The reliability and validity of an admissions tool in predicting academic and fieldwork achievement in occupational therapy students

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The Reliability and Validity of an Admissions Tool in Predicting Academic and Fieldwork Achievement in Occupational Therapy Students

by

Jeanine Biese

Submitted to the Department of Leadership and Counseling
Eastern Michigan University
in partial completion of the degree of
DOCTOR OF EDUCATION

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Abstract

In an uncertain economy, many students of higher education are drawn to the security of careers in health care, such as Occupational Therapy (OT). It is important that as admissions committees evaluate an increasing applicant pool they select students who will be successful in the programs and therefore maximize the number of graduates into the professions. Some health care admissions programs look only at the applicant’s grade point average (GPA) and/or results of standardized tests such as the Graduate Records Exam (GRE). There is a gap in the literature in regard to how to select students who have traits linked to successful clinical performance and professionalism. This research attempts to evaluate an admissions procedure to measure these traits or non-cognitive variables as they relate to professionalism for OT and possibly other health care fields. The key research question was: To what degree is the Grapczynski Admissions Profile (GAP) a valid and reliable tool for selecting successful OT students? The theoretical foundations of this study include the theory developed by Grapczynski and Kane (1990) that identified five core areas for the field to be professionalized, and the Parsons Thompson Model (Thompson, 1976), which provides a framework for understanding the organizational levels that influence the admission process. The results of the study included a moderately high degree of face validity and moderately high agreement between the reliability raters for the Research component of the GAP. The qualitative data gave support for most of the core areas of the GAP related to professionalism in the field of OT. This qualitative data also included suggestions for improvement of the GAP. With this information, improvements can be made to the GAP and additional research
can be done from this base with the hope of further improving validity and reliability of this admissions tool.
Table of Contents

Acknowledgements ................................................................................................................................... ii

Abstract .................................................................................................................................................. iii

Table of Contents .................................................................................................................................. v

Chapter One: Introduction .................................................................................................................... 1

Problem Statement ............................................................................................................................... 2

Nature of the Study ............................................................................................................................... 3

Purpose of the Study ............................................................................................................................... 3

Theoretical Base ...................................................................................................................................... 4

Professionalization ............................................................................................................................... 4

The Parsons Thompson Model .............................................................................................................. 7

Technical Level at GVSU ...................................................................................................................... 9

Managerial Activities at GVSU ........................................................................................................... 9

Institutional Leadership at GVSU ......................................................................................................... 9

The External Environment ................................................................................................................... 11

Operational Definitions ....................................................................................................................... 13

Assumption, Limitations, and Scope ................................................................................................. 15

Significance of the Study ..................................................................................................................... 15

Chapter One Summary ....................................................................................................................... 17

Chapter Two: Literature Review Introduction ....................................................................................... 19

The Need for OT Practitioners ............................................................................................................ 20

Admission Issues in Health Care and OT ......................................................................................... 21

The Need for Professionalism in the Field of OT ............................................................................. 25
Validity

Confounding Factors

Chapter Two Summary

Chapter Three: Research Design and Methodology

Introduction

Research Traditions

Research Design, Approach, and Participants

Step 1: Predictive Validity

Step 2: Concurrent Validity

Step 3: Face and Content Validity

Step 4: Interrater Reliability

Predictive Validity Data Collection

Range of Values

GAP Scores

Fieldwork Scores

Certification Exam Scores

Grade Point

Concurrent Validity Data Collection

Instrumentation and Materials: CPI 260

Range of Values

Summary Concurrent Validity

Face Validity Data Collection

Content Validity Data Collection

Interrater Reliability Data Collection

Ethical/Human Subjects Approval
Protection of Participants ................................................................. 71
Data Analysis ..................................................................................... 72
Predictive Validity and Concurrent Validity ........................................ 72
Interrater Reliability, Face Validity, and Content Validity ............. 72
Conclusion ......................................................................................... 73

Chapter Four: Presentation and Analysis of Data
Introduction ......................................................................................... 75

Face Validity ......................................................................................... 76

Quantitative Data ................................................................................ 77
Qualitative Data ................................................................................... 77
Definition of Themes and Sub-Themes ............................................. 78
Theme: Appropriate Tool for the Program .................................... 78
Sub-theme: Relevant ......................................................................... 78
Sub-theme: Fair .................................................................................. 78
Theme: Breadth of Perspective ......................................................... 78
Theme: Scoring ................................................................................. 79
Sub-theme: Narrow .......................................................................... 79
Sub-theme: Complicated .................................................................. 79
Interpretation ....................................................................................... 79

Content Validity ................................................................................... 80

Quantitative Data ............................................................................... 82
Qualitative Data ............................................................................... 82
Definition of Themes and Sub-Themes ............................................. 82
Theme: Basic Perceptions ................................................................. 83
Validity

Sub-theme: Thorough ................................................................. 83
Sub-theme: Complicated ............................................................ 83
Theme: Critical Questions ......................................................... 83
Interpretation ............................................................................ 83
Reliability .................................................................................... 84
Quantitative Data ........................................................................ 85
Qualitative Data ......................................................................... 89
Definition of Themes and Sub-Themes ....................................... 89
Theme: Research ......................................................................... 89
Theme: Strategies ........................................................................ 89
Theme: Clarity ............................................................................ 90
Sub-theme: Temporal ................................................................. 90
Sub-theme: Category ................................................................. 90
Interpretation ............................................................................ 91
Triangulation .............................................................................. 93
Predictive Validity ...................................................................... 94
Concurrent Validity .................................................................... 97
CPI 260 Definitions ..................................................................... 100
Summary of Results ..................................................................... 100
Conclusion .................................................................................. 103

Chapter Five: Summary, Discussion of the Findings, Conclusions, and

Implications for Further Study ..................................................... 104
Summary of the Results ............................................................. 105
Validity

To What Degree does the GAP Demonstrate Convergent Validity?.................................107
Discussion of Findings.................................................................109
Implications for Further Study....................................................110

To What Degree Does the GAP Demonstrate Face Validity?.................................111
Discussion of Findings.................................................................112
Implications for Further Study....................................................113

To What Degree Does the GAP Demonstrate Content Validity?.................................113
Discussion of Findings.................................................................114
Implications for Further Study....................................................115

To What Degree Does the GAP Demonstrate Predictive Validity?...............................115
Discussion of Findings.................................................................116
Implications for Further Study....................................................116

To What Degree Does the GAP Demonstrate Interrater Reliability?............................117
Discussion of Findings.................................................................118
Implications for Further Study....................................................119

Researcher Bias..............................................................................120
Importance of the Study.................................................................120
Conclusions..................................................................................121

References....................................................................................123

Appendix A: GAP Forms..................................................................137
List of Tables

Table 1: Clinical Performance .................................................................18
Table 2: Commonalities ...........................................................................27
Table 3: Erickson’s Developmental Stages ..............................................34
Table 4: Ethnicity of OT Student Population .........................................48
Table 5: Face and Content Validity .........................................................81
Table 6: ICC Data ...................................................................................86
Table 7: Triangulation .............................................................................92
Table 8: Predictive Validity .....................................................................96
Table 9: Concurrent Validity .................................................................99
Table 10: Definitions of Concurrent Validity ..........................................102
Table 11: Summary .................................................................................108
Table 12: CPI 260 and GAP Construct Comparison .............................168
List of Figures

Figure 1: GAP Core Areas ........................................................................8
Figure 2: Conceptual Framework .............................................................10
Figure 3: OT Student Applicant Pools .....................................................22
Figure 4: Validity ....................................................................................37
Figure 5: GAP Areas with Specific Weighting ......................................51
Figure 6: Areas of Potential Bias ...........................................................55
Figure 7: Study Design ..........................................................................64
Chapter One: Introduction

The Bureau of Labor Statistics (2008) reports that employment of occupational therapists is expected to increase 23 percent between 2006 and 2016. Despite the need for more occupational therapists, there has been a dramatic decline in the number of Occupational Therapy (OT) degrees awarded. This can be attributed to an OT academic program bottleneck identified by Fisher and Keehn (2007) due to OT faculty shortages. Six OT programs and three OT assistant programs in 2006, as well as five satellite programs, closed between 2000 and 2008 (American Occupational Therapy Association [AOTA], 2008). There is an increased need for OT; there are fewer OT programs, limited OT faculty, and increased OT student applicants (AOTA, 2007a). These factors contribute to the need for admissions procedures to OT programs that can predict student success in the program and economical use of faculty (Katz and Mosey, 1980).

Admissions procedures for students applying to OT graduate programs and other health care fields vary from program to program and institution to intuition (Salvatori, 2001). Some programs look only at the applicant’s grade point average (GPA) and/or results of standardized tests such as the Graduate Records Exam (GRE). Academic success has been strongly linked to admission GPA (Vargo, Madill, and Davidson, 1986). McEwen & Crawford (1995) reported that utilizing GPA alone can lead to the selection of students who are motivated only by grades and does not consider character or professional suitability. The most common admission criteria used with allied health programs, including occupational therapy, according to Scott et al. (1995, p. 95) were “GPA, references, interview, science GPA, and writing sample.” The verbal score on the GRE was found to predict performance on the PT certification exam (Hollman et al. 2007), and PT verbal scores below 410 were
more than three times more likely to have a GPA below 3.0 (Jewell & Riddle, 2005). The findings by Scott et al. (1995) indicated that allied health programs should also consider non-cognitive variables such as personality traits in their admissions procedures. Webb et al. (1997) found non-cognitive variables predictive of medical student success in academics, clinical, and national certification. In a study of PT admissions, Guffey et al. (2002) concluded that other health disciplines such as OT should “consider examining the predictive values of non-cognitive variables when making admissions and advising decisions.” These non-cognitive traits are reported in the literature (Sedlacek, 1993; Larose & Roy, 1991; Tracey & Sedlacek, 1985; Grapczynski & Kane, 1990) as important to the professionalism of the field (see Chapter 2) and clinical performance. The Grapczynski Admissions Profile (GAP) is designed to evaluate applicants to an OT program based on an achievement summary in core areas including research, practice, education, leadership, and professional socialization. These five core areas were identified by Grapczynski and Kane as a result of an extensive OT literature review, investigating what is needed for the field to be effectively professionalized. Applicants to the OT program, who have some previous experience in these areas, are anticipated to be successful OT students. It is anticipated by the designer of the tool that these students may also facilitate future professionalism in the field of OT. Students who obtain adequate points on the GAP achievement summary, grade point, and professional letters of recommendation then provide a writing sample and are interviewed by the admissions committee.

**Problem Statement**

There is a need for a valid and reliable OT admissions tool that would assist in selecting successful OT students and evaluate non-cognitive characteristics that
promote success in clinical performance and professionalism of the field of OT.

*Nature of the Study*

The nature of the study was to determine the validity and reliability of an admissions tool (GAP) used at the OT Program at Grand Valley State University (GVSU; see Chapter 3 for more information on methodology). This admissions tool is based on the literature regarding what is needed for professionalism of the field. The following research questions were examined:

1. To what degree is the GAP a valid and reliable tool for selecting successful OT students?
   a. To what degree does the GAP demonstrate convergent validity?
   b. To what degree does the GAP demonstrate face validity?
   c. To what degree does the GAP demonstrate content validity?
   d. To what degree does the GAP demonstrate predictive validity?
   e. To what degree does the GAP demonstrate interrater reliability?

The following hypothesis was presented: The GAP will demonstrate validity and reliability as demonstrated by statistically significant ($r \geq .7$) correlations with the GAP and specific academic and fieldwork outcomes.

*Purpose of the Study*

The purpose of the study was to determine convergent validity, face and content translational validity, predictive validity, and interrater or interobserver reliability of the GVSU OT admissions tool. A valid and reliable tool could be used to select successful OT students, decrease the number of students who do not complete the program, and assist in
identifying applicants who will become OT practitioners with non-cognitive traits that may facilitate professionalization of the field.

*Theoretical Base*

*Professionalization*

An issue in the field of OT is the need for professionalization of the field. To understand professionalization the reader needs to first understand what is meant by a profession. According to Dictionary.com (2009) a profession is “a vocation requiring knowledge of some department of learning or science.” Professionalization is defined by Dictionary.com (2009) as, “to give a professional character or status to; make into or establish as a profession.” Storm (1990) reported that a professional should also make contributions to the field by developing and disseminating knowledge.

The field of OT has historically been composed of women. Currently approximately 95% of OTs are women and 5% are men (AOTA, 2006a). Women have historically taken time off from the field to raise families, reducing their time in the field. The median time in the field for all practitioners is currently 13 years, an increase from 9.5 years in 2000 (AOTA, 2006a). This time in the field, although increasing in length, can limit the number of therapists doing research and contributing to the field’s knowledge base. OT also has had a low level of professional involvement (Rogers, Hill, Hold, and Wasser, 1992), which has been a limitation in the development of the field. A study by Breeden et al. (2000) regarding membership in the Indiana State OT Association found that family commitments were the most common barrier to professional association involvement.

There are other professions that report issues with professional involvement, including nursing, teaching, and health care administration. A study of physical education teachers by
Gallemore and Li (1997) identified professional association membership barriers as lack of personal commitment, lack of administrative and peer support, fees, lack of knowledge of membership benefits, and distance to meetings. In the field of nursing, a study by DeLeskey (2003) reported cost and lack of time as the main reasons for a lack of professional association membership. A study of female executives in health care by Walsh and Borkowski (2006) also reported lack of time and cost as well as scheduling and unfamiliar members as the primary barriers to participation in professional associations. This professional involvement is necessary for professionalization of the field of OT.

Professional characteristics in the field of OT have been identified by Rogers et al. (1992) and include education, leadership, administration and supervision, oral presentations, publications, research, clinical practice, public relations, product development, and professional recognition. Isenburg and Heater (1994) reported the need for selecting students with the potential for developing the OT profession. A study by Agho, Mosley, and Williams (1999, p. 12) reported that the goal is to “select applicants who have the academic skills and aptitudes necessary to successfully complete the degree requirements, pass the licensure examination, and make meaningful contributions to the field.” A review of the OT literature by Grapczynski and Kane (1990) revealed five core areas that were needed for professionalization of the field (see Figure 1) and were defined as:

1. Education: Concern for the development of OT educators who can initiate responsive, forward-looking programs that address the rapidly changing needs of our society.

2. Leadership: Concern for the development of strong leaders in OT who can guide the field adeptly and prudently during these transitional times and beyond.
3. Practice: Concern for the development of reflective practitioners who are skilled in independent problem-solving and can examine issues within the context of their existence.

4. Professional socialization: Concern for the professionalization of the field including increased autonomy and credibility for practitioners.

5. Research: Concern for the development of the unique knowledge base of OT and the research commitment attached. (p. 5)

Grapczynski and Kane (1990) stress the need for this professionalism by summarizing:

The expectations that these practitioners must also research and engage in creative, adaptive problem solving only reinforces the societal need for therapists who are fully prepared to take on the increased demands of future practice…. The practitioner of tomorrow will need to be a teacher, administrator, consultant, and researcher, as well as an interventionist. (p. 11)

To increase the likelihood that an OT student applicant could contribute to professionalism of the OT field and to ensure success in the OT program, Grapczynski developed an admissions tool (GAP) that includes an achievement summary (see Appendix A) and rates the activities in which the applicant has engaged during college and beyond. The categories of the achievement summary include practice, leadership, education, research, and professional socialization, by which the applicants report the year of the activity, the length of participation, and frequency of participation. These activities are then scored by the admissions committee (see Appendix A) with a maximum score of 4 for each category. A concept map of the admissions process is also included in Appendix A. The applicant also
receives a score for GPA and letters of recommendation. These items are totaled to determine if the applicant has met the minimum criteria to be brought in for an interview and writing sample.

*The Parsons Thompson Model*

A second theoretical base that can help explain the external environment of the GVSU OT admissions process is the Parsons Thompson Model. This model by Thompson (1967) was based on the work done by the sociologist Parsons (1960). The external environment of the GVSU OT program includes the other programs in the College of Health Professionals, Dean of the College of Health Professionals, other colleges in the university, the university administration, the community of Grand Rapids and West Michigan, area health care practitioners, and the Accreditation Council for Occupational Therapy Education (ACOTE®). According to Thompson, who borrows from Parsons, organizations have three levels of responsibility and control: technical activities, managerial activities, and institutional leadership activities. The managerial level tries to mediate and satisfy the needs of the technical level while at the same time attempting to be responsive to the institutional environment. This is represented in the following model (see Figure 2) as it relates to the GVSU OT program. The institutional level responds to the cultural environment by putting pressure on the managerial level to obtain specific results.
Figure 1. A review of the OT literature by Grapczynski and Kane (1990) revealed these five core areas that were needed for professionalization of the field.
**Technical level at GVSU.**

The faculty and students of the GVSU OT program could be categorized at the technical level to include the students that need to be processed or applicants to the OT program and the faculty that does the selection of the applicants. This is the technical work of the organization: selection of students, teaching, and eventually learning. The goal is to produce occupational therapists who will eventually assist in the professionalization of the field.

**Managerial activities at GVSU.**

This level could be categorized to include the GVSU OT department head and the dean of the College of Health Professionals. Both of these individuals mediate between the technical level and the institution. The OT program is not a department, so the health care programs report to the dean as opposed to each of these programs having the recognition of being departments. This gives the dean a more managerial role but also the control of many of the resources. The dean is responsible for approving more OT faculty. Admissions are currently capped at 30 students due to faculty levels. With an increase in applicants, the program is encouraged by the institution to admit the maximum number of students. This managerial level needs to assess and mediate the needs of the program with limited faculty and resources, and the needs of the institution of GVSU for more students (see Figure 2).

**Institutional leadership at GVSU.**

This level is made up of the Provosts, Vice Presidents, and the President. The president of GVSU has inherited a university that has grown rapidly from a primarily an
Figure 2. Conceptual Framework

The Parsons Thompson model provides a framework for understanding the levels of responsibility and control that influence the GVSU program and the admissions process. The theory presented by Grapczynski and Kane provides a framework for professionalization of the field of OT. This figure relates the two theories.
undergraduate culture. This undergraduate culture has an effect on the graduate health care programs in regard to infrastructure, graduate faculty expectations, and developing graduate policies and procedures. The culture of the external environment (including GVSU donors) wants GVSU to produce health care professionals. There is a tension between the need to take more students and limited faculty. To identify successful OT applicants, a valid and reliable admissions tool would give support to the identification of students who would successfully complete the OT program in a culture of limited resources.

**The external environment.**

The data are clear in regard to the need for more graduates in health care fields, not only in Western Michigan but nationally. West Michigan plans to play a major role in the health care industry especially with the research at the Van Andel Institute and arrival of the Michigan State University Medical School. The GVSU OT program is poised on the top of Western Michigan’s “medical hill” to contribute to this local and national need. This external environment puts pressure on the institutional leadership at GVSU to produce more graduates in health care. The university is accredited by North Central Association Commission (NCA) which also puts external pressure on the institution in many areas, including ensuring that GVSU responds with infrastructure to the rapid growth and the needs of the graduate programs (including OT). In addition, the accrediting agency such as the ACOTE® puts pressure on the institution and the managerial level for the current curriculum standards and represents the field of OT including what is needed for professionalization and development. Some of the key issues from the external environment include:

- Michigan State University Medical School arriving on “medical hill”
- Van Andel Institute (health care research) expanding
- Hospitals expanding
- ACOTE® for accreditation of the OT program
- Donors specific requests to GVSU
- Decreased state funding
- More student applicants
- Increased need for OT
- North Central Association Commission on Accreditation

The relationship between these two theories is that the technical core or the admissions committee must respond to needs of the external environment (the university and the community), balanced with the needs of the profession. The Parsons Thompson model provides a framework for understanding the levels of responsibility and control that influence the GVSU OT program and the OT admissions process. The theory presented by Grapczynski and Kane (1990) provides a framework for what is needed for the field of OT to be professionalized. A valid and reliable admissions tool can help to navigate these levels of control and select successful OT students who reside within the technical core. A valid and reliable admissions tool could also provide support for more resources, including faculty and space, as the number of successful applicants could be quantified. This need is critical to the rapidly expanding external health care environment locally and nationally. It is this author’s expectation that other OT programs and professions may also use the GAP for their admissions procedures if it is found to be valid and reliable. This would include other health care fields and possibly the field of education, which may require professionals with similar characteristics as OT professionals. Katz and Mosey (1980) state, “Occupational Therapy has to continue to be concerned with the economical use of faculty and students’ time in preparing students as practitioners. Occupational Therapy educational programs must also be
concerned with accepting only the most qualified students” (p. 794). This current climate adds to the need for valid and reliable admissions procedures to select qualified students who can successfully complete the OT program as well as contributing to professionalism in the field of OT.

**Operational Definitions**

Education: “Concern for the development of OT educators who can initiate responsive, forward-looking programs that address the rapidly changing needs of our society” (Grapczynski & Kane, 1990, p. 5). This is measured on the GAP admissions tool by the applicant’s level of any teaching role in any kind of organization.

GAP: (Grapczynski Admissions Profile): The GAP is designed to evaluate applicants to an OT program with an achievement summary based on five core areas: research, practice, education, leadership, and professional socialization. These five core areas were identified by Grapczynski and Kane (1990) as a result of an extensive OT literature review, looking at what is needed for the field to be effectively professionalized. The score on the achievement summary is added to a score that includes grade point and professional letters of recommendation. Applicants who obtain a minimum score then qualify for an interview and submit a writing sample, which is scored and determines the final candidates for admission.

GPA: The applicant must have a minimum of a 3.0 GPA for both the last 60 hours of undergraduate work and the prerequisite performance.

Leadership: “Concern for the development of strong leaders in OT who can guide the
field adeptly and prudently during these transitional times and beyond”
(Grapczynski & Kane, 1990, p. 5). This is measured on the GAP admissions tool by the applicant’s level of any leadership role in any capacity.

Profession: “A vocation requiring knowledge of some department of learning or science.”
(Dictionary.com, 2009).

Professionalism: “To give a professional character or status to; make into or establish as a profession, to become professional” (Dictionary.com, 2009). The characteristics needed to develop a profession are defined by Grapczynski and Kane (1990) as research, practice, education, leadership, and professional socialization.

Practice: “Concern for the development of reflective practitioners who are skilled in independent problem-solving and can examine issues within the context of their existence” (Grapczynski & Kane, 1990, p. 5). This is measured on the admissions tool by the applicant’s level of any paid work involving direct patient care.

Professional socialization: “Concern for the professionalization of the field including increased autonomy and credibility for practitioners” (Grapczynski & Kane, 1990, p. 5). This may be demonstrated with the characteristic of altruism, a value of the profession (Kanny, 1993) demonstrated by an interest in serving others. This is measured on the admissions tool by the applicant’s level of volunteer work (beyond the required 50 hours) with any disabled group.

Recommendation Letters: One must be from an OT and one from a professor or, in the case of a non-traditional student, an employer. These are each scored using a
standardized form (Appendix A) for a maximum of 5 points each with a maximum score of 10 points.

Research: “Concern for the development of the unique knowledge base of OT and the research commitment attached” (Grapczynski and Kane, 1990, p. 5). This is measured on the admissions tool by the applicant’s level of any research role in any capacity.

Assumptions, Limitations, and Scope

The study evaluated the validity and reliability of the admission tool (GAP) with a sample of applicants from only one institution (GVSU), which may affect its generalizability. This institution may not be representative of other OT institutions. It is assumed to be true that the five core areas of the achievement summary (research, practice, education, leadership, and professional socialization) will be instrumental in the development of professionalization in the field. The weakness of this study is that it studied only fieldwork and academic success in the OT program and not future success as a working OT professional. The boundaries of this study are in measuring the validity and reliability of the GAP only within the scope of GVSU.

Significance of the Study

The significance of this study is that if the GAP is found to be a valid and reliable admissions tool for the OT program, it could assist other OT programs in the selection of successful students. With limited faculty, increasing number of applications, and the need for more graduates, it is important to select students who will successfully complete the program. In addition there is a need for professionalization of the field. An admissions tool
that measures the non-cognitive traits that are necessary for clinical performance is needed in OT and the health care and professions, as well as core areas to promote professionalization.

Other professions may also use the GAP for their admissions procedures if it is found to be valid and reliable. This would include other health care fields and possibly the field of education, which may require professionals with similar characteristics as OT professionals. Salvatori (2001) reports that although GPA is a good indicator of academic achievement in health care professionals, there is a gap in the literature on how to assess other important characteristics such as work experience, interpersonal skills, motivation, maturity, empathy, and ethical integrity, which are important to clinical performance in health care. The GAP achievement summary is one way that some of these characteristics may be measured based on the applicant’s previous activities (see Table 1). For example, the characteristic described by Salvatori as interpersonal skills may be demonstrated on the GAP achievement summary in the areas of practice, leadership, education, professional socialization, and letters of recommendation as these areas require some degree of interpersonal skills. The GAP subsection of research may require fewer interpersonal skills but more traits described by Salvatori as motivation and ethical integrity. This author has made these comparisons in Table 1. If the GAP is found to be a valid and reliable tool, it may assist in accurately measuring both academic and other important non-cognitive characteristics necessary to determine admissions to health care and possibly other educational programs. Assessment of an OT admissions tool requires understanding of the field and the need for professionalism, understanding of external factors in the admissions process, and understanding of the multiple forms of validity and reliability used in assessment. This study assessed multiple forms of validity including face, content, concurrent, and predictive validity with the GAP
admissions tool with multiple methods. Interrater reliability of the GAP was also assessed with quantitative methods and analysis of qualitative comments from the raters.

