted over a three-week period and were completed by the researcher. Before conducting the interviews, the researcher was trained on the interview process and scoring procedure. Interviews took place both in person and over the phone, lasting approximately thirty minutes in length. Permission was

obtained from each school and the participant. In all, there were eight secondary schools participating: two high schools (grades 10-12) and six junior high schools (grades 7-9). Three versions of the ICIS (long, normal and short) are available. For this study, the normal version of the ICIS was used.

Norming of scores was conducted through the use of videotape responses to a sampling of interviews. An objective of ninety percent accuracy and agreement of scores with the intended responses was obtained through repeated training with the system provided by the AASPA Interviewer Training System.

Design and Analysis

The primary purpose of this study was to ascertain whether the factors of teaching experience, age, and content area influence the score earned by secondary candidates who are interviewed using the AASPA Interactive Computer Interview System (ICIS). That is, do any of the mentioned factors account for a marked advantage or disadvantage when being compared amongst candidates?

To accomplish this objective, the relationship among the average scores attained by the teachers when being interviewed using the ICIS tool were examined. A simple Pearson correlation was used to determine whether or not there is a relationship between the age and experience and the ICIS score attained. For the question of content area and performance results on the ICIS, an ANOVA was used to compare the means of the differing content area scales of the teachers.

CHAPTER 4

This study examined scores obtained by secondary teachers on the ICIS tool in relationship to three factors: experience, age, and subject matter content area. The objective of this study was to determine whether these factors influence the score earned by candidates who are interviewed using the ICIS tool. That is, does experience, age, and content area taught have an impact on the score; and, if it is determined that these factors do have influence, is there a negative or positive impact from each of the individual factors? This chapter focuses on analysis and interpretation of the data collected from the interviews in an attempt to answer these questions.

Descriptive Statistics of the Sample

The age range of the 48 interviewees was from 25 years old to 65 years old with an average age of 39.1. The range in years of teaching experience among the interviewees was from 1 to 39 years of instruction. Out of the forty-eight total subjects interviewed in the study, there were 22 male teachers (45.8%) and 26 female (54.2%). Of the 48 subjects, 47 were white (98%) and one candidate was black (2%). The candidates were split evenly across the four content area groupings (language arts and social studies, math and science, physical education and health, and fine arts). The fine arts group contained teachers of vocal music, instrumental music, visual art, and performing art. There were 12 candidates interviewed from each of the four groups in this study.

Procedure

First, approval to conduct this study was received from the school district after a letter request was submitted (see Appendix D). Once this approval was granted, a list of potential interviewees was created to develop the needed age, experience, and content area candidates. This was completed with the help of the human resources department and the principals of the twelve secondary schools within the district. This candidate list was disaggregated by years of experience and content area. Using this list and a random number generator, 60 teachers were selected and a letter inviting them to participate was sent.

Positive responses were received from 48 of the 60 teachers who were invited to participate in the study. A target number of 12 teachers per content area cluster were needed; in order to achieve this number, randomly numbered teachers in the content areas with need were pulled to get the total number of teachers interviewed to 48. A copy of the consent form approved by the University of Kansas Human Subjects Committee can be found in Appendix E.

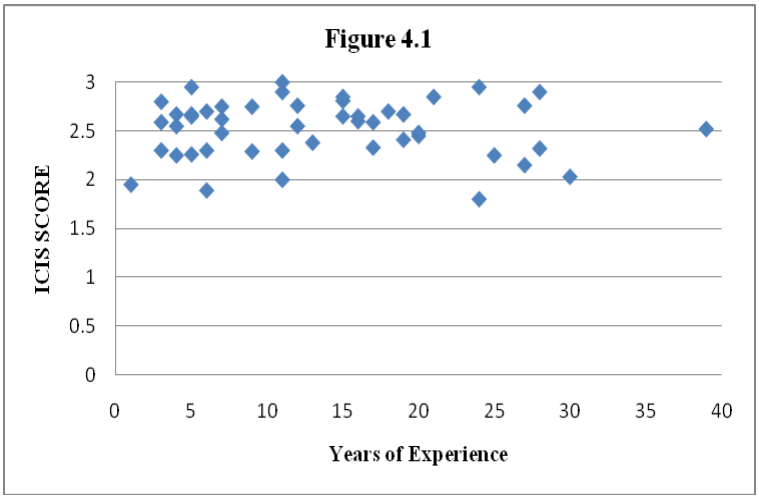
Once a list of 48 teachers willing to participate in the study was generated, interviews were scheduled and then conducted. Interviews were conducted over the phone (n = 18) and in person (n = 30). All interviews were conducted by the researcher, who underwent training on the use of the ICIS instrument. The total scores and the standard deviation of each score earned by the 48 candidates as well as the scores earned in the cluster areas are summarized and displayed in appendix F.

Results

The first purpose of this study was to examine the extent to which experience and age are related to the score earned on the ICIS interview for secondary teachers in general. To determine whether a relationship existed between experience and scores earned on the ICIS interview, a scatter plot was produced. This served to determine whether there was a relationship, and if present, whether it was linear. The scatter plot can be examined in Figure 4.1 below. The scores earned by the interviewees on the ICIS interview are represented on the "Y" axis while the years of experience of the interviewees are represented on the "X" axis.