Chapter One Summary

There is a need for more OT professionals but there are fewer programs (AOTA, 2008) and limited faculty (Fischer and Keehn, 2007). It is important that as admissions committees evaluate an increasing applicant pool they select students who will be successful in the program and therefore maximize the number of graduates into the profession. The need for professionalism in OT may be enhanced by an admissions procedure that incorporates and measures core areas related to professionalism, including the non-cognitive traits necessary for success as a health care professional. The admissions committee at GVSU also needs to be aware of and respond to several external factors that can be explained using the Parsons Thompson model. A valid and reliable admissions tool will help to navigate these levels of control and select successful OT students in programs with limited resources.
Table 1

*This Author’s Comparisons of Characteristics Important to Clinical Performance with Subsections of the GAP*

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>GAP Subsection</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>Practice</td>
</tr>
<tr>
<td>Work Experience</td>
<td>![ ]</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>![ ]</td>
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<tr>
<td>Maturity</td>
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<td>Empathy</td>
<td>![ ]</td>
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<tr>
<td>Ethical Integrity</td>
<td>![ ]</td>
</tr>
</tbody>
</table>

Note. The GAP achievement summary is one way that characteristics may be measured based on the applicant’s previous activities. For example, the characteristic described by Salvatori (2001) as interpersonal skills may be demonstrated on the GAP achievement summary in the areas of practice, leadership, education, professional socialization, and letters of recommendation as these areas require some degree of interpersonal skills. The GAP subsection of research may require less interpersonal skills and more skills discussed by Salvatori as motivation and ethical integrity.
Chapter Two: Literature Review

Introduction

As stated in Chapter One, there is a need for more Occupational Therapy (OT) professionals, but there are fewer programs and limited faculty. OT admissions committees need to evaluate an increasing applicant pool and select students who will be successful to maximize the number of graduates into the profession. There is a need for professionalism in the field of OT, which may be enhanced by an admissions procedure that incorporates and measures core areas related to professionalism. These core areas include non-cognitive traits necessary for success as a health care professional. Individuals involved with the admissions procedures at Grand Valley State University (GVSU) also need to be aware of and respond to several external factors that can be explained using the Parsons Thompson model. A valid and reliable admissions tool may help to navigate these levels of control and select successful OT students in programs with limited resources.

To answer the research question: “To what degree is the Grapczynski Admissions Tool (GAP) a valid and reliable tool for selecting successful OT students?” the literature review included the need for OT practitioners and students, admissions issues in health care and OT, the need for professionalization of the field OT, the literature on validity and reliability as related to admissions tools, bias in admissions tools, and confounding factors affecting student outcomes. Several data bases were used to initiate the search, including CINAHL, PubMed, the American Occupational Therapy Association (AOTA) website, and MEDLINE via First Search. As articles were obtained, references from these articles were
also reviewed. Some of the references regarding the development of the GAP as an admissions tool were provided by the author of the GAP.

*The Need for OT Practitioners*

In an uncertain economy, many students of higher education are drawn to the security of careers in health care. According to the Occupational Outlook Handbook (2008), seven of the 20 fastest growing occupations are health care related, more than any other industry, with an employment outlook of 3 million new jobs between 2006 and 2016. This is largely due to an increased number of individuals, especially in older age groups, with greater-than-average health care needs. The Bureau of Labor Statistics (2008) also reports that employment of Occupational Therapists is expected to increase 23 percent between 2006 and 2016. Despite the need for more Occupational Therapists, there has been a dramatic decline in the number of OT degrees awarded. The number of degrees fell from a high of 6,106 in 1999-2000, to a low of 3,866 in 2003-2004 (United States Department of Health and Human Services, 2006). This can be attributed to an OT academic program bottleneck identified by Fisher and Keehn (2007) due to OT faculty shortages. In an AOTA 2008 report to the United States Senate, the 2007 full time core OT faculty vacancy rate was approximately 10% (Jones, 2008). Many of these faculty members are nearing retirement with a median age of 50. These faculty shortages are due to multiple factors, including

1. The Balanced Budget Act in 1997, which reduced Medicare reimbursement for OT and resulted in a downturn in the number of OT student applicants as well as reducing the OT job market (AOTA, 2006a).
2. The transition to requiring a Master’s degree for eligibility for certification in occupational therapy as many programs did not admit students or graduate students for one or two years (AOTA, 2006b).

3. The closing of six OT and three OT assisting programs in 2006, as well as the closing of five OTR and six OT assisting satellite programs since 2000 (AOTA, 2008).

Although the need to graduate OT practitioners has increased, the student applicant pools have only recently improved (Collins, 2007). There has been a 40% increase in applications for 2006-07 (AOTA, 2007a). This recent upswing in the number of applicants (see Figure 3) is reminiscent of the 1980s when there were far more applicants than OT programs. This issue was discussed by Katz and Mosey (1980, p. 794) who stated, “Occupational Therapy has to continue to be concerned with the economical use of faculty and students’ time in preparing students as practitioners. Occupational Therapy educational programs must also be concerned with accepting only the most qualified students.” There is an increased need for occupational therapists; there are fewer OT programs, limited OT faculty, and increased OT student applicants. This current climate adds to the need for valid and reliable admissions procedures to select qualified students who can successfully complete the OT program.

Admissions Issues in Health Care and OT

Some health care admissions programs look only at the applicant’s grade point average (GPA) and/or results of standardized tests such as the Graduate Records Exam (GRE). Salvatori (1990), in her review of the literature on admissions tools used in health care, stated that pre-admission GPA is the best predictor of academic performance in all of
Figure 3. The OT student applicant pools have increased 40% for 2007 (AOTA, 2007a), contributing to the need for a valid and reliable admissions tools.
the health professions. The use of pre-admission GPA is supported in OT students (Vargo et al., 1986; Kirchner & Holm, 1997; Auriemma, 2007) who report a strong correlation between OT student admission grades and their academic success. McEwen & Crawford (1995) caution readers that reliance on GPA alone may tend to select students who are primarily motivated by grades. Salvatori (2001) reported that the relationship of GPA to clinical performance was less clear. She also reported that there is controversy on the use of interviews and written submissions. A study by Agho et al. (1999) found that performance on the personal interview was one of the five most important factors considered in the admissions process of allied health educational programs. This was not supported by Vargo et al. (1986) and Bridle (1987) in that the interview was not predictive of OT student success. Nayer (1992) suggests:

The purpose of admission procedures is to select students who will complete the educational program and go into professional careers, do well in the program, perform credibly in professional practice, and possess the traits of character and ethical values desired of a professional person. (p. 41)

There is a gap in the literature in regard to how to select students who have those traits for success and professionalism in the field. Salvatori (2001, p. 170) reports that there are “non-cognitive” variables that include “interpersonal skills, work experience, motivation, maturity, empathy, and ethical integrity,” which are difficult to measure in an applicant. Hollman et al. (2007) reported “Inadequate non-cognitive behaviors have been identified as factors that cause clinical instructors to question a student’s competence” (p. 97). Scott et al. (1995) surveyed 462 allied health programs including OT and suggested “Allied health programs
consider non-cognitive variables such as personality traits in addition to academic qualities in the selection and admission of students to the allied health program” (p. 99).

Hollman et al. (2007) concluded that there is conflicting evidence regarding non-cognitive measures predicting clinical performance. Salvatori also states, “There is limited evidence that any of the non-cognitive measures currently in use are sufficiently reliable and valid to predict success as a student let alone as a future health professional” (2001, p. 170). The need for this evidence was discussed by Holm (2000) in her Eleanor Clark Slagle lecture mandating evidence-based practice for survival of the field. OT programs should therefore model to their students admissions procedures that demonstrate evidence that they are valid and reliable. A study by Peacock & O’Shea (1984) attempted to identify personality variables significantly related to OT job performance and include desirability (social approval and acceptance), lack of desire to understand many areas of knowledge or logical thought, nurturance (sympathy and comfort), change (adaptation), achievement, and lack of desire to draw attention to the self. These characteristics are related to the GAP achievement summary by this author in Table 2.

The GAP is designed to evaluate applicants to an OT program with an achievement summary based on five core areas including research, practice, education, leadership, and professional socialization. These five core areas were identified by Grapczynski and Kane (1990) as a result of an extensive OT literature review, looking at what is needed for the field to be effectively professionalized. Applicants to the OT program, who have some previous experience in these areas, are anticipated to be successful OT students and may facilitate future professionalism in the field of OT.
The Need for Professionalism in the Field of OT

The field of OT has been predominantly made up of women. Currently, approximately 95% of OTs are women and 5% are men (AOTA, 2006a). Women have historically taken time off from the field to raise families, reducing their time in the field. The median time in the field for all practitioners is currently 13 years, up from 9.5 years in 2000 (AOTA, 2006a). This time in the field, although increasing in length, can limit the number of therapists doing research and contributing to the field’s knowledge base. The need for a long term commitment to the field was discussed by Agho et al. (1999) requesting “valid and reliable criteria to select applicants who can best serve and make long-term commitments to the profession” (p.13). OT has also had a low level of professional involvement (Rogers et al., 1992), which has been a limitation in the development of the field. This professional involvement is necessary for professionalization of the field of OT. Professionalization is defined by Dictionary.com (2009) as “to give a professional character or status to; make into or establish as a profession, to become professional.” Several authors have reported characteristics that are important for professionalization and are compared to the GAP in Table 2. The professional characteristics in the field of OT identified by Rogers et al. include education, leadership, administration and supervision, oral presentations, publications, research, clinical practice, public relations, product development, and professional recognition. Isenburg and Heater (1994) reported the need for selecting students with the potential for developing the OT profession. A review of the OT literature by Grapczynski and Kane (1990) revealed five core areas for professionalization in the field of OT that include research, professional socialization, education, practice, and leadership. Table 2
compares the commonalities of professional characteristics that are reported in the literature with the GAP core areas.

**Research.**

Schein (1972), as cited by Isenburg & Heater (1994, p. 758), defines a profession as “the ability to produce and defend a distinct body of practice knowledge.” Yerxa (1978, p.2) reported over thirty years ago “Engagement in scholarly activity must become the highest priority for occupational therapy faculty and students with the next few years – or else we are in danger of extinction at the university level.” Lyons, Mackenzie, Bore, and Powis (2006) discuss that excellence in OT requires problem-solving and critical thinking, which are skills that are important to the research process. The field of OT has moved from a baccalaureate to a master’s degree as late at 2007. A study by Roger and Mann (1980) reported the higher the degree, the greater the professional contributions. An admissions tool for the OT student should therefore consider if the applicant has been involved in any aspect of research, in hopes of providing a starting point for further development of these skills in the OT curriculum, and possibly future contributions to the body of knowledge in OT.
Table 2
Commonalities of Professional Characteristics Reported in the Literature and Compared to the GAP (comparisons made by this author)
Professional Socialization.

Professional socialization is defined as concern for professionalization of the field. In experienced OT practitioners it may be demonstrated by such behaviors as being an advocate for the profession, membership and participation in professional organizations, or even political activity for the OT field. In regard to the OT applicant it may be evident prior to admission. These professional behaviors are as important as the knowledge base required in the field of OT and other health care professions. These behaviors have been categorized by O’Rourke (1989) as:

1. Normative dimension: values and ethics supporting self-regulation.
2. Evaluative dimension: overseeing standards of practice and guiding professional activity.

These professional behaviors should continue to be developed in the academic and clinical education settings. Other health care fields have found professional behaviors to be important. The American Council on Pharmaceutical Education (1997) has expanded guidelines on admissions criteria to include the following:

Admissions criteria, policies, and procedures should give consideration not only to scholastic accomplishments, but also to other factors such as motivation, industry, and communication capabilities that show the student’s potential to become a life-long learner and an effective professional. (p. 28)

Objectively measuring these professional behaviors is difficult during the admissions process. Volunteering is one possible way to quantify motivation and industry and possibly
O’Rourke’s (1989) normative dimension including values and ethics supporting self-regulation. The field of OT also has a set of core values reported by Kanny (1993), which includes altruism or an interest in serving others. The study by Auriemma (2007) reported 38% of OT programs required volunteer experience to ensure direct exposure to the OT profession by the applicant. Volunteering and professional socialization may be associated with specific personality characteristics of OT applicants. Lyons et al. (2006) reported that excellence in the OT profession requires valuing the autonomy of others, the ability to relate to others, and enthusiasm for the profession. Agho et al. (1999) reported that for Physical Therapy (PT) and OT programs, volunteering was the fourth most critical factor considered in the student selection. Applicants to the OT program are given a score on the GAP for professional socialization based on volunteer work with any disabled group beyond the 50 hours required by the admissions process.

Education.

The shortage of OT faculty at the university level gives support to the need to have OT practitioners with some background in teaching and education (Fisher & Keehn, 2007). Jones (2008) reported a 10% vacancy rate for full time core faculty in 2007. Jones (2007) also reported on six OT assistant programs that filed letters of intent and have delayed their applications as they are unable to locate qualified program directors. In addition to teaching the profession, the field of OT itself utilizes client, family, and caregiver teaching and education as provided by the OT practitioner. Rogers (1992) reported education as one of the professional characteristics important to OT. The GAP gives the applicant a score for education based on any teaching role in any kind of organization in hopes of selecting OT students with some background in education.
Practice.

Patient and client contact is foundational to the field of OT as well as many health care fields. Specific components of what makes up appropriate patient contact in regard to attitudes and behaviors have been discussed by many professions. The American Board of Internal Medicine (1995) has described the following elements for inclusion in physicians training: altruism, accountability, excellence, duty, honor, integrity, and respect for others. Scott et al. (1995) reported that the top six characteristics and skills needed for health care professions were communication, academics, work/study habits, problem solving, and altruism. Respect for an individual’s autonomy is reported by Lyons et al. (2006) as important to the practice of OT as it related to showing respect for the worth of each individual. The field of OT also has a set of core values that contribute to the therapeutic environment or practice. These values, as reported by Kanny (1993), include altruism, equality, freedom, justice, dignity, truth, and prudence. The GAP gives the OT applicant a score for any paid work involving direct patient care. This experience can be reflective of an interest in practice, which is one of the core areas of the GAP.

Leadership.

Sandman (1998) reports leadership as a characteristic that most learners and educators strive to develop. In a study of physical therapy (PT) students, Gottlieb & Rogers (2002) found a weak but positive correlation between GPA and the leadership and initiative aspect of the assessment called the Dimensions of Self-Concept Form H (DOSCH-H). The literature review by Grapczynski and Kane (1990) noted that the field of OT is in transition and in need of strong leadership. Rogers (1992) also lists leadership as an important professional characteristic to the OT profession. Organizational skills, including being a good
Validity

manager related to leadership, were found to be one of the top five characteristics necessary for excellence in OT by Lyons et al. (2006). Webb et al. (1997) studied medical students with the tool the Non-Cognitive Questionnaire-Revised (NCQ-R) and reported that the non-cognitive measure of leadership when combined with sub-scores from long-range goals, community ties, and academic familiarity produced the strongest relationship between the NCQ-R and certification scores. Leadership was most recently supported by the AOTA strategic planning initiative, which developed a centennial vision for the profession’s one hundredth birthday in 2017 (AOTA, 2007b). The board of directors stated the importance of “preparing OTs and OTAs for the 21st century” and “strengthening our capacity to influence and lead” (AOTA, 2007b, p. 614). This need for courageous OT leadership in this time of rapid change was also stated by Moyers (2007): “Leaders with courage will have to take calculated risks in challenging the old order of how our processes are enacted” (p. 623). In addition, AOTF has recently developed a leadership institute where participants explore leadership concepts, analyze their own leadership skills, and develop their leadership potential (Moyers, 2007). The AOTA sees this as one way to promote the emergence of strong occupational therapy leaders. An admissions procedure that considers previous experience in leadership, such as the GAP, may also be one way to identify these traits in selecting OT students.

The Developmental Process and the OT Student Applicant

One may argue that OT student applicants will develop the appropriate skills, knowledge, and characteristics for professionalism after they have been admitted to an OT program. Why should an admissions tool be concerned about professional characteristics that may be developed later, during the OT program? In the design of the curriculums for GVSU
and Medical College of Ohio, Grapczynski and Kane (1990) based the curriculum objectives as well as the GVSU admissions tool on the characteristics needed for professionalism in the field of OT. With the limited number of spaces for OT students, previous experience would assist in locating students with some experience in these core areas, as opposed to students who do not have even a baseline in these areas. Once admitted to the program, each student should developmentally progress along a continuum. Several theories of adult development can be helpful as a framework in understanding how the faculty assists with the development of the student in the core areas. Adult development discussed by Erickson (1982) includes eight stages that require a choice between opposites (negative and positive) with a good ratio of positive choices before moving to the next stage. Cross (1981) applies this to the adult educator whose role it is to move the learner to the next stage of development. This should be done by assisting the student in examining basic operational assumptions. Table 2 outlines Erickson’s developmental stages and relates these stages to professional development.
Table 3

*Erickson’s (1982) adult development and Cross’ (1981, p. 24) application for the adult educator, as this author related to the professional development of the OT student.*

<table>
<thead>
<tr>
<th>Erickson (1982)</th>
<th>Erickson’s Developmental Stage</th>
<th>Erickson’s Positive Outcome (to move on to the next stage)</th>
<th>Possible Professional Development as an OT</th>
</tr>
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<tbody>
<tr>
<td>Adolescence (can be a part of adult development during times of conflict)</td>
<td>Identity vs. Identity Confusion</td>
<td>Fidelity and Loyalty</td>
<td>Development of a professional identity as an OT: Develops in Professional Socialization areas of the curriculum and often takes place in fieldwork and after graduation. Learns to make personal commitment to another as spouse, parent or partner: may be part of a balanced life as an OT. Practice, Leadership, Education, Research, and Professional Socialization can develop before admission, during the program, and after graduation.</td>
</tr>
<tr>
<td>Young Adulthood</td>
<td>Intimacy vs. Isolation</td>
<td>Love</td>
<td></td>
</tr>
<tr>
<td>Middle Adulthood</td>
<td>Generatively vs. Self-Absorption</td>
<td>Care for Others</td>
<td></td>
</tr>
<tr>
<td>Older Adulthood</td>
<td>Integrity vs. Despair</td>
<td>Wisdom</td>
<td>Education and Research: may take on a role in education as an experienced OT (workshops, teaching) May be nearing retirement from clinical practice.</td>
</tr>
</tbody>
</table>
Another developmental framework is the Reflective Judgment Model, which describes the development of reasoning from adolescence to adulthood (King & Kitchener, 1994). This model suggests that there are several stages in which students understand the process of knowing. Although a student may come into the OT program with some baseline in the core areas of research, practice, education, leadership, and professional socialization, these areas should continue to develop in the OT program and beyond as a practicing therapist. Each of the student applicants can be at a different developmental level in regards to the areas on the GAP achievement summary. These areas are constantly in a state of growth even after the student graduates from the program and practices as an OT. It is the role of the educator to facilitate this growth individually with each student. With more students than openings in the OT program, selecting OT students who have some initial experience in these GAP core areas may result in OT practitioners who are at a better starting point and will develop further in these areas than an applicant with limited experience.

Another area of study would be to examine the graduates who are in practice several years later and compare their initial GAP score to where they are now. For example, does a high GAP score in research result in a practitioner who is more likely to do research, adding to professionalization of the field? Each area of the GAP could then be correlated with the OT graduates in future studies. The first step in this process is this study and looking at overall validity and reliability of the GAP with potential for additional studies in the future.

*Determining Validity and Reliability of a Tool*

Validity is the property of a tool that indicates that the tool does what it says it does (Salkind, 2006). In this case it would be demonstrated if the GAP selected successful OT students based on a correlation between the GAP and academic and fieldwork scores.
Validity is whether the tool measures consistently (Salkind, 2006). With the GAP it would be demonstrated if multiple raters obtained similar scores and supported interrater reliability. Following is a review of the literature as it relates to validity and reliability in admissions tools. The chart in Figure 4, as described by DeVon et al. (2007) based on the work by Trochim (2006) and modified to include concepts on concurrent validity by Kurpis & Stafford (2006), assists the reader in categorizing the different types of validity.

**Construct Validity.**

Construct validity, as stated by Kurpis & Stafford (2006), is the degree to which the items on the assessment are interrelated and measure the theoretical trait or construct the test is designed to measure. The theoretical traits or constructs that the GAP is designed to measure are traits that predict selection of successful OT students and traits needed for the OT field to be effectively professionalized. These traits are then used to evaluate applicants and determine student selection for the OT program. The OT literature has been reviewed by Grapczynski and Kane (1990) who identified the core areas of practice (care of patients), leadership, education (teaching), research, and professional socialization (volunteer work). These individual constructs or core areas were correlated with measures of OT student success, including fieldwork scores, final grade point, and passing of the OT certification exam. Construct validity is supported if the scores on each trait reflect and correlate to measures of student success. DeVon et al. (2007) report that “construct validity is supported if the scores reflect the framework as hypothesized” (p. 157). The following hypothesis was developed:
Hypothesis: The GAP will demonstrate validity and reliability as demonstrated by statistically significant ($r \geq .7$) correlations with the GAP and specific academic and fieldwork outcomes.

*Criterion Validity.*

Criterion validity is the correlation of a scale with some other measure or trait (DeVon et al., 2007) and includes concurrent, predictive, convergent, and discriminate validity (see Figure 3). If these two measurements are completed at the same time, it is considered concurrent validity, and if correlated to predict performance, it is considered predictive validity. Concurrent validity is discussed by Kurpius and Stafford (2006) as “a strong relationship between test scores and some criterion measured at the same time” (p. 149). Predictive validity was measured by correlating scores on the GAP with grade point, demographics (sex, age, race, and disability), national certification exam passing scores, and fieldwork scores. It is important to note that the fieldwork scores have specific issues of validity. The fieldwork evaluations are not completed by the faculty but by practicing clinicians. A study by Katz and Mosey (1980) found the fieldwork evaluations to have high mean scores and low variability, limiting their usefulness. A study by Mann and Banasiak (1985) found that fieldwork scores did not correlate with academic grades.
Construct validity, as stated by Kurpuis & Stafford (2006), is the degree to which the items on the assessment are interrelated and measure the theoretical trait or construct the test is designed to measure. Criterion validity is the correlation of a scale with some other measure or trait (DeVon et al., 2007) and includes concurrent, predictive, convergent, and discriminate validity. Translational Validity is made up of two types of validity: face validity and content validity.
Some of the clinicians have received more training with the fieldwork evaluation than others, contributing to the subjectivity of this score. The AOTA publishes materials on fieldwork supervision and scoring in an attempt to increase consistency with this tool. This limitation will be noted in the correlation studies. The fieldwork evaluations have been recently revised, and the new fieldwork form has been in place since 2004. It has a range of scores from 0-168 with a passing score of 122. Only the data from the new fieldwork forms were correlated. It is hoped that this study will add to the body of knowledge of the new fieldwork form (2004 to 2008). This new fieldwork form has not been fully evaluated for validity and reliability. Predictive validity for the certification exam scores was determined by obtaining pass/fail data from the GVSU OT program director to determine if there is a correlation between the GAP and first time passing of the certification exam. This descriptive ordinal data were coded as follows:

0 = did not pass the exam.
1 = passed the certification exam.

The data were correlated with the total score on the GAP and each subsection of the GAP.

Convergent Validity.

Convergent validity is also a type of criterion validity that compares the GAP with other measures of same construct. The GAP has constructs that include practice (care of patients), leadership, education (teaching), research, and professional socialization (volunteer work). A group of students who have applied to the OT program and have received a GAP score were given subsections of the California Psychological Inventory (CPI) or CPI 260 (see Appendix B). Examples of subsections that most closely reflect the constructs of the GAP
include leadership and managerial potential (with leadership), sociability (professional socialization), empathy (practice and teaching), responsibility (practice and teaching), and achievement via independence (practice and leadership). The subsection scores on the CPI 260 were correlated with the scores for each core area scored on the GAP. The CPI 260 has been used by other researchers who found that it could discriminate among medical students who performed well and those who did not perform well on several non-cognitive factors (Cariaga-Lo, Enarson, Crandall, Zaccaro, and Richards, 1997). The non-cognitive factors that resulted in risk of not completing medical school included students who were more norm-favoring, less self-realized, and had a lower tendency for achievement through independent means, based on their score on the CPI 260.

**Discriminate Validity.**

Divergent or discriminate validity relates to constructs that are theoretically different. For example, one may expect a low correlation between the GAP in the area of leadership and the CPI 260 construct of Achievement via Conformance, which is defined as success in well-defined and structured situations (Gough & Bradley, 2005). These two constructs are often opposed, as leadership skills can require success in less structured and less defined situations. In this situation, the two instruments appear to measure theoretically different traits showing evidence of discriminate validity. All of the areas of the CPI 260 will be correlated to locate areas that may identify divergent or discriminate validity.