Figure 4.1

Scatter plot of Interviewee Years of Experience and Corresponding ICIS Score:



A scatter plot is useful for displaying trends and comparisons in the data amongst the two variables. The more closely these two variables are related the more the points in the scatter plot will produce a straight line. A perfect relationship between the two variables will form a perfectly straight line. If the data points make

a straight line with a positive slope, then the variables are said to have a positive correlation. This means that as one variable goes up, the second variable changes positively in proportion. If the line has a negative slope, the variables have a negative correlation. This means that as one variable goes up, the second variable goes down in proportion to the increase in the first.

Interpretation of Figure 4.1 shows that the data do not produce points in a straight line. Instead the points are scattered throughout the graph in a way that suggests very little relationship exists between the two variables. It should also be noted that the points on the scatter plot are placed in such a way as to indicate the scores earned on the ICIS do not move up or down as the years of experience increase. Figure 4.1 shows us that by observing the scatter plot, we have at best a weak linear relationship.

For the next step, the Pearson correlation coefficient was calculated. This is computed in order to get an analytic measure of the linear association between two variables. The numerical value of this formula will always fall between -1 and +1. The closer the value is to either -1 or +1, the stronger the linear relationship between the two variables. If the value is absolute zero, then the two variables are said to not be linearly related.

The Pearson's r was calculated for the experience levels of those interviewed with the ICIS tool and the scores earned by those same interviewees, the Pearson correlation for these two variables was -0.03293. This leads one to indicate that a very weak negative relationship may exist between these two variables. This can be

interpreted to mean that as one variable rises in value, the other one decreases. However, because the numerical value of this correlation was so close to zero, a test of hypothesis was conducted to determine whether a correlation existed. This test of hypothesis was a t-test with the null hypothesis being there is no correlation (r is essentially zero) versus the alternate hypothesis that there is a correlation (a relationship does exist between the two variables).

This test resulted in a p-value being 0.83 which was much higher than the usual alpha of .05. This means that the null hypothesis is not rejected because sufficient evidence does not exist to say this correlation value is different from 0. This again demonstrates that there is not a significant relationship between the experience level of the candidate and the score he or she earned on the ICIS interview.

As described in chapter 3, the ICIS interview tool is structured into four categories of questions known as "clusters". These clusters are: Working with Others, Knowledge of Teaching, Knowledge of Content, and Knowledge of Students. Each individual question is assigned to only one cluster. The report created at the conclusion of the interview (by the ICIS program) gives an overall score for the interview, as well as a score for each of the four clusters. The next step of this study was to see if a relationship existed between experience and any of the four clusters. To determine whether this relationship exists, a Pearson correlation coefficient was calculated for each as seen in table 4.1 on the next page.

Table 4.1

Pearson Correlation Coefficient for Years of Experience and ICIS Scores

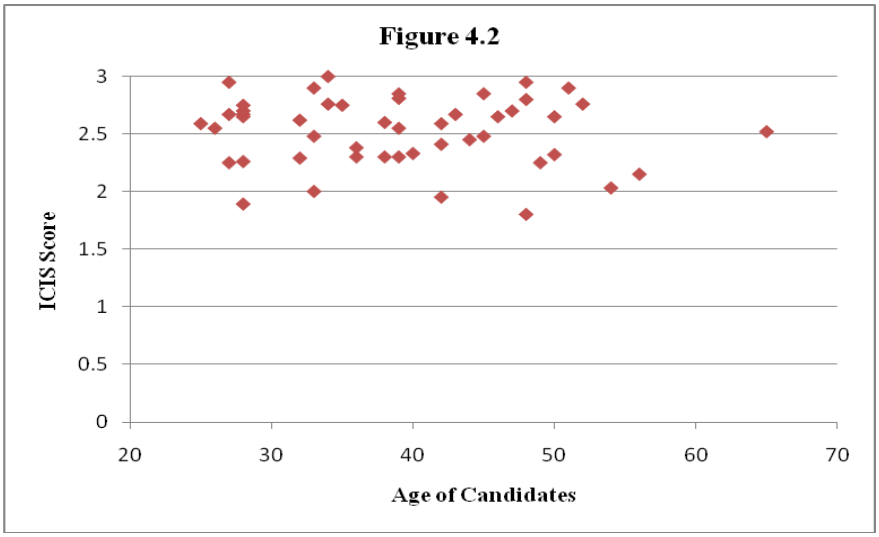
ICIS cluster	Pearson Correlation Coefficient	P-Value
Cluster 1 – Working with Others	0.044	0.76
Cluster 2 – Knowledge of Content	-0.042	0.78
Cluster 3 – Knowledge of Teaching	-0.022	0.88
Cluster 4 – Knowledge of Students	-0.089	0.55
Total ICIS Score	-0.033	0.83

For all four clusters, the t-test produced a p-value that is much greater than the acceptable alpha error of 0.5, thus indicating sufficient evidence does not exist to show that the Pearson correlation coefficient is different from zero. Therefore, this demonstrates that there is not a significant relationship between the experience level of the candidate and the score he or she earned on the ICIS interview.

As with the study of the experience variable, a scatter plot was produced to determine whether a relationship exists between age and scores earned on the ICIS interview. This would also determine whether the relationship (if it existed) was linear. The scatter plot can be examined on the next page with Figure 4.2. The scores earned by the interviewees on the ICIS interview are represented on the "Y" axis while the ages of the interviewees are represented on the "X" axis.

Figure 4.2

Scatter plot of Candidate Age and Corresponding ICIS Score



As seen in Figure 4.2, while the points are not plotted in a way that forms what initially appears to be a somewhat straight line, upon closer inspection there appears to be a trend in that the ICIS scores drift slightly downward as the age of the interviewees increases. By initial visual inspection this indicates the possibility of a weak negative linear relationship.

As with the variable of experience, a Pearson correlation coefficient was calculated in order to examine the linear association between two variables (ICIS score and age) from a more analytic perspective. When the Pearson's r was calculated for the age of those interviewed with the ICIS tool and the scores earned by those same interviewees, the Pearson correlation for these two variables was -0.08721. While this number indicates a fairly weak relationship, a test of hypothesis was conducted to determine whether this correlation was significant or not. This test

was a t-test with the null hypothesis being there is no correlation versus the alternate hypothesis that there is a correlation between the two variables.

This test resulted in a p-value being 0.56 which was higher than the usual acceptable alpha error of .05. This means that the null hypothesis is not rejected because sufficient evidence does not exist to say this correlation value is different than zero. Once again, this demonstrates that there is no significant relationship between the age of the candidate and the score he or she earned on the ICIS interview.

The next step in the study was to look at the variable of age in relationship to each of the four clusters: Working with Others, Knowledge of Teaching, Knowledge of Content and Knowledge of Students. As with the variable of experience, in order to see if a relationship existed between the four cluster scores a Pearson correlation coefficient was calculated for each. As seen in table 4.4 below, the conclusion was the same for each of the clusters in that the t-test provided a p-value that fell well above the usual alpha of .05, rejecting the null hypothesis. Sufficient evidence does not exist to show the Pearson correlation coefficient to be different than zero for any of the four clusters.

Table 4.2, on the next page, shows the data of the four clusters, as well as the overall ICIS correlation p-value of the pool when considering the variables of ICIS score achieved and age of the candidate.

Table 4.2

Pearson Correlation Coefficient for Age of Candidate and ICIS Scores

ICIS Scale	Pearson Correlation Coefficient	P-Value
Working with Others	-0.119	0.42
Knowledge of Content	-0.078	0.60
Knowledge of Teaching	-0.038	0.79
Knowledge of Students	-0.101	0.49
Total ICIS Score	-0.087	0.56

The correlation statistics calculated for the variables of age and ICIS score obtained by candidates shows that no significant relationship exists between the two. All four of the individual clusters rendered a negative relationship between the variables. That is, the scores initially appear to slope negatively (go down) as the age of the candidate increases. Correlation gives the measure of magnitude and direction between correlated variables. If a relationship is found to exist, it is important to determine if that relationship is strong enough to predict the dependent variable when the independent variable is known. While the fact that the dependent and independent variables are correlated does not necessarily mean causation exists, it should be determined whether the relationship is strong enough to allow prediction. Regression is the statistical procedure used to examine causation in a relationship among variables. Simple linear regression is the process that assesses the contribution of one variable in relationship to the other.

In order to determine whether the linear relationship between the ICIS scores and the age of the interviewed candidates was strong enough to predict scores based on the interviewee's age, regression analyses were completed. The results of these analyses show the slope of the line of regression is -0.00274 while the r value in the regression is .08. The r-square is very low at 0.007. This calls into question the usefulness in making accurate predictions of individual ICIS scores based on age because the r-square indicates what proportion of the variation of the response variable (ICIS score) is explained by the explanatory variable (age) in the linear equation. The model accounts for less than one percent (0.7%) of the unexplained variation.

Regression analyses were then conducted using both the variable of experience as well as age with the ICIS scores earned by the interviewees. This model produced an r value of 0.033 and the value of r-square was 0.001. Once again, given such a low r-square value which describes how much of the variability it explains, the usefulness of these results is minimal. Based on the results of the regression analysis, it appears age and experience does not contribute to the score earned on the ICIS for secondary teachers.

The second primary consideration of this study was to determine whether there is a relationship between the content area taught by an interviewee and the score he or she earns on the Interactive Computer Interview System. As discussed earlier in this chapter, the interviewees were split evenly amongst four content area groupings. Group one was language arts and social studies, group two was math and

science, group three was physical education and health, and group four was fine arts. The fine arts group contained teachers of vocal music, instrumental music, visual art, and performing art. There were 12 candidates interviewed from each of the four groups in this study.

Table 4.3

ICIS Group Scores	N	Mean	SD	V
Language Arts & Social Studies	12	2.60	0.23	.054
Math & Science	12	2.47	0.27	.073
Physical Education & Health	12	2.38	0.36	.131
Fine Arts	12	2.62	0.27	.073
TOTAL	**48**	**2.52**	**0.29**	**.089**

The mean ICIS score for the fine arts group was the highest of the four groups at 2.63, the language arts/social studies was second with a mean score of 2.60, the math/science group had the third highest score with 2.47, and the lowest mean score was that of the physical education group at 2.38. But are these differences statistically significant? According to the ANOVA test result F = 1.89. With a critical value of .05, the critical F equaled 2.82. Therefore, since the F statistic is smaller than the critical value, the null hypotheses that the scores between the four groups are the same is not rejected. The differences in scores with these group samples appears to be due to random sampling error and normal variation.