**Translational Validity.**

Translational Validity is made up of two types of validity, face validity and content validity. Each will be used to evaluate the GAP. Content validity is defined by Streiner and
Norman (2003) as “consisting of a judgment whether the instrument samples all the relevant or important content or domains” (p. 5). To evaluate content validity, expert opinion was sought from several OT professors involved with the admissions of OT students. The experts were asked to rate the content areas or traits on a five point Likert-type scale as it relates to selection of OT students (see Appendix B for this score sheet). The experts were provided with general information as to how the GAP was developed based on the literature review by Grapczynski and Kane (1990) and the sample forms (Appendix C). The experts were asked to rate each item as 1 for totally irrelevant content and 5 for extremely relevant content. This scale has been advocated by Lynn (1986) and Waltz and Bausell (1981). A space for comments was also included to provide opportunity for the experts to write qualitative comments that were analyzed for common themes.

Face validity is defined by Streiner and Norman (2003) as “whether, on the face of it, the instrument appears to be assessing the desired qualities” (p. 5). Face validity relates to how the GAP is measuring what it is supposed to measure and how the users of the scale perceive the GAP. Face validity is a subjective evaluation and is the weakest form of validity (DeVon et al., 2007). Nevo (1985) describes a method for rating face validity by having users of the test (or scale) rate it on a five-point scale. This scale includes a 1 for “irrelevant” to 5 for “extremely suitable” (see Appendix B for this score sheet). The GAP was rated by several recent practicing OT graduates as it was used in their selection into the GVSU OT program. A space for comments was also included to provide opportunity for the graduates to write qualitative comments that were analyzed for common themes.
Reliability.

Interrater reliability as stated by Portney and Watkins (2000) “concerns variation between two or more raters who measure the same group of subjects… is best assessed when all raters are able to measure a response during a single trial” (p. 69). The number of raters necessary to establish interrater reliability varies in the literature. A study by Winch and Anderson (1967) evaluated how many judges were needed to establish a consensus when measuring specific personality traits. Winch and Anderson concluded that for a stable significance of .01, ten judges were needed for seventeen subjects. A significance level of $r \leq .05$ was chosen by this author for the reliability of the GAP. A study by Yoon, Starr, Perkins, Bloom, and Sie (2008) evaluated interrater reliability with six raters rating fifty videotapes using a significance level of $r \leq .05$. Reliability of the GAP was determined by having five trained evaluators individually score ten random applicant samples and then compare the individual scores. Each chart took about fifteen minutes to score. Most of the raters could commit to only a three-hour block of time to rate the charts. This time limitation was also a factor in determining that ten was the number of charts to be rated. Originally six raters were asked to participate, but only five were available on the day of the study. Each area of the GAP (practice, leadership, education, research, and professional socialization) has categorical criterion that awards the applicant specific points for achievement. The scores between evaluators were compared by correlation to determine the GAP’s interrater reliability (see Table 6). Verbal comments were tape-recorded during the session, transcribed, and analyzed with the written comments for common themes.

There are many other types of reliability that do not apply to determining the reliability of the GAP. Test-retest reliability is defined by Salkind (2006) as “when you want
Validity

42

to know whether a test is reliable over time” (p. 43). The GAP achievement summary evaluates the applicant only at the point of the admissions process and will therefore change over time with additional activities. Internal consistency reliability is defined by Salkind as items on the tool “represent one, and only one dimension, construct, or area of interest throughout the test” (p. 46). The GAP achievement summary is designed to measure five different core areas resulting in multiple constructs. Parallel forms of validity are also defined by Salkind as “when you want to examine the equivalence or similarity between two different forms of the same test” (p. 46). The GAP is a tool to summarize the applicant’s achievement rather than a test with multiple variations resulting in this type of reliability being non-applicable to the GAP.

Letters of Recommendation

Letters of recommendation have been commonly used in the selection of OT and health care professions students. Agho et al. (1999) found in a survey of health care profession admissions procedures that the third most common item was letters of recommendation, while Auriemma (2007) found it to be the second most common. Kirchner and Holm (1997) reported poor predictive validity due to the bias towards positive comments. Scott et al. (1995) found that 71% of health care programs used references letters but also reported their limited validity. With the GVSU admissions tool, the scores from the GAP achievement summary are added to the scores from two letters of recommendation, one from an OT and one from a professor or employer in the case of a non-traditional student.

Writing Sample and Interview

Although the writing sample and the interview are part of the process, it is only by obtaining an adequate score on the GAP achievement summary, grade point, and letters of
recommendation that an applicant is allowed to sit for the writing sample and interview. There are many issues with test re-test reliability of interviewing and writing samples. Interviews, even when standardized, have great variability due to their subjectivity in scoring. Bridle (1987) found that interviews were not predictive of OT student success in the program based on attrition rates, academic performance, or fieldwork scores. Scott et al. (1995, p. 102) reported difficulty in obtaining “consistent and objective data from interviews.” In her literature review regarding written submissions as part of the admissions procedure in health care, Salvatori (2001) reported:

> The use of writing samples as a selection tool is not only limited but the content, format, and rating criteria vary across programs. Although a few investigators report positive results in terms of reliability and predictive validity of such measures, more evidence is needed in this regard. (p. 169)

This study addressed the reliability and validity of the GAP’s achievement summary. Future studies will be needed to determine if the writing samples and interview are valid, reliable, or even necessary as part of the GAP based on the results found in this study.

**Bias in Admissions Tools**

When evaluating admissions tools, it is important to be aware of bias that may occur in the use of the tool. Bias in admissions tools can occur when scores vary across different groups on some factor not related to the tool. Bias was defined by Cleary (1968) as a test that measures different things for different people and indicates that people with the same scores should do equally well when related to another external criterion. For example, if the GAP is shown to have consistently different scores between males and females, then it may be possible that the GAP has a gender bias (Salkind, 2006). It is also possible that the tool is
demonstrating true differences between the two groups. Steps that would need to be taken to evaluate the GAP for bias is to first compare the scores of each gender to see if there is a difference, and then empirically investigate the construction of the GAP to determine if there was a gender bias or not. Cleary reported a regression model as one method to demonstrate bias. The currently available GAP data set is made up of predominantly white female applicants at this time, making gender comparisons difficult and a limitation of the study.

The field of OT has historically been made up of middle and upper class white women. In 1953 AOTA recommended that the field encourage more men to lend stability to the profession. The percentage of men in the field was reported by Rider and Brashear (1988) to increase from 3.9% to only 5% in the period studied from 1970-1985. Gender data were obtained from the GVSU OT applicant files for correlation, but a small sample size was evident. Future studies will most likely be recommended if findings are indicative of a possible correlation.

Gender is just one characteristic that should be considered for possible bias with the GAP. Other influences that are reported in the literature that should be considered include race, socio-economic status (SES), non-traditional students (NTS), and family influence (American Sociological Foundation [ASF], 2003; Smedley, Butler, and Bristow, 2004).

Race.

Minorities are underrepresented in the allied health professions (Agho et al., 1999). Much of the literature on admissions and race relates to data obtained from comparing scores on standardized tests to academic performance. Although the GAP is not a standardized test but an admissions tool, grade point average is one aspect of the GAP that relates to academic performance. In the United States, there is long history of unequal educational opportunities
for minorities. More than 70% of African American students and 76% of Latino children attend predominantly non-white schools (American Sociological Association, 2003). Camera and Schmidt (1999) report that students in predominantly white schools are exposed to more rigorous coursework and more college preparatory coursework than students in schools mostly made up of minorities. This can lead to differences in college preparation which may affect college grade point. Other factors that can negatively affect minorities’ academic performance in college have been cited in the literature and include pressures to perform well (Smedley et al., 1993) and peer group influences (Fordham & Ogbu, 1986). Grade point is measured on the GAP to include a score for cumulative (a possible 10 points) and prerequisite (a possible 20 points) course work. To determine if there is a bias with the GAP in regard to race, the scores of minorities would need to be compared to scores of non-minority applicants. There has traditionally been an underrepresentation of minorities in the GVSU OT program and nationally in the field of OT, resulting in differences in sample sizes. The issue of a lack of minorities in the field was addressed by an AOTA manpower report in that there was not only a shortage of occupational therapists, but only 8% of the OT workforce was made up of minority groups (2006a). The admission of diverse students into OT educational programs was then strongly encouraged by AOTA leadership and became part of the organization’s strategic plan. In 2004, the AOTA published a position paper on occupational therapy’s commitment to nondiscrimination and inclusion. Table 4 reports a listing of the ethnicity of the OT student population in 2006. It appears that the need for diversity in the field of OT is clear.

What factors are responsible for this lack of diversity? Is there a lack of minority applicants or are admissions tools demonstrating bias against minorities in some way? It is
important to consider the GAP in regard to possible admissions bias by comparing scores of minorities to non-minorities. Data on race were obtained from the GVSU OT applicant files for correlation, but a small sample size in regard to diversity was demonstrated. Future studies will most likely be recommended if findings are indicative of a possible correlation.

*Socio-economic Status.*

The achievement summary of the GAP scores the previous experiences of the individual as they relate to the specific core areas. Some of these experiences are paid and some are volunteer. It could be argued that individuals of various socio-economic status (SES) have fewer opportunities for volunteering due to the need to obtain paid work for living expenses. This could affect the score on the GAP if the applicant has not had an opportunity to do volunteer activities. It could also be argued that an individual who has worked for pay in patient care, teaching, or leadership could receive a higher score on the achievement summary, resulting in a positive bias on the GAP. SES is not available with the current data set but could be a future area of study.

*Non-traditional Students.*

Non-traditional students tend to work for varying amounts of time before applying to OT programs and tend to be older than traditional students. A study by Howard and Watson (1998) in regard to OT students found no relationship between age or entry qualifications and academic success. This work experience could result in the GAP demonstrating a positive bias toward non-traditional students if this work involves patient care, teaching, or a leadership role. Paid work that does not involve these aspects would result in a lower score on the GAP and the possibility of a negative bias with non-traditional students. It could also be argued that a non-traditional student may have less time to volunteer and accumulate
professional socialization and leadership points (related to volunteering) on the GAP due to work schedules. The age of the student was part of the demographic information obtained from the student files for possible correlations to the GAP admissions score.

*Family and Peer Influence.*

Family influence may result in a bias in scoring the GAP. If an applicant has a family that encourages the applicant and exposes him or her to opportunities that relate to the specific components of the GAP, an increased score may be obtained. This has been reported by Bowen and Bok (1998) who note that parental involvement in the student’s education may play a greater role in the student’s performance than that of family income or parental education. The current data set does not report information on family influence. This correlation will not be part of this study, but it may be recommended for further study.

In addition to family influence, an OT candidate’s interaction with his/her peers may also influence the GAP scoring. For example, GVSU has a pre-OT club open to all students that meets monthly to provide information on the OT program admissions requirements, information about the field, and opportunities to hear guest speakers. The club provides peer influences (or information) to the applicant as to specifically what is required on the GAP. This information is also on the web site for the GVSU OT program. A positive correlation between membership in the pre-OT club and the score on the GAP may indicate a possible bias. Attendance at the pre-OT meetings is not taken and is not part of the current data set. Future studies could look at involvement in the pre-OT club and scores on the GAP.
Table 4

*Ethnicity of OT Student Population Spring 2006*

<table>
<thead>
<tr>
<th>GROUP</th>
<th>NUMBER OF OT STUDENTS</th>
<th>PERCENT OF OT STUDENT POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian</td>
<td>7,327</td>
<td>79.5%</td>
</tr>
<tr>
<td>Black/African-American</td>
<td>640</td>
<td>6.9%</td>
</tr>
<tr>
<td>Hispanic/Latino/Latina</td>
<td>513</td>
<td>5.6%</td>
</tr>
<tr>
<td>Asian-American or Pacific Islander</td>
<td>479</td>
<td>5.2%</td>
</tr>
<tr>
<td>Native American or Alaskan Native</td>
<td>42</td>
<td>0.5%</td>
</tr>
<tr>
<td>Multiracial</td>
<td>77</td>
<td>0.8%</td>
</tr>
<tr>
<td>Other (Non-Caucasian)</td>
<td>138</td>
<td>1.5%</td>
</tr>
<tr>
<td>TOTAL OT STUDENTS</td>
<td>9,550</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: 2005–2006 OT Program Annual Data Sheets, AOTA Accreditation Department

Note: Not all OT programs reported data related to student population. Therefore, the total number of OT students indicated above is not entirely reflective of the enrollment total of 10,861 students reported in 2006.
Test Fairness.

According to Salkind (2006), “Test fairness touches on the very sensitive issue of the use of tests and the social values that underlie such usage” (pp. 288-89). These social values should therefore further society’s goals. The best way to determine the fairness of the GAP related to social values is by looking at the social values gathered through face and content validity with the users (previous students) and experts in the field of OT admissions (see section on face and content validity). The goals of the GAP are based on the OT literature for selecting applicants who will assist with professionalization of the field of OT. Society’s goals could also be related to the GAP based on the aging population and the increased need for OT. The qualities inherent in professionalism are important to the growth of the field of OT in regard to research and practice. Increased research in the field can support improved evidenced based practice which could be argued to be supportive of society’s values for quality health care. Fairness of the GAP will be based on the literature and the results of face and content validity surveys. These surveys will have a comment section to allow the users of the GAP and the experts in OT admissions to supplement the quantitative survey.

Bias of Weighting of Items on the GAP.

The GAP is the evaluative tool by which the applicant attempts to achieve a score high enough to qualify for an interview and provide a writing sample. In an attempt to obtain the next step of the admissions process, the maximum number of points an applicant could obtain is 60. With 30 of those possible points for grade point, 10 are the maximum for two letters of recommendation (5 points each), and 20 points are the maximum for the achievement summary that includes a possible 4 points each for practice, leadership, education, research, and professional socialization (see Figure 5). The designer of the GAP
assigned these specific weight distributions to the GAP to consider the experiences of the applicant in regards to professional activities and not just rely on GPA (Grapczynski, personal communication, May 31, 2008). There is support in the literature for this distribution or weighting. In regard to grade point, a review of the literature by Salvatori (2001) reported, “The evidence is overwhelmingly clear that pre-admission academic grades predict subsequent in-course academic performance in all professional disciplines” (p. 161). The designer of the GAP put more emphasis or weight (20 out of 30) on the prerequisite performance and less (10 out of 30) for the last 60 hours of undergraduate work, to reflect courses that were more relevant to the OT course of study. It is important to note that the last 60 hours of undergraduate work in most cases include at least some if not all of the pre-requisites. There is also some support to the weighting of the GAP for GPA as only part of the overall score as reported by Salvatori (2001), who states, “Although GPA is the single best predictor of academic achievement, much of the variance in academic performance still remains unexplained” (p. 170). The weighting of the items on the GAP are listed in Figure 5. Letters of recommendation have been found to be less predictive of academic and clinical outcomes (Kirchner & Holm, 1997). Nayer (1992) reports that this form of evaluation is often biased toward positive comments. These letters of recommendation have been given a relatively low score of 10 out of the possible 60 points on the admissions tool. The designer of the GAP recognized the evidence of a possible bias in these letters and therefore assigned a smaller weight of only 10 possible points (Grapczynski, personal communication, May 5, 2008). This study correlated the score on the achievement letters with student outcomes.
<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>POSSIBLE</th>
<th>ACTUAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. GPA</td>
<td>(Minimum 3.00 in both categories)</td>
<td></td>
</tr>
<tr>
<td>last 60 hrs of undergraduate work</td>
<td>_______</td>
<td>10</td>
</tr>
<tr>
<td>prerequisite performance</td>
<td>_______</td>
<td>20</td>
</tr>
<tr>
<td>2. Recommendation Letters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OT + ED</td>
<td>_______</td>
<td>10</td>
</tr>
<tr>
<td>3. Achievement Summary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(See Achievement Summary Criteria for point awards)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Maximum 4 points each category with minimum of 5 points total in all categories.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Practice</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Maximum # of points given for 5 or more years of health care practice in any discipline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Leadership</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>c. Education</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>d. Research</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>e. Professional Socialization</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

PAPER REVIEW SCORE - STUDENTS MUST HAVE A MINIMUM SCORE DETERMINED BY THE ADMISSIONS COMMITTEE TO QUALIFY FOR INTERVIEW AND WRITING SAMPLE PARTICIPATION

Figure 5
GAP Areas with Specific Weighting
Twenty points of the GAP are obtained from the score on the achievement summary with 4 points maximum for each of the areas (practice, leadership, education, research, and professional socialization). The designer of the GAP reported that this weighting was done to provide students some type of credit for that life experience and to give credit to students who had completed activities relevant to the professionalization of the field. There is agreement in the literature “across the health professions that the student selection process should include an assessment of cognitive and non-cognitive abilities” (Salvatori, 2001, p. 169). Examples of some of those non-cognitive abilities are listed by Salvatori as “work experience, interpersonal skills, motivation, maturity, empathy, and ethical integrity” (p. 170). The GAP achievement summary may be one way to quantify some of these non-cognitive areas. Based on this literature, the weighting of 20 out of 60 possible points for the achievement summary may be supported if correlations are found between the GAP achievement summary scores and student outcomes.

Conclusion on Bias.

Areas of potential bias need to be evaluated with this and any admissions tool. These areas may include race, socio-economic status, non-traditional students, family and peer influence, test fairness, and the weighting of items. Identification of correlations between these variables was analyzed with statistical software. Content and face validity surveys may assist in reporting possible bias by means of qualitative and quantitative data. The designer of the test reported an attempt to consider multiple factors, based on the literature, in the weighting of the GAP areas in an attempt to select individuals who would contribute to professionalism of the field. This complex area of potential bias and the GAP will need further study if correlations are identified.
Confounding Factors

Once a student is admitted to the OT program at GVSU by achieving an appropriate score on the GAP and successfully completing the writing sample and interview, the reader needs to consider if there are confounding factors that may affect the final academic and fieldwork outcomes of that student. For example, what are some of the reasons that a student would perform well on the GAP and not necessarily perform well on the outcome measures? Other authors have looked at reasons students fail, but it should be kept in mind than none of these researchers used the GAP as an admissions tool. Mann and Banasiak (1985) suggest several reasons that a student may do poorly on fieldwork. These include:

1. Admissions criteria to the academic program
2. Personality problems associated with the student or fieldwork supervisor
3. Academic curricula deficits.

This gives some support for admissions tools that are valid and reliable. An article by James and Musselman (2005) reported several reasons that students fail in fieldwork, including:

1. Poor problem solving skills
2. Poor clinical reasoning skills
3. Difficulty getting the “big picture”
4. Difficulty responding to constructive feedback.

The question remains: Would an admission tool that gives credit for activities related to specific life experiences and associated with professionalism (such as those assessed in the GAP) assist in selecting successful OT students (based on academic and fieldwork achievement)?
In regard to academic achievement, an article by Ramukumba (2004) explored the high failure rate in first-year OT students. This qualitative study found both academic and non-academic reasons for failure that related to the context of their learning and study. Academic issues may be best addressed with an admissions procedure that includes GPA which was discussed previously. Lyons et al. (2006) surveyed 175 OT practitioners on attributes they felt were important to OT other than academic attainment. This qualitative study reported five themes which include problem solving/critical thinking, able to interact with others, respect for individuals autonomy, organizational skills, and enthusiasm for OT. The authors stress the importance of considering these non-academic areas in admissions “…little consideration has been given to the selection of occupational therapy student using any criteria other than their academic competence…” (p. 291). It is important to consider a possible bias that Lyons only surveyed practitioners and not leaders in the field. A study of leaders in the field versus practitioners may have different results, especially therapists in leadership, education, and research roles, which are represented in the GAP achievement summary.

Another confounding variable that can affect the outcome of the certification exam is test anxiety. Here a student who may have done well in the OT program could have test anxiety that affects the score on the national certification exam. This has been reported by Steel (1997), who found that women and African Americans who were the academic vanguards of their peer groups were threatened by societal pressures and the judgment of
Figure 6. Author’s Summary of Areas of Potential Bias
others, resulting in decreased test performance. Figure 6 is a concept map constructed by this author that lists potential confounding factors that may affect student outcomes.

Chapter Two Summary

This chapter has discussed the literature on the need for OT practitioners, the increasing OT student applicants, admissions issues in health care and OT, the need for professionalism in OT, the developmental process and the OT student applicant, determining validity and reliability of an admissions tool, bias in admissions tools, and confounding factors that may affect student outcomes. This literature review supports the need for a valid and reliable tool that would assist in selecting successful OT students with non-cognitive characteristics that promote professionalism in the field of OT. The following chapter will discuss the methodology of this study.
Chapter Three: Research Design and Methodology

Introduction

This study analyzed the validity and reliability of an admissions tool in predicting academic and fieldwork achievement in occupational therapy (OT) students. Earlier chapters reported that there is a need for a valid and reliable admissions tool for OT programs. Chapter One provided an overview of the study including the research questions, and Chapter Two provided a review of the literature including the need for more OT professionals in a climate with fewer academic programs (six OTR programs closed in 2006, and five satellite programs closed between 2000-2008) and limited faculty. As OT program admissions committees evaluate an increasing applicant pool, there is a call to select students who will be successful in the program and thereby maximize the number of graduates into the profession. The literature review in Chapter Two discussed the need for professionalism in the field. Professionalism in OT may be enhanced by an admissions procedure that incorporates and measures core non-cognitive traits necessary for success as a health care professional. The admissions committee at Grand Valley State University (GVSU) also needs to be aware of and respond to several external factors that can be explained using the Parsons Thompson model discussed in Chapter Two. A valid and reliable admissions tool will help to navigate these levels of control and select successful OT students in programs with limited resources. This study used quantitative and qualitative methods to respond to the following question: To what degree is the Grapczynski Admissions Profile (GAP) a valid and reliable tool for selecting successful OT students? This chapter will describe the methodology of this study including a discussion of research traditions, research design, ethical/human subjects’ approval, and data analysis.
Research Traditions

The need for a valid and reliable tool for determining the selection of successful OT students requires evaluation of multiple aspects of validity as well as interrater or interobserver reliability of the GAP. This study used both quantitative and qualitative data to evaluate the GAP admissions tool.

In discussing quantitative research, Burrell and Morgan (1979) state “The functionalist approach to social science tends to assume the social world is composed of relatively concrete empirical artifacts and relationships which can be identified, studied, and measured through approaches derived from the natural sciences” (p. 26). Quantitative research, according to Creswell (2003), employs strategies of inquiry such as experiments and surveys, and collects data on predetermined instruments that yield statistical data. Correlations between the GAP admissions tool and student outcomes necessitated a quantitative approach facilitated with Statistical Package for the Social Sciences (SPSS) version 14 software as one of the methods utilized.

This quantitative approach results in some limitations especially in the area of face and content validity. Face validity is a subjective assessment and so it is often considered the weakest form of validity. Face validity relates to how the GAP is measuring what it is supposed to measure and how the users of the scale perceive the GAP. Nevo (1985) describes a quantitative method for rating face validity by having users of the test (or scale) rate it on a five-point scale. A quantitative scale for content validity has also been advocated by Lynn (1986) and Waltz and Bausell (1981).

In an attempt to obtain a more holistic understanding of the context under study, Gay (1976) reports the importance of allowing the respondent an opportunity to expand on their
questions should include an ‘other’ category for each item, a space for a subject to write in a response not anticipated by the researcher……it permits greater depth of response and may permit insight into the reasons for responses” (p. 129). One way this can be completed can be related to the qualitative interview process as discussed by Lofland, Snow, Anderson, and Lofland (2006), in that the investigator should “study your interview questions. Second, make sure they are neither leading nor closed” (p. 106). Although the face and content validity surveys were on-line and not one-on-one interviews, allowing open ended space for qualitative comments can add to the richness of the data. This multi-method approach using both quantitative and qualitative data is supported by Guba and Lincoln (1994), in that quantitative data provides “an objective reality, but grants it can be apprehended only imperfectly and probabilistically” (p. 111). The comments from the face and content validity surveys have been analyzed for common themes as stated by Merriam, (1998), “which have been inductively derived from the data” (p. 7).

In measuring interrater reliability, a multi-method approach was used as well. The quantitative data from each rater were used to determine interrater reliability using Interclass Correlation Coefficient (ICC) and SPSS version 14 software. Verbal comments made by the raters during the session were tape recorded by the principal examiner. The investigator encouraged the raters to comment about the admissions tool with open-ended questions. Comments made by the evaluators were transcribed and then analyzed for common threads and themes. This process, as discussed by Miles and Huberman (1994) who cite Chesler (1987), includes “underlining key terms, restating key phrases, reduce the phrases and creating clusters, reducing the clusters and attaching labels, identify core themes, generating
theory that explains their meaning, and integrating theories in an explanatory framework” (p. 87).

Research Design, Approach, and Participants

This study was made up of several steps which are illustrated in Figure 7.

Step 1: Predictive Validity.

A nonexperimental, quantitative, retrospective, study reviewed the GVSU OT student records from the last ten years. A permission letter from the GVSU OT Program director was obtained (see Appendix G). Correlations between scores on the GAP with student academic and fieldwork outcomes was completed to assess the predictive validity of the GAP. No other OT programs have used the GAP in their admissions process; therefore, additional samples from other institutions are not available.

Step 2: Concurrent Validity.

A nonexperimental, quantitative, prospective, correlational study evaluated scores on subsections of the GAP with a concurrent score on subsections of the California Psychological Inventory 260 (CPI 260) to assess the concurrent validity. Concurrent validity as stated by Kurpius and Stafford (2006) “indicates a strong relationship between test scores and some criterion measured at the same time” (p. 150). There are two dimensions of concurrent validity: convergent and discriminate. Convergent validity is demonstrated when there is a significant relationship ($r \geq .7$ or above for this study) between scores on two separate tools that are designed to measure the same construct (Kurpius and Stafford, 2006). When there is a relationship between scores on two tools not theoretically related, it is referred to by Kurpius and Stafford as discriminate validity. Participants were 21 volunteers out of the 33 applicants to the OT program in the winter of 2009 who were in the process of
being interviewed for the GVSU OT program. The CPI 260 was given in a CHS computer lab at the conclusion of their interview. The students were sent a cover letter prior to their attendance at the OT interview asking them to consider being part of the study. Volunteers were asked to sign a consent form (Appendix D) on the day of the study. No one who volunteered was excluded from the study. There was no cost or remuneration to the students. This population was selected because they had a current GAP score that could be compared to a current CPI 260.

**Step 3: Face and Content Validity.**

A nonexperimental, prospective, multi-method survey with a Likert type scale and space for open-ended questions evaluated the content and face validity of the GAP. Face validity has been discussed by Nevo (1985), who states “... the people who are involved with the test taking should be asked to do the rating. They cannot be replaced by psychometricians” (p. 289). The participants for face validity were a random group of five practicing OT GVSU graduates from the 2005-2008 classes. This researcher blindly marked a randomized list of these graduates. The marks that intersected a student name most completely were considered selected. These students were then asked by e-mail to participate. All five initially agreed to participate and returned a consent form. The survey was sent out to all five, but only three returned it. When participants failed to return the consent form or later the e-mail questioner, random selection from the compiled list continued. A second group of three graduates was selected and two returned the consent form and the survey for a total of five participants. This sample size has been recommended by Nevo (1985).
Nevo (1985) also discusses content validity, stating that “professionals cannot be replaced by laymen when the content or construct validity are being investigated” (p. 289), thereby calling for experts in the field. For content validity, a group of five experts in the field of OT admissions were identified by interviewing GVSU OT faculty. These experts were asked by e-mail to volunteer to rate the GAP tool in regard to content areas. All agreed and returned the provided consent form, but only two completed the survey. A second group of four experts was identified through discussions with the GVSU faculty. Of this second group, four agreed to participate by returning the consent form, but only one completed the survey. This resulted in three experts as participants for content validity. This sample size (3-5 experts) meets the recommendation by Lynn (1986).

*Step 4: Interrater Reliability.*

A nonexperimental prospective, multi-method study with multiple raters evaluated de-identified student GAP admissions data to assess interrater reliability with a quantitative ICC. The purpose of determining interrater reliability is, as stated by Salkin (2006), “when we want to know how much two raters agree on the judgments of some outcome” (p. 55). Participants were six current GVSU College of Health Professions (CHP) faculty who were asked by e-mail to voluntarily participate in the study. Six agreed, but only five were available on the day of the study, and consent forms were signed. A training session on how to score the GAP was held for those volunteering to participate on the day of the study prior to the scoring of the ten de-identified student charts. Each chart took about 15 minutes to score. This time limitation was a factor in determining that ten was the number of charts to be rated. The data also included transcripts of tape recorded rater discussions and written comments for qualitative analysis to determine common themes.
Predictive Validity Data Collection

The retrospective file review of GVSU OT student records (for the last 10 years) extracted GAP scores, demographic data (including sex, age, race, and disability), and fieldwork scores. Pass/fail scores on the OT certification exam were obtained from the OT program director, and grade point scores were compiled from the computerized GVSU Banner records. These data were entered first into an Excel spread sheet and then transferred to SPSS. Data were reviewed on the spread sheets prior to the correlations to check for accuracy. This was done with the assistance of a second reviewer who read the de-identified spread sheet aloud while this researcher checked the data entry on a second copy. Scatter plots were also used to do data checking to identify potential outliers. These data required using non-parametric correlations due to data that not only included ratio and interval measures, but ordinal and nominal measures, and data that were not normally distributed (Cann, 2009). These data also had many tied ranks or equal scores, so a Kendall’s Tau was utilized for the correlations. This assisted in evaluating predictive validity.
Figure 7. Study Design

The Reliability and Validity of an Admissions Tool in Predicting Academic and Fieldwork Achievement in Occupational Therapy Students

Validity 64
Range of Values

GAP Scores.

The total GAP achievement summary score prior to the writing sample and interview can range from 0-20. These data were considered ordinal as the intervals between the scores were not necessarily a defined unit or interval of measure. Each of the five core areas on the achievement summary has a score range from 0-4 (also ordinal data).

Fieldwork Scores.

A student must score 122 or above to pass their fieldwork. The range is from 0-168 (ordinal data). This fieldwork form and score has been in effect since 2006. Fieldwork scores from prior to 2006 will not be correlated as those scores have a different range and scoring system. These data were considered ordinal as although the score of 122 is passing, consistent and defined intervals of measure above and below 122 have not yet been determined with this instrument.

Certification Exam Scores.

These scores (ordinal data) are reported as pass/fail and will be coded as:

0 = did not pass the exam.
1 = passed the exam.

Grade Point.

These scores are on a 4 point scale (ratio data).

Concurrent Validity Data Collection

Concurrent validity was evaluated by asking the students who have applied to the OT program in the winter of 2009 and were in the process of being interviewed to volunteer to take the CPI 260 at the conclusion of their interview. This sample size was limited only
Validity

by the number of volunteers which was 21 out of the 33 students. This population was selected because they had a concurrent GAP score (ordinal data) that could be compared to a current CPI 260 (interval data). The data were then analyzed using statistical methods and SPSS software.


The CPI 260 is a self-report personality inventory that is derived from the California Psychological Inventory (CPI). Both of these assessment tools are designed to describe and predict what a person with a normal personality would do in a specific context. According to a review by Atkinson (2004) for the Mental Measurement Yearbook:

Over the nearly five decades since the creation of the CPI, an extensive body of research has formed that examines its performance in diverse assessment populations and age groups. The CPI provides a substantiated method to aid in the consensual description of difference between individuals and groups across many substantiated dimensions of personality. Since its inception the CPI has been quite successful in its groundbreaking attempt to describe a broad array of fairly robust personality characteristics across a wide cross-section of society. (p. 4)

The CPI was designed to assess personality characteristics important in daily living. It has been used in business for personnel selection, identifying leaders, and predicting success in various public service occupations. It has strong validity and reliability. The CPI measures 36 different scales with an average reliability estimate of .72, suggesting that the scales measure clearly defined concepts. The CPI 260 is a shorter version of the longer CPI. According to Donnay (2002):
The extent to which one can generalize the established validity and interpretive guidelines from the CPI™ instrument to the CPI 260™ instrument hinges on the relationship between the two forms. The average correlation of .94, in the normative group sample, between the 434-item CPI™ scales and those on the CPI 260™ instrument indicates a very strong relationship between the two instruments. (p. 15)

The focus of the measurement is referred to by the authors Gough & Bradely (2005) as folk concepts; they state “folk concepts evolve from interpersonal life and hence designate facts of character and behavior that are found everywhere that humans congregate into groups, and establish societal functions” (p. 9). Of the 36 scales, the areas in Appendix E were initially selected and anticipated by this author for possible correlations due to their similarities with the GAP, although correlations were made with all of the subscales.

The reliability of the CPI 260 in regard to internal consistency ranged from .43-.76 (Atkinson, 2004). Test-retest reliability coefficients for 5 and 25 years were between .4 and .8 for adults. Validity of the CPI is presented with extensive empirical evidence and interpretive meanings of the folk scales. The construct validity of the folk scales was .4-.8 with the CPI and other personality instruments (Atkinson). This was demonstrated in a leadership validity study (with 1,014 students) at the time they entered the U.S. Military Academy (Gough & Bradely, 2005). It was found that of the 31 students who had attained the rank of general had a mean score on the leadership section of the CPI 260 of 64.18 compared to 58.70 of their graduating classmates, which was statistically significant. Hattrup (2004) states “If the goal is to predict criteria like those described in the CPI manual, the CPI probably has considerable practical value” (p. 6). Wida (1997) as cited by DeAngelis (2002)
suggested that “the CPI may be useful in the timely identification of these psychosocial influences, assisting counselors and educators in taking appropriate steps to help at-risk students meet their needs” (p. 53).

**Range of Values.**

The range of values on the CPI 260 for each of the 29 sub-scales is 0-100 (interval data). Standardized mean scores for individuals in the United States range on all scales from a low of 44.98 to 55.05 (Gough & Bradely, 2005). The scores for the CPI 260 were calculated through the web based CPI 260. The company CPP administers and scores the CPI 260 by computer methods. Computer scoring through the programs provided automated scoring and interpretation.

**Summary Concurrent Validity.**

Criterion validity is the correlation of a scale with some other measure or trait (DeVon et. al, 2007) and includes concurrent validity (see Figure 4). Concurrent validity would be confirmed if there is a correlation to the GAP achievement summary subsections, with specific scales on the CPI 260 at the same point in time (Carmines & Zeller, 1979). This concurrent validity has two dimensions and includes convergent and discriminate validity (Kurpius & Stafford, 2006). The GAP has constructs that include practice (care of patients), leadership, education (teaching), research, professional socialization (volunteer work), grade point, and letters of recommendation. The author anticipated that the subsections of the CPI 260 that would most closely reflect the constructs of the GAP include (see Appendix E) leadership (with leadership and education), sociability (professional socialization and education), empathy (practice, professional socialization and education), achievement via independence (leadership, practice, and research), communality (practice and education),
insightfulness (research), sensitivity (practice and professional socialization), and creative temperament (research). The subsection scores on the CPI 260 were correlated using statistical methods and SPSS software with the scores for each core area scored on the GAP. In addition, divergent or discriminate validity relates to constructs that are theoretically different. All of the areas of the CPI 260 were correlated using statistical methods and SPSS software to locate areas that may identify divergent or discriminate validity.

**Face Validity Data Collection**

For face validity, a group of five practicing OT GVSU graduates who have previously used the GAP in their admissions were asked to rate the tool through an e-mail questionnaire (Appendix C). This was made up of a random sample of OT GVSU graduates from the 2005-2008 classes. The graduates e-mailed or mailed the completed survey and consent forms back to this researcher. The survey was a five-point Likert-type scale with a section for comments. The data were then analyzed using ICC and SPSS software. A GVSU statistician was consulted. The qualitative comments were analyzed for common themes. Face validity for this study would have been supported with an $r \geq .7$ level of agreement among the raters and a significance of $p \leq .05$.

**Content Validity Data Collection**

A group of three experts were located and responded to the survey for content validity. The survey was a five-point Likert-type scale with a section for comments. These experts mailed the completed survey and consent form back to this researcher. This sample size (3-5 experts) has been recommended by Lynn (1986). The survey was a five-point scale with a section for comments (see Appendix B). The data were then analyzed using ICC and SPSS software. The researcher was looking for an agreement from the experts of $r \geq .7$ and
Validity

a significance of $p \leq .05$. The qualitative comments were analyzed for common themes. These data assisted the principal investigator in determining potential content validity.

**Interrater Reliability Data Collection**

Ten student files were randomly pulled by this researcher from the OT student files. These files are stored in cabinets in the GVSU College of Health Professionals (CHP) locked file room. This blinded researcher opened each file cabinet and selected 2-3 files at random from each drawer or shelf. These student files were from the last ten years and were then de-identified by the principal investigator (as stated in the HIPAA 18). Five out of the six CHP faculty selected by the researcher responded to the e-mail request and volunteered to participate in the study. These specific CHP faculty were selected as they have experience with graduate admissions. A training session on how to score the GAP was held on the day of the scoring. Most of the CHP faculty could only commit to a three-hour time block for the rating. Each chart took about 15 minutes to score. This time limitation was a factor in determining that ten was the number of charts to be rated. A study by Yoon et al. (2008) evaluated interrater reliability with six raters using a significance level of $p \leq .05$, the same significance level used in this study. The GAP worksheet was provided for scoring of each chart by each rater and collected at the end of the scoring. These data were entered onto Excel 2003 software and then transferred to SPSS. The de-identified data were read aloud by a second assistant to check the data entry. The interrater reliability was then determined using ICC and SPSS software using $r \geq .7$ and a significance of $p \leq .05$ (see Appendix F).

The session was tape recorded by the principal examiner. The investigator encouraged the raters to comment about the admissions tool with open-ended questions. Written and recorded comments made by the evaluators were analyzed for common threads.
and themes. This was done as discussed by Miles and Huberman (1994) who cite Chesler (1987) by the following process of underlining key terms, restating key phrases, reduce the phrases and creasing clusters, reducing the clusters and attaching labels, identify core themes, generating theory that explains their meaning, and integrating theories in an explanatory framework.

*Ethical/Human Subjects Approval*

*Protection of Participants.*

To avoid the risk of possible identification of human subjects, several methods were employed. The principal investigator was unable to leave the building with the records or scores that contain personal identifiers. After the data were collected, coded, and analyzed, they were de-identified (of all of the 18 HIPAA identifiers). The data worksheet for the de-identified random applicant samples listed is being kept in a locked cabinet separate from any other stored data files in the OT research files for a period of three years. The 2009 group of students was asked to sign the attached consent form (Appendix D) with the understanding that their participation or lack of participation will not affect or risk their admission to the OT program.

The GVSU OT program director gave permission for the study. A permission letter from the occupational therapy program director is included (Appendix G). A letter from the Eastern Michigan University Chair is also included (Appendix G). An institutional review board proposal was completed and approved for both Eastern Michigan University and Grand Valley State University (Appendix H).
Data Analysis

Predictive Validity and Concurrent Validity.

For predictive validity, quantitative correlations were made with SPSS software between the GAP achievement summary (total score and individual core areas) and demographic information (including sex, age, race, and disability), as well as student outcomes (fieldwork scores, GPA, certification exam pass/fail). For concurrent validity, correlations were made with SPSS software between the GAP achievement summary (total score and individual core areas) and subsections of the CPI 260. Both predictive and concurrent validity data were analyzed using nonparametric statistical tests due to the type of data sets which included ordinal, interval, and ratio data (Cann, 2009). A value of $p \leq .05$ was selected to determine statistical significance, and an $r \geq .7$ was selected. A GVSU statistician was consulted in this process. A parametric Pearson correlation could not be used in this study as it requires data of interval or ratio variables and a normal distribution of data. A nonparametric Spearman correlation or Kendall’s Tau can be used for ordinal variables and does not require a normal distribution. Kendall’s Tau is also used to control for tied ranks or where there are many equal scores. The GAP subscales were only on a four-point scale, and it was anticipated that there was a good possibility of multiple tied ranks. Both statistical methods were utilized. According to Cann (2009), it is common in these cases to run both of these tests and then interpret the lower value. This assisted in evaluating both types of concurrent validity, convergent and discriminate, as well as predictive validity.

Interrater Reliability, Face Validity, and Content Validity.

In regard to interrater reliability, statistical analysis ICC was completed to assess consistency among the raters. For the face validity and content validity, Likert-type scale
surveys were used, and the level of agreement between raters was analyzed using ICC and SPSS software. This rater chose, as stated in the hypothesis, an $r \geq .7$ and with a significance of $p \leq .05$. According to Safrit and Wood (1995), results between ± .60-.79 are interpreted to be at the moderately high level. According to Trochim (2006), the use of alpha = .05 is a common significance level in social science research because the odds that the correlation is due to chance are less than 5 out of 100. Due to the number of correlations, the researcher needed to consider the possibility of making a Type I error when using a consistent alpha value.

The data from the comments, which were obtained from the surveys for face and content validity, and verbal recorded comments that were transcribed by this researcher from the interrater reliability data were read to identify concepts that relate to the individual research questions. Each of these concepts was underlined in a specific color and then grouped into categories. Miles and Huberman (1994) refer to this as clustering and state “We are better trying to understand a phenomena by grouping and then conceptualizing objects that have similar patterns or characteristics” (p. 248). Following this analysis, an external auditor skilled in qualitative research was consulted to comment on the research themes. These comments were then considered by this researcher as the data were reanalyzed, but the final determination of these themes was made by this researcher.

**Conclusion**

The need for a valid and reliable tool for OT program candidate selection appears obvious at this time. There is a need for more OT professionals but there are fewer programs and limited faculty. It is important that as admissions committees evaluate an increasing applicant pool they select students who will be successful in the program and therefore
maximize the number of graduates into the profession. The conceptual framework for this study incorporates the need for professionalism in the field of OT and the Parsons Thompson model. The need for professionalism in OT may be enhanced by an admissions procedure that incorporates and measures core areas related to professionalism. These core areas may also be helpful in measuring the non-cognitive areas important to the selection of successful health care professionals. A valid and reliable admissions tool could help to navigate these levels of control and select successful OT students in programs with limited resources. Other similar professions may utilize this admissions tool if validity and reliability is established.

This chapter discussed the methodology of this study including a discussion of research traditions, research design, data collection, ethical/human subjects’ approval, and data analysis as related to the research question: “To what degree is the GAP a valid and reliable tool for selecting successful OT students?” Subsequent chapters share the results of the study, discuss the importance and implications of this study, and provide suggestions for future research.
Chapter Four: Presentation and Analysis of Data

Introduction

This study analyzed the validity and reliability of an admissions tool in predicting academic and fieldwork achievement in Occupational Therapy (OT) students. Earlier chapters reported that there is a need for a valid and reliable admissions tool for OT programs. Chapter One provided an overview of the study, including the research questions, and Chapter Two provided a review of the literature, including the need for more OT professionals in a climate with fewer academic programs (six OT programs closed in 2006, and five satellite programs closed between 2000-2008) and limited faculty. As OT program admissions committees evaluate an increasing applicant pool, there is a call to select students who will be successful in the program and thereby maximize the number of graduates into the profession. The literature review in Chapter Two discussed the need for more professionalism in the field. Professionalism in OT may be enhanced by an admissions procedure that incorporates and measures core non-cognitive traits necessary for success as a health care professional. The admissions committee at Grand Valley State University (GVSU) also needs to be aware of and respond to several external factors affecting OT student admissions that can be explained using the Parsons Thompson model discussed in Chapter Two. A valid and reliable admissions tool will help to navigate the levels of control in admissions and select successful OT students in programs with limited resources.

This study used quantitative and qualitative methods to respond to the following question: to what degree is the Grapczynski Admissions Profile (GAP) a valid and reliable tool for selecting successful OT students? Chapter Three reported the methodology which included research traditions, research design, data collection, ethical/human subjects’
Validity

Multiple research methods were utilized that included both quantitative and qualitative data. Face and content validity of the GAP were evaluated using Likert-type surveys with space for qualitative comments. Interrater reliability was assessed by having five GVSU College of Health Professions (CHP) Faculty rate ten random de-identified student charts. Verbal and written comments from the faculty during the reliability rating session were recorded, transcribed, and later analyzed for common themes. Concurrent validity was evaluated by correlating the overall GAP score and subsections of the GAP with the California Psychological Inventory 260 (CPI 260). This part of the study involved volunteer OT applicants who were being interviewed for the GVSU OT program. The GAP and the CPI 260 were completed at the same point in time to correlate concurrent results. Predictive validity was determined through a retrospective OT student applicant file review by correlating the GAP with demographic data, academic data, and fieldwork scores. This chapter will describe the results of the quantitative statistical analyses and qualitative data analysis.

**Face Validity**

Face validity is defined by Streiner and Norman (2003) as “whether, on the face of it, the instrument appears to be assessing the desired qualities” (p. 5). Face validity relates to how the GAP is measuring what it is supposed to measure and how the users of the scale perceive the GAP. Face validity is a subjective evaluation and is the weakest form of validity (DeVon et al., 2007). Nevo (1985) describes a method for rating face validity by having users of the test (or scale) rate it on a five point scale. This scale includes a 1 for “irrelevant” to a 5 for “extremely suitable” (see appendix B for this score sheet). The GAP was rated by five randomly selected practicing OT graduates from the 2005-2008 classes as the GAP was
Validity

used in their selection into the GVSU OT program. This random selection process is described in Chapter Three. A space for comments was also included to provide an opportunity for the graduates to write qualitative comments that were analyzed for common themes.

Quantitative Data

The ratings of the five random GVSU OT graduates were compared with SPSS software (version 14) using Interclass Correlation Coefficient (ICC). ICC is used when multiple raters judge the same phenomena. In this case the raters were random and the effects of the GAP admission tool were fixed. The ICC value from these five raters was \(0.69\) \((p = .03)\) (see Table 5). According to Safrit and Wood (1995), that level indicates a moderately high agreement between the raters but was just short of \(0.7\), the desired criterion presented in the hypothesis. Table 5 also reports the results of the individual item statistics listing the mean (a measure of the relative importance of the trait) and the standard deviations (a measure of how similar the raters rated each trait). The raters were in complete agreement on the GAP core area of professional socialization with a mean \((M)\) of 5 and \(0.000\) standard deviations \((SD)\). The raters indicated that it was an extremely suitable area for assessment on the achievement summary. This was followed by leadership \((M = 4.2, SD = 0.447)\) and GPA \((M = 4.0, SD = 0.707)\). The other areas included education \((M = 3.4, SD = 0.894)\), letters of recommendation \((M = 4.0, SD = 1.414)\), practice \((M = 3.8, SD = 0.95)\), and research \((M = 4, SD = 1.140)\).

Qualitative Data

Written comments made by the raters were coded by underlying key terms, restating key phrases, creating clusters, and identifying themes as discussed by Miles & Huberman (1994). To validate the accuracy of the findings, Creswell (2003) recommends using an
external auditor to review the project. A professor at GVSU skilled in qualitative research was consulted after the researcher completed the qualitative analysis to comment on the researcher’s themes and provide suggestions. The data were then re-analyzed considering the suggestions of the external auditor, but the researcher made the final decision on the specific themes. Three major themes with sub-themes were identified and defined as follows:

1. **Appropriate tool for the program (32% of the comments)**
   
   a. Relevant
   
   b. Fair

2. **Breadth of perspective (45% of the comments)**

3. **Scoring (23% of the comments)**

   a. Narrow

   b. Complicated

**Definition of Themes and Sub-Themes**

**Theme: Appropriate tool for the program.**

The raters reported that the GAP emphasized GVSU priorities and was reflective of what was taught at GVSU. A rater reported that he or she knew he or she graduated from GVSU with this knowledge.

**Sub-theme: Relevant.**

The raters reported that the distribution of the GAP points were very clear, relevant, a good way to look at each OT student, and that they agreed with the GAP admissions tool.

**Sub-Theme: Fair.**

The raters reported that this was a fair way to evaluate prospective students.

**Theme: Breadth of perspective.**
The raters reported that the GAP admissions tool looked at students in a holistic frame of reference beyond just grade point, including work, research, and volunteer experience. Other comments included that life experiences recorded on the GAP are valuable and that the GAP provides a global perspective.

*Theme: Scoring.*

The raters commented on the way the GAP is scored, stating the criteria were subjective and confusing.

*Sub-theme: Narrow.*

The raters reported that the examples in the scoring section were very narrow especially in the area of education and research.

*Sub-Theme: Complicated.*

The raters reported that the scoring for the GAP achievement summary is complicated.

*Interpretation*

Both the quantitative and qualitative data as related to the research question regarding the face validity of the GAP appear to support a moderately high degree of face validity. Unfortunately, the ICC value did not reach the .7 desired criterion. The qualitative data reported that the GAP tool was appropriate for the program, relevant, and fair. The raters all agreed that professional socialization (volunteering) is extremely suitable to the GAP achievement summary. The raters reported that it emphasized GVSU priorities and curriculum and appreciated the breadth of perspective. The GAP appeared to the raters to provide a holistic and balanced perspective, giving credit for life experience and not just GPA. There were several comments from the raters in regard to the complexity of scoring
and stating that some of the achievement summary areas were too narrow. This analysis appears to suggest possible improvements in the GAP tool to include methods to simplify the scoring and make the scoring less narrow (see Chapter Five).