CHAPTER 5

Discussion

The purpose of this study was to determine the influences of three factors (age, experience, and content area) on the score earned by secondary teaching candidates who are interviewed using one specific educational interview tool: the Interactive Computer Interview System (ICIS). Based on the data collected and the statistical analyses, it is apparent there is not a relationship between the age, experience, and content area of the candidate being interviewed and the score he or she earns on the ICIS interview. These findings are also supported by prior work of Ebmeier and Ng (2006), Shirk (1997), Evans (2003), Allshouse (2003), Longenecker (2005), Cowens (1999), and Emly and Ebmeier (1997) all of whom used similar methodologies and instruments to identify effective general education teachers. Collectively, these studies combined with the present study support the notion that selection instruments based upon job related criteria and containing clear scoring rubrics can be very useful.

Although this was the first study conducted on the relationship between the ICIS score obtained and the content area taught by secondary school teachers, a similar study was conducted by Stevenson (2005) to consider the potential relationship between age and experience of elementary school teachers and the score earned on the ICIS. Although Stevenson's study did not detect any statistically significant age bias with secondary teachers, his analysis did conclude that age and experience matter with elementary teachers, but not sufficiently to warrant adjusting

the interview scores based on the two factors of age and experience. Other studies have recently been completed regarding bias due to gender (Lee, 2006) and race (Dennis, 2007) with both studies finding little to no difference in gender or race in regards to score earned on the ICIS.

Based on the statistical analysis of the data collected for this study, it appears the factors of age and experience have no statistical relationship to the score obtained on the ICIS by secondary school teachers; furthermore, while there were differing scores amongst the four content scales of these teachers, this difference in mean scores of the four content area scales appears to be due to random sampling error and normal variation.

Limitations

Several limitations are present in this study. The most significant limitations relate to the sample used. Only 48 teachers were interviewed for this study. Of the 48 teachers, all were Caucasian except one, and all were from the same suburban district in Kansas. Although the sample size was appropriate for the age and experience variables, the content area variable broke the 48 candidates into scales of 12; which could have been improved to 20-30. Due to the small sample size of the individual scales and lack of diversity in the sample as a whole, the results of this study may be questioned due to sampling error.

A second limitation to this study is that all of the teacher "candidates" interviewing for this study were already employed by the same district. In addition, the person doing the interview was one principal from the very same district. This

calls to question the motivation, quality, and authenticity of the interview performance on the interviewees' part. To counter this limitation and make the findings potentially more meaningful, one could conduct this study using actual screening interviews. Also, it is important to recognize that the ICIS instrument was designed to identify teachers considered effective by principals or central office administrators. It was not constructed to consider any other predictors of what makes a quality teacher such as state assessment scores, parent/student surveys, and performance that is not measured in a thirty minute interview.

Recommendations

It would be recommended that to counter the sample pool limitation, further studies should consider a larger sample within each content area scale from a diverse, possibly urban, setting. This sample pool would possibly answer any questions in regard to diversity and geographic location of the teachers selected. The second limitation was the fact that all of the subjects interviewed for this study currently held jobs. This point eliminates the candidates in an actual interview process that did not advance past the interview. A study that uses actual candidates seeking employment would possibly give depth to the question of interview motivation and sample pool accuracy in studying the impact of content area, age and experience in regards to ICIS score earned by secondary teaching candidates.

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APPENDICES

APPENDIX A

QUESTION ALIGNMENT TO TEACHERS OF THE FUTURE DOCUMENT

Question Alignment to Teachers of the Future Document

Critical Knowledge Needed by Teachers

1. Know the subject(s) they teach and how they are related to other subjects	KTP1, KTI1, KC1, KC2, KC3, KC5, KC6, KC7, KC8, KC9, KC10, KC11, KC12
2. Know how to teach the subject(s) to students	KA8, KTD1, KTD6, KTA1
3. Know how to assess student progress on a regular basis	KTD8, KTA4, KTA5, KTA6
4. Know how to plan lessons in a logical sequence	KTP2, KTP4, KTP6, KTD2, KTD7, KS1
5. Know how to reflect on their teaching and devise ways of improving it on an ongoing basis	KTA2, KTA7, KTA8
6. Know how to collaborate with other educators to create the most complete educational environment possible for students	WO1 (also covered in 3S below)
7. Know how to use technology available to us today, at an intermediate level minimally	
8. Know and appreciate various cultures, and the larger global society and how to establish rapport with a diverse population of students and parents	WO2, KTD5
9. Know how and where to get needed information and how to educate students to seek and evaluate information	KC4

Critical Skills Needed by Teachers

1. Ability to recognize and respond to individual differences in students	KTD3, KTI3, KTI4, KTI5, KTI6, KS2, KS4, KS6, KS10
2. Ability to implement a variety of teaching methods that result in high student achievement	KTP5, KTP7, KTC8, KS5, KS11, KS12
3. Ability to work cooperatively with parents, colleagues, support staff and supervisors	WO4, WO5, WO6, WO11, WO12
4. Ability to display genuine love of teaching students (enthusiasm)	KTP7, KTC1, KTC4, KTC5,

	KTC6, KTI7, KTI9, KTI10
5. Ability to implement full inclusion techniques for special education students	KS7, KS8 (also number 1K above)
6. Ability to differentiate instruction for variety of developmental stages and ability levels	KTA3, KS3, KS9
7. Ability to write, speak and present well	
8. Ability to develop critical thinking skills with students	KTP3, KTD4, KTI8
9. Ability and willingness to relate to parents and other community members, individual and corporate, in a positive and helpful fashion	WO7, KTD4, KTI8
10. Ability to know and utilize technology in the teaching and learning process	
11. Ability to implement conflict-resolution strategies for both adults and students	WO3, KTC2, KTC9, KTC3, KTC7, KTC2,