**Content Validity**

Content validity is defined by Streiner and Norman (2003) as “consisting of a judgment whether the instrument samples all of the relevant or important content or domains” (p. 5). To evaluate content validity, expert opinion was sought from several OT professors involved with the admissions of OT students. The methodology for selection of the experts is described in Chapter Three. The experts were asked to rate the content areas or traits on a five-point Likert-type scale as it relates to selection of OT students (see Appendix B for this score sheet). The experts were provided with general information as to how the GAP was developed based on the literature review by Grapczynski and Kane (1990) and the sample forms (Appendix C). The experts were asked to rate each item as 1 for totally irrelevant content and 5 for extremely relevant content. This scale has been advocated by Lynn (1986) and Waltz and Bausell (1981). A space for comments was also included to provide opportunity for the experts to write qualitative comments that were analyzed for common themes.
Table 5

*Face Validity*

*Item Statistics (n = 5)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
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</tr>
<tr>
<td>Letters</td>
<td>4.0000</td>
<td>1.41421</td>
</tr>
<tr>
<td>Practice</td>
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</tr>
<tr>
<td>Leadership</td>
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<tr>
<td>Research</td>
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<td>1.14018</td>
</tr>
<tr>
<td>Professional Soc.</td>
<td>5.0000</td>
<td>0.00000</td>
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</table>

<table>
<thead>
<tr>
<th>Intraclass Correlation</th>
<th>Sig. (p value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Measures</td>
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</table>

*Content Validity*

*Item Statistics N=3*

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<td>.57735</td>
</tr>
<tr>
<td>Practice</td>
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<td>1.73205</td>
</tr>
<tr>
<td>Leadership</td>
<td>4.3333</td>
<td>1.15470</td>
</tr>
<tr>
<td>Education</td>
<td>3.3333</td>
<td>1.15470</td>
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<tr>
<td>Research</td>
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<td>1.00000</td>
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<tr>
<td>Professional Soc.</td>
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<td>1.52735</td>
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<table>
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<th>Sig. (p value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Measures</td>
<td>-.042</td>
</tr>
</tbody>
</table>
**Quantitative Data**

The raters for content validity were considered judges of interest in that they were experts in the field. Each of these raters evaluated the GAP admissions tool, and the scores were correlated with an ICC. The three raters’ scores were not statistically significant (ICC = -.042, \( p = .41 \)). Therefore, the GAP does not appear to demonstrate content validity. The limited number of raters may account for the apparent lack of content validity, and a reason for a negative ICC (Garson, 2009). According to Shrout and Fleiss (1979) an ICC can become negative if the within-group variances are more than the between group (or in this case rater) variance. The item statistics (see Table 5) report the highest agreement among the raters in the areas of GPA and letters of recommendation, both with \( SD = .577 \), but GPA had \( M = 4.33 \) and recommendation letters had \( M = 3.66 \). Leadership received the same mean score (\( M = 4.33 \)) as GPA but had a larger \( SD = 1.154 \). Professional socialization had \( M = 3.66, SD = 1.527 \), education had \( M = 3.33, SD = 1.154 \). Research and practice each had \( M = 3.0 \), but research had \( SD = 1.0 \), and practice had \( SD = 1.732 \).

**Qualitative Data**

Written comments made by the raters were analyzed using the same methodology as stated in the section on face validity. The following themes and sub-themes were determined and are defined:

1. Basic Perceptions (50% of the comments)
   a. Thorough
   b. Complicated

2. Critical Questions (50% of the comments)
Definition of Themes and Sub-Themes

Theme: Basic Perceptions.

The raters had comments about their basic perceptions of the GAP. These comments were divided into the two sub-themes of thorough and complicated.

Sub-theme: Thorough.

The raters had comments that were supportive of the GAP being thorough and included comments relate to GPA, paid experience, the importance of leadership experience, pertinent criteria, and thoroughness.

Sub-theme: Complicated.

The raters had comments that related to the complexity of the scoring of the GAP including difficult, complicated, and stringent.

Theme: Critical questions.

The raters had several questions and comments in their review of the GAP. The raters’ comments that were grouped under the theme of critical questions included important to study, is research a good indicator, who makes the decisions, volunteer work does not usually equate with this, paid work would be difficult in our geographic location, and operational definitions must be program specific. These critical questions were often related to differences in the raters’ admissions procedures from those used at the GVSU OT program.

Interpretation

Although the quantitative data were not statistically significant, the qualitative data reported that the tool was thorough and that the criteria of GPA, paid experience, and leadership were important. The scoring appeared complicated and stringent to the raters.
They stated that this was an important area to study but reported some issue with the operational definition of professional socialization not always equating with volunteering. This may be indicative of the operational definitions being program specific to GVSU and not the programs of the experts.

The GVSU program is based on the core areas of the GAP. Research was questioned by one rater asked, “How many applicants have any (research)?” The raters appeared to be relating the GAP to their admissions procedure when questioning the research area and stating that paid work would be difficult to do in their geographic location. Philosophical differences exist between OT programs despite national content standards. It appears that these themes highlight the differences in the experts’ OT admissions procedures with the GAP and the GVSU philosophical base rather than issues of content. The highest mean item statistics with the quantitative data and the qualitative comments both supported the areas of GPA and leadership. The lowest mean items statistics were for practice and research. Research was also questioned in the qualitative data as an area that may not be a good indicator.

Reliability

Interrater reliability, as stated by Portney & Watkins (2000), “concerns variation between two or more raters who measure the same group of subjects… is best assessed when all raters are able to measure a response during a single trial” (p. 69). Reliability of the GAP was determined by having five trained evaluators individually score 10 of random applicant samples and then compare the individual scores. Originally six raters were asked to participate, but only five signed consent forms and were available on the day of the study. The methodology for rater selection, number of raters, and number of charts is presented in
Chapter Three. Each area of the GAP (practice, leadership, education, research, and professional socialization) has categorical criteria that awards the applicant specific points for achievement. The scores between evaluators were compared by ICC. This determined the GAP’s interrater reliability (see Table 6). Oral comments were tape-recorded during the session, transcribed, and analyzed with the written comments for common themes.

Quantitative Data

The overall GAP score for the ten random student charts among the five raters was compared using the ICC. The results (ICC = -.164, \( p = .498 \)) indicated that the reliability was not statistically significant. Refer to the section on content validity for a discussion on the meaning of a negative ICC, most likely due to a small sample size or because the within-group variance exceeds the between-groups variance. The individual components of the GAP, including scores on leadership, research, professional socialization, education, and practice were then analyzed for reliability. When the five components of the GAP were analyzed, only the ICC value of the individual research component was found to be at the statistically significant level (\( p = .041 \) and ICC = .641). This did not achieve the .7 desired criterion stated in the hypothesis but, according to Safrit and Wood (1995), would indicate moderately high agreement between the raters. The raters were in complete agreement when they rated Student 7 (\( M = .00, SD = .00 \)), and the largest SD was on Student 2 (\( M = 2.15, SD = 1.36 \)). It is important to note that Student 7 had no (0) research experience, which most likely affected this reliability score. The other individual components of leadership, professional socialization, education, and practice exceeded the \( p \) value of .05. Table 6 reports the output for the reliability data including overall GAP score and the individual components of the GAP.
Table 6

Reliability Data

$N = 5$  Overall GAP Score

<table>
<thead>
<tr>
<th>Student</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>student2</td>
<td>7.1000</td>
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</tr>
<tr>
<td>student3</td>
<td>12.9000</td>
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<td>student4</td>
<td>12.6500</td>
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<td>student5</td>
<td>10.5000</td>
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<td>student6</td>
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<td>student9</td>
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</tr>
<tr>
<td>student10</td>
<td>9.9500</td>
<td>1.89077</td>
</tr>
</tbody>
</table>

Intraclass Correlation  Sig. (p value)

Average Measures  -.164  .498

$N = 5$  Research Component of the GAP Achievement Summary (significant correlation)

<table>
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<tr>
<th>Student</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
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<tbody>
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</tr>
<tr>
<td>student2</td>
<td>2.1500</td>
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<td>student4</td>
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</tr>
<tr>
<td>student5</td>
<td>.3000</td>
<td>.67082</td>
</tr>
<tr>
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<td>.61237</td>
</tr>
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<tr>
<td>student8</td>
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<td>.39528</td>
</tr>
<tr>
<td>student9</td>
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<td>.44721</td>
</tr>
<tr>
<td>student10</td>
<td>2.2500</td>
<td>.50000</td>
</tr>
</tbody>
</table>

Intraclass Correlation  Sig. (p value)

Average Measures  .641  .041
$N = 5$  Leadership Component of the GAP Achievement Summary (ns)

<table>
<thead>
<tr>
<th>Student</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>student1</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>student2</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>student3</td>
<td>4.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>student4</td>
<td>3.6500</td>
<td>0.48734</td>
</tr>
<tr>
<td>student5</td>
<td>2.9500</td>
<td>1.24248</td>
</tr>
<tr>
<td>student6</td>
<td>3.1000</td>
<td>1.24499</td>
</tr>
<tr>
<td>student7</td>
<td>2.6500</td>
<td>0.28504</td>
</tr>
<tr>
<td>student8</td>
<td>4.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>student9</td>
<td>2.3000</td>
<td>0.27386</td>
</tr>
<tr>
<td>student10</td>
<td>3.2000</td>
<td>0.81777</td>
</tr>
</tbody>
</table>

Intraclass Correlation | Sig. (p value)
--- | ---
Average Measures | 0.136 | 0.346

$N = 5$  Professional Socialization Component of the GAP Achievement Summary (ns)

<table>
<thead>
<tr>
<th>Student</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>student1</td>
<td>0.8000</td>
<td>0.54199</td>
</tr>
<tr>
<td>student2</td>
<td>2.2500</td>
<td>0.43301</td>
</tr>
<tr>
<td>student3</td>
<td>4.0000</td>
<td>0.00000</td>
</tr>
<tr>
<td>student4</td>
<td>0.0000</td>
<td>0.00000</td>
</tr>
<tr>
<td>student5</td>
<td>4.0000</td>
<td>0.00000</td>
</tr>
<tr>
<td>student6</td>
<td>1.9000</td>
<td>1.19373</td>
</tr>
<tr>
<td>student7</td>
<td>0.8500</td>
<td>0.48734</td>
</tr>
<tr>
<td>student8</td>
<td>4.0000</td>
<td>0.00000</td>
</tr>
<tr>
<td>student9</td>
<td>2.3000</td>
<td>0.00000</td>
</tr>
<tr>
<td>student10</td>
<td>2.1000</td>
<td>0.82158</td>
</tr>
</tbody>
</table>

Intraclass Correlation | Sig. (p value)
--- | ---
Average Measures | -0.440 | 0.601
N = 5  Education Component of the GAP Achievement Summary (ns)

Item Statistics

<table>
<thead>
<tr>
<th>Student</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>student1</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>student2</td>
<td>1.8500</td>
<td>0.72024</td>
</tr>
<tr>
<td>student3</td>
<td>1.6500</td>
<td>0.13693</td>
</tr>
<tr>
<td>student4</td>
<td>2.5500</td>
<td>0.90830</td>
</tr>
<tr>
<td>student5</td>
<td>1.6000</td>
<td>0.65192</td>
</tr>
<tr>
<td>student6</td>
<td>2.2000</td>
<td>1.13743</td>
</tr>
<tr>
<td>student7</td>
<td>2.2000</td>
<td>0.44721</td>
</tr>
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<td>0.00000</td>
</tr>
<tr>
<td>student9</td>
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<td>0.44721</td>
</tr>
<tr>
<td>student10</td>
<td>2.0000</td>
<td>0.35355</td>
</tr>
</tbody>
</table>

Intraclass Correlation  Sig. (p value)

Average Measures  .178  .321

N = 5  Practice Component of the GAP Achievement Summary (ns)

Item Statistics

<table>
<thead>
<tr>
<th>Student</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>student1</td>
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<td>0.0000</td>
</tr>
<tr>
<td>student2</td>
<td>1.0000</td>
<td>0.61237</td>
</tr>
<tr>
<td>student3</td>
<td>1.2500</td>
<td>0.00000</td>
</tr>
<tr>
<td>student4</td>
<td>3.3500</td>
<td>0.65192</td>
</tr>
<tr>
<td>student5</td>
<td>1.6500</td>
<td>1.42083</td>
</tr>
<tr>
<td>student6</td>
<td>0.0000</td>
<td>0.00000</td>
</tr>
<tr>
<td>student7</td>
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<td>0.00000</td>
</tr>
<tr>
<td>student8</td>
<td>2.1500</td>
<td>0.37914</td>
</tr>
<tr>
<td>student9</td>
<td>0.3500</td>
<td>0.33541</td>
</tr>
<tr>
<td>student10</td>
<td>0.0000</td>
<td>0.00000</td>
</tr>
</tbody>
</table>

Intraclass Correlation  Sig. (p value)

Average Measures  .319  .232
Qualitative Data

The comments made by the five raters during the session were recorded and transcribed by this author. The methodology for the analysis of these comments was the same as is outlined in the section on face validity. The results included the following three major themes with sub-themes which are listed and defined as follows:

1. Research (10% of the comments)
2. Strategies (18% of the comments)
3. Clarity (72% of the comments)
   a. Temporal
   b. Category

Definition of Themes and Sub-Themes

Theme: Research.

The GAP gives the student applicant points for participation in research. The raters had several questions and comments related to what type of research and what level of participation is given points. Suggestions from the raters under the theme of research included what type of research was done by these students in their undergraduate experience. The opportunity for participating in research as an undergraduate student was discussed by the raters to be more difficult for the applicants who attended larger institutions. The appropriateness of giving points for research papers done in class was also discussed and questioned by the raters.

Theme: Strategies.

In regard to the second theme of strategies, the raters discussed how students could maximize their scores by listing multiple activities individually that were actually completed
for the same organization as opposed to grouping them together (e.g., just listing pre-OT club instead of listing each activity the club completed). Students who are part of the GVSU Pre-OT club are given information as to how to complete the achievement summary, which some of the raters saw as unfair, and others saw as the applicant demonstrating initiative. The same information is on the GVSU OT web site and available to all students from other institutions. Another rater discussed that the applicant would get more points for switching jobs every year as opposed to staying at the same job.

**Theme: Clarity.**

The theme of clarity had two sub-themes. This clarity was requested by the raters as they evaluated the student charts. The raters had questions and comments in regard to how to score the students that can be divided into temporal and category sub-themes.

*Sub-Theme: Temporal.*

The temporal sub-theme included comments from the raters on how to score the applicant when they listed the same activity under multiple areas, the number of points given for a one-time activity, confusion with the column heading Points/3mo, how far back the achievement summary activities can be scored with non-traditional students, and points for once a year activities over several years. Some of the raters reported that the form was a lot of work to complete and should be simplified so it takes less time (temporal).

*Sub-theme: Category.*

The sub-theme of Category included comments by some of the raters regarding difficulty placing specific activities in specific categories. This included questions about the placement of coaching activities, what is leadership, what is practice, what is a disabled group, and what is direct patient contact. Professional socialization is defined on the GAP as
volunteering beyond the required 50 hours. The GAP form says “in addition to” and some of the raters reported it should say “other than.”

*Interpretation*

The quantitative data results included statistically significant values for only the individual research component of the GAP ($p = .041$, ICC = .641). This did not achieve the level of .7 stated in the hypothesis for this research, but according to Safrit and Wood (1995) would indicate moderately high agreement between the raters. This indicates that the GAP has moderately high reliability when used to score student OT applicants on their research activities. It is important to keep in mind the possibility of a spurious correlation in this case. A spurious correlation, according to Burns (1997), is where two or more variables are statistically related but in fact they are not causally linked, often due to the influence of a third variable. This will be discussed in Chapter Five. A negative ICC was demonstrated for the overall GAP score and the professional socialization component. Refer to the section on content validity for a discussion on the meaning of a negative ICC most likely due to a small sample size or when the within-group variance exceeds the between-groups variance. The qualitative data gave some additional information as to why the overall GAP score and the other components of the GAP demonstrated the stated results for interrater reliability and the raters’ suggestions for improvement.

In regard to the qualitative data the raters gave suggestions that would assist in improving the GAP forms, clarify the applicant’s activities, clarify the temporal aspect of the activities, and improve the student strategies when completing the GAP forms. These suggestions may assist in simplifying GAP scoring in the future and possibly improving interrater reliability (see Chapter Five).
Table 7

*The themes and comments from the content, face, and reliability raters were compared and triangulated to look for common themes.*

<table>
<thead>
<tr>
<th>Face Validity Raters</th>
<th>Content Validity Raters</th>
<th>Reliability Raters</th>
<th>Common Themes Across Groups of Raters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate for the program</td>
<td>GPA, paid experience (practice), and leadership</td>
<td>Research</td>
<td>The GAP achievement summary has five areas (practice, leadership, research, education, and professional socialization). Each rating group focused on different areas, but no group discussed the education component.</td>
</tr>
<tr>
<td>- Relevant: professional socialization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Fair: credit for life experiences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breath of Perspective</td>
<td>Thorough</td>
<td></td>
<td>The GAP admissions tool appears to provide thorough breath of perspective.</td>
</tr>
<tr>
<td>- holistic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- balanced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scoring</td>
<td>Complicated</td>
<td>Strategies (used by students)</td>
<td>Scoring the GAP admissions tool is complicated. It should be less narrow with additional suggestions in the scoring criteria to clarify and broaden each category.</td>
</tr>
<tr>
<td>- Narrow</td>
<td></td>
<td>Clarity (in scoring) needed</td>
<td></td>
</tr>
<tr>
<td>- Complicated</td>
<td></td>
<td>- Temporal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Category</td>
<td></td>
</tr>
</tbody>
</table>
Triangulation

Miles and Huberman (1994) define triangulation as “to support a finding by showing that independent measures agree with it, or at least, do not contradict it” (p. 266). Miles and Huberman also suggest that the researcher should “make a matrix of findings by data sources/methods/types to see how well supported they are, and to note any inconsistencies and contradictions” (p. 267). Creswell (2003) recommends that data should be collected through multiple sources to assist with internal validity and triangulation. In this study three groups of raters were involved in assessing three aspects of the GAP, including face validity, content validity, and reliability. Common themes were noted by this author across the groups and are summarized in Table 7. The GAP achievement summary has five areas (practice, leadership, research, education, and professional socialization). Each rating group focused their comments on different areas as important to the admissions tool. The face validity raters primarily focused their comments on the professional socialization component of the GAP. The content validity raters primarily focused their comments on the practice and leadership components of the GAP. The reliability raters primarily focused their comments on the research component of the GAP. None of the rating groups focused on the education component in their comments. The face and content validity raters both noted that the GAP admissions tool appears to provide a thorough breadth of perspective in looking at the student. One clear limitation of the GAP noted by all groups was that scoring was complicated and that the scoring criteria should be broadened to include additional activity suggestions. These suggestions would be helpful in future editions of the GAP for ease of scoring and categorization of activities.
Predictive Validity

Criterion validity is the correlation of a scale with some other measure or trait (DeVon, et al., 2007) and includes concurrent, predictive, convergent, and discriminate validity (see Figure 3). If two measurements are correlated to predict performance it is considered predictive validity. Predictive validity was measured by correlating scores on the GAP with grade point, demographics (sex, age, race, and disability), passing the national certification exam, and fieldwork scores. The retrospective file review of 145 student GVSU OT applicant records (for the last ten years) extracted GAP scores, demographic data (including sex, age, race, and disability), and fieldwork scores. Pass/fail scores on the OT certification exam were obtained from the OT program director, and grade point scores were compiled from the computerized GVSU Banner records.

It was important to consider what types of data are being correlated to determine the appropriate correlation method. Ratio data are quantitative with a true zero point and a defined unit of measure. Ratio data for this study included age and grade point. Interval data have a defined unit of measure but no true zero point. Ordinal data include data that are categorized and ranked without a defined unit of measure. For this study the ordinal variables included GAP scores, fieldwork scores, certification exam scores, and completion of the program (pass/fail). A correlation of 1 would represent a perfect positive linear correlation, and a score of 0 would indicate no linear correlation. A correlation between two variables is called a bivariate correlation. The parametric Pearson correlation requires data of interval or ratio levels of measurement and a normal distribution of data. The nonparametric Spearman’s Rho ($\rho$) correlation can be used for ordinal variables and does not require a specific distribution. Spearman’s $\rho$ correlation is based on ranked data. If it is anticipated that there
will be numerous ties in the ranks Kendall’s $\tau$ can be used to adjust for tied ranks. Due to the
GAP sections with a small range of numbers from only 0-4, it was anticipated that there
would be many tied ranks within each correlation. According to Cann (2009), it is common
in these cases to run both of these tests and then interpret the lower value. As such,
correlations were completed using both Spearman’s $\rho$ and Kendall’s $\tau$, and the lower value in
all cases was Kendall’s $\tau$.

Degrees of freedom ($df$) were determined by consultation with a statistician. According to Johnson (1996), “The number of degrees of freedom for the $r$-statistic is 2 less
than the sample size, $df = n-2.$” (p. 656). The significant correlations where $p \leq .05$ are listed
in Table 8 and include Age with the GAP total on the achievement summary ($\tau=.205$, $p =
.001$, $df =143$), Age with the practice sub-section of the GAP ($\tau=.183$, $p = .004$, $df =143$),
Age with the research sub-section of the GAP ($\tau=.146$, $p = .020$, $df =143$), and the last 60
hours of GPA with final GPA ($\tau=.184$, $p = .002$, $df =129$). There was also a very weak
correlation with Kendall’s $\tau$ with the first fieldwork (fieldwork a) and the GAP area of
professional socialization ($\tau=.182$, $p = .035$, $df =69$). Scatter plots were run on the data
(Appendix I), which helped identify outliers. In all cases, the degrees of freedom were $n - 2.$
Data were read aloud with the help of an assistant to check the data entries. These data
demonstrated only weak or very weak correlations and are reported are Table 8.
### Table 8

*Kendall’s τ and Spearman’s ρ correlations for predictive validity when p ≤ .05.*

<table>
<thead>
<tr>
<th></th>
<th>Final GPA</th>
<th>Age</th>
<th>Fieldwork Score (a)</th>
<th>Completed The OT program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Last 60 hours GPA</strong></td>
<td>τ = .184 (p = .002)</td>
<td>τ = -.185 (p = .002)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ρ = .273 (p = .002)</td>
<td>ρ = - .254 (p = .002)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 131</td>
<td>n = 141</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GAP Total on the Achievement Summary</strong></td>
<td>τ = .205 (p = .001)</td>
<td>ρ = .278 (p = .001)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 145</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Practice GAP Component</strong></td>
<td>τ = .183 (p = .004)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ρ = .222 (p = .007)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 145</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Research GAP Component</strong></td>
<td>τ = .146 (p = .020)</td>
<td></td>
<td>τ = -.114 (p = .112)ns</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ρ = .196 (p = .018)</td>
<td></td>
<td>ρ = .238 (p = .036)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 145</td>
<td></td>
<td>n = 145</td>
<td></td>
</tr>
<tr>
<td><strong>Professional Socialization GAP Component</strong></td>
<td>τ = .182 (p = .035)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ρ = .224 (p = .040)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Prerequisite GPA</strong></td>
<td>τ = -.200 (p = .001)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ρ = -.270 (p = .001)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 145</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Due to the number of correlations completed by the researcher and utilization of a consistent \( p \) value of \( p \leq .05 \), it was important to keep in mind the possibility of a Type I error when identifying significant correlations. According to Hopkins (2008), this is referred to as a cumulative Type I error when looking at many effects (or many correlations) in the data. Hopkins states that the more effects you look for, the more likely you will turn up an effect that appears bigger than it really is. With the large number of correlations completed in this study, this researcher had a greater chance of considering a correlation significant when in fact it was not significant. Hopkins recommends the possibility of reducing the \( p \) value in these situations. This researcher considered this possibility, but the significant correlations in this study were weak or very weak, and therefore the \( p \) value was not adjusted. Chapter Five will discuss the possible reason for the lack of stronger significant correlations.

**Concurrent Validity**

Correlations for concurrent validity between the GAP data (ordinal data) and the CPI 260 (interval data) were completed using both Spearman’s \( \rho \) and Kendall’s \( \tau \). Criteria for the nonparametric Spearman’s \( \rho \) correlation are that it can be used for ordinal variables and does not require a normal distribution. Kendall’s \( \tau \) is used to control for tied ranks within a correlation where there are many equal scores. Due to the GAP sections with a small range of numbers from only 0-4, it was anticipated that there would be many tied ranks within each correlation. According to Cann (2009) it is common in these cases to run both of these tests and then interpret the lower value. Correlations were completed using both tests, and the lower value in all cases was Kendall’s \( \tau \) (Table 9). The rationale for the degrees of freedom for this study was discussed in the section on predictive validity and was \( df = n-2 \). The significant correlations where \( p \leq .05 \) were between the GAP leadership and CPI 260 well-
being ($\tau = .366, p = .041, df = 19$), GAP leadership and CPI 260 independence ($\tau = .364, p = .041, df = 19$), GAP leadership and CPI 260 wellbeing ($\tau = .366, p = .041, df = 19$), GAP research and CPI 260 achievement via conformance ($\tau = .369, p = .028, df = 19$). According to Safrit & Wood (1995), that level would indicate only a weak correlation. Discussion of the possible reasons for the weak correlations will be presented in Chapter Five. The definitions of the GAP areas of Leadership and Research were defined in Chapters One and Two and are listed with the significant CPI correlations in Table 10. The definitions for the CPI 260 areas of independence, wellbeing, and research are as follows and are also in Table 10.
Table 9

Concurrent validity correlations. The Kendall’s $\tau$ correlations listed here are the lower value compared to Spearman’s $\rho$ and were weak positive correlations significant at $p \leq .05$

<table>
<thead>
<tr>
<th>Kendall’s $\tau$ and Spearman’s $\rho$</th>
<th>Leadership (GAP)</th>
<th>Research (GAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wellbeing (CPI 260)</td>
<td>$\tau = .366 \ (p = .041)$</td>
<td>$\rho = .453 \ (p = .039)$</td>
</tr>
<tr>
<td></td>
<td>$n = 21$</td>
<td>$n = 21$</td>
</tr>
<tr>
<td>Independence (CPI 260)</td>
<td>$\tau = .364 \ (p = .041)$</td>
<td>$\rho = .504 \ (p = .020)$</td>
</tr>
<tr>
<td></td>
<td>$n = 21$</td>
<td>.</td>
</tr>
<tr>
<td>Achievement via Conformance (CPI 260)</td>
<td></td>
<td>$\tau = .369 \ (p = .028)$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$\rho = .430 \ (p = .052)_{ns}$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$n = 21$</td>
</tr>
</tbody>
</table>
CPI 260 definitions

Well-being: To assess feelings of physical and psychological well-being.

Independence: To assess the twin element of psychological strength and interpersonal detachment, including self-sufficiency and self-direction.

Achievement via conformance: To assess achievement potential in well-defined and structured situations joined to a general desire to do well (Goegh and Bradley, 2005).

Summary of Results

The GAP demonstrated in the ICC quantitative analysis a moderately high degree of face validity. The raters were in agreement in the item statistics that professional socialization was an extremely suitable area for assessment on the achievement summary. Content validity of the GAP was not statistically significant in the quantitative analysis, but the raters reported in the qualitative data that the GAP was thorough and that the criteria of GPA, paid experience, and leadership were important. In regard to reliability, the overall GAP ICC was not statistically significant. When the components of the GAP were evaluated individually, the ICC of the individual research component was found to be statistically significant and indicated moderately high agreement between the raters. The qualitative analysis from the raters indicated several suggestions that could improve the GAP reliability. The qualitative themes from the face, content, and reliability data were triangulated to compare common themes. Each rating group focused on different areas as important to the admissions tool, but no group focused on the education component. The face and content validity raters both noted that the GAP admissions tool appears to provide a thorough breadth of perspective in looking at the student. One clear limitation of the GAP noted by all groups was that scoring was complicated, and they also agreed that the scoring criteria could be
broadened to include additional activity suggestions. These suggestions would be helpful in future editions of the GAP for ease of scoring and categorization of activities. The data from the predictive validity and concurrent validity demonstrated only weak or very weak correlations. Possible reasons for these weak correlations will be discussed in Chapter Five.
Table 10

*Definitions of the significant correlations (p ≤ .05) between the CPI 260 and the GAP. The CPI 260 areas of Well-being and Independence correlated (weak) with the GAP Leadership, and the CPI 260 area of Achievement via conformity correlated (weak) with the GAP research area.*

<table>
<thead>
<tr>
<th>CPI 260</th>
<th>GAP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Well-being:</strong> to assess feelings of physical and psychological well-being. $(\tau = .366, p = .041)$</td>
<td><strong>Leadership:</strong> concern for the development of strong leaders in OT who can guide the field adeptly and prudently during these transitional times and beyond.</td>
</tr>
<tr>
<td><strong>Independence:</strong> to assess the twin element of psychological strength and interpersonal detachment, including self sufficiency and self-direction. $(\tau = .364, p = .041)$</td>
<td><strong>Research:</strong> concern for the development of the unique knowledge base of OT and the research commitment attached.</td>
</tr>
<tr>
<td>Achievement via conformance to assess achievement potential in well-defined and structured situations, joined to a general desire to do well. $(\tau = .369, p = .028)$</td>
<td></td>
</tr>
</tbody>
</table>
Conclusion

Chapters One and Two presented the need for a valid and reliable tool for OT program candidate selection and the conceptual framework for this study, including the need for professionalism in the field of OT and the Parsons Thompson model. It is important that, as admissions committees evaluate an increasing applicant pool, they select students who will be successful in the program and therefore maximize the number of graduates into the profession. The need for professionalism in OT may be enhanced by an admissions procedure that incorporates and measures core areas related to professionalism. These core areas may also be helpful in measuring the non-cognitive areas important to the selection of successful health care professionals. A valid and reliable admissions tool could help to navigate the levels of control discussed in the Parsons Thompson model and select successful OT students in programs with limited resources. Chapter Three discussed the methodology of this study including a discussion of research traditions, research design, ethical/human subjects’ approval, and data analysis as related to the research question: To what degree is the GAP a valid and reliable tool for selecting successful OT students? This chapter shared the results of the study. Chapter Five will include a summary of the results, limitations, conclusions, implications, and recommendations for further study.
Chapter Five

Summary, Discussion of the Findings, Conclusions, and Implications for Further Study

This study analyzed the validity and reliability of an admissions tool in predicting academic and fieldwork achievement in Occupational Therapy (OT) students. Earlier chapters reported that there is a need for a valid and reliable admissions tool for OT programs. Chapter One provided an overview of the study including the research questions, and Chapter Two provided a review of the literature including the need for more OT professionals in a climate with fewer academic programs (six OT programs closed in 2006 and 5 satellite programs closed between 2000-2008) and limited faculty. As OT program admissions committees evaluate an increasing applicant pool, there is a call to select students who will be successful in the program and thereby maximize the number of graduates into the profession. The literature review in Chapter Two discussed the need for more professionalism in the field. Professionalism in OT may be enhanced by an admissions procedure that incorporates and measures core non-cognitive traits necessary for success as a health care professional. The admissions committee at Grand Valley State University (GVSU) needs to be aware of and respond to several external factors affecting OT student admissions that can be explained using the Parsons Thompson model discussed in Chapter Two. A valid and reliable admissions tool will help to navigate the levels of control in admissions and select successful OT students in programs with limited resources.

This study used quantitative and qualitative methods to respond to the following question: To what degree is the Grapczynski Admissions Profile (GAP) a valid and reliable tool for selecting successful OT students? Chapter Three reported the methodology, which included research traditions, research design, data collection, ethical/human subjects’
Validity

approval, and data analysis. Face and content validity of the GAP were evaluated using Likert-type surveys with space for qualitative comments. Interrater reliability was assessed by rating ten random de-identified student charts by five GVSU College of Health Professions (CHP) Faculty. Comments from the faculty during the reliability rating session were recorded, transcribed, and later analyzed for common themes. Concurrent validity was evaluated by correlating the overall GAP score and subsections of the GAP with the California Psychological Inventory 260 (CPI 260). This part of the study involved volunteer OT applicants that were being interviewed for the GVSU OT program. The GAP and the CPI 260 were completed at the same point in time to correlate concurrent results. Predictive validity was determined through a retrospective OT student applicant file review by correlating the GAP with demographic data, academic data, and fieldwork scores. The results of the study presented in Chapter Four include a moderately high degree of face validity and moderately high agreement between the raters for the Research component of the GAP. The qualitative data gave support for the most of the core areas of the GAP related to professionalism in the field of OT. This qualitative data also included suggestions for improvement of the GAP. This final chapter will include a summary of the results, discussion of the findings, and conclusions; discuss the importance of this study; and provide suggestions for future research.

Summary of the Results

With the Interclass Correlation Coefficient (ICC) quantitative analysis, the GAP demonstrated a moderately high degree of face validity. Unfortunately, this ICC = .69, \( p = .03 \) does not support the \( r \geq .7, p \leq .05 \) level of the hypothesis. The raters were in agreement in the item statistics that the GAP core area of professional socialization was an extremely
suitable area for assessment on the achievement summary. Content validity of the GAP was not statistically significant in the quantitative analysis (ICC = -.04, \( p = .41 \)) and the limited number of raters may account for the apparent lack of content validity, as well as a possible reason for a negative ICC (Garson, 2009). According to Shrout and Fleiss (1979), an ICC can become negative if the within-group variances are more than the between-group (or in this case rater) variance. The raters reported in the qualitative data that the GAP was thorough and that the criteria of GPA, paid experience (the GAP area of practice), and leadership were important. In regard to reliability, the overall GAP ICC was not statistically significant (ICC = -.16, \( p = .49 \)). When the research component of the GAP was evaluated individually for reliability, it was found to be statistically significant (ICC = .64, \( p = .04 \)) and indicated moderately high agreement between the raters. Unfortunately, these results do not support the \( r \geq .7, p \leq .05 \) level of the hypothesis. See Table 11 for a summary of these results.

The qualitative analysis from the raters’ comments indicated several suggestions that could improve the GAP reliability. The qualitative comments and themes from the face, content, and reliability data were triangulated to compare common themes. Each rating group focused on a different core area of the GAP (leadership, research, professional socialization, and practice) as important to the admissions tool, but no group focused on the education component (see Table 7). This supported the 4 out of 5 core areas presented in the theoretical framework (except for Education) of the GAP that are based on the need for professionalism in the field of OT. The face and content validity raters both noted that the GAP admissions tool appears to provide a thorough breadth of perspective in looking at the student. One clear limitation of the GAP noted by all groups was that scoring was complicated and that the scoring criteria should be broadened to include additional activity suggestions. These
suggestions will be helpful in future editions of the GAP for ease of scoring and categorization of activities. The data from the predictive validity and concurrent validity demonstrated only weak or very weak correlations. Discussions of the findings and implications for further study with each research question will be presented.

To what degree does the GAP demonstrate convergent validity?

Convergent validity is a type of criterion validity that compares the GAP with other measures of the same construct. Concurrent validity as stated by Kurpuis and Stafford (2006, p. 150) “indicates a strong relationship between test scores and some criterion measured at the same time.” There are two dimensions of concurrent validity: convergent and discriminate. The CPI 260 was chosen for concurrent validity because of the similar constructs to the GAP achievement summary core areas (research, education, professional socialization, leadership, and practice), some of which include leadership, sociability, and empathy (see Table 12 in Appendix E). Although the GAP leadership (with CPI 260 wellbeing: τ = .366, p = .041, and CPI 260 independence τ = .364, p = .041) and GAP research (with CPI 260 achievement via conformance: τ = .369, p = .028) components demonstrated correlations that were statistically significant (see Table 9), the results indicated only weak correlations according to Safrit & Wood (1995). In regard to discriminate validity, the correlations were not statistically significant.
Table 11

Summary of Validity and Reliability as Related to the Research Questions (for Predictive validity, see Table 8, and Concurrent validity, see Table 9). A reason for a negative ICC (Garson, 2009) can be the limited number of raters. Another reason according to Shrout and Fleiss (1979) for a negative ICC is if the within-group (within-rater) variances are more than the between-group (rater) variance.

<table>
<thead>
<tr>
<th>To what degree does the GAP demonstrate:</th>
<th>Statistics</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face validity</td>
<td>ICC= .69, (p=.03)</td>
<td>Moderately High Degree</td>
</tr>
<tr>
<td>Content validity</td>
<td>ICC= -.04, (p=.41)</td>
<td>ns</td>
</tr>
<tr>
<td>Interrater reliability</td>
<td>ICC= -.16, (p=.49)</td>
<td>ns</td>
</tr>
<tr>
<td>Interrater reliability Research component</td>
<td>ICC= .64, (p=.04)</td>
<td>Moderately High Degree</td>
</tr>
</tbody>
</table>
Discussion of the findings.

One possible reason for this result is that the GAP scores actual activities that the OT applicant had previously engaged in, and the CPI is a personality test not linked to completion of activities. Although many personality tests (including the CPI 260) link specific personality characteristics with performance or activities, a study by Krajewski et al. (2007) found that scores on a personality test did not predict performance on specific managerial activities evaluated at an assessment center. It appears that specific personality characteristics do not necessarily correlate to the completion of activities on the GAP achievement summary. One may question if the applicant lacked opportunity to do an activity or another did an activity that was available regardless of their personality. This study supports how complex the non-cognitive variables on applicant admissions can be. This supports the study by Salvatori (1990, p. 170), who states, “There are non-cognitive variables that are difficult to measure in an applicant.” Salvatori also states (1990, p.170), “There is limited evidence that any of the non-cognitive measures currently in use are sufficiently reliable and valid to predict success as a student let alone as a future health professional.” Hollman et al. (2007) also stated that there is conflicting evidence regarding non-cognitive measures predicting clinical performance. It appears that this study correlating the GAP with the CPI 260 reinforces the complexity of the admissions process when looking at personality related to achievement.

Students who apply to the program have a specific set of activity requirements in order to achieve an adequate GAP score to be brought in for an interview. The students who were brought in for an interview in 2009 were the participants of this study. These students had passed the initial screening by achieving a GAP score that qualified them for an
Validity

110

interview, possibly skewing this data. Additional limitations include the small sample size \( n = 21 \), which was limited by the number of volunteers from the 2009 group of applicants.

Implications for further study.

Further analysis of the data could be completed looking at personality characteristics that are common to this applicant group. Those characteristics that are dominant could be studied to determine what activities naturally occur in OT applicants, applicants to other health care programs, applicants to non-health care programs, and OT clinicians. The individuals in this part of the study were participating in a stressful OT interview/application process. How would they have performed on the CPI 260 without the stress of the OT application process? For example, if an individual from the general population achieves a high score in leadership on the CPI 260, does that correlate with specific leadership activities (in non-OT applicants)? Does asking the OT applicant to complete these requested activities reflect their personalities and internal motivation, or are they just participating to gain admittance to the OT program? All of these questions underscore the complexity of personality and activities.

The areas where the mean scores fell above 58 (with the norm being 50) on the CPI 260 included empathy, responsibility, self-control, good impression, achievement via conformance, achievement via independence, insightfulness, and leadership. The definitions of these areas on the CPI 260 are defined below (Goegh & Bradley, 2005, p. 6-7):

Empathy: To identify people with a talent for understanding how others feel and think and who display warmth and tactfulness in their dealings with others.
Responsibility: To identify people who are aware of societal rules and who can and do comply with them when this is appropriate.

Self-control: To assess the degree to which societal norms have been internalized and become autonomously operational within the individual.

Good impression: To identify people whose style of self presentation emphasizes integration and compliance.

Leadership: To identify people who have good leadership skills, who aspire to positions of leadership, and who will be accepted as leaders by others.

Achievement via conformance: To assess achievement potential in well-defined and structured situations joined to a general desire to do well.

Achievement via independence: To assess achievement potential in open, minimally defined situations, in which ingenuity and initiative are required for successful performance.

Insightfulness: To identify people who can think analytically about themselves and others who can see beyond surface cues and who are aware of subtle meanings.

Further study is also needed to determine if these characteristics are evident in experienced Occupational Therapists, if these characteristics result in successful therapists, and if these characteristics can be developed in an OT curriculum.

To what degree does the GAP demonstrate face validity?

Face validity is defined by Streiner and Norman (2003, p. 5) as “whether, on the face of it, the instrument appears to be assessing the desired qualities.” Face validity relates to how the GAP is measuring what it is supposed to measure and how the users of the scale
perceive the GAP. The quantitative data support a moderately high degree of face validity. Unfortunately, this level (ICC=.69, \( p = .03 \)) does not support the \( r \geq .7 \) level of the hypothesis but does demonstrate a moderately high agreement between the raters. The qualitative data reported that the GAP tool was appropriate for the program, relevant, and fair. The raters all agree that professional socialization (volunteering) is extremely suitable to the GAP achievement summary. The raters reported that it emphasized GVSU priorities and curriculum and appreciated the breadth of perspective. The face validity raters had a good understanding of the GVSU OT program philosophy and reported that the GAP reflected that philosophy. The GAP appeared to the raters to provide a holistic and balanced perspective, giving credit for life experience and not just GPA. There were several comments from the raters in regard to the complexity of scoring and indicating that some of the achievement summary areas were too narrow. This analysis appears to suggest possible improvements in the GAP tool to include methods to simplify the scoring and make the scoring criteria less narrow.

**Discussion of the findings.**

The sample size was recommended by Nevo (1985), but a larger number of raters could affect the quantitative results and could have been helpful in obtaining additional qualitative comments. It is important to remember that face validity is the weakest form of validity (DeVon et al., 2007) and was one of the few areas that demonstrated a moderately high agreement between the raters with the ICC. These data were collected by survey, and having the raters meet as a focus group or be individually interviewed by the researcher may have improved the richness of the qualitative data.
**Implications for further study.**

The face validity raters were familiar with the GVSU OT program philosophy and how the GAP fit into that program philosophy, unlike the content validity experts from other OT programs. One possible implication of this study would be to improve the way that the GAP is scored based on the rater’s qualitative comments. This could be facilitated by automating the process through computer based software that is user friendly and asks the applicant questions that facilitate appropriate recording of the GAP achievement summary. This could be more accurate, improving reliability; provide a broader range of activity choices with possible drop down menus; and simplify this section of the scoring process for the admissions faculty. Development of this software and further research into its validity and reliability is needed.

**To what degree does the GAP demonstrate content validity?**

Content validity is defined by Streiner and Norman (2003, p. 5) as “consisting of a judgment whether the instrument samples all of relevant or important content or domains.” To evaluate content validity, expert opinion was sought from several OT professors involved with the admissions of OT students. The quantitative data were not statistically significant (ICC = -.042, \( p = .410 \)), and content validity was not demonstrated. A reason for a negative ICC (Garson, 2009) can be the limited number of raters. Another reason according to Shrout and Fleiss (1979) for a negative ICC is if the within-group (within-rater) variances are more than the between-group (rater) variance. In this case it appears that the limited number of raters may be the reason for the negative ICC. The highest mean item statistics with the quantitative data and the qualitative comments both supported the areas of GPA and Leadership. GPA has been supported in the research by Salvatori (1990) as the best predictor
of academic performance in all health professions and by Auriemma (2007), who reported a strong correlation between OT student admission grades and academic success. The lowest mean items statistics were for practice and research. Research was also questioned in the qualitative data as an area that may not be a good indicator.

The qualitative data reported that the tool was thorough and that the criteria of GPA, paid experience (practice), and leadership were important. The scoring appeared complicated and stringent to the raters. They stated that this was an important area to study but reported some issue with the operational definition of professional socialization not always equating with volunteering. This may be indicative of the operational definitions being program specific to GVSU and not the programs of the experts. The GVSU program is based on the core areas of the GAP. Research was questioned by one rater who stated, “How many applicants have any (research)?”

Discussion of the findings.

The experts were all from OT programs that had individual admissions procedures and program philosophies. Some OT programs rely only on grade point to facilitate the admissions process, which can be completed by the University admissions department and not OT faculty. This is reflective of the external pressures placed on the faculty by the institution to admit students with limited faculty time and resources. This was discussed in the Parsons Thompson Model (Figure 2) as presented by Parsons (1960). As the experts reviewed the GVSU admissions process, they may have been relating the GAP to their own admissions process and OT program philosophy. The core areas of the GAP, relating to the theoretical base of this study (and professionalism in the field), include research, professional
socialization, education, practice, and leadership, which may be unique to the GVSU program and different from the focus of the OT programs of the content validity raters.

The small number of raters (3) could also have affected the results. The numbers of comments from the raters were very limited. Increasing the number of raters could also have provided additional qualitative data regarding improving the use of the GAP. The data were collected by means of a survey. The richness of the qualitative data may have been improved with individual interviews or a focus group.

**Implications for further study.**

Future research should include experts who are from OT programs with similar philosophies. Although OT programs have national standards, individual OT program philosophies and admissions procedures will vary. This study indicates a need for a comparison of the philosophy of different OT programs and their admission procedures. The GAP was based on a literature review by Grapczynski and Kane (1990) that revealed five core areas that were needed for professionalization of the field. A comparison of OT program philosophies could reflect the diversity of the field, assist students in selecting a program, and determine if the values of the profession are represented in the educational programs. Content validity could then be completed on the GAP with experts from OT programs that more closely align with the GVSU OT program philosophy.

*To what degree does the GAP demonstrate predictive validity?*

Criterion validity is the correlation of a scale with some other measure or trait (DeVon et al., 2007) and includes concurrent, predictive, convergent, and discriminate validity (see Figure 3). If these two measurements are completed at the same time, it is considered concurrent validity, and if correlated to predict performance, it is considered
predictive validity. Predictive validity was measured by correlating scores on the GAP with grade point, demographics (sex, age, race, and disability), passing the national certification exam, and fieldwork scores. The significant correlations were at a weak to very weak level (see Table 10).

Discussion of the findings.

One possibility for these weak correlations is the fact that most of the students in the data had passed the certification exam and successfully completed the OT program. The data included 145 students, of whom only 14 did not complete the program. Of those who completed the program, only two did not pass the certification exam. This resulted in a small sample size in students who did not complete the program or who did not pass the certification exam, possibly affecting the data.

Implications for further study.

The GVSU OT program has a high percentage of students who complete the OT program and pass the certification exam. The GAP admissions tool has been part of that process since the inception of the program. Further study is needed to compare other OT programs that consider more than just grade point and some type of achievement summary to those OT programs that use only grade point in their admissions. Do other programs with some type of achievement summary have a higher number of students who complete the program and pass the certification exam? Do other programs have a higher drop-out rate than GVSU?

In regard to predictive validity, it would also be important to look at these graduates as they work in the field of OT. The GAP is an achievement summary of activities the OT student applicant completed and not a personality test. Research could be completed to
determine if these activities continued after graduation. As stated in the section on concurrent validity, the CPI 260 personality test did not correlate with GAP achievement summary activities, but do previous activities correlate with future activities? For example, did a graduate who scored high in the educational component of the GAP go on to be an OT educator reflecting this core area of the GAP admissions tool? How many of them have promoted professionalism in the field of OT as reflected in the GVSU curriculum philosophy and the GAP core areas? How many have focused on the GAP core areas and become researchers, educators, involved in professional issues (professional socialization), leaders in the field, or recognized in their area of OT practice?

To what degree does the GAP demonstrate interrater reliability?

Reliability of the GAP was determined by having five trained evaluators individually score a specific number of random applicant samples and then compare the individual scores. Each area of the GAP (practice, leadership, education, research, and professional socialization) has categorical criterion (see Appendix B) that awards the applicant specific points for achievement. The scores between evaluators were compared by ICC to determine the GAP’s interrater reliability. For the qualitative data, oral comments were tape-recorded during the session, transcribed, and analyzed for common themes. The ICC = -.164, \( p = .498 \) indicated that the reliability was not statistically significant. A reason for a negative ICC (Garson, 2009) can be the limited number of raters. Another reason, according to Shrout and Fleiss (1979), for a negative ICC is if the within-group (within-rater) variances are more than the between-group (rater) variance. In this case the within-rater variances were more than the between-rater variances. The GAP individual research component ICC=.641, \( p = .041 \) was found to be statistically significant. This did not achieve the \( r \geq .7 \) stated in the hypothesis.
but according to Safrit and Wood (1995) would indicate moderately high agreement between the raters. Table 6 reports the output for the reliability data including overall GAP score and the individual research component.

The qualitative analysis from the raters indicated several suggestions that could improve the GAP reliability. The raters gave suggestions that would assist in improving the GAP forms, clarify activities, clarify the temporal aspect of the activities, and improve the student strategies when completing the GAP forms. These suggestions may assist in simplifying GAP scoring in the future, possibly improving interrater reliability.

Discussion of the findings.

The question of why the research component was found to be significant is important to address as none of the other areas were significant. In the results for the research component of the GAP, the rating of student 7 needs to be discussed in that he/she reported no (0) research experience, which resulted in total agreement from the raters with a score of 0. It is possible that this may have affected the results. It is also important to keep in mind the possibility of a spurious correlation in this case. A spurious correlation according to Burns (1997) is where two or more variables are statistically related but in fact they are not causally linked possibly due to the influence of a third variable. Was there another variable that improved the reliability of the raters when evaluating the research component? Were the instructions and the items that were scored under the research area clearer to the raters than the other areas? The results may also be due to the number of correlations that were completed, and this correlation being significant possibly due to chance. The qualitative data gave some additional information as to why the overall GAP score and the other components of the GAP demonstrated the stated results for interrater reliability and the raters’ suggestions
for improvement. Due to the complexity of the scoring of the GAP and limited time available from the reliability raters, the sample size was limited to 10 charts. A study by Yoon (2008) also used 6 raters using the same significance level as this study of \( p \leq 0.05 \). Six raters were originally scheduled but only 5 were available on the day of the study.

In regard to analysis of the qualitative comments, it is important to bear in mind the possibility of researcher bias. This researcher was a user of the GAP and the raters were colleagues of the researcher. Did knowing the researcher affect the raters’ recorded comments? Did the fact that the comments were recorded affect the raters’ responses? Did the researcher convey any favoritism of the GAP to the raters during the session? The recorded and transcribed qualitative comments were triangulated with the face and content validity comments and themes in an attempt to address this possible bias as recommended by Miles & Huberman (1994).

*Implications for further study.*

The reliability qualitative data were supportive of promoting ease of scoring with the achievement summary. This conclusion was supported when the qualitative comments and themes from face, content, and reliability raters were triangulated (Table 7). This could be facilitated by automating the process through computer software that is user friendly and asks the applicant questions that facilitate appropriate recording of the GAP achievement summary. This could be more accurate, possibly improving reliability, provide a broader range of activity choices with possible drop down menus, and simplify the scoring process for the admissions faculty. Once the admissions process and GAP achievement summary are automated by means of computer software, further reliability studies would be needed to determine the accuracy of the information supplied by the applicant. A larger number of
charts could be completed in future research, especially if the GAP scoring could be simplified to be less time-consuming and the scoring criteria more specific.