WO - Working with others
KTP- Knowledge of teaching-planning
KTD - Knowledge of teaching-delivering instruction
KTI - Knowledge of teaching-interactions with students
KTA - Knowledge of teaching-assessment
KTC - Knowledge of teaching-climate
KC - Knowledge of the content field
KS - Knowledge of students

APPENDIX B

QUESTION ALIGNMENT TO PRAXIS III DOCUMENT

Question Alignment to Praxis III Document

Domain A: Organizing Content Knowledge for Student Learning

1. Becoming familiar with relevant aspects of students' background knowledge and experiences	WO2, KTC7, KC4, KS3, KS4, KS5, KS6, KS10
2. Articulating clear learning goals for the lesson that area appropriate to the students	KTP4, KC1, KC2, CK3, KC5, KC6, KS8, KC7, KC9, KC10, KC11
3. Demonstrating an understanding of the connection between the content that was learned previously, the current content, and the content that remains to be learned in the future	KC8, KC12, KS1, KS2
4. Creating or selecting teaching methods, learning activities, and instructional materials or other resources that are appropriate to the students and that are aligned with the goals of the lesson	KTP1, KTP2, KTP3, KTP5, KTP6, KTD1,KTD2, KTD3, KS7, KS9, KS11
5. Creating or selecting evaluation strategies that are appropriate with the goals of the lesson	KTA4, KTA5, KTA6

Domain B: Creating an Environment for Student Learning

1. Creating a climate that promotes fairness	KTC3, KTC4
2. Establishing and maintaining rapport with students	KTD5, KTC2, KTC5
3. Communicating challenging learning	KTC7, KTC6
4. Establishing and maintaining consistent standards of classroom behavior	KTC1, KTC9, KTC10, WO3
5. Making the physical environment as safe and conducive to learning as possible	(covered in Domain B3)

Domain C: Teaching for Student Learning

1. Making learning goals and instructional procedures clear to students	KTC8 (also in questions A1, A2, A3, and A4)
2. Making content comprehensible to students	KTD6 (also in questions A1, A2, A3, and A4)

3. Encouraging students to extend their thinking	KTD4, KTI1, KTI2, KTI4, KTI5, KTI6, KTI8
4. Monitoring students' understanding of content through a variety of means, providing feedback to students to assist learning, and adjusting learning activities as the situation demands	KTD8, KTI3, KTA1, KTA2, KTA3, KS12
5. Using instructional time effectively	KTD7, KTC8

Domain D: Teacher Professionalism

1. Reflecting on the extent to which the learning goals were met	KTA7, KTA8, WO7
2. Demonstrating a sense of efficacy	KTI7, KTI9, KTI10
3. Building professional relationships with colleagues to share teaching insights and to coordinate learning activities for students	WO1, WO9, WO10, WO11, WO12
4. Communicating with parents or guardians about student learning	WO4, WO5, WO6, WO8

WO - Working with others
KTP- Knowledge of teaching-planning
KTD - Knowledge of teaching-delivering instruction
KTI - Knowledge of teaching-interactions with students
KTA - Knowledge of teaching-assessment
KTC - Knowledge of teaching-climate
KC - Knowledge of the content field
KS - Knowledge of students

APPENDIX C

RESEARCH APPLICATION REQUEST

Research Application Request

Please provide the following information so that your project can be considered in relation to district criteria. Submit your request to **Barbara Russell** at the **Instructional Resource Center** allowing a minimum of **two (2) weeks** for review.

A. GENERAL INFORMATION:

1. Applicant(s): Name : ___*Stephen Massey*_____
2. Position: ___*Principal*_____, School/Location: *OTJHS*
3. Mailing Address: *1800 West Dennis*__, Telephone *913 780-7250*___, email address: ___*smasseyot@olatheschools.com*____
4. Project title. ____ *A Study Comparing the Scores of Experienced and Inexperienced SecondaryTeachers Using The American Association of School Personnel Administrator's Interactive Computer Interview System*
5. The proposed research is for: _____ Master's _____ Specialist __*X*__ Ed.D _____ Ph.D. ____ Other (Describe):
6. Participant description: __*12*___ number of *schools* involved
   __*50*___ number of *teachers* involved
   __*0*____ number of *students* involved
7. Please provide a research proposal which includes the following: brief review of the literature, major research question(s), methodology, research design/data analysis, perceived benefits of the project and indicate how the information will be disseminated.
8. Has the project been submitted to a committee on human experimentation? Yes.
9. Anticipated Dates: Beginning *January, 2009* Ending *May, 2009* Final Report available *May, 2009*
10. Briefly describe how this research project supports Olathe District curriculum, a district goal, and/or individual school's improvement plan. *At its conclusion, this research will add to the body of knowledge related to interviewing and the hiring of a high quality staff.*

B. RECOMMENDATION OF UNIVERSITY (Proposals which do not include university approval will not be reviewed.)

Please attach a letter indicating that the research project has been reviewed and the researcher has met all requirements necessary to conduct the proposed research.