**Researcher Bias**

This researcher is a user of the GAP and prior to initiation of this study anticipated good correlations with predictive validity. This study did not demonstrate significant predictive validity, possibly due to the high number of individuals in the sample who graduated and passed the certification exam. This researcher is also supportive of the theoretical base of the GAP, which makes up the foundation of the GVSU OT program. This includes the need for professionalism in the field of OT through the core areas of research, professional socialization, education, leadership, and practice. It is important to keep this researcher bias in mind, especially when evaluating the researcher’s subjective qualitative analysis. Was there bias in this analysis based on the researcher’s preferences? In this case, triangulation of the qualitative data and themes was utilized to help identify as stated by Miles & Huberman (1994, p. 267) “inconsistencies and contradictions” in the data as well as the use of an external auditor to comment on the themes as recommended by Creswell (2003).

**Importance of the Study**

The purpose of this study was to determine convergent validity, face and content translational validity, predictive validity, and interrater reliability of the GAP. This study determined that the GAP admissions tool has a moderately high degree of face validity and interrater reliability for the research component. The correlations failed to meet the $r \geq .7$ level presented in the hypothesis. Content, predictive, and concurrent (convergent) validity were not significant in this study. The importance of this study is that it determined
additional information that assists in further development of the GAP admissions tool. The moderately high degree of Face validity and the Research area reliability provides a base to improve the GAP in hopes of promoting validity and reliability.

The data demonstrated that specific personality characteristics do not necessarily correlate to the completion of activities on the GAP achievement summary. This study supports how complex the non-cognitive areas of applicant admissions can be. It appears that this attempt to correlate the GAP with the CPI 260 reinforces the complexity of the admissions process when comparing actual applicant achievement to specific personality traits. Further development of the admissions tool is needed to select successful OT students and facilitate professionalization of the field. The qualitative data triangulated from the face, content, and reliability comments and themes supported the theoretical base of the GAP in 4 out of 5 core areas including research, professional socialization, practice, and leadership. The qualitative comments also helped to identify several areas that support or would improve the GAP, including the need for improvements to the scoring and the claim that the GAP provides a thorough breadth of perspective in OT admissions. With this information, improvements can be made to the GAP and additional research can be done on validity and reliability following these revisions.

Conclusions

Chapters One and Two presented the need for a valid and reliable tool for OT program candidate selection and the conceptual framework for this study. This included the need for professionalism in the field of OT, and the Parsons Thompson model to assist in understanding how OT admissions committees navigate levels of control as they respond to the external environment. It is important that as admissions committees evaluate an
increasing applicant pool with limited resources, they select students who will be successful in the program and therefore maximize the number of graduates into the profession. Chapter Three discussed the methodology of this study, including a discussion of research traditions, research design, ethical/human subjects’ approval, and data analysis as related to the research question: To what degree is the GAP a valid and reliable tool for selecting successful OT students? Chapter Four shared the results of the study including a moderately high degree of face validity and moderately high agreement between the raters for the research component of the GAP. The qualitative data gave support for the most of the core areas of the GAP related to professionalism in the field of OT. This qualitative data also included suggestions for improvement of the GAP. In regard to concurrent validity, it appears that specific personality characteristics do not necessarily correlate to the completion of activities on the GAP achievement summary. This study supports how complex the non-cognitive areas of applicant admissions can be. Chapter Five included a summary of the results, discussion of the findings, conclusions, and recommendations for further study. With this information and the findings that the GAP has a moderately high degree of face validity as well as the research area reliability, improvements can be made to the GAP and additional research can be done from this base with the hope of further improving validity and reliability of this admissions tool.
References


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Appendix A

The GAP

Forms
Occupational Therapy Program
ACHIEVEMENT SUMMARY FORM

TO THE APPLICANT:
Using the Achievement Summary Criteria to guide you, please indicate the activities in which you have engaged during your college career and beyond, that meet the criteria shown. Please be sure to indicate the year, nature of the activity, the length of time of your participation in the activity, and how often you participated in the activity (E.g. 2004, Homeless shelter service, One day, Twice that year)

PRACTICE (paid work involving direct patient contact)  
Number

<table>
<thead>
<tr>
<th>Activity and Date</th>
<th>Duration of Activity</th>
<th>of Times</th>
</tr>
</thead>
</table>

LEADERSHIP (any leadership role in any capacity)  
Number

<table>
<thead>
<tr>
<th>Activity and Date</th>
<th>Duration of Activity</th>
<th>of Times</th>
</tr>
</thead>
</table>

EDUCATION (any teaching role in any kind of organization.)  
Number

<table>
<thead>
<tr>
<th>Activity and Date</th>
<th>Duration of Activity</th>
<th>of Times</th>
</tr>
</thead>
</table>

RESEARCH (any research role in any capacity)  
Number

<table>
<thead>
<tr>
<th>Activity and Date</th>
<th>Duration of Activity</th>
<th>of Times</th>
</tr>
</thead>
</table>
PROFESSIONAL SOCIALIZATION (volunteer work with any disabled group beyond the required 50 hours)

Activity and Date Duration of Activity       of  Times

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Occupational Therapy Program
Admissions Form: Achievement Summary Criteria

Guidelines: Students are awarded points for achievement in the areas of Practice, Leadership, Education, Research and Professional Socialization.

Categorical Criterion (Maximum point award per category is 4.00)* Points /3 mos.

A. Practice = any paid work involving direct patient contact, such as Max 4.00 pts
   1) CNA/Nursing Assistant 0.25 pts
   2) Rehab (OT/PT) technician or aide 0.50 pts
   3) Activity leaders/exercise leaders 0.50 pts
   4) Health care professional of any kind (BS or higher) 4.00 pts

B. Leadership = any leadership role in any capacity , such as Max 4.00 pts
   1) Leadership role in any youth/service organization, such as, .25 pts
      i. Boy/Girl Scout Leader
      ii. Camp Counselor
      iii. Church Group Leader
   2) Officer in any formal extracurricular organization .50 pts
   3) Supervisor/manager in an employment capacity, 1.00 pts

C. Education = any teaching role in any kind of organization, such as Max 4.00 pts
   1) Sunday School Teaching . .25 pts
   2) Classroom Instructional Aide .25 pts
   3) Tutor (group or individual) .50 pts
   4) Certified activity instructor for a service organization 1.00 pts

D. Research = any kind of research activity, such as Max 4.00 pts
   1) Research papers /study participant/subject .25 pts
   2) Research Assistant/input or collect data .50 pts
   3) Involvement in analyzing research data for another .75 pts
   4) Carried out independent research 1.00 pts
E. Professional Socialization = any volunteer work in the area of help for those with health issues or members of underserved populations  

Max 4.00 pts

1) Participation in volunteer one-time activity .25 pts
2) Participation in ongoing volunteer activity .50 pts
3) Member of planning committee for a major volunteer effort 1.00 pts

Temporal Criterion *(Added to categorical criterion)**

Time criteria are cumulative, that is, if an activity extends over one year, that extended time is added incrementally at value shown

A. Completed in a single encounter, such as

1) Shadow a therapist for an afternoon/a day .25 pts
2) One-time activity for a community or church group, like a Walk-a-Thon, or attendance at a charity event

B. Activity that extends three months or less .25 pts

1) Required ongoing participation for 1 – 3 months .25 pts
   a) Summer activity
   b) Community/church project
2) Is completed in 3 months or less

C. Ongoing activity that extends 4 – 5 months (one semester) .50 pts

D. Ongoing activity that extends over 2 semesters (9 months) .75 pts

1) Tutorial work (any level)
2) Holding office in any organization for 1 academic year
3) Leading any project over 1 academic year

E. Ongoing activity that extends over a 10 – 12 month period 1.00 pts

1) Employment experiences
2) Organizational experiences (e.g. Scouting, social groups)

**E.g. Sunday School Teaching (.25) over 3 years (3.0) = 3.25 pts
*E.g. Sunday School Teaching (.25) over 4 years (4.0) = 4.00 pts

NOTE: For employment not directly with consumers, credit will be given only for the length of time the candidate had involvement in any of the four achievement categories (research, education, leadership, professional socialization).

Rev 1/05
### GPA CALCULATIONS

<table>
<thead>
<tr>
<th>GPA</th>
<th>CUM</th>
<th>PRE</th>
<th>GPA</th>
<th>CUM</th>
<th>PRE</th>
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</thead>
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<tr>
<td>3.00 – 3.10</td>
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<td>2</td>
<td>3.51 – 3.60</td>
<td>6</td>
<td>12</td>
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<td>3.11 - 3.20</td>
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<td>4</td>
<td>3.61 – 3.70</td>
<td>7</td>
<td>14</td>
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<td>3.21 - 3.30</td>
<td>3</td>
<td>6</td>
<td>3.71 – 3.80</td>
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<td>16</td>
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<td>3.31 - 3.40</td>
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<td>8</td>
<td>3.81 – 3.90</td>
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<td>3.41 - 3.50</td>
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<td>10</td>
<td>3.91 – 3.40</td>
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<tr>
<th>Prerequisite</th>
<th>Equivalent</th>
<th>Grade</th>
<th>CR</th>
<th>Hrs</th>
<th>QL</th>
<th>Pts</th>
<th>Coll &amp; Date</th>
<th>AC</th>
<th>Appr’d</th>
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<tbody>
<tr>
<td>HS 202 Anat &amp; Physiology</td>
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<td>HS 208 Human Anatomy</td>
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<td>HS 309 Human Anatomy Lab</td>
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<td>MOV 300 Kinesiology</td>
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<tr>
<td>HS 427 Neuroanatomy</td>
<td>or PSY 431</td>
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<tr>
<td>Neuropsych or PSY 430 Physiological Psych</td>
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<tr>
<td>PSY 303 Psychopathology (prereq PSY 101)</td>
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<td>PSY 364 Life Span Developmental Psych</td>
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<td>Elective from Psych, Soc, Anthro, or Public Health</td>
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<td><strong>Suggested Electives:</strong></td>
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<td>ANT 204 Intro to Cult. Ant.</td>
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<td>HS 375 Biology of Aging</td>
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<td>PSY 360 Social Psychology</td>
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<td>PSY 368 Psych of Physical Disabilities</td>
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<tr>
<td>SOC 388 Mid Age &amp; Aging</td>
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</tbody>
</table>
Suggested Gen Ed Courses:
- Hist Perspectives – ANT 215
- Math Sciences – **STA 215**
- Natural Sciences – HS 202
- Social Sciences – ANT 204, PSY 101, or SOC 280
- World Persp – ANT 204, 215
- Diversity - SOC 280, 323

Suggested Gen Ed Theme Group:
- Theme 4 (The Human Journey) or Theme 16 (Health, Illness, and Healing)

\[
\text{____ / ____} = \text{_____ GPA}
\]
GRAND VALLEY STATE UNIVERSITY
OCCUPATIONAL THERAPY PROGRAM

Application Worksheet

Name____________________________________________
SS#____________________________________________

Program Entry Yr ________ 50 volunteer hours completed? ________

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>POSSIBLE</th>
<th>ACTUAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. GPA (Minimum 3.00 in both categories)</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>last 60 hrs of undergraduate work</td>
<td>______</td>
<td></td>
</tr>
<tr>
<td>prerequisite performance</td>
<td>______</td>
<td>20</td>
</tr>
<tr>
<td>2. Recommendation Letters</td>
<td></td>
<td></td>
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<tr>
<td>____ + ____ = ____</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>OT + ED</td>
<td>5</td>
<td></td>
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<tr>
<td>3. Achievement Summary</td>
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<tr>
<td>(Maximum 4 points each category with minimum of 5 points total in all categories.)</td>
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<td></td>
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<tr>
<td>a. Practice</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Maximum # of points given for 5 or more years of health care practice in any discipline</td>
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<td></td>
</tr>
<tr>
<td>b. Leadership</td>
<td>4</td>
<td></td>
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<tr>
<td>c. Education</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>d. Research</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>e. Professional Socialization</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

PAPER REVIEW SCORE - STUDENTS MUST HAVE A MINIMUM SCORE DETERMINED BY THE ADMISSION COMMITTEE TO QUALIFY FOR INTERVIEW AND WRITING SAMPLE PARTICIPATION 60
<table>
<thead>
<tr>
<th></th>
<th>Score</th>
<th>Minimum Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>Interview score (Minimum 18/25 points)</td>
<td>25</td>
</tr>
<tr>
<td>5.</td>
<td>Writing Sample score (Minimum 17/24 points)</td>
<td>24</td>
</tr>
</tbody>
</table>

**TOTALS**

109

(Minimum 80/109 Total Points)
GRAND VALLEY STATE UNIVERSITY
OCCUPATIONAL THERAPY DEPARTMENT

LETTER OF RECOMMENDATION

Student’s Waiver Certificate: To the Student:

You may voluntarily waive your right to have access to a specific letter of recommendation written about you in accordance with the Federal Family Education Rights and Privacy Act of 1974 by signing this certificate.

I waive, relinquish and disclaim all my rights to have access to the letter of Recommendation/Evaluation described in this form.

Date  Social Security Number  Signature

(required)

Name of Applicant:

Name of Evaluator:

Position or Title of Evaluator:

Department:

Place of Employment:

Address: ____________________________________________________________

City/State/Zip: ________________________________________________________

Approximate hours of contact with applicant:

List of duties performed by applicant:
Give a brief description of how well you know the applicant.

___________________________________________________________________________

– Date Signature

PLEASE RETURN TO: Admissions Office
Student Services Building
Grand Valley State University
Allendale, MI 49401
**Instructions for completion:** For the recommendation to be acceptable, it is necessary that the applicant be scored in all 5 areas. Comments are encouraged.

Compared to other students with whom you have had contact, where would you rank this student in:

1. **Ability to communicate. (Written and verbal)**

<table>
<thead>
<tr>
<th></th>
<th>1 Poor</th>
<th>2 Below Average</th>
<th>3 Average</th>
<th>4 Above Average</th>
<th>5 Exceptional</th>
</tr>
</thead>
</table>

COMMENTS:

2. **Acceptance of responsibility for work or assignment.**

<table>
<thead>
<tr>
<th></th>
<th>1 Poor</th>
<th>2 Below Average</th>
<th>3 Average</th>
<th>4 Above Average</th>
<th>5 Exceptional</th>
</tr>
</thead>
</table>

COMMENTS:

3. **Ability to organize and complete assigned tasks well. (Academic or work related)**

<table>
<thead>
<tr>
<th></th>
<th>1 Poor</th>
<th>2 Below Average</th>
<th>3 Average</th>
<th>4 Above Average</th>
<th>5 Exceptional</th>
</tr>
</thead>
</table>

COMMENTS:
4. Ability to understand and get along with others.

| 1 Poor | 2 Below Average | 3 Average | 4 Above Average | 5 Exceptional |

COMMENTS:

5. General ability to function as a health care professional; that is, integrating a knowledge base with the ability to problem-solve.

| 1 Poor | 2 Below Average | 3 Average | 4 Above Average |

COMMENTS:

OVERALL RATING:

__________ Strongly Recommend
__________ Recommend
__________ Recommend with Reservations
__________ Do Not Recommend

SUMMARY COMMENTS:
Grand Valley State University Occupational Therapy Admissions Process

Student Obtains and Completes Graduate Application from GVSU

Admissions Committee Reviews and Scores

- Letters of Recommendation (1-10)
- Prerequisite GPA 3.0 or better (1-20)
- Last 60 hours of coursework GPA of 3.0 or better (1-10)

Completion of Achievement Summary (1-20)

- Prof Socialization (0-4)
- Research (0-6)
- Education (0-4)
- Leadership (0-4)

Practice (0-4)

60 hours documented volunteer work under supervision of an OT

Maximum score of 20 in Achievement Summary

- Candidates below 24 points sent declination letter
- Minimum Score 24 out of 60
- Personal and group interview maximum score 25

On-site Writing Sample maximum score 5

Third reviewer in cases that vary more than 4 points

Alternates contacted if seats become available

Program Advisory Committee reviews and discusses candidates with final rankings

Balance of candidates over 25 become alternates

Top 25 (score 67 or higher) sent letter offering a seat in the program

Candidates not selected are offered opportunity to meet with OT faculty in an advising session

Advising session recorded

Candidate accepts within two weeks by written reply

Student Admitted to Program

Areas of the OT admissions process scored by means of the GAP achievement summary

Validity

49
Appendix B

Content Validity

Forms
E-mail to the Experts

As an expert in the field of Occupational Therapy (OT) student admissions you are being asked to rate an OT student admissions tool. Your input will facilitate the determination of content validity of the admissions tool. Your participation is completely voluntary.

**The purpose of this study** is to determine validity and reliability of the GVSU Occupational Therapy admissions tool.

**You are being invited to participate** because you are an expert in the field of OT student admissions.

**If you agree to be in this study**, you will be sent a copy of the admissions tool, you will be and asked to review the admissions tool documents, and complete a brief questionnaire. The **total estimated time** to participate in the review of the admissions tool and the questionnaire is approximately 15 minutes.

**Benefits and risks** of being in the study:
- There is no direct benefit of your participation, it is hoped that this research will benefit individuals involved in OT student admissions and students applying to Occupational Therapy programs in the future.
- The risks associated with this study, if any, are minimal. No actual names will be attached to any of the data after it is analyzed by the principal investigator.

**Compensation:** There is no compensation for your participation in this study.  
**Confidentiality:**  
No one except the principal investigator will know whether you have agreed to participate. Your name will not be connected to any of the data. The data will be maintained on secured, password-protected servers. The data sheets will be stored in a locked file cabinet in the OT research files. Select responses from the questionnaire. Comments may appear in presentations and publications being given by the researchers. All publications will exclude any information that will make it possible to identify you as a participant in this study. The records of this study will be securely kept until May 2012.

Please feel free to contact me if you have any questions. By responding to this e-mail or indicating below you are agreeing to participate, you will be sent a copy of the admissions tool documents and questionnaire within the next week. **Your participation is encouraged and would be greatly appreciated.**

Respectfully,

Jeanine Biese, MEd, OTR, CHT, Assistant Professor, GVSU, OT Program, Principal Investigator
Contacts and Questions:
If at any time you have questions about this study you may contact the principal investigator, Jeanine Biese, (616) 331-3117, bieseje@gvsu.edu.
If you have questions about your rights as a research participant that has not been answered by the investigator, you may contact the Grand Valley State University Human Subjects Review Committee Chair at (616) 331-2281.

If you agree to participate in this study, please respond to this e-mail, you will be given a copy of this information to keep for your records.

Printed Name: ____________________________________________________________

Choose one:

_____ I voluntarily agree to participate in this study.

_____ I do NOT agree to participate in this study.

This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee for use from Nov. 10, 2008 to Nov. 10, 2009. If you have questions about the approval process, please contact Dr. Deb de Laski-Smith (734.487.0042, Interim Dean of the Graduate School and Administrative Co-chair UHSRC, human.subjects@emich.edu).
Dear Occupational Therapy Admissions Expert:

The Grapczynski Admissions Profile (GAP) is an Occupational Therapy (OT) admissions tool designed to evaluate applicants to an OT program and determine if they should be interviewed by the OT faculty. The items on the tool include an achievement summary based on grade point, professional letters of recommendation and five core areas of practice including: research, practice, education, leadership, and professional socialization. These five core areas were identified by Grapczynski and Kane (1990) as a result of an extensive OT literature review, looking at what is needed for the field to be effectively professionalized. Applicants to the OT program, who have some previous experience in these areas, are anticipated to be successful OT students. It is anticipated by the designer of the tool, that these students may also facilitate future professionalism in the field of OT. The maximum points a student can obtain would be 60. Thirty of those points are rated for grade point, 10 for letters of recommendation and 20 for the achievement summary. Students submit an achievement summary (see attached forms) and are rated by the faculty in each of the areas. They are given points based on their time and involvement in each area. The score determines if the applicant can then qualify for an interview and an on-site writing sample.

You as an expert in the field are being asked to rate the following admissions tool worksheet on a 5 point scale. 1= irrelevant item and 5= extremely relevant item in regards to admission of Occupational Therapy Students. You are encouraged to include comments about the tool.

Disclaimer: You are asked to voluntarily provide specific information to this questionnaire. You may skip any question, or stop participating at any time. The information collected will be used for the stated purposes of this research project only and will not be provided to any other party for any other reason at any time. You should be aware that although the information you provide is anonymous, it is transmitted in a non-secure manner. There is a remote chance that a skilled, knowledgeable person unaffiliated with this research project could track the information you provide to the e-mail address of the computer from which you send it. However, your personal identity cannot be determined.

Thank you for your cooperation with this process.

Jeanine Biese, MEd, OTR, CHT
Assistant Professor
GVSU- Occupational Therapy Program
1. Cumulative grade point and the grade point average of the prerequisites are considered as part of the overall GAP score for admissions to the OT program. (see attached GAP form) Cumulative grade point is given a score from 0-10 towards the overall GAP score and prerequisites are given a score from 0-20 towards the overall GAP score. Grade point scores make up 30 of the 60 possible points on the GAP score. Please rate the relevancy of the points awarded on the following Scale:

Please rate the grade point average calculations:

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<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>irrelevant item</td>
<td>extremely suitable</td>
<td></td>
<td></td>
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2. Letters of recommendation: Students submit a specific form for letters of recommendation (see attached). The student is rated by one professor (or employer for non-traditional students) and one Occupational Therapist on a five point scale. There are five items on the scale that are then averaged. The maximum a student could receive is 5 points on each recommendation for a total of 10 points.

Please rate the following for letters of recommendation:

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<tbody>
<tr>
<td>irrelevant item</td>
<td>extremely suitable</td>
<td></td>
<td></td>
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3. Achievement summary: Students complete the achievement summary (see attached) and are then rated by the faculty for each item on the summary. The achievement summary and rating score key are attached. After reviewing the forms please rate the areas of the achievement summary as follows:

**PRACTICE (paid work involving direct patient contact)**

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<tbody>
<tr>
<td>irrelevant item</td>
<td>extremely suitable</td>
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**LEADERSHIP (any leadership role in any capacity)**

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<th>5</th>
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<tbody>
<tr>
<td>irrelevant item</td>
<td>extremely suitable</td>
<td></td>
<td></td>
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</tbody>
</table>
EDUCATION (any teaching role in any kind of organization.)

1 irrelevant item
2 3 4 5 extremely suitable

RESEARCH (any research role in any capacity)

1 irrelevant item
2 3 4 5 extremely suitable

PROFESSIONAL SOCIALIZATION (volunteer work with any disabled group beyond the required 50 hours)

1 irrelevant item
2 3 4 5 extremely suitable

Please feel free to make any comments you may have about the GAP admissions tool. Your feedback is very important to this research and the OT admissions. Do not hesitate to use additional space as needed.

___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

You can mail this form to: Jeanine Biese
301 Michigan NE, Room 216
Grand Rapids, MI 49503

Or you can e-mail it to: bieseje@gvsu.edu

Thank you!
Appendix C

Face Validity

Forms
As recent graduate currently practicing in the field of Occupational Therapy you are being asked to rate an OT student admissions tool. Your input will facilitate the determination of content validity of the admissions tool. Your participation is completely voluntary.

**The purpose of this study** is to determine validity and reliability of the GVSU Occupational Therapy admissions tool.

**You are being invited to participate** because you are a recent graduate currently practicing in the field of Occupational Therapy.

**If you agree to be in this study**, you will be sent a copy of the admissions tool, you will be asked to review the admissions tool documents, and complete a brief questionnaire. The **total estimated time** to participate in the review of the admissions tool and the questionnaire is **approximately 45 minutes**.

**Benefits and risks** of being in the study:
- There is no direct benefit of your participation, it is hoped that this research will benefit individuals involved in OT student admissions and students applying to Occupational Therapy programs in the future.
- The risks associated with this study, if any, are minimal. No actual names will be attached to any of the data after it is analyzed by the principal investigator.

**Compensation:** There is no compensation for your participation in this study.

**Confidentiality:**
No one except the principal investigator will know whether you have agreed to participate. Your name will not be connected to any of the data. The data will be maintained on secured, password-protected servers. The data sheets will be stored in a locked file cabinet in the OT research files. Select responses from the questionnaire, comments may appear in presentations and publications being given by the researchers. All publications will exclude any information that will make it possible to identify you as a participant in this study. The **records** of this study will be securely kept until May 2012.

Please feel free to contact me if you have any questions. By responding to this e-mail or signing below you are agreeing to participate and will be sent a copy of the admissions tool documents and questionnaire within the next week. **Your participation is encouraged and would be greatly appreciated.**

Respectfully,

Jeanine Biese, MEd, OTR, CHT, Assistant Professor, GVSU, OT Program, Principal Investigator

**Contacts and Questions:**
If at any time you have questions about this study you may contact the principal investigator, Jeanine Biese, (616) 331-3117, bieseje@gvsu.edu.
If you have questions about your rights as a research participant that has not been answered by the investigator, you may contact the Grand Valley State University Human Subjects Review Committee Chair at (616) 331-2281.

*If you agree to participate in this study, you will be given a copy of this information to keep for your records.*

Printed Name: ____________________________________________________________

Choose one:

_____ I voluntarily agree to participate in this study.

______________________________

Printed email address:

______________________________

_____ I do NOT agree to participate in this study.

______________________________

Signed ________________________________________________________________

This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee for use from Nov. 10, 2008 to Nov. 10, 2009. If you have questions about the approval process, please contact Dr. Deb de Laski-Smith (734.487.0042, Interim Dean of the Graduate School and Administrative Co-chair UHSRC, human.subjects@emich.edu).
Date:

Dear Occupational Therapist:

The Grapczynski Admissions Profile (GAP) is an Occupational Therapy (OT) admissions tool designed to evaluate applicants to an OT program and determine based on their score if they should be interviewed by the OT faculty and allowed to sit for an on-site writing sample. The items on the tool include an achievement summary based on grade point, professional letters of recommendation and five core areas of practice including: research, practice, education, leadership, and professional socialization. These five core areas were identified by Grapczynski and Kane (1990) as a result of an extensive OT literature review, looking at what is needed for the field to be effectively professionalized. Applicants to the OT program, who have some previous experience in these areas, are anticipated to be successful OT students. It is anticipated by the designer of the tool, that these students may also facilitate future professionalism in the field of OT. The maximum points a student can obtain would be 60. Thirty of those points are rated for grade point, 10 for letters of recommendation and 20 for the achievement summary.

Students submit an achievement summary (see attached forms) and are rated by the faculty in each of the areas. They are given points based on their time and involvement in each area.

You, as a practicing Occupational Therapist and a recent graduate, are being asked to rate the following admissions tool worksheet on a 5 point scale, with 1= irrelevant and 5= extremely suitable item in regards to admission of Occupational Therapy Students.

Disclaimer: You are asked to voluntarily provide specific information to this questionnaire. You may skip any question, or stop participating at any time. The information collected will be used for the stated purposes of this research project only and will not be provided to any other party for any other reason at any time. You should be aware that although the information you provide is anonymous, it is transmitted in a non-secure manner. There is a remote chance that a skilled, knowledgeable person unaffiliated with this research project could track the information you provide to the e-mail address of the computer from which you send it. However, your personal identity cannot be determined.

Thank you for your cooperation with this process.

Jeanine Biese, MEd, OTR, CHT
Assistant Professor
GVSU- Occupational Therapy Program
1. Cumulative grade point and the grade point average of the prerequisites are considered as part of the overall GAP score for admissions to the OT program (see attached GAP form). Cumulative grade point is given a score from 0-10 towards the overall GAP score and prerequisites are given a score from 0-20 towards the overall GAP score. Grade point scores make up 30 of the 60 possible points on the GAP score. Please rate the relevancy of the points awarded on the following Scale:

**Please rate the grade point average calculations:**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>irrelevant item</td>
<td>extremely suitable</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Letters of recommendation: Students submit a specific form for letters of recommendation (see attached). The student is rated by one professor (or employer for non-traditional students) and one Occupational Therapist on a five point scale. There are five items on the scale that are then averaged. The maximum a student could receive is 5 points on each recommendation for a total of 10 points.

**Please rate the following for letters of recommendation:**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>irrelevant item</td>
<td>extremely suitable</td>
<td></td>
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</tr>
</tbody>
</table>

3. Achievement summary: Students complete the achievement summary (see attached) and are then rated by the faculty for each item on the summary. The achievement summary and rating score key are attached. After reviewing the forms please rate the areas of the achievement summary as follows:

**PRACTICE (paid work involving direct patient contact)**

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<thead>
<tr>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>irrelevant item</td>
<td>extremely suitable</td>
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<td></td>
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</table>
LEADERSHIP (any leadership role in any capacity)

<table>
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<tr>
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<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>irrelevant item</td>
<td>extremely suitable</td>
<td></td>
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</table>

EDUCATION (any teaching role in any kind of organization.)

<table>
<thead>
<tr>
<th>1</th>
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<th>4</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td>irrelevant item</td>
<td>extremely suitable</td>
<td></td>
<td></td>
<td></td>
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</table>

RESEARCH (any research role in any capacity)

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<tbody>
<tr>
<td>irrelevant item</td>
<td>extremely suitable</td>
<td></td>
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</table>

PROFESSIONAL SOCIALIZATION (volunteer work with any disabled group beyond the required 50 hours)

<table>
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<tr>
<th>1</th>
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<th>4</th>
<th>5</th>
</tr>
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<tbody>
<tr>
<td>irrelevant item</td>
<td>extremely suitable</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please feel free to make any comments you may have about the GAP admissions tool. Your feedback is very important to this research and the OT admissions. Do not hesitate to use additional space as needed.

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

You can mail this form to: Jeanine Biese
301 Michigan NE, Room 216
Grand Rapids, MI 49503

Or you can e-mail it to: bieseje@gvsu.edu
Thank you!
Appendix D

Concurrent Validity

Forms
Dear GVSU Occupational Therapy Program Applicant:

On the day of your interview for the Occupational Therapy Program, you are invited to volunteer to take the California Psychological Inventory (GAP 260) as part of a research project on Occupational Therapy admissions. The score from the CPI 260 will be correlated with other scores as a means of validating the OT admission process instruments.

Your participation in the research is completely voluntary. Your participation or lack of participation will not affect your admission into the OT program and your responses will be anonymous.

Thank you in advance for your participation in this process. Your participation is vital to providing the Grand Valley State Occupational Therapy program with information as to its admissions process. If you have any questions or concerns, please feel free to contact Jeanine Biese, Grand Valley State University, Occupational Therapy Program, at 616-331-3117 or via email at bieseje@gvsu.edu

Sincerely,

Jeanine Biese, MEd, OTR, CHT
Assistant Professor
Occupational Therapy Program
Grand Valley State University
New Applicants to the OT program: Concurrent Validity
Consent Form

The Reliability and Validity of an Admissions Tool in Predicting Academic and Fieldwork Achievement in Occupational Therapy Students

Principal Investigator: Jeanine Biese, Occupational Therapy Program, College of Health Professions, 301 Michigan NE, Room 216, Grand Rapids, MI 49503, 331-3117, bieseje@gvsu.edu

January, 2009

Dear GVSU Occupational Therapy Program Applicant:

You are invited to volunteer to take the California Psychological Inventory 260 (CPI 260) to assist in a research project on Occupational Therapy admissions. The purpose of the inventory is to compare information from the OT admissions procedure and the CPI 260. The score from the CPI 260 will be correlated with other scores as a means of validating the OT admission process instruments.

Your participation in taking the inventory is completely voluntary. Your participation or lack of participation will not effect their admission to the OT program. By signing this form, you agree to take the inventory which will be confidentially analyzed by the principal investigator of this research project. The database will not contain any information that will be used to identify you as a participant. The research project has been approved by the Research Review Committee at GVSU. Please read the information below and ask questions about anything you don’t understand before deciding whether or not to take part. You are free to decide not to participate in this study or to withdraw at any time without adversely affecting your relationship with the investigator or Grand Valley State University. Your decision will not result in any loss of benefits to which you are otherwise entitled.

The purpose of this study is to determine validity and reliability of the GVSU Occupational Therapy admissions tool. It is hoped that this information will assist in the future selection of students to the GVSU OT program.

You are being invited to participate because you are part of the 2009 group of students who have applied to the OT program, and are in the process of being interviewed for the OT program.
If you agree to be in this study, you will volunteer to take the CPI 260 at the conclusion of your OT interview or after the writing sample in a CHP classroom.

Total estimated time to participate in the study is approximately 45 minutes.

Benefits and risks of being in the study:
- There is no direct benefit of your participation, however, it is hoped that this research will benefit students applying to Occupational Therapy programs in the future.
- The risks associated with this study, if any, are minimal. No actual names will be attached to any of the data after it is analyzed by the principal investigator.

Compensation: There is no compensation for your participation in this study.
Confidentiality:
No one except the principal investigator will know whether you have agreed to participate. Your name will not be connected to any of the data after it is analyzed. The data will be maintained on secured, password-protected servers. The data sheets will be stored in a locked file cabinet in the OT research files. Signed consent forms will be maintained in a locked drawer in the OT research files. Select responses from the interviews may appear in presentations and publications being given by the researchers. All publications will exclude any information that will make it possible to identify you as a participant in this study. The records of this study will be kept until May 2012.

Please be sure to ask questions you have about the study while the principal investigator is present. Your participation is encouraged and would be greatly appreciated.

Respectfully,

Jeanine Biese, MEd, OTR, CHT, Assistant Professor, GVSU, OT Program, Principal Investigator

Contacts and Questions:
If at any time you have questions about this study you may contact the principal investigator, Jeanine Biese, (616) 331-3117, bieseje@gvsu.edu.

If you have questions about your rights as a research participant that has not been answered by the investigator, you may contact the Grand Valley State University Human Subjects Review Committee Chair at (616) 331-2281.
If you agree to participate in this study, you will be given a copy of this information to keep for your records.

Printed Name: ____________________________________________

Choose one:

_______ I voluntarily agree to participate in this study.

_______ I do NOT agree to participate in this study.

_________________________________________             _________
Signed                                              Date

Please record your CPI 260 number here at the end of your assessment:

__________________________________________

This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee for use from Nov. 10, 2008 to Nov. 10, 2009. If you have questions about the approval process, please contact Dr. Deb de Laski-Smith (734.487.0042, Interim Dean of the Graduate School and Administrative Co-chair UHSRC, human.subjects@emich.edu).
Appendix E

CPI 260 and GAP Construct Comparison
Table 12

*Folk Concepts from the CPI 260 Related to Core areas of the GAP*

<table>
<thead>
<tr>
<th>Selected Folk Scale on the CPI 260</th>
<th>CPI 260 Definition</th>
<th>Similarities to GAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communality</td>
<td>High scorers like to take part in activities with others.</td>
<td>Professional Socialization Education (teaching)</td>
</tr>
<tr>
<td>Achievement via Independence</td>
<td>Conventional, well organized, and reliable</td>
<td>Practice Education</td>
</tr>
<tr>
<td>Insightfulness</td>
<td>Originality and independent thinking, set own goals, choose own methods, clear-thinking, insightful, and intelligent</td>
<td>Leadership Practice Research</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Investigative, resourceful, analytic, conceptualizing insight.</td>
<td>Research</td>
</tr>
<tr>
<td>Creative Temperament</td>
<td>Awareness and responsiveness to the feelings of others</td>
<td>Practice Professional Socialization Education</td>
</tr>
<tr>
<td>Leadership</td>
<td>Clever, intelligent, original, quick, versatile, and does well in research and development.</td>
<td>Research</td>
</tr>
<tr>
<td>Empathy</td>
<td>Is an effective leader; able to elicit the responses and cooperation of others, action-oriented, initiating, and self confident</td>
<td>Leadership Education</td>
</tr>
<tr>
<td></td>
<td>Socially perceptive and able to adapt own behavior to that of others.</td>
<td>Practice Professional Socialization Education</td>
</tr>
</tbody>
</table>
Appendix F

Reliability Forms
E-mail to the Reliability Evaluators

You are being asked to be part of a research study to determine the reliability of an OT student admissions tool. Your input will facilitate the determination of intrarater reliability of the admissions tool. Your participation is completely voluntary.

**The purpose of this study** is to determine validity and reliability of the GVSU Occupational Therapy admissions tool (GAP).

**You are being invited to participate** because you are a member of the GVSU College of Health Professions Faculty.

**If you agree to be in this study**, you will meet to receive training on the admissions tool and be asked to rate ten randomly chosen de-identified student files. You will be using the GAP to score each of the ten files and be allowed to write comments in regards to the procedure. The **total estimated time** to participate includes: the training, scoring of the files, and writing of comments is approximately **120 minutes**.

**Benefits and risks** of being in the study:
- There is no direct benefit of your participation, it is hoped that this research will benefit individuals involved in OT student admissions and students applying to Occupational Therapy programs in the future.
- The risks associated with this study, if any, are minimal. No actual names will be attached to any of the data after it is analyzed by the principal investigator.

**Compensation:** There is no compensation for your participation in this study.  
**Confidentiality:**  
No one except the principal investigator will know whether you have agreed to participate. Your name will not be connected to any of the data. The data will be maintained on secured, password-protected servers. The data sheets will be stored in a locked file cabinet in the OT research files. Select comments may appear in presentations and publications being given by the researchers. All publications will exclude any information that will make it possible to identify you as a participant in this study. The records of this study will be securely kept until May 2012.

Please feel free to contact me if you have any questions. By responding to this e-mail or signing below you are agreeing to participate and will be sent a time to meet for the training and scoring of the student files. **Your participation is encouraged and would be greatly appreciated.**

Respectfully,

Jeanine Biese, MEd, OTR, CHT, Assistant Professor, GVSU, OT Program, Principal Investigator
Contacts and Questions:
If at any time you have questions about this study you may contact the principal investigator, Jeanine Biese, (616) 331-3117, bieseje@gvsu.edu.

If you have questions about your rights as a research participant that has not been answered by the investigator, you may contact the Grand Valley State University Human Subjects Review Committee Chair at (616) 331-2281.

If you agree to participate in this study, you will be given a copy of this information to keep for your records.

Printed Name and e-mail: ________________________________

Choose one:

______ I voluntarily agree to participate in this study.

______ I do NOT agree to participate in this study.

This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee for use from Nov. 10, 2008 to Nov. 10, 2009. If you have questions about the approval process, please contact Dr. Deb de Laski-Smith (734.487.0042, Interim Dean of the Graduate School and Administrative Co-chair UHSRC, human.subjects@emich.edu).
Appendix G

Permission Letter
12.15.08

Cynthia Graczyanski, Ed.D. OTR
Occupational Therapy Program
Grand Valley State University
301 Michigan NE, Room 218
Grand Rapids, MI 49503

Dear Jeanine:

Thank you for your request to complete the above stated research project on the GVSU Occupational Therapy admissions tool called the Graczyanski Admissions Profile (GAP). I understand that access to the following will be needed:

1. A retrospective chart review of GVSU Occupational Therapy (OT) student records (for the last 10 years) will be completed. This chart review will include the scores on their admission tool referred to as the GAP, demographics (including sex, age, race, and disability and excluding identifiers), and fieldwork scores to be compiled during the fall of 2008 and/or the winter of 2009. Pass/fail scores on the OT certification exam will be obtained from me as the program director. Grade point scores from GVSU banner will be compiled at the College of Health Professions (CHP) in a locked room to assist in determining predicative validity.

2. The group of students who have applied to the OT program in the winter of 2009, and are in the process of being interviewed will be asked to voluntarily take the California Psychological Inventory 260 (CPI 260), in a CHP classroom to assist in determining criterion validity. This data will only be shared with the student if requested. It will be coded and removed of all identifiers prior to data analysis.

3. A group of (3-5) practicing OT GVSU graduates will be asked in the fall of 2008 and/or the winter of 2009 to rate the GAP tool through an e-mail questionnaire to assist with face validity.

4. A group (3-5) of experts in the field of OT admissions will be asked in the fall of 2008 and/or the winter of 2009 to rate the GAP tool in regards to content areas by means of an e-mail questionnaire, to assist in determining content validity.

5. Three or more trained OT evaluators in the fall of 2008 and/or the winter of 2009 will score de-identified random applicant samples to determine interrater reliably which will be completed at the CHP in a locked conference room. Verbal comments will be recorded for analysis. The tape will be kept in a locked cabinet in the OT research files. The data will be de-identified by the principal investigator.
I have read and understood the Explanatory Statement regarding the research 09-45-H and hereby give permission for this research to be conducted under the following guidelines:

- You will be unable to leave the building with any identified records or scores.

- The worksheets for the de-identified random applicant samples and data collection sheets must be kept in a locked cabinet in the OT research files for a period of three years.

- The data sets that you will be accessing include: GAP scores and GAP score subsection scores, fieldwork scores, grade point, graduation year, certification pass/fail scores, demographics (excluding identifiers), and score on the California Psychological Inventory 260.

- After the data are collected and analyzed it must be de-identified.

- The 2009 group of students who have applied to the OT program, and are in the process of being interviewed for the OT program will be asked to volunteer to take a subsection of the California Psychological Inventory 260. It is important that they sign the attached consent form with the understanding that their participation or lack of participation will not effect their admission to the OT program.

Yours Sincerely,

Cynthia Grapczynski, EdD, OTR
Associate Professor
Interim Director, Occupational Therapy Program
Grand Valley State University.
Appendix H

Data Scatter Plots
Concurrent Validity Scatter Plot: Leadership score on the GAP and CPI 260 Wellbeing.
Concurrent Validity Scatter Plot: Leadership on the GAP score and CPI 260 Independence.
Concurrent Validity Scatter Plot: Research score on the GAP and CPI 260 Achievement via Conformance.
Predictive validity scatter plot: Age and Total score on the GAP achievement summary.
Predictive validity scatter plot: Age and GAP score on the Research component.
Predictive validity scatter plot: Prerequisite GPA coming into the program and age.
Predictive validity scatter plot: Score on the first level II fieldwork and the GAP score of Professional Socialization (volunteering).
Predictive validity scatter plot: Age and the last 60 hours GPA coming into the OT program.
Predictive validity scatter plot: The last 60 hours prior to starting the OT program and their final GPA at the end of the program.
Appendix I

HRRC and IRB Forms
October 21, 2008

Proposal No.: 09-45-H        Category: Exempt
Approval Date: October 21, 2008
Title: The Reliability and Validity of an Admissions Tool in Predicting Academic and Fieldwork Achievement in Occupational Therapy Students

Dear Professor Biese,

Your proposed research project named above has been reviewed. It has been APPROVED as EXEMPT from the regulations by section 45 CFR 46.101(b)(2) of the Federal Register 46(16):8336, January 26, 1981. Please include your proposal number in all future correspondence. The first principal investigator will be sent all correspondence from the University unless otherwise requested.

Revisions: The HRRC must review and approve any change in protocol procedures involving human subjects, prior to the initiation of the change. To revise an approved protocol, including a protocol that was initially exempt from the federal regulations, send a written request along with both the original and revised protocols including the subject consent form, to the Chair of HRRC. When requesting approval of revisions both the project’s HRRC number and title must be referenced.

Problems/Changes: The HRRC must be informed promptly if either of the following arises during the course of your project. 1) Problems (unexpected side effects, complaints, etc.) involving the subjects. 2) Changes in the research environment or new information that indicates greater risk to the human subjects than existed when the protocol was previously reviewed and approved. 3) Changes in personnel listed on the initial protocol, e.g. principal investigator, co-investigator(s) or secondary personnel.

If I can be of further assistance, please contact me at (616) 331-3417, or via e-mail at reitemep@gvsu.edu. You can also contact the Graduate Assistant in the Research and Development Office at (616) 331-3197.

Sincerely,

Paul J. Reitemeier, Ph.D.
Human Research Review Committee Chair
301C DeVos Center
Grand Rapids, MI 49504
Phone: (616) 331-2281
November 10, 2008

Jeanine Biese

Dear Jeanine Biese:

The Human Subjects Institutional Review Board (IRB) of Eastern Michigan University has granted approval to your proposal, "The Reliability and Validity of an Admissions Tool in Predicting Academic and Fieldwork Achievement in Occupational Therapy Students."

After careful review of your completion application, the IRB determined that the rights and welfare of the individual subjects involved in this research are carefully guarded. Additionally, the methods used to obtain informed consent are appropriate, and the individuals participating in your study are not at risk.

You are reminded of your obligation to advise the IRB of any change in the protocol that might alter your research in any manner that differs from that upon which this approval is based. Approval of this project applies for one year from the date of this letter. If your data collection continues beyond the one-year period, you must apply for a renewal.

On behalf of the Human Subjects Committee, I wish you success in conducting your research.

Sincerely,

Deb de Laski-Smith, Ph.D.
Interim Dean
Graduate School
Administrative Co-Chair
University Human Subjects Review Committee

Note: If project continues beyond the length of one year, please submit a continuation request form by 11/10/08. Because the study involves students at another institution, please send a hardcopy of the approval letter from Grand Valley.

Reference # 081007
Principal Investigator(s): Jeanine Biese

E-mail address: bieseje@gvsu.edu

Address and Telephone
Number of Principal Investigator(s): 301 Michigan NE, Room 216, Grand Rapids, MI 49503
phone: 331-3117

GVSU Department or School: Occupational Therapy Program, College of Health Professions

Title of the Project: The Reliability and Validity of an Admissions Tool in Predicting Academic and Fieldwork Achievement in Occupational Therapy Students

Date(s) and Location(s) of Subject Enrollment:
1. A retrospective chart review of GVSU Occupational Therapy (OT) student records (for the last 10 years) will be completed. This chart review will include the scores on an admission tool the Grapczynski Admissions Profile (GAP) and fieldwork scores to be compiled during the winter of 2009. Pass/fail scores on the OT certification exam and grade point scores from GVSU banner will be compiled at the College of Health Professions (CHP) in a locked room to assist in determining predicative validity.

2. The group of students who have applied to the OT program in the winter of 2009, and are in the process of being interviewed in the winter of 2009 will be asked to voluntarily take the California Psychological Inventory 260 (CPI 260), in a CHP classroom or conference room to assist in determining criterion validity.

3. A group of (3-5) practicing OT GVSU graduates will be asked in the winter of 2009 to rate the tool through an e-mail questionnaire to assist with face validity.

4. A group of (3-5) experts in the field of OT admissions will be asked in the winter of 2009 to rate the tool in regards to content areas by means of an e-mail questionnaire, to assist in determining content validity.

5. Three or more trained OT evaluators in the winter of 2009 will score a specific number (approximately 3-6) de-identified random applicant samples to determine intrarater reliability which will be completed at the CHP. The data will be de-identified by the principal investigator in a locked conference room.

6. OT students in the Fall of 2008 will be asked by letter to be part of the study. Students that agree to participate will mail a copy of their certification score to the principle examiner in a coded envelope. This score will be compared to the GAP score to assist in determining predicative validity.

BRIEF Summary of the Project: Use space provided; "see attached" is not acceptable

The purpose of the study is to determine multiple aspects of validity (i.e. construct, content, face, predictive and convergent criterion), as well as interrater or inter-observer reliability of the GAP. The methodology includes a review of OT student charts, comparison of OT Certification exam passing scores, on-line questionnaires, review of the literature, and volunteer student participation in an evaluation including the CPI 260. Data will be statistically analyzed and correlated to assess the validity and reliability of the GAP tool. Qualitative comments from the questioners will be analyzed for common threads and themes will be reported. It is hoped that this information will assist in the selection of successful students to the GVSU OT program.

In what capacity does this project involve human subject? (E.g., surveys, interviews, clinical trial, use of records, etc.)

Retrospective records of OT student human subjects are reviewed; OT certification exam scores are obtained and correlated from the OT program director (i.e. pass/fail scores) from students that have volunteered to report their scores. Human subjects of experts and OT graduates complete the electronic questionnaire. Human subjects of OT student applicants complete the CPI 260. Human subjects of CHP faculty are trained to score random, de-identified student applicant packets. The principal investigator will de-identify the applicant packets.
Check ONLY one review level request: Refer to instructions on the reverse of this form


Category: __2.4__

___ Expedited review as described in 45 CFR 46.110 of the Code of Federal Regulations

___ Full board review as described in 45 CFR 46.110 of the Code of Federal Regulations

______________________________________________________________________________

Phone: 331_________

Unit Head/Department Chair Signature

(I or my designee) have reviewed the proposed research project and determined that my unit has adequate resources, including faculty staff time & materials, to conduct the research as described. To the best of my knowledge the principle investigator is qualified to conduct the research and the project meets our unit’s standards for scientific merit and validity.

______________________________________________________________________________

Investigators Signatures (must be in ink)

______________________________________________________________________________

Date Signed

331_________

______________________________________________________________________________

Advisor Signature (student research only)

I have reviewed the attached protocol and determined that the investigators named are competent to conduct the study as described. To the best of my knowledge adequate subject protections have been provided.
EASTERN MICHIGAN UNIVERSITY
Graduate School

APPROVAL OF THE DISSERTATION PROPOSAL

Candidate: Jeanine Biese
Date: September 25, 2008

Major: Educational Leadership
Cognate: Interdisciplinary

Dissertation Committee Chair: Dr. Ronald Williamson

TENTATIVE TITLE OF PROPOSED DISSERTATION

The Reliability and Validity of an Admissions Tool in Predicting Academic and First-Year Achievement in Occupational Therapy Students

COMMITTEE REPORT ON DISSERTATION PROPOSAL

After review of the dissertation proposal, the Doctoral Committee certifies that:

☒ The proposal is satisfactory and the candidate may proceed.
☐ The proposed research does not involve the use of human subjects OR
☐ The proposed research involves human subjects and will be sent to University Human Subjects Review Committee prior to data collection.
☐ The proposal is not satisfactory and the following deficiencies must be corrected:

Description of deficiencies

Signed original to Record's student file. Copies to: Graduate School, chair and department/college file

RECEIVED
SEP 30 2008