Signature of Applicant: _____Date of Request: _____

APPENDIX D

HSCL CONSENT FORM

HSCL Consent Form

Based on your teaching experience, you have been selected by your school district as a potential applicant for a study looking at the Interactive Computer Interview System (ICIS). The Department of Teaching and Leadership at the University of Kansas supports the practice of protection for human subjects participating in research. The following information is provided for you to decide whether you wish to participate in the present study. You should be aware that even if you agree to participate, you are free to withdraw at any time without penalty.

We are interested in studying a new computer interview system. You will be asked to interview on this system: the Interactive Computer Interview System (ICIS). You will be participating in one session that will involve a one-on-one interview. It is estimated that the interview will take no more than 30 minutes of your time.

The names of all participants as well as the school will be changed in the final, printed report to protect your identity.

It is hoped that this new interview system will improve the effectiveness of the outcomes of screening interviews.

Your participation is solicited although strictly voluntary. If you would like additional information concerning this study before or after it is complete, please feel free to contact me by phone or mail.

Sincerely,

Stephen Massey
Principal Investigator
25321 W. 149th court
Olathe, KS 66061

Dr. Howard Ebmeier
Faculty Advisor
Teaching and Leadership
Department
Teaching and Leadership

I have read and understand the contents of this form. With my signature I affirm that I am at least 18 years of age. With my signature I acknowledge that I have received a copy of this consent form to keep.

_____

Signature/Date

APPENDIX E

STATISTICAL ANALYSES

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Column 1	12	31.24	2.603333	0.054006
Column 2	12	29.67	2.4725	0.073823
Column 3	12	28.6	2.383333	0.130952
Column 4	12	31.52	2.626667	0.072606

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.470973	3	0.156991	1.894973	0.144365	2.816466
Within Groups	3.645225	44	0.082846			
Total	4.116198	47				

LA/SS	MA/SC	PE	FA	
2.55	1.95	2.67	2.8	
2.67	2.59	2.7	2.3	
2.65	2.3	1.89	2.76	
2.62	2.26	2.75	2.81	
2.48	2.75	2	2.85	
2.29	3	2.3	2.65	
2.9	2.65	2.55	2.7	
2.38	2.33	2.67	2.45	
2.6	2.59	2.48	2.85	
2.95	2.41	1.8	2.15	
2.25	2.32	2.76	2.25	
2.9	2.52	2.03	2.95	
2.6	2.47	2.38	2.63	MEAN
0.23	0.27	0.36	0.27	SD

2.603333	2.315	2.383333	2.626667	MEAN
0.232392	0.271699	0.361872	0.269455	SD

Age	Cluster1	Cluster2	Cluster3	Cluster4	TOTAL
25	2.75	2.6	2.5	2.6	2.59
26	2.75	2.25	2.5	2.75	2.55
27	2.6	3	2.5	2.75	2.67
27	1.75	3	2.13	2.25	2.25
27	2.75	3	3	3	2.95
28	2.25	2.17	2.25	2.4	2.26
28	2.4	2.75	2.67	3	2.67
28	2.25	3	2.88	2.25	2.65
28	2.25	3	2.63	3	2.7
28	2	2	1.86	1.75	1.89
28	2.75	2.75	2.75	2.75	2.75
32	2.75	2.75	2.63	2.4	2.62
32	2	2.25	2.25	2.6	2.29
33	2.4	2.25	2.75	2.25	2.48
33	2.25	2.25	1.75	2	2
33	3	3	2.75	3	2.9
34	3	3	3	3	3
34	2.6	3	2.75	2.75	2.76
35	2.75	2.25	2.88	3	2.75
36	2.25	2.25	2.38	2.25	2.3
36	2.75	2.4	2.25	2.25	2.38
38	2.4	2.6	2.1	2	2.3
38	2.25	3	2.5	2.75	2.6
39	2.17	2.4	2.13	2.75	2.3
39	2.25	2.75	2.5	2.75	2.55
39	2.75	3	2.88	2.6	2.81
39	2.75	3	2.75	3	2.85
40	2.4	2.75	2.25	2	2.33
42	2	1.75	2	2	1.95
42	2.4	2.75	2.63	2.6	2.59
42	2.25	2.6	2.38	2.4	2.41
43	2.6	2.75	2.5	3	2.67

44	2.25	3	2.38	2.25	2.45
45	2.25	2.75	2.38	2.6	2.48
45	3	2.75	2.88	2.75	2.85
47	2.25	2.75	2.75	3	2.7
46	2.25	3	2.63	2.75	2.65
48	2	3	3	3	2.8
48	1.75	2	1.63	2	1.8
48	3	3	3	2.75	2.95
49	2	2.25	2.38	2.25	2.25
50	2.25	3	2.63	2.75	2.65
50	2.33	2.25	2.38	2.25	2.32
51	2.75	3	3	2.75	2.9
52	2.75	2.75	2.88	2.6	2.76
54	1.75	2	2	2.4	2.03
56	1.75	2.75	2.21	1.75	2.15
65	3	2.25	2.38	2.6	2.52

Age

-0.08721	Total correlation
-0.11984	cluster 1
-0.07848	cluster 2
-0.03829	cluster 3
-0.10053	cluster 4

0.087212	R-Value
0.007606	R-squared
-0.00274	slope

0.043791	cluster 1	P
-0.04239	cluster 2	P
-0.0223	cluster 3	P
-0.08909	cluster 4	P

-

0.03293 Pearson Correlation for entire population

t-Test: Two-Sample Assuming Unequal Variances

	Variable	*Variable*

	1	*2*
Mean	13.75	2.521458
Variance	79.46809	0.087579
Observations	48	48
Hypothesized Mean Difference	0	
df	47	
t Stat	8.721846	
P(T<=t) one-tail	1.09E-11	
t Critical one-tail	1.677927	
P(T<=t) two-tail	2.18E-11	
t Critical two-tail	2.01174	

t-Test: Two-Sample Assuming Unequal Variances

	Variable 1	*Variable 2*
Mean	13.75	2.4125
Variance	79.46809	0.129794
Observations	48	48
Hypothesized Mean Difference	0	
df	47	
t Stat	8.804145	
P(T<=t) one-tail	8.26E-12	
t Critical one-tail	1.677927	
P(T<=t) two-tail	1.65E-11	
t Critical two-tail	2.01174	

t-Test: Two-Sample Assuming Unequal Variances

	Variable 1	*Variable 2*
Mean	13.75	2.641042
Variance	79.46809	0.129341
Observations	48	48
Hypothesized Mean Difference	0	
df	47	
t Stat	8.626695	

P(T<=t) one-tail	1.5E-11
t Critical one-tail	1.677927
P(T<=t) two-tail	3.01E-11
t Critical two-tail	2.01174

t-Test: Two-Sample Assuming Unequal Variances

	Variable 1	*Variable 2*
Mean	13.75	2.503958
Variance	79.46809	0.118241
Observations	48	48
Hypothesized Mean Difference	0	
df	47	
t Stat	8.733756	
P(T<=t) one-tail	1.05E-11	
t Critical one-tail	1.677927	
P(T<=t) two-tail	2.09E-11	
t Critical two-tail	2.01174	

Males	Female
1.95	2.59
2.67	2.3
2.26	2.8
2.67	2.55
2.62	2.25
2.75	2.95
2	2.65
2.9	2.7
3	1.89
2.3	2.3
2.76	2.75
2.55	2.48
2.38	2.29
2.81	2.65

t-Test: Two-Sample Assuming Unequal Variances

	Variable 1	*Variable 2*
Mean	2.52090	2.52192
Variance	0.11859	0.06502
Observations	22	26
Hypothesized Mean Difference	0	
df	38	
t Stat	-0.01141	
P(T<=t) one-tail	0.49547	
t Critical one-tail	1.68595	
P(T<=t) two-tail	0.99095	
t Critical two-tail	2.02439	

2.85	2.6			
2.41	2.65			
2.48	2.33			
2.85	2.59			
1.8	2.7			
2.9	2.67			
2.03	2.45			
2.52	2.95			
	2.25			
	2.76			
	2.15			
	2.32			
2.5209	2.5219	Mean	2.4113	2.4285
0.3443	0.2549	SD		

APPENDIX F

SUMMARY OF INTRVIEWEE CHARACTERISTIC, SCORES & STATISTICAL DATA

Appendix F

Summary of Interviewee Characteristic Data

Interviewee	Type of Interview	Sex	Years of Experience	Content Area	Age	Ethnicity
Candidate 1	Phone	Male	1	Math/Science	42	White
Candidate 2	Phone	Female	3	Math/Science	25	White
Candidate 3	In-person	Female	3	Math/Science	38	White
Candidate 4	In-person	Female	3	Fine Arts	48	White
Candidate 5	Phone	Female	4	L.Arts/S.Studies	26	White
Candidate 6	Phone	Male	4	P.E./Health	27	White
Candidate 7	In-person	Female	4	Fine Arts	27	White
Candidate 8	In-person	Female	5	Fine Arts	27	White
Candidate 9	In-person	Male	5	Math/Science	28	White
Candidate 10	In-person	Male	5	L.Arts/S.Studies	28	White
Candidate 11	In-person	Female	5	L.Arts/S.Studies	28	White
Candidate 12	In-person	Female	6	P.E./Health	28	White
Candidate 13	In-person	Female	6	P.E./Health	28	White
Candidate 14	In-person	Female	6	Fine Arts	39	White
Candidate 15	Phone	Female	7	P.E./Health	28	White
Candidate 16	Phone	Male	7	L.Arts/S.Studies	32	White
Candidate 17	In-person	Female	7	L.Arts/S.Studies	33	White
Candidate 18	Phone	Female	9	L.Arts/S.Studies	32	White
Candidate 19	In-person	Male	9	Math/Science	35	White
Candidate 20	In-person	Male	11	P.E./Health	33	White
Candidate 21	In-person	Male	11	L.Arts/S.Studies	33	White
Candidate 22	In-person	Male	11	Math/Science	34	White
Candidate 23	Phone	Male	11	P.E./Health	36	White
Candidate 24	Phone	Male	12	Fine Arts	34	White
Candidate 25	In-person	Male	12	P.E./Health	39	White

Appendix F (Cont'd)

Summary of Interviewee Characteristic Data

Interviewee	Type of Interview	Sex	Years of Experience	Content Area	Age	Ethnicity
Candidate 26	In-person	Male	13	L.Arts/S.Studies	36	White
Candidate 27	Phone	Male	15	Fine Arts	39	White
Candidate 28	In-person	Male	15	Fine Arts	39	White
Candidate 29	In-person	Female	15	Math/Science	50	White
Candidate 30	Phone	Female	16	L.Arts/S.Studies	38	White
Candidate 31	Phone	Female	16	Fine Arts	46	White
Candidate 32	Phone	Female	17	Math/Science	40	White
Candidate 33	Phone	Female	17	Math/Science	42	White
Candidate 34	Phone	Female	18	Fine Arts	47	White
Candidate 35	In-person	Male	19	Math/Science	42	White
Candidate 36	Phone	Female	19	P.E./Health	44	White
Candidate 37	In-person	Female	20	Fine Arts	43	White
Candidate 38	In-person	Male	20	P.E./Health	45	White
Candidate 39	In-person	Male	21	Fine Arts	45	White
Candidate 40	In-person	Male	24	P.E./Health	48	Black
Candidate 41	In-person	Female	24	L.Arts/S.Studies	48	White
Candidate 42	In-person	Female	25	L.Arts/S.Studies	49	White
Candidate 43	Phone	Female	27	P.E./Health	52	White
Candidate 44	In-person	Female	27	Fine Arts	56	White
Candidate 45	In-person	Female	28	Math/Science	50	White
Candidate 46	In-person	Male	28	L.Arts/S.Studies	51	White
Candidate 47	Phone	Male	30	P.E./Health	54	White
Candidate 48	In-person	Male	39	Math/Science	65	White

Appendix F (Cont'd)

Summary of Interview Scores and Statistical Data

Interviewee	Mean Score Cluster #1	Mean Score Cluster #2	Mean Score Cluster #3	Mean Score Cluster #4	Total Mean Score	Total Standard Deviation
Candidate 1	2.00	. 1.75	2.00	2.00	1.95	0.31
Candidate 2	2.75	2.60	2.50	2.60	2.59	0.53
Candidate 3	2.40	2.60	2.10	2.00	2.30	0.57
Candidate 4	2.00	3.00	3.00	3.00	2.80	0.00
Candidate 5	2.75	2.25	2.50	2.75	2.55	0.51
Candidate 6	2.60	3.00	2.50	2.75	2.67	0.43
Candidate 7	1.75	3.00	2.13	2.25	2.25	0.34
Candidate 8	2.75	3.00	3.00	3.00	2.95	0.10
Candidate 9	2.25	2.17	2.25	2.40	2.26	0.56
Candidate 10	2.40	2.75	2.67	3.00	2.67	0.44
Candidate 11	2.25	3.00	2.88	2.25	2.65	0.34
Candidate 12	2.25	3.00	2.63	3.00	2.70	0.31
Candidate 13	2.00	2.00	1.86	1.75	1.89	0.54
Candidate 14	2.17	2.40	2.13	2.75	2.30	0.53
Candidate 15	2.75	2.75	2.75	2.75	2.75	0.49
Candidate 16	2.75	2.75	2.63	2.40	2.62	0.52
Candidate 17	2.40	2.25	2.75	2.25	2.48	0.50
Candidate 18	2.00	2.25	2.25	2.60	2.29	0.40
Candidate 19	2.75	2.25	2.88	3.00	2.75	0.34
Candidate 20	2.25	2.25	1.75	2.00	2.00	0.39
Candidate 21	3.00	3.00	2.75	3.00	2.90	0.19
Candidate 22	3.00	3.00	3.00	3.00	3.00	0.00
Candidate 23	2.25	2.25	2.38	2.25	2.30	0.51
Candidate 24	2.60	3.00	2.75	2.75	2.76	0.40
Candidate 25	2.25	2.75	2.50	2.75	2.55	0.51

Appendix F (Cont'd)

Summary of Interview Scores and Statistical Data

Interviewee	Mean Score Cluster #1	Mean Score Cluster #2	Mean Score Cluster #3	Mean Score Cluster #4	Total Mean Score	Total Standard Deviation
Candidate 26	2.75	2.40	2.25	2.25	2.38	0.52
Candidate 27	2.75	3.00	2.88	2.60	2.81	0.36
Candidate 28	2.75	3.00	2.75	3.00	2.85	0.29
Candidate 29	2.25	3.00	2.63	2.75	2.65	0.41
Candidate 30	2.25	3.00	2.50	2.75	2.60	0.41
Candidate 31	2.25	3.00	2.63	2.75	2.65	0.41
Candidate 32	2.40	2.75	2.25	2.00	2.33	0.40
Candidate 33	2.40	2.75	2.63	2.60	2.59	0.53
Candidate 34	2.25	2.75	2.75	3.00	2.70	0.39
Candidate 35	2.25	2.60	2.38	2.40	2.41	0.53
Candidate 36	2.60	2.75	2.50	3.00	2.67	0.43
Candidate 37	2.25	3.00	2.38	2.25	2.45	0.41
Candidate 38	2.25	2.75	2.38	2.60	2.48	0.52
Candidate 39	3.00	2.75	2.88	2.75	2.85	0.34
Candidate 40	1.75	2.00	1.63	2.00	1.80	0.31
Candidate 41	3.00	3.00	3.00	2.75	2.95	0.10
Candidate 42	2.00	2.25	2.38	2.25	2.25	0.41
Candidate 43	2.75	2.75	2.88	2.60	2.76	0.46
Candidate 44	1.75	2.75	2.21	1.75	2.15	0.66
Candidate 45	2.33	2.25	2.38	2.25	2.32	0.59
Candidate 46	2.75	3.00	3.00	2.75	2.90	0.20
Candidate 47	1.75	2.00	2.00	2.40	2.03	0.62
Candidate 48	3.00	2.25	2.38	2.60	2.52	0.42